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TABLE OF CONTENTS

Product Index	3, 4	Video • Audio Section	55-402
Reference Section	5-54	Computer • Presentation • Graphics Section	403-496

MANUFACTURER INDEX

*We published this catalog to give you a complete reference source for information on the newest products.
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Abekas	56-58	Evertz Microsystems Ltd.	132
ADC Telecommunications, Inc.	59	Extron Electronics	437, 438
Adobe Systems Inc.	404	Faroudja Laboratories, Inc.	133
Agfa Corp.	405, 406	Fast Forward Video.	134
AKG Acoustics, Inc.	60	FEC.	135
Aldus Corp.	407	FOR-A Corp. of America	136-139
ALTA Group, Inc.	61	Fostex Corp. of America	140, 141
AMX Corp.	408, 409	Frezzolini Electronics, Inc.	142, 143
Anchor Audio, Inc.	62	Fujinon, Inc.	144, 145
Anton/Bauer, Inc.	63, 64	General Electric Co.	401, 402, 439
Anvil Cases, Inc.	65	General Parametrics Corp.	440
Apollo Audio Visual.	401, 402	Graham-Patten Systems, Inc.	146
Apple Computer, Inc.	410	The Grass Valley Group, Inc.	118-120, 147-165
AST Research, Inc.	411	HEDCO	166, 167
Atlas/Soundolier	66, 67	Hitachi Denshi America, Ltd.	168-171, 441
AT&T Graphics Software Labs	412, 413	Hitachi Sales Corp. of America	442
Audio Technica US, Inc.	68	HM Electronics, Inc.	172
Autodesk, Inc.	414	Howtek, Inc.	443, 444
AVL	415	Icon Electronics Corp.	173
Barco, Inc.	416-418	Ikegami Electronics (USA), Inc.	174-180
BCD Associates, Inc.	419	Image North Technologies	445
Bencher, Inc.	420, 421	In Focus Systems, Inc.	446
Beyer Dynamic, Inc.	69, 70	Inline, Inc.	447, 448
Bogen Photo Corp.	71	ITE	181, 182
Bose Corp.	72	JBL Professional	183-186
Bretford Mfg., Inc.	after page 496	Jovian Logic Corp.	449
Walter S. Brewer Co., Inc.	73, 74	JVC Information Products	
Broadcast Electronics, Inc.	75	Company of America	451
Buhl Optical Co.	76	JVC Professional Products Company	187-195, 450
Calaway Editing	77, 78	Kangaroo Video Products, Inc.	196
Calzone Case Co.	79	K & H Products, Ltd.	268, 269
Canare Cable, Inc.	80	Klark-Teknik Electronics, Inc.	197
Canon U.S.A., Inc.	81, 82, 422, 423	Laird Telemedia, Inc.	198-200
CEL Broadcast.	83, 84	Leader Instruments Corp.	201, 202
Channelmatic, Inc.	85	Lectrosomics, Inc.	203
Channel One Lighting Systems, Inc.	86	Leightronix, Inc.	204
Chief Mfg., Inc.	424	Leitch Video of America, Inc.	205
Christie Electric Corp.	87	Listec Video Corp.	206
Chyron Corp.	88, 89	Lowel-Light Mfg., Inc.	207-210
Cinema Products Corp.	90	LTM Corp. of America.	211, 212
Cine 60, Inc.	91	Lyon Lamb Video Animation	
Clear-Com Intercom Systems	92-94	Systems, Inc.	452, 453
CMX Corp.	95, 96	3M Company	213-215, 454
Colortran, Inc.	97, 98	Macromind	455
Commodore Business Machines, Inc.	425	Magni Systems, Inc.	216, 217
Comprehensive Video Supply Corp.	99-108	Matthey	218
Conrac Display Products Group	109	Maxell Corp. of America	219, 220
Covid, Inc.	426	Microtime, Inc.	221, 222
Crestron Electronics, Inc.	427-430	Microwave Radio Corp.	223
Crown International, Inc.	110-112	Miller Fluid Heads (USA), Inc.	224, 225
CV Technologies	108	Mitsubishi Electronics America, Inc.	456-461
Da-Lite Screen Co., Inc.	431, 432	Nady Systems, Inc.	226, 227
dbx, Inc.	113, 114	NEC Technologies, Inc.	228, 462, 463
Delcom	433	NewTek Inc.	464
Digidesign, Inc.	115	Nikon, Inc.	465
Digital F/X	116	Nova Systems, Inc.	229
Dotronix, Inc.	117	n'View Corp.	466
Draper Shade & Screen Co., Inc.	434	O'Connor Engineering Labs	230, 231
Dubner Computer Systems, Inc.	118-120	Otari Corp.	232
Dynair Electronics, Inc.	121	Paltex Corp.	233
ECHOLab, Inc.	122, 123	Panasonic Communications	
Electrohome Ltd.	124, 435	& Systems Co.	234-260, 467-470
Electro-Voice, Inc.	125-128	Peerless Sales Co.	261
ELMO Mfg. Corp.	129, 436	Pelco	262
Ensemble Designs	130	PESA America, Inc.	263-265
ESE	131	Philips	471
		Pinnacle Systems, Inc.	266, 267
		Pioneer Communications of	
		America, Inc.	472-474
		Polaroid Corp.	475, 476
		Porta-Brace/K & H Products, Ltd.	268, 269
		BPI/Porta-Pattern, Inc.	270
		Prime Image, Inc.	271, 272
		QSI Systems, Inc.	273, 274
		Q-TV	275
		Quanta Corp.	276-278
		RAMSA/Panasonic Communications	
		& Systems Co.	279-282
		RGB Spectrum	477
		Ross Video Ltd.	283
		RTS Systems, Inc.	284-286
		Sachtler Corp. of America	287-289
		Sennheiser Electronic Corp.	290-293
		Sharp Electronics Corp.	294-296, 478
		Shure Brothers, Inc.	297-304
		Sierra Video Systems, Inc.	305, 306
		Sigma Electronics, Inc.	307-309
		Smith-Victor Corp.	310, 311
		Sony Corp. of America	312-340, 479-484
		Sony Magnetic Products Company	341
		Soundcraft USA	342
		Stantron	after page 496
		Star Case Mfg. Co., Inc.	343
		Stewart Filmscreen Corp.	485
		Strand Lighting	344, 345
		Summagraphics Corp.	486
		Sylvania/GTE Products Corp.	401, 402
		Symetrix, Inc.	346, 347
		Tascam/TEAC Corp. of America	348-351
		Tech Electronics, Inc.	352-354
		Technics	355
		Tekskil Industries, Inc.	356
		Tektronix, Inc.	357-361, 487
		Telepak	362, 363
		Telescript, Inc.	364
		Television Laboratories, Inc.	491
		Telex Communications, Inc.	365-369
		Thermodyne International Ltd.	370
		Tiffen Mfg. Corp.	371, 372
		Time Arts, Inc.	488
		TOA Electronics, Inc.	373-375
		TouchVision Systems, Inc.	376
		Trompeter Electronics, Inc.	377
		Truevision, Inc.	489, 490
		Ultimate Corp.	378
		Utah Scientific, Inc.	379, 380
		VanSan Corp.	492
		Vega	383, 384
		Vicon Industries, Inc.	385
		Video Accessory Corp.	381, 382
		VideoLogic, Inc.	493, 494
		Videotek, Inc.	386-392
		Viking Cases	393
		Vinten Broadcast, Inc.	394-396
		Wheelit, Inc.	397, 398
		Wiko Ltd.	401, 402
		The Winsted Corp.	after page 496
		Wireworks Corp.	399
		Yamashita Engineering Mfg., Inc.	495
		Zaxcom Video	400
		Zenographics	496

PRODUCT INDEX

Adaptors, Audio/Video	99, 101	Digital Video Tape Recorders	335
Adaptors, Digital Video	493, 494	Dimmers	345
Adaptors, Video Graphics	217, 490	Disc Cartridges, Blank Optical	470
Adaptors, Video Input	449	Distribution Amplifiers, Audio	103, 138, 154, 167, 251
Amplifiers, Audio	103, 110, 112, 184, 279, 286, 304, 346, 373, 374		286, 304, 307-309, 381, 392
Amplifiers, Video Equalizing	306-308	Distribution Amplifiers, Audio and Video	102, 251, 306, 309, 323, 353
Animation Controllers/Systems	118, 266, 267, 419, 452	Distribution Amplifiers, Computer Signal	426, 447, 448
Antennas, Microwave	223	Distribution Amplifiers, Pulse	121, 306, 307, 309, 381, 392
Audio Cassette Recorders/Players	338, 350, 355	Distribution Amplifiers, Subcarrier	306, 308, 392
Audio Delay Lines	197	Distribution Amplifiers, Video	103, 121, 138, 154, 161-163, 173, 191, 245
Audio Recorders/Reproducers, Open Reel	232, 348		251, 265, 274, 307-309, 381, 382, 392, 495
Audio Tape, Blank	215, 220	Drives, CD ROM	442, 451, 471
Batteries, Belts, Packs, Chargers and Power Supplies	63, 64, 87	Drives, Optical Disc	474
Boards, Video Graphics	91, 142, 143, 333	Drives, Video Floppy Disk	423, 441
	489, 490	Duplicators/Copiers, Audio Tape	368, 369
		Duplicators/Dubbing Systems, Videotape	192, 251
Cabinets, Consoles, Racks and Accessories	135, after page 496	EdIt Controllers	191, 233, 241, 242, 249, 260, 323-325
Cabinets, Stands and Tables, Mobile Equipment	397, 398, after page 496	Editing Systems, Video	77, 78, 95, 96, 151, 336
Cable Testers	101	Editor, Audio Insert	132
Cable, Microphone	80, 399	Effects Systems, Video	57, 58, 61, 83, 124, 137
Cables, Assembled Audio	80, 100		147, 221, 222, 266, 267, 324
Cables, Assembled Computer	426	Electrical Distribution Equipment	73
Cables, Assembled Video/Camera	100	Encoder/Sync Generators	452, 453
Camcorders	175, 176, 187, 188, 239, 322, 330-332, 482	Encoders, Color	133, 138, 160, 173, 308, 495
Cameras, Color CCD	168-170, 174, 177, 178, 187, 188	Equalizers, Audio	72, 114, 183, 197, 346
	234-238, 257, 258, 312-314, 331, 450, 484	Fiber Optic Transmission Systems	164, 165
Cameras, Color CCD Micro	238	Film Footage Encoder	132
Cameras, Monochrome CCD	484	Film Recorders	405, 476
Cameras, Monochrome CCD Micro	238	Filters, Video Effect	371, 372
Cameras, Still Video	422, 468	Frame Store Synchronizers	139, 191, 229, 271, 390, 483
Cartridge Machines	75	Frame/Still Store Systems	56, 83, 118, 120, 222, 272, 483
Carts, Video	268, 397, 398	Generators, Blackburst	273, 307-309, 381, 390
Cases	65, 79, 196, 268, 269, 343, 362, 363, 370, 393	Generators, Character/Graphics	58, 88, 89, 119, 198, 199, 246, 263, 276-278
Centers and Consoles, Video Furniture	after page 496	Generators, Countdown	274
Changeovers, Sync	155, 361	Generators, Message	273
Changers, CD ROM	474	Generators, Safe Area	274, 308
Changers, Videocassette	244	Generators, Special Effects	195, 246, 324
Chase Synchronizers	132	Generators, Sync	155, 156, 160, 173, 307, 308, 361, 381, 390
Clocks, Timers and Counters	131, 205	Generators, Test Signal	156, 160, 217, 273, 307-309, 359, 360, 381, 390
Combiners/Separators, Video Sync	447	Graphics Systems	118, 266, 267
Commercial Insertion Equipment and Systems	85, 352	Graphics Tablets	486
Compact Disc Players	351, 355	Grid Hardware	73, 86
Component Digital Disk Recorder	57	Grip Equipment	73
Compositing/Matting Equipment, Video	378	Headphones/Headsets	69, 94, 292, 366
Compressor/Limiters	113, 114, 183, 197, 346	Heads, Camera	71, 182, 224, 230, 231, 287, 289, 394-396
Computer Furniture	after page 496	Housings/Enclosures/Domes and Accessories, Camera	262
Computers, Personal	410, 411, 425	Identifiers, Video	273
Conference Systems, Audio/Video	264, 326	Intercom Systems	92-94, 264, 284, 285, 367
Connectors, Audio/Video	99, 101	Interface Unit, Machine Control	245
Consoles, Audio Mixing	127, 280, 281, 342	Interfaces, Computer Video	137, 426, 437, 438, 447, 449, 490
Control Systems, Media	408, 409, 427-430	Interfaces, Level/Impedance	103
Controls, CCTV Equipment	262	Interfaces, Serial/Parallel	245
Converter, Improved Definition Video	462	Isolator, Video Line	381
Converters, Format	305	Keyboards, Computer	466
Converters, Scan	453, 477, 495	Keyers, Video	136, 146, 200, 305, 324
Converters, Standards	84	Ladders	73
Copy Outfits/Systems	420, 421	Lamps, Replacement	401, 402
Correctors, Color	138	Laser Barcode System	473
CRT Screen Saver	438	Learning Labs, Computer	354
Cranes, Dollies and Jib Arms	396	Lecterns	492
Cycloramas, Curtains and Tracking Hardware	74, 86	Lens Controls	90
Decoders, Color	133, 138, 160, 173, 308	Lenses, Video Camera	81, 82, 144, 145, 315, 316
Decoders, Sync Video	447	Light Control Media	207
Degaussers/Erasers	368	Lighting Fixtures, Kits and Studio Systems	97, 98, 107, 207-212, 310, 311, 344
Delays/Delay Systems	156, 218, 307-309	Lighting, Portable	97, 142
Demodulators, TV	274	Line Doubler/Bandwidth Expander	133
Detail Processor	133		
Digital Audio Tape Recorders	282, 337, 338, 351, 355		

PRODUCT INDEX

Machine Control Systems/Synchronizers	141, 204, 352, 353, 419, 452
Media Storage	213, 214, after page 496
Message System, All Channel	278
MIDI Synchronizer/Autolocators	141
Microphone Booms, Stands and Accessories	66, 67, 70, 111
Microphones	60, 68, 70, 111, 125, 126, 282, 290, 291, 297-299, 303, 339
Microwave Transmitters and Accessories	223
Mixer/Amplifiers, Audio	373
Mixer/Distribution Amplifier	114
Mixer/Equalizer, Audio	203
Mixers, Audio	103, 106, 138, 146, 153, 194, 280, 281, 304, 338, 349
Mixers, Audio/Video	246
Mixers, Video	83, 103, 136, 138
Monitor/Receivers, Color Video	193, 228, 254, 295, 328, 389
Monitor/Receivers, Step Scan	458
Monitor Speakers	62, 128, 185, 186, 279
Monitor, Information Display	418
Monitors, Audio Program	390
Monitors, Color Improved Definition	327
Monitors, Color Multi-Standard	109, 255, 327
Monitors, Color Multi-Sync/Scan	327, 418, 450, 457-459, 463, 467, 480
Monitors, Color Video	179, 180, 193, 228, 253-255, 260, 265, 327-329, 389
Monitors, Monochrome Video	117, 328, 458
Mounting Brackets, Monitor Wall/Ceiling	261, after page 496
Mounts, Video Projector	424
Multi-Track Recorders	140
Multiplexers, Optical	76
Multiplexers, Video	163
Noise Gates	113, 114, 197, 346
Noise Reduction Systems	114, 346
Paint Systems	118, 120, 266, 267
Pan and Tilt Drives	385
Pan and Tilts, and Controls	262
Panels, LCD	446, 454, 466, 478
Patching Systems	59, 377
Pedestals, Camera Support	230, 287, 395, 396
Preamplifiers, Audio	286, 304, 346
Presentation Playback Systems, Multi-Image	415
Presentation Station	475
Presentation Systems, Video	252, 322, 440, 491
Presentation Systems, Video/Copy Stand	295, 423, 436, 439, 478, 484
Printers, Color	465, 487
Printers, Color Video	294, 423, 441, 460, 461, 468, 478, 482
Printers, Monochrome Video	461
Processors, Audio	114, 346
Processors, Video	103, 137-139, 156, 191, 221, 222, 245, 265, 271, 390, 483
Production Switchers, Video	122, 123, 148-150, 246, 272, 283, 325, 388
Production Systems, Desktop Video	116
Production Systems, Video	56, 61, 136, 152
Programmers/Dissolves, Multi-Image	415
Projection Systems, Computer/Overhead	446, 454, 466, 478
Projection Systems, Video/Graphics	295, 296, 416, 417, 435
Projectors, Overhead	436
Prompting Systems	206, 275, 356, 364
Quad Systems, Color	256
Rain Covers, Camera	268, 362, 363
Raster Image Processors	406
Remote Control, Video Projector	354
Remote Controls, VCR	323
Reverberation Equipment	197
Routing Systems	102, 157-159, 166, 167, 305, 306
	308, 353, 379, 380, 391, 448, 495
Scanners, Color	406, 443, 444, 465, 483
Screens, Projection	431, 432, 434, 485, after page 496
Separator, Y/C	191
Software, Desktop Publishing	407
Software, Digital Audio	115
Software, Graphics	404, 406, 412-414, 443, 455, 488, 496
Software, Production/Editing	104, 105, 108, 123, 376, 445, 464
Sony Camera Accessories	315-317
Sound Systems	62, 72, 492
Source Selectors	382
SPL Computers	346
Speaker Systems	62, 72, 186, 279
Stabilizers, Camera	90
Stands, Video Projector	424
Still Video Capture Board	449, 490
Still Video Systems	422, 423, 441, 468, 482
Switchers, Audio	103, 307
Switchers, Audio and Video	242, 309, 323
Switchers, Audio Follow Video	122, 251, 308, 309
Switchers, Sequential	262
Switchers, Video	121, 132, 245, 307, 309, 391, 448
Switches, Redundancy/Protection	274, 382
Sync Converters	447
Teleconferencing Systems	300-302
Telephone Interfaces	346, 347
Television Receivers, Color	295
Test and Measurement Equipment	156, 160, 173, 201, 202, 216, 217, 265
	273, 307-309, 357-361, 381, 386, 387, 390
Test Chart Systems	270
Time Base Corrector Control Systems	130, 400
Time Base Correctors	137, 139, 191, 221, 222, 229, 245, 271
Time Code Products	102, 131, 134, 141, 191, 338
Transcoders, Component	137, 160, 161, 217, 245, 251, 271
Transfer Units, Slide to Video	76, 129
Tripods and Dollies	71, 107, 181, 224, 225, 230, 231, 287-289, 394-396
Turner Demodulators	390
Turntables	355
Video Recorders/Players, D2	171
Video Recorders/Players, Floppy	423, 441, 468, 482
Video Recorders/Players, Optical Disc	469, 470
Video Tape Recorders/Players, 1"	336
Video Transmission Systems	163
Video Walls	433, 456
Video Windowing Systems	477
Videocassette Recorders/Players, 3/4"	319-321
Videocassette Recorders/Players, 8mm	322
Videocassette Recorders/Players, Beta	318, 330, 334
Videocassette Recorders/Players, Hi8	322
Videocassette Recorders/Players, M-II	259, 260
Videocassette Recorders/Players, Multi-Standard	243, 250
Videocassette Recorders/Players, S-VHS	171, 189, 190, 240
	241, 243, 244, 249, 458
Videocassette Recorders/Players, VHS	190, 228, 244
	247-250, 294, 322, 463
Videodisc Recorders/Players	472, 473, 481
Videotape, Blank	213, 214, 219, 341
Viewfinders	316, 333
Waveform/Vector Monitors	201, 202, 216, 217, 357, 358, 361, 387
Wipe Pattern Extender	324
Wireless Control Systems	409, 429, 430
Wireless Intercom Systems	384
Wireless Microphone Systems	106, 172, 203, 226
	227, 293, 340, 365, 375, 383
Workstation Systems, Video	118, 266, 267

REFERENCE

Section



Reference Section

TABLE OF CONTENTS

Glossary	7-10	Component Analog Waveform Monitoring	29, 30
Specifications—What They Mean	11, 12	Local Area Audio/Video Conferencing and Intercom System.	31
Color Television Systems in Use or Planned	13	Audio Teleconferencing.	32
Videotape Format Comparisons— Professional Market.	14	Fiber Optics in the Broadcast Industry	33-35
Shedding Some Light on HDTV	15	Digital Primer—An Informal Guide to Digital Tape and Compact Disc Technologies	36, 37
D-2 Format.	16, 17	Microphone Types	38-41
The Technology of Betacam SP	18	Causes and Cures of Hum and Noise in Microphone Cable	42
The MII Format.	19	Television and Computer Video	43-45
SP U-Matic Explained	20-22	Computer Video Interfacing and Systems	46-51
The Super VHS System	23	Computer Systems.	52, 53
The Hi8 Video System (NTSC).	24	Synchronizers/Computers	54
Video Editing—What's the Problem?	25		
Editing Techniques	26, 27		
System Timing.	28		

Directory of Reference Articles in Previous Editions

A Brief Guide to Microphones, 1989-90 Catalog	24-28	The NTSC Color Video Signal 1989-90 Catalog.	33, 34
Basic Lighting, 1989-90 Catalog	21-23	1990-91 Catalog.	34, 35
Comparison Chart: Consumer Analog Video, 1989-90 Catalog	14	Principles of Video Recording, 1990-91 Catalog	14, 15
Comparison Chart: Digital Data Recording, 1989-90 Catalog	15	Professional Audio/Videotape Care and Handling, 1990-91 Catalog.	24
Comparison Chart: Professional Analog Video, 1989-90 Catalog	14	Projector Installation Guidebook, 1990-91 Catalog	26-30
Comparison Chart: Professional Digital Video, 1989-90 Catalog	15	Stay True Component All The Way, 1989-90 Catalog	42
D-2 Format Design and Implementation 1989-90 Catalog.	16	Video Waveform Monitoring 1989-90 Catalog	35-41
1990-91 Catalog.	17	1990-91 Catalog	36-42
The Fujinon Guide to Zoom Lenses for 1/2" Format Cameras, 1989-90 Catalog.	13		

GLOSSARY

A/B Roll Editing: This takes selected odd (A-roll) and even (B-roll) shots from two VCRs and puts them on a tape in a third VCR in the proper sequence.

A-B Split Screen: A useful means for comparing two sources simultaneously. Permits a fast visual check of the phase and sync timing between two inputs.

A-To-D Converter: ADC—A device used to convert analog signals to digital signals.

Aberrations: Certain aberrations degrade the image formed by a lens.

Aliasing: Undesirable "beating" effects caused by sampling frequencies being too low to faithfully reproduce image detail. Examples are:

i). Temporal aliasing—e.g. wagon wheel spokes apparently reversing, also movement judder seen in standards converters with insufficient temporal filtering.

ii). Raster scan aliasing—twinkling effects on sharp horizontal lines.

Raster scan aliasing and its horizontal equivalent are often seen in older digital effects devices as detailed images are compressed, due to insufficient filtering. Aliasing is also often used to describe the unpleasant stepped images if unfiltered angled lines are presented upon the raster lines of a TV system.

Analog, Analog Components: Video signals in which a continuously variable voltage or current (rather than a set of numbers) represents the value of a pixel.

Aperture: The opening of a lens which controls the amount of light reaching the surface of the pickup device. The size of the aperture is controlled by the iris adjustment. By increasing the f stop number (f/1.4, f/1.8, f/2.8 etc.) less light is permitted to pass to the pickup device.

Assemble Editing: In assembly editing, you add new material to the end of a previously recorded portion.

Astigmatism: The uneven foreground and background blur that is in the image.

ATV: Advanced TV a proposed future broadcast system.

Automatic Light Control (ALC): The process by which the illumination incident upon the face of the pickup device is automatically adjusted as a function of the brightness of the scene.

Backcoating: A special treatment applied to the backside of magnetic tape to enhance gripping action and improve tape transportation.

Background: Setting behind scene.

Back Light: A fixture that is often not properly applied or overlooked completely. The main function of the back light is to separate the individual subjects from the background and give them depth and dimension.

Backing: The mylar or plastic tape on which the magnetic coating is applied.

Barn Doors: Movable black metal panel attached to the sides of a lighting fixture with which to control the light coverage.

Base and Fill Lights: Base and Fill Lights, commonly referred to as "scoops" provide a soft-edged field of light which is used to provide basic illumination of the subject, to fill in the areas not highlighted by the key light, to illuminate the background and to soften shadowed caused by key lights.

Betacam, Betacam Format: Portable camera/recorder system and related equipment originally developed by Sony; the name may also be used for just the recorder or for the interconnect format; Betacam uses a version of the (Y, R-Y, B-Y) component set.

Betacam SP: A Superior Performance version of Betacam. SP uses metal particle tape and a wider bandwidth recording system. The interconnect standards are the same as Betacam; there is also limited tape interchangeability with standard Betacam.

Black also Color Black, Blackburst: (1) A composite color video signal. This signal has composite sync, reference burst, and a black video signal which is usually at a level of 7.5 IRE (.05V) above the blanking level. (2) Fade-to-Black between scenes.

Black Level: The level of the video signal that corresponds to the maximum limits of the black areas of the picture.

Blanking: also **Composite Blanking:** Related to composite sync, this signal has both horizontal and vertical components and is at its negative level whenever video is to be blanked or turned off.

Blanking Level: Also known as pedestal, it is the level of a video signal which separates the range that contains the picture information from the range that contains the synchronizing information. The level of the front and back porches. Zero IEEE units.

Body Brace: Frame to support a camera.

Bridging: A term indicating that a high impedance video line is paralleled, usually through a switch, to a source of video.

Brightness Ratio: The difference between the brightest and darkest object in a scene. Too extreme a difference can lead to an unacceptable contrast ratio.

Brightness Signal: Same as the luminance signal (Y); the signal which carries information about the amount of light at each point in the image.

C-Mount: A C-Mount is generally the standard mounting means for attaching a lens to a camera. Normally, a C-Mount uses a 1"-32 thread. With a C-Mount, the dimension from the banking shoulder of the lens mounting thread to the image plane of the camera is 0.690 inch regardless of the kind of lens used.

Calendering: A process by which magnetic tape is squeezed between two special rollers under a controlled environment for producing a smooth and glossy tape surface.

Candlepower: The unit measure of an incident light.

CAV: Component Analog Video; component video signals in which an analog voltage or current (rather than a set of numbers) represents the value of the pixel, the same as "analog components".

CGA: Color Graphics Adaptor.

Character Generator: Reproduces recognized font styles from a computer type keyboard—usually provides multiple screen storage and is capable of background colorization from video display.

Chroma: The color information contained in a video signal, consisting of hue (phase angle) and saturation (amplitude) of the color subcarrier.

Chroma Keying: The process of overlaying one video signal over another, the areas of overlay being defined by a specific range of color, or chrominance, one of the signals. For this process to work, the chrominance must have sufficient resolution, or bandwidth. Coded (composite) video systems do not have sufficient bandwidth for acceptable quality chroma keying, hence analog chroma keyers typically use RGB sources.

Chrominance: The color part of a signal, relating to the hue and saturation but not to the brightness or luminance of the signal, e.g. black, gray and white, have no chrominance, but any colored signal has both chrominance and luminance. U,V: Cr,Cb; I,Q: (R-Y), (B-Y) represent the chrominance information of a signal.

See also: YUV and YIQ.

Clipping: The process of shearing off the peaks of either the white or the black excursions of the video signal.

Color Burst: A few (8 to 10) cycles of 3.58MHz color subcarrier which occur during the back porch interval. Color burst amplitude is 40 IEEE units and phase is 180°. The color oscillator of a color television receiver is phase locked to the color burst.

Color Correction: A process in which the coloring in a television image is altered or corrected by electronic means. Care must be taken to insure that the modified video does not exceed the limits of subsequent processing or transmission systems.

Color Phase: The correct timing relationship within a color display—color is considered to be in-phase when the hue is reproduced correctly.

Color Subcarrier: The 3.58MHz signal which carries color information. This signal is superimposed on the luminance level. Amplitude of the color subcarrier represents saturation and phase angle represents hue.

Component: The normal interpretation of a component video signal is one in which the luminance and chrominance are sent as separate components, e.g. Analog components in MII and Betacam VTRs, digital components YCRCB in CCIR rec 601. RGB is, however, also a component signal. Component video signals retain maximum bandwidth, unlike composite systems.

Composite: A composite video signal is one in which the luminance and chrominance information have been combined using one of the coding standards: NTSC, PAL, SECAM, etc.

Composite Sync: A signal consisting of horizontal sync pulses, vertical sync pulses, and equalizing pulses only, with a no-signal reference level.

Composite Video: A mixed signal comprised of the luminance (black and white), chrominance (color), blanking pulses, sync pulses and color burst.

Contrast: The range of light and dark values in a picture or the ratio between the maximum and the minimum brightness values. Low contrast is shown mainly as shades of gray, while high contrast is shown as blacks and whites with very little gray. It is also a TV monitor adjustment which increases or decreases the level of contrast of a televised picture.

Control Track: The portion along the length of a video tape on which sync control information is placed and used to control the playing back of the video signal.

Cross Color: This defect manifests itself as spurious rainbow patterns on highly textured objects like the one found on a striped shirt or tweed jacket. Cross-color defect is attributed to the make-up of the NTSC signal which mixes the high luminance and chrominance information in the same composite baseband spectrum.

Cross Luminance: More generally referred to as "Dot Crawl", this defect appears as a dot pattern crawling up or hanging on the edges of color areas. This is also a result of the NTSC signal structure where the color information leaks into the luminance signal.

GLOSSARY (cont'd)

Cyclorama Lights: Cyclorama lights are designed to create a smooth lighting effect on a backdrop or cyclorama.

D-to-A Converter: DAC—A device used to convert digital signals to analog signals.

Decoder: A device used to recover the component signals from a composite (encoded) source. Decoders are used in displays and in various processing hardware where component signals are required from a composite source, i.e., composite chroma keying of color correction equipment, etc.

Degauss: To demagnetize recording and playback heads, tape.

Delay Line: An artificial or real transmission line or equivalent device designed to delay a wave or signal for a specific length of time.

Demagnetize: To remove magnetism, to erase magnetic tape—also see Degauss.

Demodulator: TV demodulators strip the video and audio signals from the carrier frequency. The composite video and audio can then be used as any other video or audio feed for studio use.

Depth of Field: The front to back zone in a field of view which is in focus in the televised scene. With a greater depth of field, more of the scene, near to far, is in focus.

Digital: Representation of data by discrete characters which can be regenerated easily with a minimum of noise and distortion.

Digital Components: Component signals in which the values for each pixel are represented by a set of numbers.

Dolly: A wheeled platform upon with a tripod is set to move camera toward or away from scene.

Drop-Out: Missing information from magnetic tape caused by dust, lack of oxide, etc.

Dubbing: Transcribing from one recording medium to another.

EBU: European Broadcasting Union.

Edit: To alter originally recorded material to prepare for presentation.

Edit Code: A tape retrieved code added to original recorded material utilizing a time structure—such as SMPTE time code.

EGA: Enhanced Graphics Adaptor.

EIA: Electronic Industries Association (formerly RMA or RETMA). The organization which determines recommended audio and video standards in the U.S.

EIA Sync: RS-170 sync; the standard waveform for broadcast equipment in the United States.

Encoded: The encoded video signal is formed by starting with an RGB signal from the color television camera. This RGB signal is then processed through an I and Q encoder which converts the RGB into a composite NTSC signal. The encoded signal has all of the elements of the composite video signal: sync, burst, chroma, and luminance.

Encoder: A device that superimposes electronic signal information on other electronic signals.

ENG: Electronic News Gathering.

Equalizer: (A) Equipment designed to compensate for loss and delay frequency effects within a system. (B) A component, or circuit, which allows for the adjustment of a signal across a given band.

Field: One-half of a television picture. One complete vertical scan of the picture, containing 262.5 lines. Two fields make up a complete television picture (frame). The lines of Field 1 are vertically interlaced with Field 2 for 525 lines of resolution.

Fill Light: A fill light is used in studio lighting to mask the "mistakes" created by the individual doing the lighting. It is the job of the fill light to cover up and fill the shadow created by the key light.

Film Chain: Projections, multiplexers and a camera, used to transfer film to video.

First Generation: The first time the signal is recorded on tape, that tape is called first generation.

F Number: In lenses with adjustable irises, the maximum iris opening is expressed as a ratio, (focal length of the lens)/(maximum diameter of aperture). This maximum iris will be engraved on the front ring of the lens.

Focal Length: The distance from the center of the lens to a plane at which point a sharp image of an object viewed at an infinite distance from the camera is produced. The focal length determines the size of the image and the angle of the field of view seen by the camera through the lens. That is the distance from the center of the lens to the pickup device.

Format: In recording of video, C, U-Matic, Betacam, M, Betacam SP, M-II, D1, D2, Beta, VHS, Hi8, 8mm and S-VHS are all current formats.

Frame: (A) The total area of the picture which is scanned while the picture signal is not blanked. (B) A complete TV picture consisting of two fields; a total scanning of all 525 lines of the raster area; occurs every $1/30$ of a second. (625 lines, $1/28$ sec. in Europe and many other countries).

Fresnel Lens: A specially constructed lens which produces a soft-edged concentration of light; used as a lens in a spotlight lamp housing.

GBR; GBR Format: The same signals as RGB. The sequence is rearranged to indicate the mechanical sequence of the connectors in the SMPTE standard.

Gamut: The range of voltages allowed for a video signal, or a component of a video signal. Signal voltages outside of the range (i.e., exceeding the gamut) may lead to clipping, crosstalk, or other distortions.

Generations: The number of times a video clip is copied or processed. In analog systems, extensive efforts are made to keep generations to a minimum, since each copy or process adds noise and other artifacts. In digital systems however, this requirement is no longer necessary, since each copy can potentially be perfect. This enables digital systems to work in quite different ways from analogue systems.

Genlock: Genlock is a process of sync generator locking. This is usually performed by introducing a composite video signal from a master source to the subject sync generator. The generator to be locked has circuits to isolate vertical drive, horizontal drive and subcarrier. The process then involves locking the subject sync generator to the master subcarrier, horizontal, and vertical drives so that the result is that both sync generators are running at the same frequency and phase.

Ghost: A shadowy or weak image in the received picture, offset either to the right or to the left of the primary image. It is the result of transmission conditions where secondary signals are created and received earlier or later than the primary signal caused by a reflected RF signal.

Gray Scale: A series of tones which range from true black to true white, it is usually expressed in 10 steps.

Grid: A cross hatch of metal pipes for hanging lights in a studio.

Ground: An electrical connection to the earth, generally through a ground rod. Also a common return to a point of zero potential, such as the metal chassis, a terminal or a ground bus.

HDTV: High Definition Television. The SMPTE in the USA and BTA in Japan have proposed a high definition television product standard:

1125 lines at 60Hz field rate 2:1 interlace
16:9 aspect ratio
30MHz RGB and luminance bandwidth
Tri-level syncs

HGA: Hercules Graphics Adaptor.

Hi8: 8mm professional NTSC recording format.

Horizontal Blanking: The blanking signal that is produced at the end of each scanning line.

Horizontal Drive: or **Horizontal Sync:** This signal is derived by dividing subcarrier by 227.5 and then doing some pulse shaping. The signal is used by monitors and cameras to determine the start of each horizontal line.

Horizontal Resolution: Smallest increment of a television picture that can be discerned in the horizontal plane. This increment is dependent upon the video bandwidth and is measured in frequency.

Hue: (A) Distinction between colors. Red, blue, green, yellow, etc. are hues. White, black, and gray are not considered hues. (B) The dimension of color that is referred to a scale of perceptions ranging from red through yellow, green, blue back to red.

IEEE: Institute of Electrical and Electronic Engineers.

IEEE Scale: A waveform monitor scale with the IEEE standards and the recommendations of the TV Broadcasters and Manufacturers for coordination of Video Levels.

Iris: The amount of light transmitted through a lens is controlled by an adjustable diaphragm, or iris, located in the lens barrel. The opening is referred to as the aperture, and the size of the aperture is controlled by rotating the aperture control ring on the lens barrel. The graduations on the lens barrel are expressed in terms of the focal length f of the lens divided by the diameter of the aperture at that setting. This ratio is called the f -number.

Interface: (A) To connect two or more components to each other so that the signal from one is supplied to the other(s). Feeding a signal between units that run on different standards. (B) The place where two systems or a major and a minor system meet and interact with each other.

Jitter: Small and rapid variations in a waveform due to mechanical disturbances, changes in the characteristics of components, supply voltages, imperfect synchronizing signals, circuits, etc.

Kelvin: Also expressed as Kelvins or K, the unit of measurement of the temperature of light. In color recording, light temperature affects the color values of the lights and the scene that they illuminate.

GLOSSARY (cont'd)

Keying: The process of replacing part of one television image with video from another image, i.e., chroma keying and insert keying.

Key and Back Lights: Key and Back Lights provide the main source of illumination on the subject from the front, side and rear. The most important lighting fixtures in the studio, they must provide maximum variety in beam shape and size and be easily adjusted to meet different lighting requirements.

Legal Signal: A video signal in which each component remains within the limits specified for the video signal format (i.e., does not exceed the specified gamut for the current format).

Looping: A term indicating that a high impedance device has been permanently connected in parallel to a video source.

LTC (Longitudinal Time Code): This is another expression for the SMPTE time code signal recorded onto the third audio track of a videocassette tape.

Lumen: A measurement of light quantity, taken at the source of light against a predetermined constant. Lumens per square foot equals footcandles.

Lux: A unit of measuring the intensity of light. (1 FC-10.76 lux).

M, M Format: Portable camera/recorder system developed by Panasonic; also used for just the recorder or the interconnect format. "M" actually refers to the manner in which the video tape is wrapped around the head drum. M format systems employ the (Y, I, Q) component set.

MII (M2), MII Format: Second generation camera/recorder system developed by Panasonic; also used for just the recorder or the interconnect format. MII uses a version of the (Y, R-Y, B-Y) component set.

MAC: Multiplexed Analog Components; a system in which the components are time multiplexed into one channel using time domain techniques, i.e., the components are kept separate by being sent at different times through the same channel. There are many different MAC formats and standards.

Matte: A film term sometimes used in video production work to denote a keyed effect, an insert of video signal information keyed from one source into a second video signal.

Metal Tape: Tape using iron in its pure metallic form, instead of as an oxide, and offering excellent frequency response and wide dynamic range.

Minicam: Describes lightweight often self-contained portable ENG type cameras. Also Microcam, camcorder.

Moire: (A) A wavy or satiny effect produced by the convergence of lines. It usually appears as a curving of the lines in the horizontal wedges of a test pattern. It is a natural optical effect when converging lines in a television picture are nearly parallel to the scanning lines. (B) Optical disturbance caused by interference of similar frequencies.

Monitor: (A) A television that receives its signal directly from a VCR, camera, or separate TV tuner for high quality picture reproduction. Does not contain a channel selector. (B) A special type of television receiver designed for use with closed circuit TV equipment.

Monitor/Receiver: A combination of monitor and TV receiver capable of accepting composite video signals directly from VCRs, cameras, or those video signals broadcast as RF; also capable of producing a demodulated video signal output from a off-air input signal.

Monochrome Signal: A "single color" video signal; usually a black and white signal or, sometimes, the luminance portion of a composite or component color signal.

Multiplexer: An optical system allowing a number of film and slide projectors to feed video information into the same video camera.

Neutral Colors: The range of gray levels, from black to white, but without color. For neutral areas in the image the RGB signals will all be equal, in color difference formats the color difference signals will be zero.

NTSC: National Television System Committee: The organization which formulated the "NTSC" system; Usually taken to mean the NTSC color television system itself, or its interconnect standards

NTSC Color Bars: A pattern generated by the NTSC Generator, consisting of eight equal width color bars. Colors are white (75%), black (7.5% set-up level), 75% saturated pure colors red, green, and blue, and 75% saturated hues of yellow, cyan, and magenta. (Mixtures of two colors in 1:1 ratio without third color).

Overscan: TV picture beyond area of normal screen size.

Paint Pots: Controls on a colorizer for mixing colors electronically — reostals.

PAL: Phase Alternate Line; a composite color standard used in many parts of the world. The phase alternation makes the signal relatively immune to certain distortions (compared to NTSC).

PGA: Professional Graphics Adaptor.

Pixel: Picture Element or Pix Element; related to a particular image address in digital systems or to the smallest reproducible element in analog systems.

Primary Colors: Colors, usually three, which are combined to produce the full range of other colors within the limits of a system. All non-primary colors are mixtures of two or more of the primary colors. In television, the primary colors are specific sets of red, green and blue.

Pulse: A current or voltage which changes abruptly from one value to another and back to the original value in a finite length of time. Used to describe one particular variation in a series of wave motions.

Pulse Distribution Amplifier: An amplifier designed to boost the strength of the sync as well as other control signals to the proper level for distribution to a number of cameras, special effects generators, and terminal equipment.

Raster: The rectangular pattern of scanning lines upon which the picture is produced. The illuminated face of the TV monitor without the video information present.

Readout: A visual display of stored information.

Reflected Light: The scene brightness or the light being reflected from a scene. Usually it represents 5 to 95 percent of the incident light, and it is expressed in footlamberts.

Registration: An adjustment associated with color sets and projection TVs to ensure that the electron beams the three primary colors of the phosphor screen are hitting the proper color dots/stripes; also, a similar adjustment of the tubes in color cameras.

Resolution: (A) A measure of the ability of a camera or television system to reproduce detail. That is the number of picture elements that can be reproduced with good definition, it is a factor of the pickup device or the TV CRT characteristics and the video signal bandwidth. (B) Generally called horizontal resolution. It can be evaluated by establishing the limit to which lines can be distinguished on a test pattern. A larger resolution value means a broader frequency band of the video signal. (C) A measure of the greatest amount of detail that can be seen, or resolved, in an image. Often incorrectly expressed as a number of pixels on a given line. More correct is the bandwidth.

RGB, RGB Format, RGB System: Red, Green, and Blue: The basic parallel component set, in which a signal is used for each primary color; or the related equipment or interconnect formats or standards. The same signals may also be called "GBR" as a reminder of the mechanical sequence of connections in the SMPTE interconnect standard.

Rise Time: The time taken for a signal to make a transition from one state to another; usually measured between the 10% and 90% completion points of the transition. Shorter, or "faster" risetimes require more bandwidth in a transmission channel.

RS-170A: EIA technical standard NTSC color TV.

Safe Title Area: 80 percent of the TV screen, from the center of the screen; that area of the display screen (and therefore of the camera scanning area) which will reproduce legible title credits no matter how it is adjusted.

Scanning: The rapid movement of the electron beam in a pickup device of a camera or in the CRT of a television receiver. It is formatted in a line-for-line manner across the photo sensitive surface which produces or reproduces the video picture. When referred to a video surveillance field, it is the panning or the horizontal camera motion.

Scoop: A large bowl-shaped unit—often made of aluminum—into which a lighting unit is placed so that it will reflect light over a wide area.

SEG (Special Effect Generator): The SEG is used in multi-camera production and editing to change from one camera (or VCR) signal to another. Many different changes or "wipes" are possible. For this to work properly, all connected equipment must be driven by the same sync signal (often provided by a sync generator built into the SEG itself).

Signal-to-Noise Ratio—S/N: An S/N ratio can be given for the luminance signal, chrominance signal, and audio signal. The S/N ratio is the ratio of noise to actual total signal, and it shows how much higher the signal level is than the level of noise. It is expressed in decibels (dB), and the bigger the value is, the more crisp and clear the picture and sound will be during playback.

S-MAC: A MAC standard proposed for studio intraconnection by the SMPTE working group on Component Analog Video Standards: The S-MAC system uses time compression and time domain multiplexing techniques to convey Y, C_r, C_b video signals (a version of Y, R-Y, B-Y).

SMPTE: Society of Motion Picture and Television Engineers.

SMPTE Format, SMPTE Standard: In component television these terms refer to the SMPTE standards for parallel analog component video interconnection. The SMPTE has standardized both RGB and Y, P_r, P_b color difference systems (a version of Y, B-Y, R-Y).

Snow: (A) Random noise on the display screen, often resulting from dirty heads. (B) TV signal breakup caused by weak video reception.

Split Screen: A special effect utilizing two or more cameras so that two or more scenes are visible simultaneously on each part of the screen.

Staircase: A pattern generated by the NTSC generator, consisting of equal width luminance steps of 0, +20, +40, +60, +80, and +100 IIEEE units and a constant amplitude chroma signal at color burst phase. Chroma amplitude is selectable at 20 IIEEE units (low stairs) or 40 IIEEE units (high stairs). The staircase pattern is useful for checking linearity of luminance and chroma gain, differential gain, and differential phase.

GLOSSARY (cont'd)

Standard, Interconnect Standard: The specific signal configuration, reference pulses, voltage levels, etc. which describe the input/output requirements for a particular type of equipment. Some standards have been established by professional groups or government bodies (such as SMPTE or EBU). Others are determined by equipment vendors and/or users.

Stripe Filter: A chrominance tube system in which the target area of the tube is divided into sequential stripes for RBG and Y, and can therefore derive a color signal by using only one pickup tube.

Subcarrier: Also SC, 3.58, 3.58CW—This is the basic signal in all NTSC sync signals. It is a continuous sine wave, usually generated and distributed at 2 volts in amplitude, and having a frequency of 3.579545MHz. Subcarrier is usually divided down from a primary crystal running at 14.318180MHz, and that divided by 4 is 3.579545. All other synchronizing signals are directly divided down from subcarrier.

Subcarrier Phase Shifter: Special circuitry designed to control the phase relationships of the two portions of the encoded color signal so that they maintain their correct relationship during recording, transmission and reproduction.

Sun Shade: A metal cylinder attached to the end of a lens to keep light from entering the lens from the periphery of the angle of view.

Switcher: Term often used to describe a special effects generator; a unit which allows the operator to switch between video camera signals. Switchers are often used in industrial applications to switch between video cameras monitoring certain areas for display on one monitor; these kinds of switchers do not have sync generators.

Sync: Also Composite Sync—This signal is derived from a composite or combination of horizontal and vertical drives, with some slightly narrowed and delayed pulses as well as the addition of equalizing pulses. It is one of the more popular signals used in video systems today, and when used, is usually accompanied by subcarrier.

Tape: A medium capable of storing an electronic signal and consisting of backing, binder, and iron oxide coating. The orientation of the iron oxide determines whether the tape can be used for helical scan video recording.

TBC (Time Base Corrector): This piece of equipment corrects the timing irregularities that occur during VCR playback. Time base correction is not necessary for direct playback from a VCR to a TV set.

Teleprompter: The trade name of a prompting device used on TV.

Test Pattern: Optical guide for TV camera reference alignment.

Time Base Stability: The maintenance of the scanning process to very close tolerances.

Time Code Editing: By recording a sequential time code along with the video and audio material, you can obtain a more precise reference for editing. Each frame has its own number or code which tells the time in hours, minutes, and seconds, and includes a frame number. The world standard code is called SMPTE (Society of Motion Picture and Television Engineers) and has also been adopted by the IEC (International Electrotechnical Commission). Time codes permit very fast and accurate editing. Automatic editing is possible under computer control.

Title Generator: Commonly a black and white camera is used to shoot titles which are electronically superimposed on the video picture while shooting or during editing. Title color can be selected and changed independently. More sophisticated equipment generates characters directly.

Tracking: The angle and speed at which the tape passes the video heads.

Transcoder: A device used to convert from one component set to another, e.g., to convert (Y, R-Y, B-Y) signals to (RGB) signals.

Triaxial: This is a connector comprised of three concentric conductors, an inner conductor, intermediate conductor and outer conductor, separated by dielectrics.

Tripod: A three-legged stand on top of which a camera is mounted.

Tripod Head: The top portion of a tripod where its legs meet and the camera is mounted; friction or fluid-head tripod designs are available.

Twinax: This is a connector which has two insulated inner contacts (male and female) surrounded by a common ground.

Underscan: Decreases raster size H and V so that all four edges of the picture are visible on the monitor. Allows viewing of skew and tracking which would not be visible in normal (overscanned) mode. Also helpful when aligning test charts to be certain they touch all four corners of the raster. Likewise, when checking the alignment of multiplexer images from a film chain, underscan allows proper framing of the projected image going into the video camera.

Valid Signal: A video signal which will remain legal when transcoded to any other format. A valid signal is always legal, but a legal signal is not necessarily valid. Signals which are not valid will be processed without problems in their current format, but problems may be encountered if the signal is transcoded to a new format.

VCR: Video Cassette Recorder.

Vertical Retrace: The return of the electron beam to the top of a television picture tube screen or a camera pickup device target at the completion of the field scan.

Vertical Sync Pulse: A portion of the vertical blanking interval which is made up of blanking level and six pulses (92% duty cycle at -40 IEEE units) at twice the horizontal sync pulse repetition rate. Synchronizes vertical scan of television receiver to composite video signal. Starts each frame at same vertical position (sequential fields are offset 1/2 line to achieve interlaced scan).

VGA: Video Graphics Array.

Video: Pertaining to picture signals in a television system.

Video Distribution Amplifier: A special amplifier for strengthening the video signal so that it can be supplied to a number of video monitors at the same time.

Video Tape Recorder: VTR; an electro-mechanical device capable of recording, storing, and reproducing an electronic signal which contains audio, video, and control information.

Video Waveform: The pictorial display on a special oscilloscope of the various components of the video signal, used to check the integrity of the signal and signal components.

Vectorscope: Round (green) oscilloscope to align amplitude and phase of the 3 TV color signals (RGB).

Videocassette: A self-contained video module played on a specially designed video tape recorder; similar in design to an audio cassette; houses two reels—supply and take-up with the tape running between them but connected to both.

VITC: (Vertical Interval Time Code): This is the same information as the SMPTE time code. It is superimposed onto the vertical blanking interval, so that the correct time code can be read even when a helical scanning VCR is in the Pause or Slow mode.

VTR: Video Tape Recorder. The term "VTR" includes reel-to-reel and cassette type.

Waveform Monitor: Oscilloscope used to display the video waveform.

White Level Set: White set; a camera control which establishes the luminance level for a color camera.

Wipe: Term used to describe the SEG effect of replacing a portion of video signal A with video signal B; also to erase a tape.

Y, C1, C2: A generalized set of CAV signals: Y is the luminance signal, C1 is the 1st color difference signal and C2 is the 2nd color difference signal.

Y, I, Q: The set of CAV signals specified for the NTSC system: Y is the luminance signal, I is the 1st color difference signal and Q is the 2nd color difference signal.

Y, P_s, P_r: A version of Y, R-Y, B-Y specified for the SMPTE analog component standard.

Y, R-Y, B-Y: The general set of CAV signals used in the PAL system as well as for some encoder and most decoder applications in NTSC systems; Y is the luminance signal, R-Y is the 1st color difference signal and B-Y is the 2nd color difference signal.

Y, U, V: Luminance and color difference components for PAL systems; Y, B-Y, R-Y with new names; the derivation from RGB is identical.

Zoom: A zoom lens is unique because its focal length can be changed while the object being viewed remains in focus. Thus, a zoom lens can bring distant objects into clear view as a telephoto lens, but can also view a scene as a wide angle lens.

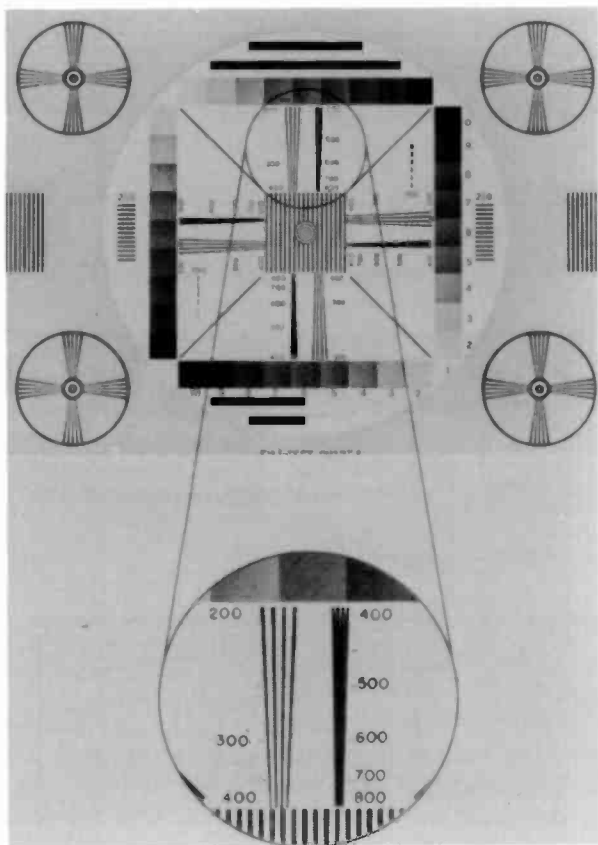
Zoom Ratio: A mathematical expression of the two extremes of focal length available on a particular zoom lens.

SPECIFICATIONS — WHAT THEY MEAN

Courtesy of: Panasonic Communications & Systems Co.

Resolution

It is a measure that shows to what extent details can be distinguished on the TV screen and it is generally called horizontal resolution. It can be evaluated by establishing the limit to which lines can be distinguished on a test pattern. A larger resolution value means a broader frequency band of the video signal.

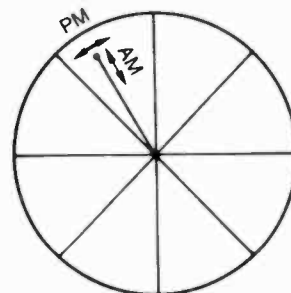


The resolution represents the maximum number of lines that can be seen to be clearly separated with the naked eye. For example in this case, as the lines can be seen to be clearly separated below the division 4, the horizontal resolution is more than 400 lines.

Signal-to-Noise Ratio—S/N

An S/N ratio can be given for the luminance signal, chrominance signal, and audio signal. The S/N ratio is the ratio of noise to actual total signal, and it shows how much higher the signal level is than the level of noise. It is expressed in decibels (dB), and the bigger the value is, the more crisp and clear the picture and sound will be during playback.

The chrominance signal-to-noise ratio can be divided further into Amplitude Modulation (AM) and Phase Modulation (PM). AM shows the S/N ratio for the color saturation and PM shows the S/N ratio for the hue. AM and PM can be measured using a vectorscope (see illustration). AM is shown by the distance of movement of an indicator dot/line between the center and circumference of the vectorscope screen. PM is shown by the movement of the dot/line parallel to the circumference. In general, the smaller and clearer the dot/line of the vector is, the better the chrominance signal-to-noise ratio.



The smaller and clearer this dot is, the better the chrominance signal-to-noise ratio is.

VECTORSCOPE DISPLAY

Y/C Delay

TV pictures can be roughly divided into two signals: the luminance signal (Y) and the chrominance signal (C). When recording or playing back pictures, VCRs separate these two signals, process them in different circuits and then combine them again. When mixing these two signals, it is necessary to adjust the timing because the Y signal and the C signal are processed at different speeds. Lag of this timing is called Y/C Delay and expressed in n sec. The smaller the Y/C Delay value is, the smaller the timing lag is and the clearer a picture can be obtained.

Specifications

Video Performance (measured by R/P heads)

Component

Band width:

Luminance; 30 Hz–4.5 MHz +0.5/–3.0 dB

Chrominance;

P_B 30 Hz–1.5 MHz +0.5/–3.0 dB

P_R 30 Hz–1.5 MHz +0.5/–3.0 dB

**50% Amplitude at 50% APL.

S/N Ratio:

Luminance; 49 dB

**Peak-to-peak video to RMS noise, Interchange, unweighed (Video S/N ratio at 50% gray level, Rohde and Schwarz Noise Meter unweighed with bandpass filter, 200 kHz–4.2 MHz).

Chrominance; AM 50 dB
PM 50 dB

**Peak-to-peak color subcarrier to RMS noise of the side bands, component in-composite out

$$\text{AM Noise dB (AM) } 20 \log \frac{V_{REF}}{\sqrt{(+0.5 V_{sub})^2 + (+0.5 V_{sub})^2}}$$

$$\text{PM Noise dB (PM) } 20 \log \frac{V_{REF}}{\sqrt{(+0.5 V_{sub})^2 + (-0.5 V_{sub})^2}}$$

V_{REF} = Red Bar

DG: Less than 2%

DP: Less than 2°

K Factor: Less than 2%

Y/C Delay: Less than 20ns

LF Linearity: Less than 2%

Composite

Band width:

Luminance; 30 Hz–4.5 MHz +1.0/–3.0 dB

Chrominance;

P_B 30 Hz–0.5 MHz +0.5/–3.0 dB

P_R 30 Hz–0.5 MHz +0.5/–3.0 dB

Differential Gain (DG) and Differential Phase (DP)

Both DG and DP show characteristics of distortion of the chrominance signal. They show in a numerical value, to what degree the chrominance signal is distorted in the amplitude direction (DG) and in the phase direction (DP) between the beginning and end of one horizontal scanning line. DG is expressed as a percentage (%) and DP is expressed in degree (°). The smaller the value is, the smaller the distortion is.

K Factor

This shows the fidelity with which an original wave form can be reproduced, and it is expressed as a percentage (%). For example, in the case of the picture shown in Fig. ©, the signal is as shown in Fig. Ⓓ and frequency is very high for the white part. In this case, if

the K Factor is bad, only the lower frequency range can be reproduced as shown in Fig. Ⓔ and as a result, the white that is reproduced tends toward black, i.e. it is grayish. The closer the K Factor is to 0%, the better the fidelity is.

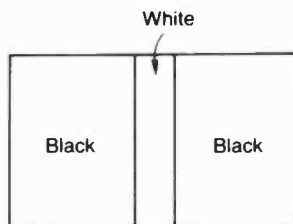


Fig. ©

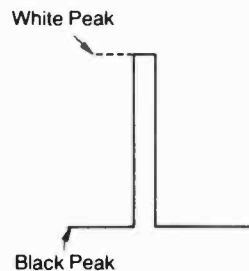


Fig. Ⓓ

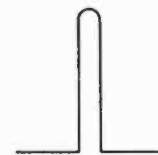


Fig. Ⓔ

COLOR TELEVISION SYSTEMS IN USE OR PLANNED

NTSC

Stands for National Television System Committee. This committee standardized the NTSC color broadcasting system which is used today in the USA, Japan and elsewhere. When color broadcasting first became a commercial possibility, the NTSC system was developed to ensure that such color broadcasts could still be picked up on the black and white TV sets in use at the time.

PAL

Stands for Phase Alternation by Line. By reversing the relative phase of the color signal components on alternate scanning lines, this system avoids the color distortion that appears in NTSC reception. Otherwise, PAL closely resembles NTSC. This system is used in West Germany, Holland, Great Britain, Switzerland and other European nations. PAL TV sets cost a bit more than NTSC because of the need for a 1H (one line period) delay line.

SECAM

Abbreviation for Séquential Couleur à Mémoire, the line-sequential color system used in France, some Middle Eastern countries and Eastern Europe, including the Soviet Union. Here, the color information is transmitted sequentially (R-Y followed by B-Y, etc.) for each line and conveyed by a frequency modulated subcarrier that avoids the distortion arising during NTSC transmission. However, SECAM is not fully black and white compatible and requires a 1H delay line as in PAL reception.

COUNTRY	COLOR SYSTEM	COUNTRY	COLOR SYSTEM	COUNTRY	COLOR SYSTEM
Afghanistan	PAL	Gibraltar	PAL	Pakistan	PAL
Albania	SECAM	Greece	SECAM	Panama	NTSC
Algeria	PAL	Guadeloupe	SECAM	Paraguay	PAL
Angola	PAL	Guatemala	NTSC	Peru	NTSC
Antigua	NTSC	Guinea	PAL	Philippines	NTSC
Arab Republic of Egypt	SECAM	Haiti	SECAM	Poland	SECAM
Argentina	PAL	Honduras	NTSC	Portugal	PAL
Australia	PAL	Hong Kong	PAL	Qatar	PAL
Austria	PAL	Hungary	SECAM	Reunion	SECAM
Bahamas	NTSC	Iceland	PAL	Romania	PAL
Bahrain	PAL	India	PAL	St. Kitts	NTSC
Bangladesh	PAL	Indonesia	PAL	St. Pierre & Miquelon	SECAM
Barbados	NTSC	Iran	SECAM	St. Vincent & The Grenadines	NTSC
Belgium	PAL	Iraq	SECAM	Samoa (American)	NTSC
Belize	N. A.	Ireland	PAL	Saudi Arabia	SECAM & PAL
Benin	SECAM	Israel	PAL	Senegal	SECAM
Bermuda	NTSC	Italy	PAL	Seychelles	PAL
Bolivia	NTSC	Ivory Coast	SECAM	Sierra Leone	PAL
Bophuthatswana	PAL	Jamaica	NTSC	Singapore	PAL
Brazil	PAL	Japan	NTSC	Somali Democratic Republic	PAL
British Virgin Islands	NTSC	Jordan	PAL	South Africa	PAL
Brunei Darussalam	PAL	Kampuchea	N. A.	South-West Africa	PAL
Bulgaria	SECAM	Kenya	PAL	Spain	PAL
Burkina Faso	SECAM	Korea	NTSC	Sri Lanka	PAL
Burundi	SECAM	People's Democratic Republic of Korea	N. A.	Sudan	PAL
Cameroon	PAL	Kuwait	PAL	Surinam	NTSC
Canada	NTSC	Lebanon	SECAM	Swaziland	PAL
Central African Republic	SECAM	Liberia	PAL	Sweden	PAL
Chad	SECAM	Libyan Arab Republic	SECAM	Switzerland	PAL
Chile	NTSC	Luxembourg	SECAM & PAL	Syria	SECAM
China	PAL	Macau	PAL	Tanzania	PAL
Taiwan Province	NTSC	Madagascar	SECAM	Thailand	PAL
Colombia	NTSC	Malaysia	PAL	Tago	SECAM
Republic of the Congo	SECAM	Maldives	PAL	Trinidad & Tobago	NTSC
Costa Rica	NTSC	Malta	PAL	Tunisia	SECAM & PAL
Cuba	NTSC	Martinique	SECAM	Turkey	PAL
Cyprus	SECAM	Mauritius	SECAM	Uganda	PAL
Czechoslovakia	SECAM III	Mexico	NTSC	Union of Myanmar	NTSC
Denmark	PAL	Monaco	SECAM & PAL	United Arab Emirates	PAL
Djibouti	SECAM	Mongolia	SECAM	United Kingdom	PAL
Dominican Republic	NTSC	Morocco	SECAM	United States	NTSC
Ecuador	NTSC	Mozambique	PAL	Uruguay	PAL
El Salvador	NTSC	Nepal	PAL	USSR	SECAM
Equatorial Guinea	N. A.	Netherlands	PAL	Venezuela	NTSC
Ethiopia	PAL	Netherlands Antilles	NTSC	Vietnam	N. A.
Finland	PAL	New Caledonia	SECAM	Yemen Arab Republic	PAL
France	SECAM	New Zealand	PAL	Yemen (People's Democratic Republic)	N. A.
French Guiana	SECAM	Nicaragua	NTSC	Yugoslavia	PAL
French Polynesia	SECAM	Niger	SECAM	Zaire Republic	SECAM
Gabon	SECAM	Nigeria	PAL	Zambia	PAL
Germany, Federal Republic	PAL	Norway	PAL	Zimbabwe	PAL
Ghana	PAL	Oman	PAL		

VIDEOTAPE FORMAT COMPARISONS — PROFESSIONAL MARKET

Courtesy of: 3M Company © 3M Company

Videotape Format	Type of Recording ^{1,2,3}	Record Time (Minutes)		Magnetic Media Type ⁴	Tape Width	Audio Tracks		Tape Hc (Oe)	Carrier Type
		Studio	Portable			Linear	FM		
8mm Standard	Color Subcarrier Analog	120 ⁵	120 ⁵	MP	8mm	0	1 ⁶	1500	Cassette
Hi8	Color Subcarrier Analog	120 ⁵	120 ⁵	MP/ME	8mm	0	1 ⁶	1500/1000	Cassette
Beta	Color Subcarrier Analog	90 ⁵	90 ⁵	Oxide	1/2"	2	2	700	Cassette
VHS	Color Subcarrier Analog	150 ⁵	150 ⁵	Oxide	1/2"	2	2	700	Cassette
VHS-C	Color Subcarrier Analog	N/A	20 ⁵	Oxide	1/2"	2	0	700	Cassette
S-VHS	Color Subcarrier Analog	120 ⁵	120 ⁵	Oxide	1/2"	2	2	900	Cassette
S-VHS-C	Color Subcarrier Analog	30 ⁵	30 ⁵	Oxide	1/2"	2	2	900	Cassette
U-Matic	Color Subcarrier Analog	75	30	Oxide	3/4"	2	0	700	Cassette
U-Matic SP	Color Subcarrier Analog	60	20	Oxide	3/4"	2	0	740	Cassette
Betacam™	Component Analog	30	30	Oxide	1/2"	2	0	740	Cassette
Betacam™ SP	Component Analog	90	30	MP	1/2"	2	2	1500	Cassette
M Format	Component Analog	20	20	Oxide	1/2"	2	0	720	Cassette
M-II Format	Component Analog	90	90	MP	1/2"	2	2	1500	Cassette
1/2" Composite Digital	Composite Digital	90	30	MP	1/2"	0	4 ⁶	1500	Cassette
Type C	Composite Analog	180	60	Oxide	1"	3	0 ⁶	710	Reel
Type B	Composite Analog	180	60	Oxide	1"	3	0	710	Reel
Quad	Composite Analog	90	20	Oxide	2"	2	0	320	Reel
Quad Cartridge	Composite Analog	5	N/A	Oxide	2"	2	0	320	Cartridge
1" HDTV Analog	Composite Analog	60	N/A	Oxide	1"	4	0 ⁶	740	Reel
1" HDTV Digital	Composite Digital	60	N/A	MP	1"	0	4 ⁶	1500	Reel
D1 Digital (4.2:2)	Component Digital	90	N/A	Oxide	19mm	1	4 ⁶	850	Cassette
D2 Digital (4fsc)	Component Digital	220	N/A	MP	19mm	1	4 ⁶	1500	Cassette

Notes

- 1 "Color Subcarrier" means color recorded on an AM subcarrier
- 2 "Component" means recording has separate video tracks for color and monochrome
- 3 "Composite" means recording has one track for both monochrome/color signals
- 4 "MP" means Metal Particle — "ME" means Metal Evaporated
- 5 Playing time is longer on consumer multispeed VCRs
- 6 Denotes PCM Digital capability available on some models

SHEDDING SOME LIGHT ON HDTV

The current HDTV production standard that has been approved by ANSI* was developed over a five year period by the SMPTE*, which is the standards making organization for film and television engineering in North America. This standard was reviewed and recommended by the ATSC*, an American private sector organization to the U.S. State Department. Over 267 U.S. and Canadian engineers participated in the process.

Many changes were made from the original research that was done by NHK in Japan. The original NHK proposal was called 1125/59.94. Such a standard would have been much more saleable to U.S. broadcasters. However, U.S. engineers recommend 1125/60 as a more attractive standard for possible worldwide acceptance.

There is a desire among world broadcasters for a single standard, and as long as that desire exists, so does the possibility for one standard.

1125/60 is still the best standard for the U.S. by virtue of the transcodability of this standard and its easy conversion to film. The 1125/60 system represents a major step forward beyond the capabilities of conventional television technology. It has more than twice the number of lines and carries five times the amount of pictorial information of existing broadcasting systems to provide images of amazing resolution and clarity. Wide-screen images are also available—about 16:9 instead of the conventional 4:3 ratio—adding up to a vision medium of incredible immediacy. To obtain a sense of realism when viewing a television screen, it is necessary to maintain a wide (30°) field of vision. This requires a close viewing distance equivalent to three times the height of the screen. HDTV can be viewed from this proximity without the viewer becoming aware of the grain of the image. With conventional television systems, the image begins to appear grainy at distances closer than seven times the height of the screen.

An article in American Film quotes the president of BASELINE, an online information service for the entertainment industries, "Although there are several competing standards, I've seen the Sony 1125-line HDTV image and I'm here to tell you that this is really something special. What Cinerama pretended to be, HDTV is. Although the resolution is more than twice the current American standard, the psychological effect is nothing less than breathtaking. If you're nearsighted, take your glasses off. That's the American television standard today. Now put them on. That's HDTV."

He goes on to describe the fact that detail now counts for more than atmosphere within a picture frame: "You realize that the reason for the classic

close-up and the two-shots during the last 90 years of film history is that that's all anyone could effectively show. Now you can see the forest as well as the trees. Indeed, you can see the leaves on the trees."

From the very beginning the world engineering community agreed that production, transmission and display were separate issues. Establishment of an HDTV production standard has very little to do with how signals are sent or how pictures are displayed.

In December 1989, the first national HDTV produced sporting event (Leonard vs. Duran) was broadcast from Las Vegas, via satellite. The transmission used two currently available HDTV broadcast formats, the MUSE* system developed by NHK and HDB-MAC* developed by Scientific Atlanta.

The signal was uplinked to a Hughes Communications Satellite and then downlinked to Southern Bell in Miami. After decoding to RGB and sync the signal was distributed via fiber optic cable to the screening location.

The MUSE transmission system is a sophisticated band-compression system based on human visual acuity. It enables broadcast of HDTV programs by either amplitude modulation (terrestrial/cable) or frequency modulation (DBS/cable).

The HDTV signal is time compressed (TCI) for luminance and color signal to 8.1MHz for transmission and expanded to original HDTV signal at the receiver. HDB-MAC was used to encrypt the transmission.

1125/60 HDTV is a technology not limited to broadcast. It can be used by the motion picture industry in a theater network, in computers for high definition graphics, increased visual quality of medical imaging, storage and retrieval of art, photographs and detailed plans, as well as for broadcast. It presents far more business opportunities for U.S. companies than any other proposed standards. And that means growth for the U.S. economy.

* ANSI—American National Standards
ATSC—American Television Standards
HDB-MAC—High Definition B-Multiplex Analog Component
HDTV—High Definition Television
MUSE—Multiple Sub-NYQUIST Sampling Encoding
NTSC—National Television Standards
PAL—Phase Alternation by Line
SMPTE—Society of Motion Picture and Television Engineering
TCI—Time Compressed Integration

From materials published by International Communication Industries Association—PRO VIDEO NEWS © 1989.

D-2 FORMAT

Courtesy of: Sony Communications Products Co.

By: Steve Carr
Product Manager, D-2 Products

Almost 90 percent of the digital VTRs delivered in the U.S. have been to post-production houses who need to stay "state-of-the-art" to be competitive in their businesses. Post houses have chosen to invest in digital because of the novelty as well as the return on investment, notwithstanding the quality and performance of the machines.

Many television stations which have begun the digital conversion have done so for very different reasons. Primarily, TV stations have invested in digital as a solution providing cassette-based automation for their operations. They are also stations seeking to replace one-inch Type C machines, and stations that do program production and also require an effective archiving system for the programs they produce.

Prior to the introduction of digital VTRs, the signal path of every VTR was analog. Analog VTRs can make playback recordings that are indistinguishable from a live camera shot. There are, however, many limitations inherent in the analog recording process. Most notably, all analog formats are subjective. That is, they require constant analysis and examination to determine acceptable performance. There are quality variations between machines that require operator and maintenance expertise to keep performance at acceptable levels. We learned to live with these limitations, since there was no practical way around them. But today, digital technology provides an alternative. The alternative is not a new "high quality" format. It is an entirely new recording process.

Analog VTRs require extensive operator setup for recording and playback. Tracking, head equalization, and audio and video signal levels all need checking for every tape. Reel-to-reel formats require a complex threading procedure. Operator expertise always varies, and complexity adds to costs. Finally, audio has been a "second thought" in the analog world. Audio quality never matched video quality.

Digital signal recording offers solutions to these problems by eliminating the subjectivity. Either the digital VTR performs acceptably, or not. Performance is consistent and not dependent



upon operator or maintenance expertise. CD-quality audio can be recorded on the same cassette as video. And, for most practical purposes, digital is error free. It is totally different from analog technology.

How Did We Get to Digital?

The applications of digital technology to video and audio equipment have evolved as the packaging of digital circuits has changed. In the mid-70's the digital time base corrector was the first device to process a video signal in the digital domain. These TBCs contained enough memory to hold several lines of digitized video sampled at three, and later, four times the frequency of the NTSC subcarrier.

Today's VLSI (very large scale integration) technology is what has made the implementation of digital signal processing practical. VLSI provides the following:

Use of VLSI chips results in fewer chips used within a piece of equipment. Also, fewer separate boards are required so there's less interconnect harness wiring.

VLSI circuits require less power than a large number of discrete components or low density ICs.

Digital circuits have few, if any, adjustments. This makes boards truly interchangeable without any lengthy system alignments often required for analog circuits. This in turn significantly reduces the amount of required routine maintenance.

The Benefits of Digital

Digital is computer-based and therefore lends itself to an unlimited number of future applications. VTRs, monitors, camera controls, switchers, effects equipment, on-air playback systems, transmission, all video and audio equipment is now being designed to function in a digital world.

The subjective concerns of the analog world are greatly reduced. Digital VTRs contain a minimum of circuit adjustments. Digital circuits only need to distinguish between a logic "one" and "zero." The voltage or current levels representing the logic states are regenerated in each circuit. There are no gain, frequency response or distortion adjustments needed in these circuits. The performance level of a digital VTR does not change over time. There is no circuitry drift.

Digital error correction and data shuffling provide a level of protection against tape dropouts that exceeds anything available with analog VTRs. The quality of the signal path through the VTR becomes independent of the tape itself, as long as the off-tape data error rate does not exceed the range of the error correction scheme.

Digital VTRs are simpler to operate than analog VTRs. Being cassette based, they are easier to load than Type C reel-to-reel machines. There are also fewer setup adjustments for operators to make. Overall, VTR performance is less operator dependent.

A level of internal diagnostics not found on analog counterparts is also possible. In addition to microprocessor-driven control systems that can perform power-on system checks, monitor the loading and threading cycles and keep an eye on servos, digital VTRs can compare the input signals with the confidence playback signals during recording, and any discrepancies can generate a warning.

From the outset, digital recording also provides higher signal quality than analog since machine performance is primarily determined by the A/D and D/A conversion circuits. First generation video signal-to-noise (S/N) ratio is higher than Type C. Digital video band-

width slightly exceeds that of NTSC, allowing more high frequency information (picture detail) to be recorded. This higher S/N ratio is maintained when replicated digitally, providing superior multigeneration performance.

Exclusive Benefits

Some benefits like analysis and correction of errors are unique to the digital world. Superior multigeneration performance means we're making clones rather than dubs. Digital, however, offers a great deal more. It offers pre-read capability, a powerful feature allowing many new applications to be explored. It allows for CD quality audio performance to be recorded on the same tape and by the same machine that records the video signal. No longer is audio quality secondary to video quality. This audio quality is easily attained without the complex encode/decode noise reduction systems frequently used on analog machines. Frequency response is ruler-flat; dynamic range is over 90dB, and stereo channel phasing is scrupulously maintained. For program time compression/expansion, some digital VTRs offer the advantage of internal digital pitch correction, eliminating the need for any additional external boxes.

Sony digital VTRs offer a special editing mode called pre-read that allows a single VTR to act as a recorder and player at the same time. The video or audio playback signal is output from the machine, sent to an external device for processing and then returned to the input of the VTR for re-recording on the same place on the tape it originally came from. Operations requiring two VTRs can now be done with just one. Video applications include multi-layering, titling and color correction. Audio applications include functions such as sweetening and mixdown. The original lip sync is always maintained.

Digital Signal Transmission

Currently, most digital devices have analog inputs and outputs for interfacing with existing analog hardware. Keeping signals in the digital domain eliminates the distortion inherent in repeated A/D and D/A conversions. Digital transmission of signals between

devices eliminates analog problems such as hum and noise pickup, gain variations and the need for equalization.

Most digital transmission today is accomplished with parallel interfaces which transmit each bit of a sample plus a clock on separate pairs of wires. This requires a thick cable and large connector to accommodate the large number of signals. The biggest drawback, however, is distance limitation—about 100 feet. This may be acceptable for wiring digital islands within an analog system, but it is not good enough for total digital system implementation.

Serial transmission using a standard video coaxial cable and BVC connections presents a better way to accomplish digital transmission. In serial transmission, each bit of a signal sample is sent sequentially, so only a single pair of wires is required. Its big advantage, though, is long distance transmission—up to about 1500 feet. Transmission of video and four channels of audio on the same cable is possible. Existing television coaxial (Belden 8281) can be used without the need for rewiring. Serial digital signals can even be patched around a facility using standard video jackfields and patchcords.

System Considerations

Digital Library Management Systems for automated playback of programs and spots at broadcast facilities permit, for the first time, a totally transparent path from the production of an edited master at a post-production facility to on-air broadcast of a digitally recorded tape. Master tapes can be digitally cloned for distribution with no quality loss. They can then be aired on digital VTRs that are part of the Library Management System.

Digitally recorded signals can also be easily and reliably transcoded to other digital formats. The conversion boxes are completely digital; there are no A/D, D/A conversions. There are also no circuit adjustments. Transcoding between two digital signal formats such as D-1 and D-2 is transparent. Transcoding between either of these signal formats and any others that may be developed in the future will also be

transparent. Therefore, using digital for archiving is highly desirable. Since there are only "ones" and "zeros" on the tape, accurate signal recovery is enhanced. Error correction algorithms ensure that within limits, unrecoverable data is regenerated perfectly. This allows more faithful replication and replay.

Digital technology also offers the potential to permit external computers to monitor and detect data errors. Acquisition and analysis of this data will provide a powerful quality control tool and aid in machine maintenance.

The Digital Conclusion

Digital VTRs have many of the same operational capabilities and features as their analog counterparts. They, however, require less equipment, less expertise, less time and less patience to perform the same functions. If they save time, expertise and equipment, then in the long term they can also save money. They offer consistent quality and provide equally high audio and video performance on one machine, one cassette, often eliminating the need for separating their post-production requirements.

According to current users, digital VTRs are easier to operate, provide for an easier editing process and require less maintenance. This, in turn, enhances creativity. Being computer based, digital VTRs can be deployed for many future applications. Best of all, the digital VTRs of today operate in either analog or digital environments. They are the means by which television stations and production facilities can begin to build a foundation today in the digital world of tomorrow.

THE TECHNOLOGY OF BETACAM SP

Courtesy of: Sony Communications Products Company © Sony

Metal Particle Tape

The performance advantages of Betacam SP can largely be attributed to the latest advances in metal particle tape technology.

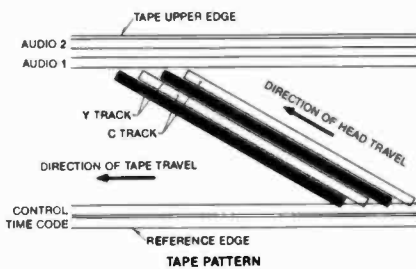
Betacam SP uses metal particle tape, which boasts a finer particle structure, to enable the use of higher carrier frequencies, affording a greater reproducible bandwidth. In addition, its magnetic properties offer a substantial improvement in the signal-to-noise ratio. Sony's years of practical experience in broadcast videocassette systems helped influence the choice of the 86µm luminance track width for Betacam. Its high reliability and durability, even in the harsh environment of ENG/EFP, has repeatedly proven to be superior to other small formats. And, thanks to the adoption of a large cassette, the maximum playing time has been extended to more than 90 minutes.

Betacam Format

Compressed Time Division Multiplex (CTDM)

After an extensive examination of several possible systems, Sony has adopted the Compressed Time Division Multiplex (CTDM) System, which provides outstanding picture quality and can fully meet the severe requirements of users current and future.

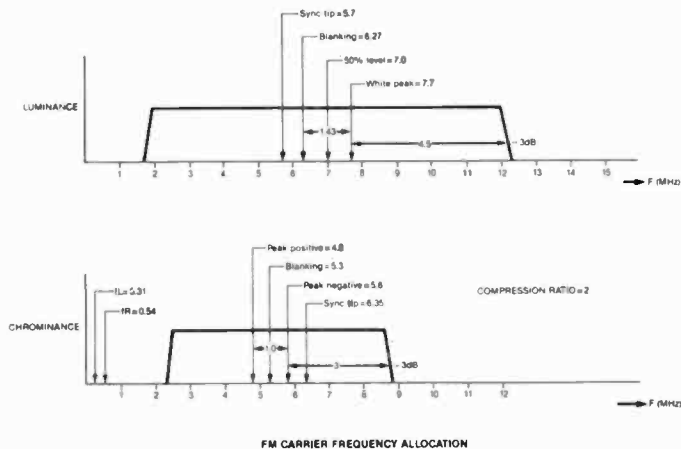
The input video signal is separated into luminance (Y) and chrominance components (R-Y, B-Y). The luminance and chrominance components are recorded with separate video heads on separate tracks. (Monochrome signals are automatically recorded only on the Y track.)



The bandwidth is wide enough to record the luminance signal on 1 track. The chrominance components (R-Y, B-Y) each require 1.5MHz of bandwidth in order to fulfill the worldwide requirement. To record both R-Y and B-Y signals on 1 chrominance track with no crosstalk, Sony incorporated the Compressed Time Division Multiplex System into the Betacam recording format. Time compression enables both R-Y and B-Y to be recorded on 1 track with twice the frequency bandwidth of a single FM carrier.

Recording Process

Compressed R-Y and B-Y signals are multiplexed alternately. The R-Y and B-Y signals are delayed 1H compared to the Y signal through the time compression process.



Playback Process

In the playback process, R-Y and B-Y signals are restored to their original forms. As a result, R-Y and B-Y signals are delayed a total of 2H. This 2H time difference is compensated for through the delay line built into the Betacam VTR. The Y/C phase difference is also corrected based on the information of Y/C timing pulse edge. (The time difference is guaranteed to be less than ± 10 n sec.)

FM Carrier Frequency Allocation

The input video signal in the Betacam format is separated into luminance (Y) and chrominance (R-Y, B-Y) signals, and each is recorded on separate tracks. The FM carrier frequency for each channel is high enough to reproduce a 4.5MHz video bandwidth in the luminance channel and 1.5MHz in each of the chrominance channels. Thus, the FM carrier frequency for the luminance channel is 5.7-7.7MHz and 4.8-6.35MHz for the chrominance channels. 2 subcarrier signals, at 310kHz and 540kHz, which are used for the 2 AFM audio channels, are multiplexed with the chrominance signals.

Longer Playing Time

The Betacam SP studio VTR can accommodate 2 cassette sizes. These cassettes are available with a choice of standard oxide or metal particle tape. The small size cassette is the same size as the conventional Betacam cassette, and offers more than 30 minutes of running time. The large size cassette provides more than 90 minutes of running time for studio based applications. The transport mechanism automatically detects the size of the cassette loaded and aligns the reel centers accordingly.

4 Audio Channels

Betacam SP provides 4 audio channels. The 2 longitudinal tracks recorded on the upper edge of the tape provide the greatest degree of editing flexibility and offer the Dolby™ C-

Type NR (Noise Reduction) system. The 2 additional AFM channels, which are simultaneously recorded with the video chrominance information by the rotary video head, offer superior characteristics. Due to the wide dynamic range, they are particularly suitable for field acquisition. Many transmission applications also benefit from these audio tracks, particularly those involving stereo, due to the superior phasing qualities and vastly reduced wow and flutter.

Compatibility

Because Betacam SP is an extension of Betacam, users can naturally and gradually expand their applications without making existing Betacam equipment and recorded material obsolete. In addition, the tape speed, track width, and FM deviation of Betacam SP are the same as those of Betacam, meaning that there are no key characteristics that may interfere with format compatibility.

In short, Betacam SP VTRs, while designed to provide maximum performance using metal particle tape, are also capable of recording and playing back standard Betacam (oxide) tapes. Additionally, all existing Betacam VTRs can also play back metal particle tape recorded by the Betacam SP format without any problem.

		BETACAM		BETACAM SP	
		REC	PB	REC	PB
SMALL CASSETTE	OXIDE	YES	YES	YES	YES
	METAL	NO	YES	YES	YES
LARGE CASSETTE	OXIDE/METAL	/		YES	YES

COMPATIBILITY

THE MII FORMAT

Courtesy of: JVC Professional Products Company

Higher picture quality. Longer recording time. Superior systems flexibility. Greater space saving. These features and more make MII the industry's most cost-effective choice.

MIl is a new video format developed to meet the requirements of the professional video community. Exactly suited for the current state of development in video technology, it uses the CTCM (Chroma Time-Compressed Multiplexing) component video recording method, and high-density metal particle tape in a cassette approximately the size of a VHS tape all while maintaining superior quality.

CTCM Component Recording

The MII format maintains the original quality over several generations through the CTCM (Chroma Time-Compressed Multiplexing) component recording system. The luminance (Y) and chrominance (C) components of the video signal are recorded on separate tracks so they are completely independent, with the luminance signal frequency-modulated before recording.

To record the chrominance information, first, the R-Y and B-Y color difference signals for each horizontal line are obtained, then compressed to half their lengths on their time axes. After frequency modulation, these components are recorded one after the other on the C track.

Then, after being compressed to half their lengths, the R-Y and B-Y signals are delayed by 1H and 1.5H before they are recorded, so that the Y and C signals are recorded on successive tracks. The video signal processing system and the principles of recording behind MII are shown in Fig. 1 and 2.

By combining the CTCM recording system with new high-density metal particle tape, a greatly increased recording capacity has been achieved, with a recording time of 90 minutes using a single cassette. Imagine what that could mean to ENG/EPF applications!

Tape pattern

Fig. 4 shows the pattern of tracks recorded in the MII format. The luminance (Y) and chrominance (C) components of the video signal are recorded by separate heads on individual tracks. This provides a guard band between the Y and C tracks, preventing crosstalk and interference. In addition to the independent Y and C tracks, there are two longitudinal audio tracks for stereo sound, and separate tracks for the recording of time codes and control signals.

Metal Particle Tape

The tape used in the MII format is a metal particle tape with magnetic characteristics that are superior to those of cobalt ferric oxide tapes used in other video recording systems. This type of tape delivers a much higher recording density.

The magnetic material used to coat the tape consists of extremely small particles of a pure metal material; in addition to higher coercivity, the C/N (carrier-to-noise) ratio is 10 dB higher than that of cobalt ferric oxide tapes, as can be seen from Figs. 5 and 6.

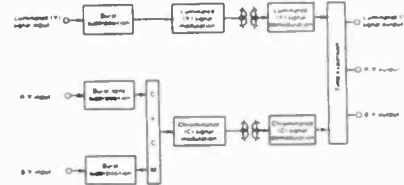


Fig. 1 Video Signal Processing in the MII Format

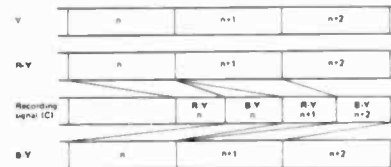
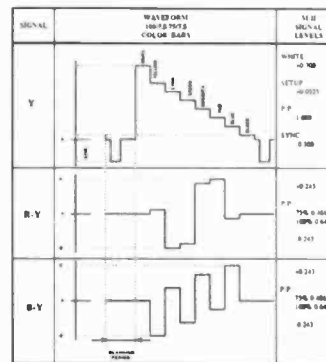


Fig. 2 Principles of CTCM Recording



L	Video track pitch	84.5 μ m
M	Y track width	44 μ m
N	C track width	36 μ m
R	Video track length	118,254.3 μ m
W	Effective video width	8,847.1 μ m
Y	Height of Y track center	6,050.1 μ m
Z	Height of C track center	6,092.1 μ m
θ	Video track inclination angle	4.2906°
X	Control signal recording position	202,000 μ m
b	Time code track width	450 μ m
c	TC guard width	450 μ m
d	Control track width	400 μ m
g	Audio track ch1 width	600 μ m
h	Audio guard width	500 μ m
i	Audio track ch2 width	600 μ m
V	Tape travel speed	67.693 mm/sec
	Relative speed	7.79 m/sec
	Tape width	12.65 mm

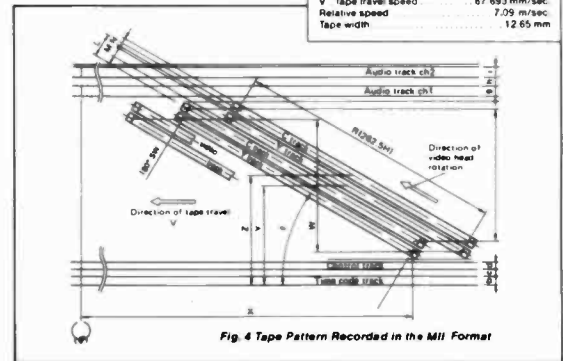


Fig. 4 Tape Pattern Recorded in the MII Format

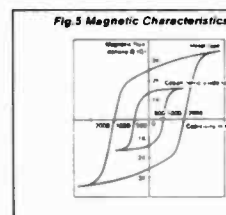


Fig. 5 Magnetic Characteristics

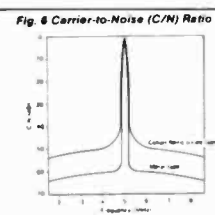


Fig. 6 Carrier-to-Noise (C/N) Ratio

SP U-MATIC EXPLAINED

Courtesy of: Sony Communications Products Company © Sony

A multi-generation dubbing capability and a time code editing capability have always been required in program origination applications since the beginning of video production. The new U-matics provide SP technology (SP format, innovative video circuits, sendust audio head, and type-C Dolby NR), which offers superior video/audio quality and multi-generation dubbing capability, and a time code editing capability to answer these requirements.

1. Superior Video

Program information for distribution or transmission is created in a process which includes shooting, editing, and distribution. Even with minimal editing, the process requires three or four generations. Therefore, an editing VTR is required to have multi-generation recording capabilities to maintain a high quality picture throughout the program origination process. Picture quality of the SP U-matic offers improvement over conventional U-matic not only because of the improvement in the recording format, but also due to the improvement of the video circuits for playback and editing. All of this was done while maintaining compatibility with the conventional U-matic (NTSC)/High Band U-matic (PAL).

SP Format

The luminance FM carrier frequency of the SP format was shifted up 1.2MHz (NTSC)/0.8MHz (PAL) from the conventional format (NTSC)/High Band format (PAL) to realize 330 TV lines (NTSC)/300 TV lines (PAL) of horizontal resolution. The downconverted subcarrier frequency and the luminance FM carrier deviation were not changed. Therefore, SP U-matic is completely compatible with the conventional U-matic (NTSC)/High Band U-matic (PAL). SP U-matic videocassettes are required to guarantee high frequency bandwidth on SP recordings. The detection holes on the SP U-matic videocassette allow the VTR to change to the SP recording mode automatically.

In the PAL system, three U-matic formats, SP, High Band, and Low Band, are offered to meet different user demands. Since SP and High Band formats were developed to improve total picture quality to meet ENG applications for TV stations, the compatibility between SP/High Band and Low Band U-matics can not be

obtained. The newly released economical SP U-matics, the VO-9800P and VO-9850P, which can playback in the SP, High Band, and Low Band formats, and record in the SP or High Band format, can offer superior picture performance and, therefore, are convenient for Low Band U-matic users.

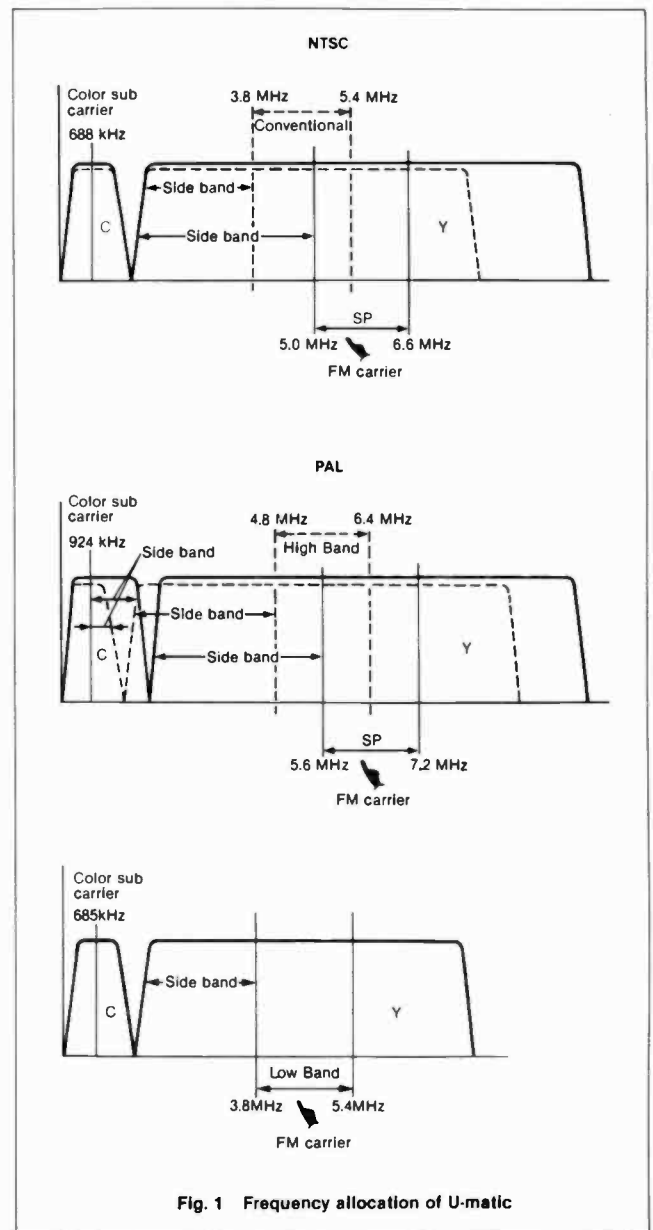


Fig. 1 Frequency allocation of U-matic

New Y/C Separator

The new Y/C separator of the SP U-matic reduces the cross color leakage of luminance signals into chrominance signals and vice-versa via the 3-line comb filter (NTSC) and the horizontal correlator (NTSC/PAL).

Therefore, chrominance ringing due to cross color can be greatly reduced. Furthermore, the luminance signals are sent through a phase equalizer, which reduces signal degradation and luminance ringing caused by dubbing.

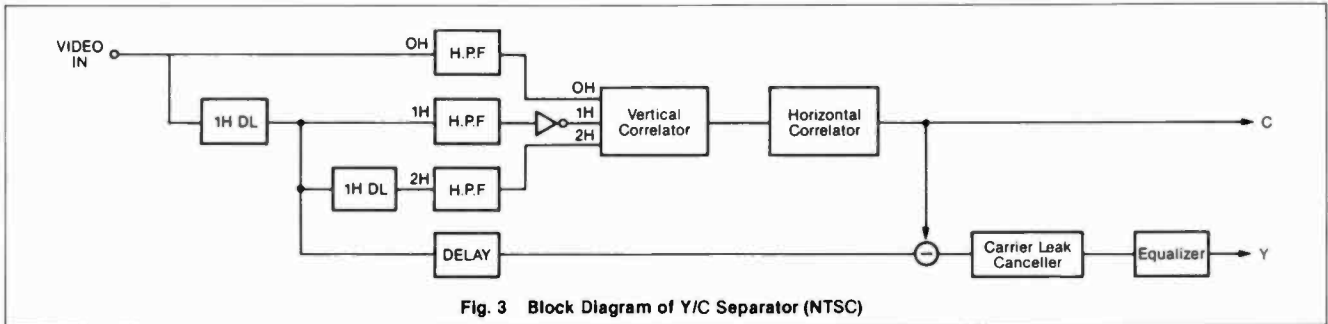


Fig. 3 Block Diagram of Y/C Separator (NTSC)

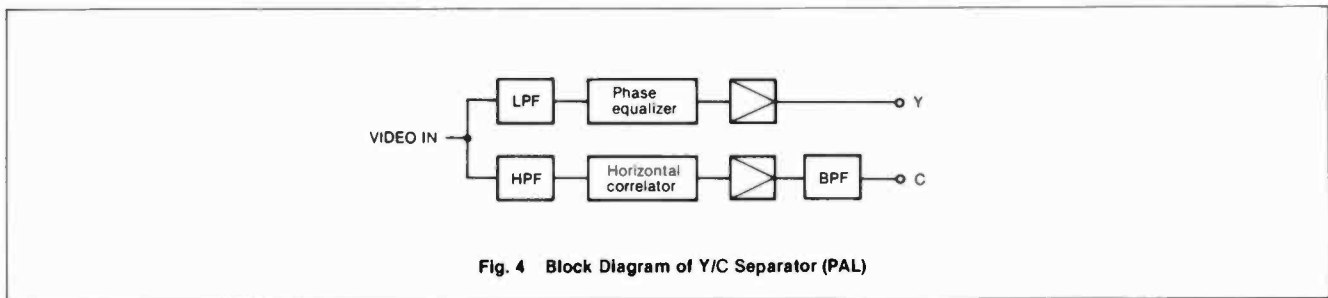


Fig. 4 Block Diagram of Y/C Separator (PAL)

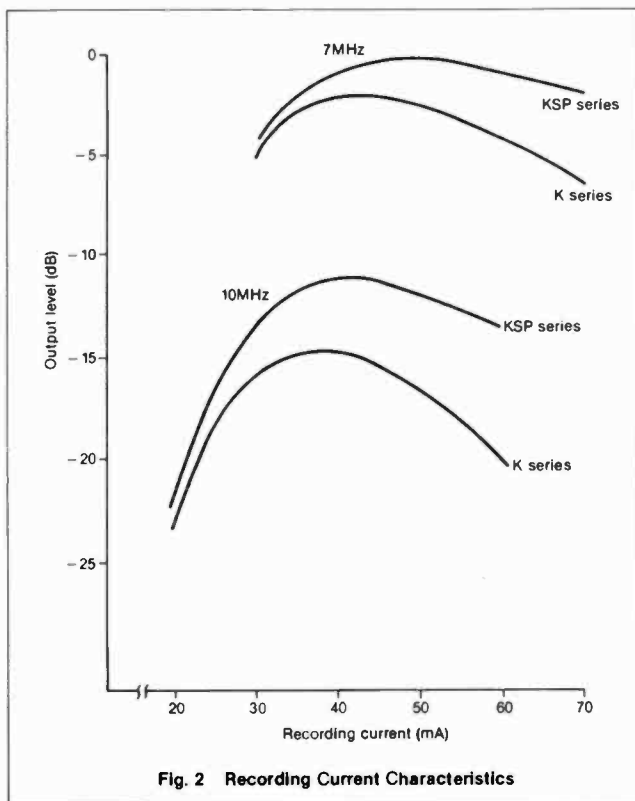


Fig. 2 Recording Current Characteristics

New Noise Canceller System (VO-9850/9800)

The SP U-matic uses a non-linear pre-emphasis circuit and a non-linear de-emphasis circuit. The de-emphasis circuit uses a negative feedback loop using the same pre-emphasis circuit that is employed in the record mode. The de-emphasis circuit can therefore completely reverse the characteristics of pre-emphasis. The reproduction characteristics of the demodulated wave form are greatly improved. Therefore, the SP U-matic can reduce correlated noise components which appear in recording and improve the S/N ratio.

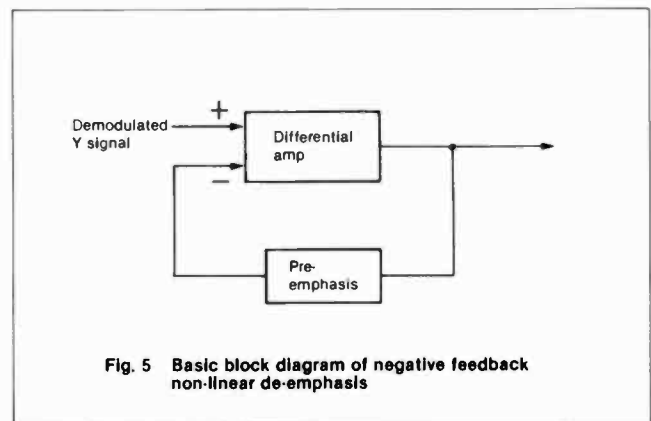


Fig. 5 Basic block diagram of negative feedback non-linear de-emphasis

CCD Based Dropout Compensator

Dropout of video signals is compensated for by a CCD based 1H delay line circuit to improve picture quality. The result is a greatly simplified circuit with high reliability.

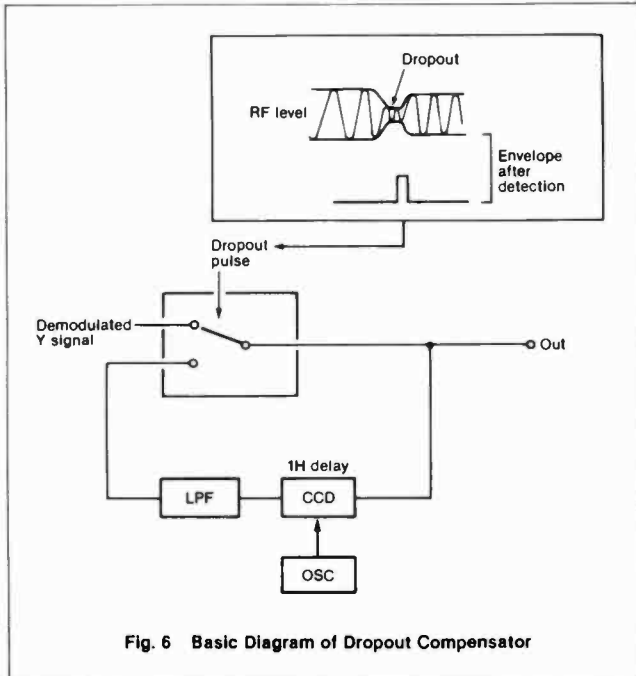


Fig. 6 Basic Diagram of Dropout Compensator

The improvements of the SP U-matic are not only found in the increase of the horizontal resolution, which has also been done for home use VTRs, but also in the improvement of the demodulation registration characteristics and the reduced cross color, luminance and chrominance ringing, and signal degradation. Therefore, the SP U-matic improves dubbing quality to offer high quality pictures for program origination and production.

2. Superior Audio

New Sendust Audio Head

The new sendust audio head is compact and improved to reduce the contour effect and channel to channel cross talk. Also, the form of the PB/REC heads and erase head is improved and the wrap angle is increased so that the SP U-matic offers improved signal pick up characteristics, frequency response up to $15\text{kHz} \pm 3\text{dB}$, and an S/N ratio of more than 52dB (SP mode). Furthermore, SP U-matic can offer stable audio characteristics during rigorous, long-term operation.

Type-C Dolby Noise Reduction System

The type-C Dolby Noise Reduction System greatly improves the S/N ratio. Dolby Noise Reduction ON/OFF can be selected only during SP mode recording. In the playback mode, the SP U-matic detects a pilot signal from the recorded tape and automatically switches to the Dolby ON mode.

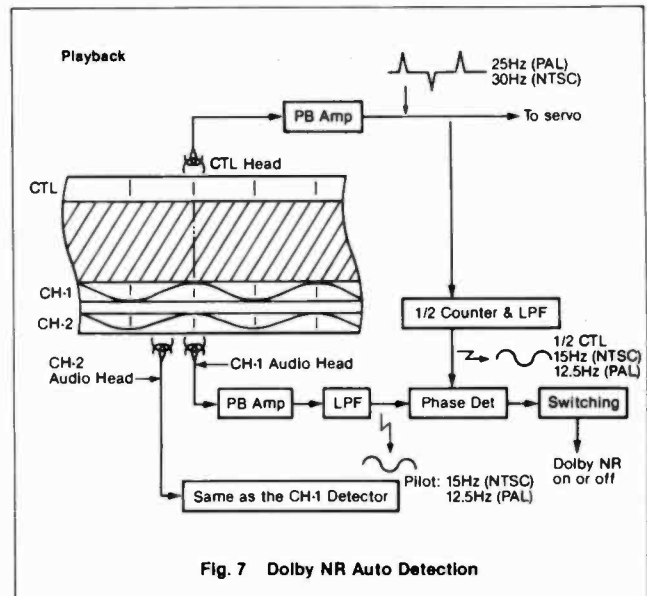


Fig. 7 Dolby NR Auto Detection

THE SUPER VHS SYSTEM

Courtesy of: Panasonic Communications & Systems Co.

The Super VHS format follows in the VHS tradition, but offers dramatically improved picture quality, including greater horizontal resolution and improved S/N ratio. Further improvement in picture quality is achieved by employing separate Y (luminance) and C (chrominance) terminals for both input and output. The S-VHS picture quality is high enough for professional video production. And there are numerous other advantages for the professional, too. S-VHS cassettes are identical in size to the standard VHS cassettes and, therefore, much lighter and more compact than those of other formats, running costs are lower, and the picture quality is comparable in most respects.

Horizontal Resolution of More Than 400 Lines

The conventional VHS format offers only about 240 lines of horizontal resolution, far short of the 330 or so that current color TVs are capable of. But S-VHS increases this to well over 400 lines by raising the FM carrier frequency of the luminance signal from the 3.4-4.4MHz band for standard VHS to 5.4-7.0MHz for S-VHS. The result is breathtaking detail and clarity.

A 210% increase in the peak white level enhances the picture quality even more, with excellent delineation of image borders and highly faithful reproduction of detail.

Improved S/N Ratio

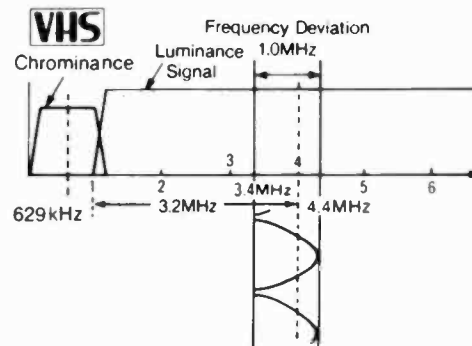
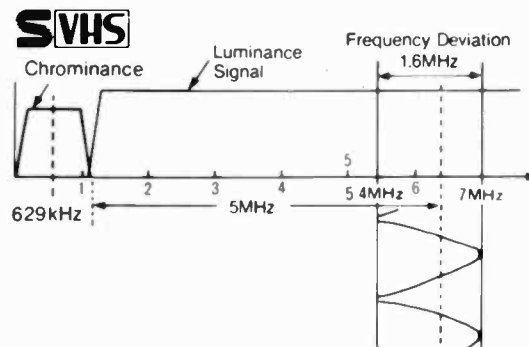
When resolution increases, so does noise. S-VHS solves this problem by broadening the luminance signal bandwidth (frequency deviation) from 1MHz to 1.6MHz, thus improving the S/N ratio proportionally. And, the non-linear sub-emphasis system further increases the noise-reduction effect by varying its emphasis according to the amplitude of the incoming signal and making it possible to apply the optimum amount of emphasis to signals of finely divided levels.

Separate Y/C Input and Output

Cross-color (rainbow-colored noise in images containing checkered or striped patterns) and dot interference (dots aligning the borders of colors) were inevitable in composite signal input and output because of mutual interference between Y (luminance) and C (chrominance) signals. To prevent this, the S-VHS system separates the Y and C signals and applies them to the TV set in separate form. This advance paves the way for high-resolution monitors, cameras, and editing equipment with separate Y/C terminals that minimize picture degradation to make possible edited results with excellent picture quality. Together, they offer great potential for the future.

High Performance S-VHS Tape

The S-VHS format utilizes cobalt-coated ferric-oxide tapes similar to those used in conventional VHS cassettes, but incorporates finer magnetic particles and a high-density charge for increased (900-Oe) coercivity and greater high-frequency output. This combination satisfies the technical requirements for S-VHS recording



while maintaining VHS compatibility by the use of the same tape and cassette format as the standard VHS system. The super-smooth surface of the magnetic coating and special back coating for improved runnability also boost tape travel stability to reduce jitter and enhance durability.

S-VHS/VHS Compatibility

S-VHS video tapes can be recorded and played back on conventional VHS recorders in the standard VHS format with the best possible performance results. S-VHS VCRs can also record on and play back conventional VHS tapes. For recording, simply set the selector to S-VHS or VHS, depending on the type of cassette to be used. For playback, the correct system is selected automatically. S-VHS cassette shells are of standard VHS design, with a single hole added for identification.

Recording

TAPE	VCR	S-VHS VCR	VHS VCR
S-VHS tape		S-VHS mode	VHS mode
VHS tape		VHS mode	VHS mode

Playback

TAPE	VCR	S-VHS VCR	VHS VCR
S-VHS tape recorded in S-VHS mode		S-VHS mode	not possible
S-VHS tape recorded in VHS mode		VHS mode	VHS mode
VHS tape recorded in VHS mode		VHS mode	VHS mode

THE Hi8™ VIDEO SYSTEM (NTSC)

Courtesy of: Sony Communications Products Company © Sony

The Hi8 video system offers improved picture quality. Since picture quality is determined by several factors, Hi8 combines various technologies to create an image which is better overall. This is important for lifelike original recordings, and is critical for more accurate edited versions of the original.

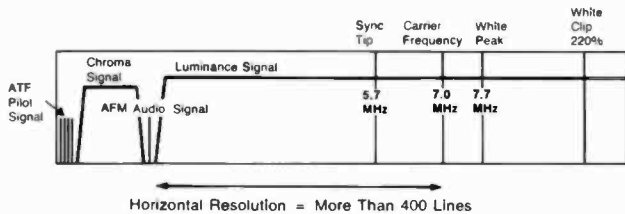
Hi8 Metal-P Tape

Hi8 Metal-P tape offers a density of magnetic material higher than that of standard 8mm video tape. The orientation of the metal particles is more uniformly vertical. This allows Hi8 Metal-P tape to provide the high output and high frequencies demanded by the Hi8 video system.

More Than 400 Lines of Horizontal Resolution

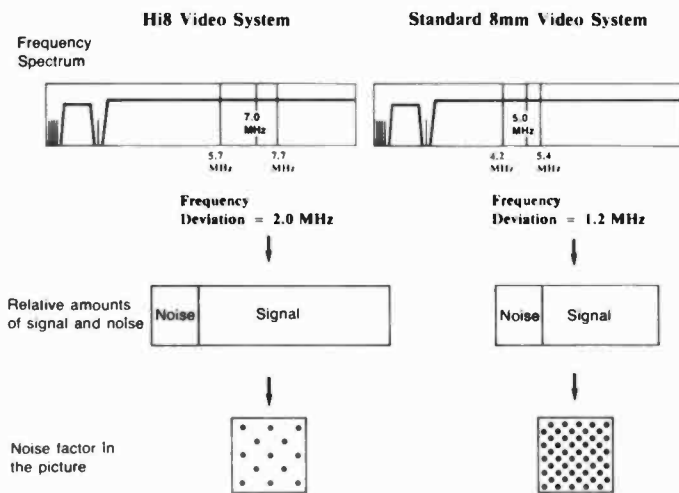
The luminance carrier frequency has been shifted from 5MHz in the standard 8mm system up to 7MHz in the Hi8 system. This means the Hi8 system is capable of recording more detailed visual information.

Hi8 Video System



Improved Signal-to-Noise Ratio

When the frequency deviation is expanded from 1.2MHz to 2.0MHz, the same noise is reduced in percentage so that it becomes less conspicuous.



More Accurate Reproduction

By using a new pre-emphasis system together with an already high white clip level (220%), original pictures are reproduced more accurately and editing quality is improved.

Compatibility

Hi8 video ensures upward compatibility with the standard 8mm system. That is, Hi8 equipment automatically switches to record in the standard 8mm system on standard 8mm tape. It will switch Hi8 recording and playback only on Hi8 tapes. Standard 8mm equipment will not play back Hi8 recordings.

Recording

Blank Tape	Equipment	Recording System
Hi8 Tape	Hi8 Equipment	Automatically switches to Hi8 video system.*
Standard 8mm Tape	Hi8 Equipment	Automatically switches to standard 8mm video system.
Standard 8mm Tape	Standard 8mm Equipment	Records in standard 8mm video system.
Hi8 Tape	Standard 8mm Equipment	Records in standard 8mm video system (not recommended).**

Playback

Recorded Mode on Tape	Equipment	Playback Mode
Hi8 Video System	Hi8 Equipment	Automatically switches to Hi8 video system.
Standard 8mm Video System	Hi8 Equipment	Automatically switches to standard 8mm video system.
Standard 8mm Video System	Standard 8mm Equipment	Plays back in standard 8mm video system.
Hi8 Video System	Standard 8mm Equipment	Cannot be played back correctly.

Specifications

1. Video Signal Recording System

	Hi8 Video System	Standard 8mm Video System
Luminance Carrier Frequency	7.0MHz	5.0MHz
White Peak Frequency	7.7MHz	5.4MHz
Sync Tip Frequency	5.7MHz	4.2MHz
Frequency Deviation	2.0MHz	1.2MHz
Pre-Emphasis		
Time Constant	0.47µs	1.3µs
White Clip	220%	220%
Chroma Signal	Down-converted to 743.4kHz	Down-converted to 743.4kHz
Video Input/Output	Y/C Separate (S-Video) or Composite	Composite
2. Tape	Hi8 Metal Evaporated or Hi8 Metal Particle	Standard 8mm Metal Particle
3. Audio Signal Recording System	AFM Recording (PCM Stereo Optional)	AFM Recording (PCM Stereo Optional)
4. Recording/Playback Time	Max. SP 2 hours LP 4 hours	Max. SP 2 hours LP 4 hours

High performance Hi8 Metal-P (Metal-Particle) tape has been specially developed for the Hi8 video system.

VIDEO EDITING — WHAT'S THE PROBLEM?

Courtesy of: Digital F/X, Inc.

by Steve Mayer

Founder and Chief Technology Officer, Digital F/X, Inc.

Video tape recorders—that's the problem. VTRs are great for studio and field recording and for distribution, but they are not optimal as editing devices. They're slow, expensive, prone to wearing out, and tend to wear out source tape.

What would an ideal edit recorder look like? It would have infinitely fast shuttle times, zero pre-roll time, and be able to reassemble an edit decision list instantaneously. Of course, it would also cost less than a traditional tape recorder. Am I dreaming? No—computer users have been enjoying this kind of speed and power for years. Now video professionals can have this dream edit recorder in the form of a non-linear editing system.

What is non-linear editing? Non-linear editing lets you trim edits without queuing and pre-roll, access any frame of video without search time, and trim a scene that has already been laid down without having to reassemble the edit list or lose a generation of video quality. It also saves you wear and tear on your expensive decks and videotape because you use them only for final assembly of a master tape, not for shuttling back and forth in search of exact edit points.

But, what exactly is non-linear editing? In practice, non-linear editing is editing done using video footage that has been pre-recorded onto a computer or video disk instead of videotape. Let's take as an example Digital F/X's desktop video production system, Video F/X, which includes non-linear editing capability as a standard feature. With Video F/X, video footage is digitized onto a computer disk. An editor then works with low resolution images on the Macintosh II screen to make edit decisions: trimming and arranging scenes, adding dissolves or wipe effects, and incorporating graphics, animation and audio.

All this takes advantage of the instant response time of the computer's random access memory. At any point in the process, the production can be previewed instantly, playing back from disk in real time. Editors are free to experiment without worrying about the wasted time involved in reassembling a recorded tape.

The end result of non-linear, or disk-based, editing is an edit decision list, which Video F/X uses to automatically assemble a final master tape. For the highest picture quality, the master tape is assembled using tape recorders and the original source tape.

Try non-linear editing once and you'll be hooked. Going back to linear editing would be like giving up your compact disc player and listening only to your cassette deck. Just try finding the right selection on a cassette tape after you've been able to randomly access selections on a CD almost instantaneously, playing them back in any order you choose! Non-linear editing is an idea whose time has come.

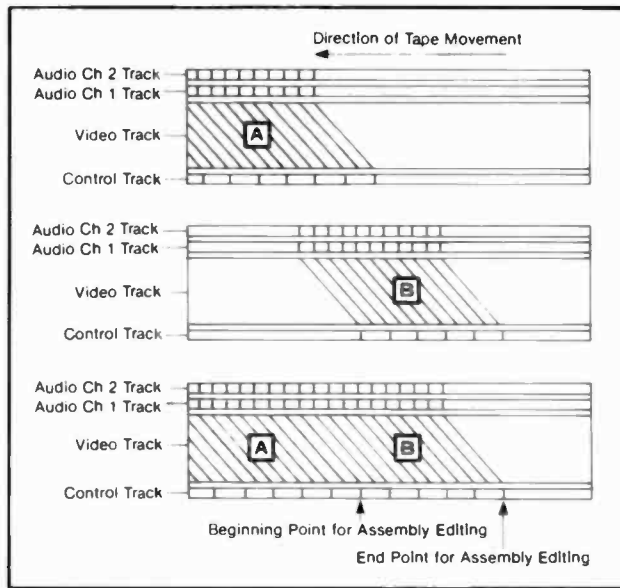
About the Author: Steve Mayer is the founder and chief technology officer of Digital F/X, Inc. Digital F/X has been at the forefront of the revolutionary merging of video and computer technology. In 1990, Digital F/X received an Emmy from the National Academy of Television Arts and Sciences for its video workstation technology, embodied in its Composium integrated digital production suite. In July 1990, Digital F/X introduced Video F/X, the first complete video production system for the Macintosh II. In April 1991, non-linear editing was added to Video F/X as a standard feature.

EDITING TECHNIQUES

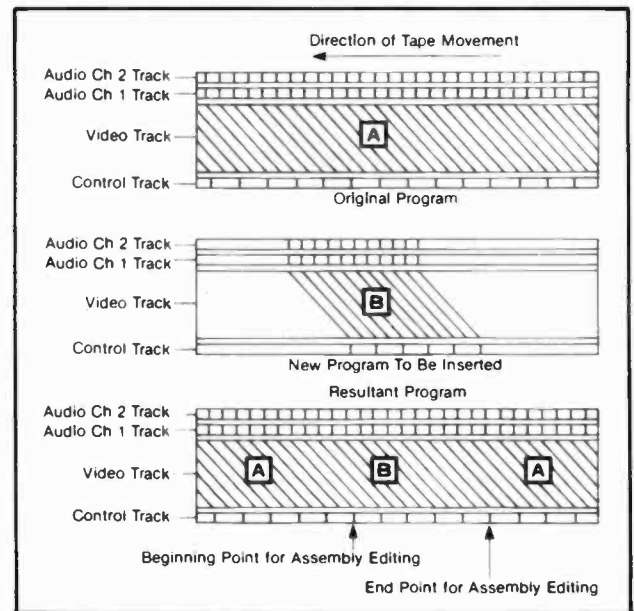
Courtesy of: *Panasonic Communications & Systems Co.*

Assemble Editing

In assemble editing, you add new material to the end of a previously recorded portion. When creating an entire program with assemble editing you build it from beginning to end. New video, audio ch. 1 and ch. 2, and a control track are added at the same time. Assemble editing can be used when recording live from a camera or recording from a source tape. As shown in the illustration, program material A has been recorded. To that you would like to add program material B. At the end of A you assemble edit the beginning of B. The result upon playback will be program AB.



before beginning insert editing. This technique is necessary if you wish to form a new program from previously recorded tapes without recording over any of your original "master tape" material.

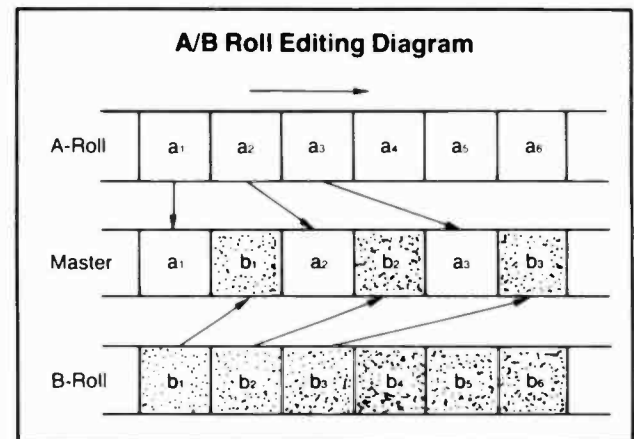


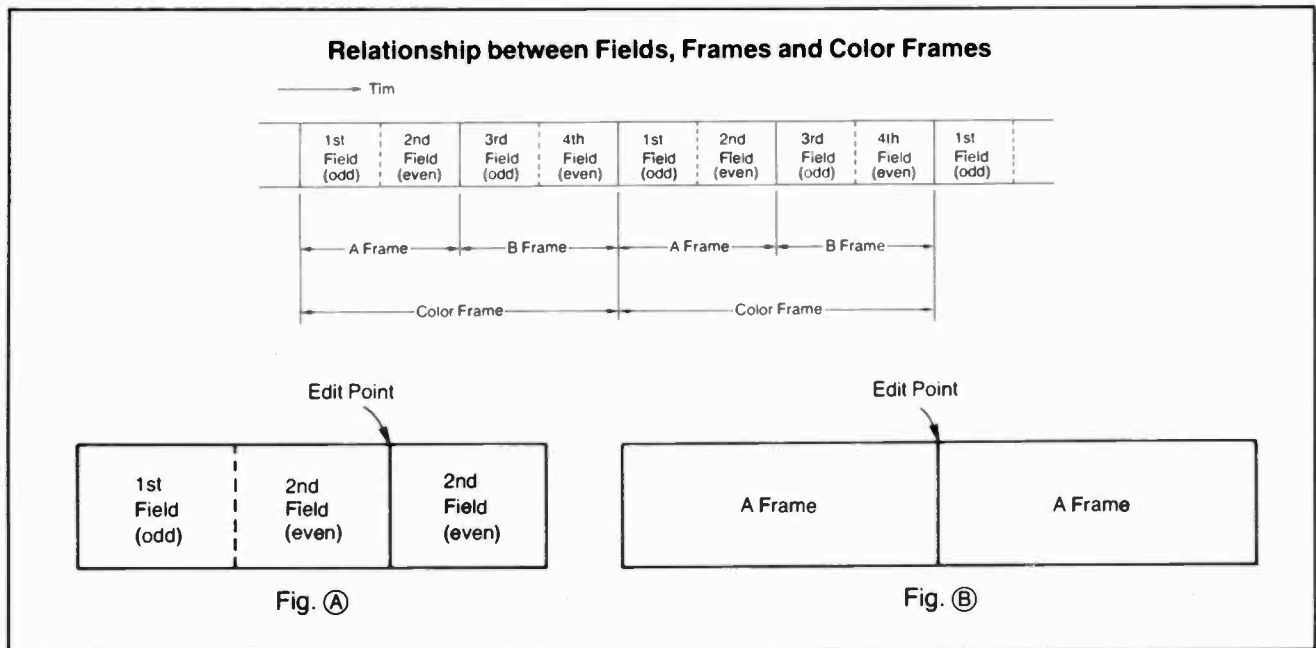
Insert Editing

With insert editing you can add new material into a previously recorded segment. This insert of program material should cut in and out with no picture break-up upon playback. This new material can come from a camera, source deck, or from broadcast TV. As shown in the illustration, the new material B is added between two points in the already recorded material A. New video, audio ch. 1 or audio ch. 2 can be inserted individually or in combination. Note that during insert editing, the original control track (from A in our example) is preserved. A new control track is not recorded along with the inserted video or audio material. Therefore, it is essential that the inserted B portion does not extend beyond the end of A. Of course, you can avoid this problem by recording continuously, from the beginning of the tape to the end,

A/B Roll Editing

This takes selected odd (A-roll) and even (B-roll) shots from two VCRs and puts them on a tape in a third VCR in the proper sequence. (See diagram below.) With computer control and prearranged shooting sequences, this method can speed up the editing process. With the use of time base correctors, special effects such as wipes and dissolves are also possible.





Time Code (SMPTE Time and Control Code)

SMPTE Time Code, or simply "Time Code", is a line of electronic data incorporated directly onto cassette tapes to provide tape-position information and control information for editing. A "bi-phase mark signal" of 80-bits-per-frame reveals precise tape position. 32 of the 80 bits, commonly referred to as "User Bits", are available for use as control information during videotape editing. The SMPTE time code signal is recorded onto the third audio track of a tape, in the video vertical blanking interval, so that it can be read even when a helical scanning VCR is in the slow-motion or still playback mode. The position-information frame count corresponds with the frame number of the color synchronization (00-29).

LTC (Longitudinal Time Code)

This is another expression for the SMPTE time code signal recorded onto the third audio track of a video cassette tape.

User Bits

Of the 80 bits containing the SMPTE time code, 32 bits (excluding the position information) are available to the user—and are commonly called "User Bits". For example, the user can insert roll numbers, control commands (necessary for playing back video tapes with commercials), character information, etc.

VITC (Vertical Interval Time)

This is the same information as the SMPTE time code. It is superimposed onto the vertical blanking interval, so that the correct time code can be read even when a helical scanning VCR is in the Pause or Slow mode.

Time Code Editing

By recording a sequential time code along with the video and audio material, you can obtain a more precise reference for editing. Each frame has its own number or code which tells the time in hours, minutes, and seconds, and includes a frame number. The world standard code is called SMPTE (Society of Motion Picture & Television Engineers) and has also been adopted by the IEC (International Electrotechnical Commission). Time codes permit very fast and accurate editing. Automatic editing is possible under computer control.

Split Editing

Refers to a timing difference between changes in the audio track and the video track from scene to scene. This is sometimes employed for dramatic effect. Since video tape is edited electronically, the video and audio head position differences have nothing to do with this, unlike film.

Off-Line Editing

Off-Line Editing is the process for producing videotape workprints that are not intended for air use. The workprint information is then fed into the on-line system for automated production of the release master tape.

SYSTEM TIMING

Courtesy of: Videotek Inc.

**By: Mark Everett, Manager
Corporate Communications**

Television production systems require vertical synchronization, horizontal synchronization, color phase synchronization, and color subcarrier to horizontal phase synchronization. Let's look at what this means and how to deal with real world situations of system synchronization or timing. If we can imagine a television picture which is split in half by a vertical line (half way thru a horizontal w/pe), most of the timing needs are shown in this imaginary picture. First we must assume that the production switcher is working up to specs, and that the two different pictures associated with this split screen picture are well adjusted color camera feeds.

The first obvious thing we would notice if the two cameras are not even close to synchronous is that the left side of the split screen picture is clear and stable, while the right side might be rolling vertically, tearing horizontally and even changing colors. Any or all of these undesirable things can happen. Each of these three different problems point to three different portions of synchronizing problems. The vertical rolling indicates the lack of vertical synchronizing, the horizontal tearing indicates the lack of horizontal synchronizing and the color changing indicates the lack of color or burst synchronization.

Next, if the left half of the picture is not moving as described above, but the picture is out of position or simply the wrong color, the indications are then that the two cameras are both locked to the same synchronizing source, but not phased together. Phasing, or timing, is the adjustment of electronics or cable length to assure that the two signals get to the switcher at the same time relative to vertical sync, horizontal sync and burst. Mis-adjusted vertical phase will cause the right half of the picture to be vertically offset or moved up or down relative to the left half. Incorrect horizontal phase will cause the right half of the picture to be offset to the left or right relative to the left half, and incorrect burst or color phase will cause the right half to appear as the wrong color.

So, now that we know how to see what's wrong, how do we fix it? Well, system timing is somewhere between a science and an art form and the good news is that science is winning the race. The most traditional way to time a system is by using one sync generator, a lot of distribution amplifiers, a whole lot of cable and more time than you can believe. How we accomplished system timing was to calculate which source would be the last to arrive and then assure that all other sources would arrive just as late. We usually were close, but not quite right, so then we used a waveform monitor and a vectorscope to measure the timing differences. We did this by looking at the horizontal sync pulses of both our reference and the source in question on two channels of the same waveform monitor and measuring the horizontal time difference. Color phase difference is measured by viewing those same two signals on two channels of a vectorscope and measuring the phase difference of the burst reference of the two signals. We then calculated the correction length, re-cut cables and measured the signals again on the waveform monitor and vectorscope. The whole process consumed a lot of time, usually days not hours.

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COMPONENT ANALOG WAVEFORM MONITORING

Courtesy of: Videotek, Inc.

By: Mark Everett,
Product Manager

Component analog video, or CAV, has brought the video user an entire new set of measurement requirements, views and problems. This article will attempt to clarify some of the basic requirements, and help the user of CAV equipment in the selection and use of measurement equipment.

First, CAV. The industry today is loaded with all types of "component analog video" signals. Betacam and MII are the two most common CAV formats in use in America. GBR (or RGB) is a special case and is not a common format used in recording. S-VHS and Hi8 are other and very different formats, and are not addressed by most measurement instruments. Formats like SMPTE and EBU are very similar to Betacam and MII. The variations are only in some specific signal amplitudes. So how do you know where you stand? One way to look at the problems is to consider another type of signal definition. The term, color difference, is quite handy to group these signals in a much more manageable style.

GBR (or RGB) are primary colors, all wide band, and are not known as a video tape format. GBR signals are used to make any and all color difference signals. (Figure 1)

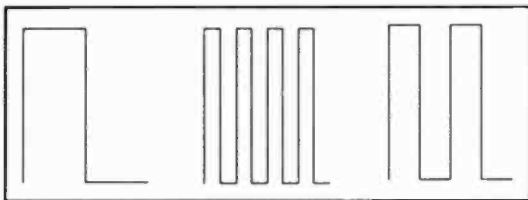


Figure 1 - Green, Blue and Red to make Color Bars.

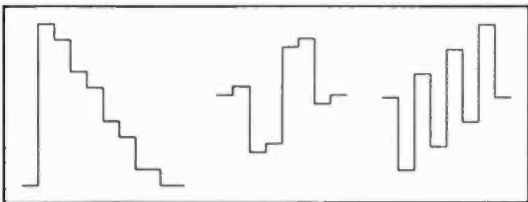


Figure 2 - Y, R-Y and B-Y of Color Bars

Betacam, MII, SMPTE and EBU are all color difference signals. Their waveforms look almost identical to each other, and the variations are only in set up, luminance amplitude, and color difference amplitudes. All have a Y (luminance), R-Y (red - luminance), and B-Y (blue - luminance) signal. The R-Y and B-Y signals are called the color difference signals. (Figure 2)

Luminance is defined, in all cases, as 59% Green, plus 30% Red, plus 11% Blue. Luminance is made from all three primary colors, but is not color information by itself. The luminance portion of color bars looks just like NTSC color bars passed through a low pass filter. The color difference signals, R-Y and B-Y, may both have very negative portions, and some have described the R-Y or B-Y portions of NTSC color bars as a crank shaft. Descriptive, but not quite accurate.

Y-C signals (S-VHS, Hi8, etc.) have a luminance, or Y very similar to the Y in the color difference signals. Actually, it is a filtered (or low pass) portion of the encoded signal, and the C is all chroma as relates to encoded not component signals. The C is similar to the results of a chroma filter as applied to composite video. (Figure 3)

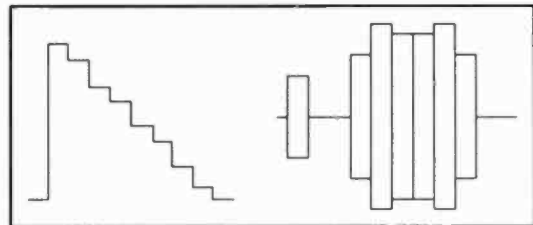


Figure 3 - Y-C view of Color Bars

Now that we know all of the different signals we could be viewing, the remaining question is how to do it, and what to expect for results. Viewing each type of component analog video signals has its own problems.

So, if viewing is a problem, what other concerns await the user? Timing, level drift and DC shift between channels are all potential problems in any component system. The chances are that the signal

leaves the originator in proper time relationship, relative level settings and proper signal balance, relative to a DC reference. Cables, distribution amplifiers, switchers, routers and who knows what each can contribute to a degradation of the relationship between the video components. Probably the most attention I've seen in the world of CAV test signals are ones intended to test and align timing. Remarkably enough, most every scheme uses what would be considered as a "standard" waveform view to judge timing between CAV channels. "Bow tie", the "shark fin" and the "Multi pulse" test signals all have their usefulness, and all have their operational problems, and some are more suited to one form or another of CAV systems.

Y-C signals are most often viewed on traditional composite waveform monitors and vectorscopes. One key point to remember is that the Y has no chroma information, so viewing it on a vectorscope is useless. The C portion is chroma only, so viewing this portion is done primarily on a vectorscope. It may be viewed on a waveform monitor, but then only if the waveform monitor is referenced to the sync of the Y channel. The C has no sync, so a waveform monitor can not lock to a C signal without some extra assistance. What does one look at? What do you recognize? Color bars is a standard test signal, and most folks know what to expect on a vectorscope, but the waveform view of the Y channel is something not quite familiar to all. Often, users will view the composite output of a Y-C machine simply because they are familiar with that display.

Color difference signal systems are adapted to many current combination waveform monitor/vectorscope systems. The CAV combination displays usually provide for a input translator to accept the particular format of the input signal and prepare that signal set for display. Various formats have varied levels for the Y, R-Y and B-Y signals. Waveform displays must reflect the actual level of the signals. Vector displays, however, have boxes where the user expects to find bright display dots when all is well. The input translator must accurately adjust the level of the color difference signals to cause the results to match the one set of vector graticule markings. Not only must the instrument work correctly, but the user must also properly identify the input signal.

There are some newer display formats, based on the vector display, to help the user make more accurate level judgements in color difference systems. The special "lightning" display shows the relationship

between the amplitudes of luminance and the R-Y component in one half of the view and an inverted view of luminance and B-Y in the second half. The primary reason for this display is to indicate the nearly composite results of the component inputs, if the user would wish to view the combined output. The problem truly results from the operator not having much familiarity with the various waveforms presented earlier, and those displays, when fully understood, not being sufficient to indicate the true results of an encoded output.

Legal and valid, that's another problem. Color difference systems which generate video (Matte Generators, Paint Systems, etc.) could well generate color difference signals which "look" O.K. on the color difference waveforms. The problem arises when they are encoded. This could result in a signal which exceeds the maximum allowed vector saturation for a given hue, or it could exceed the luminance value for that given hue and saturation. Neither case is obvious in the views afforded by a waveform monitor alone.

The best of all worlds is the 3-D vector display. Any signal which exceeds the saturation limits for a given hue is quite obvious to even a casual operator. When the 3-D vector display is rotated to reveal the Y, R-Y and B-Y axes all at once any signal which exceeds the luminance, or saturation for any given hue, will be apparent to the operator. (Figure 4)

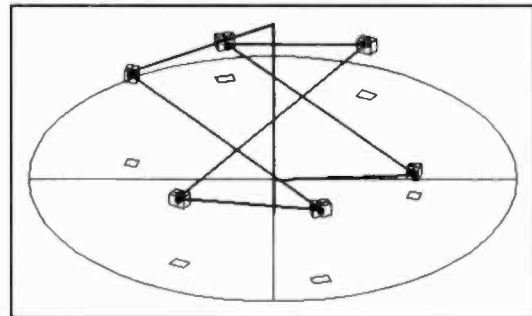


Figure 4 - 3-D vector display

The 3-D vector display can help the composite user just as well. The display is useful in encoder balancing where one control usually has some interaction with multiple aspects. It can be used in studio applications to truly color match cameras on chip charts in the studio and using the split screen through the switcher to view the results in luminance, color saturation and phase all at one time and in one screen.

LOCAL AREA AUDIO/VIDEO CONFERENCING AND INTERCOM SYSTEM

Courtesy of: Pesa America, Inc.

By: Jerry Kerr

There are two areas of video/audio conferencing—the Long Haul type is a satellite and common carrier combination and Local Area Conferencing involves rooms within a building or building to building conferencing within an area such as an air base. In Long Haul, satellite distribution video goes through a Codec and is converted to a T1 carrier, and if necessary for security reasons is encrypted for distribution to another base via satellite. The audio is distributed by way of a telephone system. The routing switcher is a connectivity point to the local requirements for conferencing. And the routing switcher interfaces to the Long Haul system, where a specific room within a location may be teleconferenced to other points in that location and also to the satellite distribution system.

Usages and Applications

The local area audio/video conferencing system consists of a two-way video/audio conferencing system for the transfer of information in a real time video/audio format from multiple locations to multiple locations. Also, the system serves as a point to point intercom system with video. Locations can view the same visual information and conduct discussions on the subject matter and, as required, change the visual information.

The connection method between multiple rooms is fiber optics. The fiber optics interface is required because of security reasons. Video and audio from multi-points can be connected by coaxial cable and twisted audio pairs, by way of a local area broadband network, or fiber optic cable.

There are many users of this system including training, operations, logistics, command and control, and public affairs. The information is transferred by the audio/video switching system in a multi-point to multi-point conferencing application.

The system supports multiple conferences with multiple participating rooms tied together. The system will support up to 16 simultaneous conferences and up to 20 participating rooms per conference.

While the system is generally used as an audio/video intercom and conferencing system, it is not always necessary to have two-way video. The audio paths are bidirectional and provide two-way audio for "talkback" type applications. It should be noted that an audio/video conferencing system is installed on all Navy aircraft carriers and several smaller class ships.

Specifics (Unique Features)

Typically, the visual type of information used involves cameras viewing personnel, different types of maps, charts and illustrations. Also, information from PCs or of high resolution computer based workstations is distributed. Graphics devices by Sun Microsystems, ADP, HP, Tektronix, IBM and Apple are typical.

It should be emphasized here that the video matrix can switch both the RGB component video and the composite output video from these devices. Also, output of video tape recorders and video show projection systems are distributed.

The maximum number of conference rooms that the switching and control system can conference is 256. This limitation is not the number of inputs or outputs of a switcher, but essentially the number of remote control panels that a centralized control system can support. An example of a control head that can be used is the pushbutton remote control panel button representing each room for a total of 64 rooms. There also could be a central operating control point such as a CRT or a single master control panel.

What the System Consists of

The system consists of a conferencing/video matrix, an audio conferencing matrix, a central system controller and remote control head for each of the rooms (if required).

A CRT terminal is used for displaying the status of each conference as to what type of conference and what level of user is involved. The communications polling port allows interface to a printer and a chronolog date/time clock. The printer records each conference, including the number of people involved in a specific conference and what level of priority. The printer provides a record for discussions of the operations and correctness of the system.

The conferencing system, while it is a local area video/audio conference and intercom system, can be used as a part of or an extension to a Long Haul satellite teleconferencing system that links remote facilities such as Air Force bases or Army bases.

The control head also has the capability of initiating a conference or multiple conferences. A central master controller panel or CRT can be used to control all conferencing requirements and just one panel or CRT can be the major control point.

Each of the multi-point conferencing rooms can have an individual control head. The control head allows the system to monitor the video and audio from each of the rooms without establishing a conference.

Types of Teleconferencing Rooms

Teleconferencing capabilities consist of the following types: 1) Tele-training includes classrooms that use teleconferencing to bring the instructors or experts face to face with students by way of the communications link. 2) Roll About Systems that are transportable. This unit has cameras and all the necessary electronics needed to conduct video and audio teleconferencing, and can be moved from one location to another. 3) Video Teleconferencing Rooms that are permanent, built-in conference centers that appear similar to conferencing rooms but have cameras and other electronic devices that are not necessarily apparent to the participants in these rooms. 4) Desktop Video Conferencing involves the use of a personal computer workstation that allows individuals to video conference directly from their desk. Camera devices, microphones and electronics are also part of this desktop capability. 5) The Mobile Video Conference room or center is a self-contained mobile conference room that carries the necessary cameras, electronics and communication equipment for video teleconferencing from a remote location.

In the future, we will see more use of fiber optics as links between rooms within a building or between sites within a local area such as multiple buildings on an air base. Fiber provides improved security as compared to a LAN system or video and audio cabling between rooms.

We see the extended use of high resolution graphics or computer workstation devices for application of information transfer and simulation of different exercises. We see the video and audio switching systems evolving to high definition television systems. In the future, instead of providing video systems that have a bandwidth requirement of 25MHz, it will be necessary to provide a pass band of 200MHz or more. We see a continual extension of the Long Haul video/audio conferencing capability, and the use of local area multi-point visual information systems as a part of the Long Haul system.

AUDIO TELECONFERENCING

Courtesy of: Shure Brothers, Inc.

By: Gregory L. Hill

General Considerations

A successful teleconferencing installation depends on more than just microphones. Additional factors must be resolved. Some questions to be asked are:

- What type of meeting(s) will occur?
- Is this a single or multiple use facility?
- Will voice communication be supplemented with video?
- Where will the conferees be positioned?
- Will presentation aids such as large drawings, white boards, electronic chalkboards, or simple documents be used?

Finally, what are the aesthetic requirements?

The answers to these questions, when considered with the acoustic factors of the room, determine the type, style and placement of the microphones.

The next task is to assess the suitability of the room. Ambient noise is the largest problem in most rooms. The masking effect of received speech by ambient noise causes the user to increase the receive level beyond what is normally required. Reducing ambient noise allows the system to operate at sound pressure levels present during ordinary conversation, promoting natural sounding conferences. The amount of noise each piece of equipment (projectors, graphics, codecs, HVAC) contributes must be considered and reduced if a problem is evident. Flutter echoes and long decay times also tend to degrade performance. Adding just enough acoustic treatment to reduce these problems without making the room too "dead" for face-to-face conferencing yields acceptable results.

Microphone Placement

The critical distance of the room is a good guide to microphone placement. Critical distance is the point at which sound arriving directly from the source equals the sound arriving by reflection off of room surfaces. An omnidirectional microphone placed at the critical distance will respond equally to the reflected and direct sounds. This 50/50 mixture of direct and reflected sound makes the speech difficult to understand and fatiguing to listen to.

A unidirectional microphone placed at the critical distance produces better results. When the primary axis (front) of the microphone faces the talker, the unidirectional property of the microphone reduces the proportion of reflected sound to direct sound, enhancing intelligibility. Microphones with higher degrees of off-axis rejection reduce the proportion of reflected to direct sound even further. Placing a unidirectional microphone at one half the critical distance from the talker produces excellent results.

Microphone Selection

Many organizations conduct meetings with conferees seated at a conference table. The traditional approach gives each talker their own stand mounted probe-style microphone. The stand helps to reduce "table noise" such as paper shuffling and pencil tapping at the expense of aesthetics. The bulky stands quickly reduce a handsome table to a jumbled forest of microphones and cables. A better approach is to use a very low profile surface mount microphone. A surface mount microphone combines the benefits of low profile, unobtrusive appearance, a cardioid response and boundary effect in one package.

To reduce the number of microphones on the table, one manufacturer has combined three cardioid microphones (spaced at 120 degree intervals) in one six inch diameter finished hardwood disk. This unit reduces the cabling and "intrusive" procedures (drilling) performed on a table. If open space is required for drawings, lunch, etc., it may be suspended above the table on a reflector disk, acoustic conditions permitting. Suspending a microphone in this fashion reduces spurious interruptions due to table noise.

A significant portion of a conference is often delivered from a podium. A probe style microphone is particularly suited to this situation. The probe's output level must be matched to that of the other teleconferencing microphones to maintain consistent sound quality. A talker expects to find a probe microphone at the podium and is familiar with its use. The talker will know how to address the microphone without straying too far away from it. This helps to keep the microphone well within the critical distance.

The conferee at the white board needs mobility and evenness of level when facing the board or other conferees. A lavalier style microphone is the ideal choice. When not in use, the lavalier microphone should be turned off or placed in a position that will not allow pickup of unwanted noise, conversation, or sound from the loudspeaker. If the conferee will not wear a lavalier, surface mounts may be placed at the edge of the white board. The coverage will not be as uniform as the lavalier, but simplifies operation.

FIBER OPTICS IN THE BROADCAST INDUSTRY

Courtesy of: The Grass Valley Group, Inc.

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By: Michael W. Pugh

A fiber optic communications system is composed of three fundamental elements: light source, fiber media and light detector. A brief description of these elements is necessary in order to better understand the capabilities and limitations of fiber-optic systems.

Light sources

The majority of light sources used in fiber-optics emit light at one of three different wavelengths: 850nm, 1,300nm and 1,550nm. These are considered to be low-loss "windows," where glass fibers carry light with minimal attenuation. All of these wavelengths are in the infrared portion of the spectrum. For reference, the human eye can see from 400nm (violet) to 700nm (deep red).

Early fiber systems operated at 850nm, but more recently, developments in fiber have driven the market to 1,300nm and 1,550nm, in order to take advantage of lower losses at these wavelengths.

The two major types of light sources used in current fiber-optic systems are LEDs and lasers. LEDs are manufactured in two forms, edge-emitting and surface-emitting. These refer to the location on the chip from which the light is emitted. Surface-emitters have essentially the same construction as LED panel indicators; they radiate a large amount of light in multiple directions. Edge-emitters have a smaller but more focused beam. Because of the geometry of the junctions, the edge-emitters have lower capacitance and allow higher modulation rates.

Semiconductor lasers are constructed in a similar manner to edge-emitting LEDs. The two basic types of lasers are Fabry-Perot (FP) and distributed feedback (DFB). Both types channel the emitted light into a high-Q cavity, thereby correlating the light waves into a coherent beam. The DFB type also includes a grating filter that ensures a pure output. The purity of the output is inversely proportional to the spectral width. LEDs have spectral widths on the order of 100nm, FP lasers are on the order of 10nm and DFB lasers can produce narrow spectral widths of less than 1nm containing a single line.

The narrower the spectral width, the higher the cost of producing the emitter. Prices for LEDs run in the tens of dollars, FP lasers run \$200 to \$800 and DFB lasers start at \$5,000. Coherent reflections inside a laser's cavity can cause spurious outputs, often requiring opto-isolation, and increase the cost by several thousand dollars.

Because the velocity of light through glass varies with frequency, the broad spectral content emitted by an LED is dispersed during transmission through a fiber, causing different frequency components of light to be received at different times. This so-called "material dispersion" limits the bandwidth (and, therefore, capacity) and distance capability of fiber links driven by LEDs. Current research is examining methods of physically compensating for the frequency-dependence of light transmission in glass media. The LED's high reliability, stability, low-drive voltages and low cost make them the appropriate choice for many applications.

Lasers' narrower spectral width makes their higher cost worthwhile for longer distances and wider bandwidths. They also possess faster rise times (10^{-12} second) than LEDs (10^{-9} second), making lasers more suitable for higher frequency operations. On the other hand, lasers have the disadvantage of being temperature sensitive; a slight temperature change can cause as much as 20nm drift in center wavelength. LEDs exhibit no such sensitivity.

A recent addition to this marketplace is the superluminescent diode (SLD), which falls somewhere in between the LED and the laser in performance parameters and cost.

Optical power output characteristics also vary among devices. The LED is nearly linear, the SLD is non-linear (output rising vs. input) and the laser is collimated (linear until saturation, then rising asymptotically). Emission angles are also important, because they determine coupling efficiency with small-core fibers. Lasers again show about one order of magnitude advantage over LEDs, allowing about 10 times more coupling efficiency with the smallest fibers, owing to their narrower dispersion angle.

Fiber media

Optical fiber is a light guide made of fused silica (glass). Some plastic fibers are in use, but they exhibit high losses and limited bandwidth, and are typically used only in special applications. The actual glass path in a fiber-optic line is only about as thick as a human hair, and weighs approximately one ounce per kilometer.

As mentioned earlier, the process of light transmission through glass is based on the phenomenon of total internal reflection. To understand this process, consider first the "refractive index" (n), which states the ratio of

the speed of light through a medium (v) relative to the speed of light through a vacuum (c) in an inverse relationship.

$$n = c/v$$

The speed of light through air is just a bit slower than through a vacuum, so its refractive index is 1.0003, but generally considered 1. Light's speed through glass, on the other hand, is about two thirds that of a vacuum, so its refractive index is 1.5. Whenever light passes from one medium to another, rays are bent to an angle determined by the relationship of the two materials' refractive indices.

First, consider the boundary between two media, then visualize a line perpendicular to that boundary. The light ray's angles of incidence, reflection and refraction are all measured in degrees from this normal line. If a ray passes from one medium with a refractive index of n_1 to another medium with a refractive index of n_2 , and n_2 is larger than n_1 (light slows down in the second medium), the refracted wave in the second medium will be bent toward the normal. If n_2 is less than n_1 (light speeds up in the second medium), the wave will be bent away from the normal, and thus bent toward the boundary. So for any two materials, a fixed amount of bending will occur when any light ray hits the surface. The actual angle of the refracted wave still depends, of course, on the angle of incidence of the light ray. In the latter case ($n_2 < n_1$), as the angle of incidence increases, some incident angle will cause the refracted wave to be placed along the surface of the boundary, and it will not enter the second material. This is referred to as the critical angle of this media interface. As the angle of incidence becomes even more oblique, the refracted ray is actually turned back into the first medium, and total internal reflection is achieved.

Fiber optic media uses a pure glass as a core (the more uniform and dense the medium, the slower light travels through it), with a less pure glass as its cladding. The refractive index of the core is higher, and light is fed into the core (only) with an angular dispersion so that as much as possible of the light strikes the core-to-cladding interface at an angle of incidence greater than the critical angle for that junction. Thus the bulk of the light stays inside the core and propagates along its axis.

Fibers with an abrupt change in refractive index between core and cladding are called step index fibers. When light travels through a multimode step index fiber, some of its paths are straight down the core of the fiber, while others deviate from the fiber core and are re-

flected back toward the center through the principles discussed previously. This reflected light takes a longer path and arrives at the destination later. The difference in arrival time is called modal dispersion. Its spreading of signals out in time upon reception creates problems similar to those of the LED's low-Q emissions mentioned earlier, and thus limits the applications of these fibers accordingly.

One solution to this problem is the multi-mode graded index fiber, which gradually bends the light back into the fiber by using a material with a continuously decreasing refractive index relative to distance from the center. This allows the light to travel faster when further from the core, thus compensating for the longer distances that reflections follow relative to direct paths. The curved internal reflection paths that result create less dispersion.

Another approach uses a step index fiber with a narrow core, which can be made to propagate only one transverse electric wave (TE) or electromagnetic propagation path mode. Simply put, a mode here is a "possible path" for light to follow through a fiber, as determined by Maxwell's electromagnetic equations. (You can only stick to the pure "ray model" of light so far in this examination.) This kind of fiber is referred to as a single-mode type. Its single-mode nature creates no modal dispersion, resulting in much wider bandwidth and lower loss. These are preferred for telephone company installations where high capacity and long distances between repeater amplification is required.

Single-mode fibers generally operate at 1,300nm wavelengths, carrying bandwidths up to several gigahertz with 0.5dB or less loss per kilometer. Multimode fibers operate at 850nm, with step index types offering bandwidth typically in the 10MHz-20MHz region and losses of 6dB/km; graded index fibers provide bandwidths up to a few hundred megahertz and 3dB/km losses. The most common fibers in use today are 62.5 and 50 μ m (core diameters) graded index multimode and 8 μ m single mode.

Bandwidth of a fiber is usually quoted in megahertz/kilometers, indicating the direct relationship of capacity to path length between repeaters.

Connectors

In many applications, fiber optic connectors (FOCs) present the greatest loss in an optical path. Typical real world connectors cause 1dB of loss each, and with fiber attenuation often less than 1dB/km, connectors can

easily dominate the loss budget. The most popular connectors are biconic and ST types, with the former preferred for telco uses and the latter for production applications, where frequent connects and disconnects may be required.

Users should be aware that installation of these connectors to a fiber is a critical and often time-consuming process.

Other losses also can occur in fiber as a result of splices (0.01dB-0.5dB), which are made either mechanically, chemically or by heating processes (welding or fusion). Micro-bend losses are caused by small anomalies (bumps) in the core-cladding interface. The fiber itself creates losses through scattering and absorption and, finally, coupling loss occurs between the fiber and its emitters/receptors. Total loss is referred to as fiber optic transmission loss (FOTL), expressed in decibels/kilometers.

Light detectors

Photodetectors are made of photoemissive material, which emits electrons when illuminated by light of sufficiently short wavelength. Two basic semiconductor structures are used for the detection of light: positive intrinsic negative (PIN) and avalanche photo detector (APD). For this discussion, a switch to the particle model of light theory is required.

In an ideal PIN diode, a single electron is emitted for each photon impacting the active region. In practice, some recombination results in efficiencies on the order of 0.8 for 1,300nm systems, such that a PIN diode with an efficiency rating of 0.8 will produce 0.8a of current from an optical signal of 1W. The APD diode also acts as a current source, but is operated near the diode's reverse breakdown voltage. This results in an avalanche effect when a photon releases an electron, effectively translating a single photon into multiple electrons and dramatically increasing the output current. Multiplication factors range from 10 to 100, depending on the material and the reverse bias. This high-conversion efficiency provides increased sensitivity and, therefore, requires less external amplification, resulting in lower noise floors and high gain factors. However, APDs require higher power supply voltages (100V-300V), and can suffer from output level variation with temperature.

Modulation

LEDs and lasers can be directly modulated by changing the current through the device. Because both devices are a form of diode, strong non-linearities exist when the modula-

tion depth is substantial. Both analog and digital modulation techniques can be applied.

Analog modulation

A straightforward approach involves direct intensity modulation of a linear waveform on a lightwave carrier (for example, amplitude modulation). The most bandwidth-efficient system at present for fiber is multichannel VSB AM video modulation. This approach requires the best DFB lasers to meet CATV linearity and signal-to-noise ratio (S/N) requirements. As many as 80 channels over a single fiber have been transported in this manner, but these systems are expensive, and are limited to approximately 57dB carrier-to-noise ratio (C/N).

For broadcast-quality and super-trunking systems, frequency modulation (FM) often is employed. FM provides extremely good linearity, adjacent channel immunity and better S/N. Current single-channel systems exceed RS-250B short-haul specifications over tens of kilometers. In CATV, super-trunking 16 channels per fiber is common. Although not as straightforward as the AM process, use of FM solves the inherent problem in AM of linearity; no light source exhibits a truly linear transfer characteristic between the electrical and optical domains. As such, AM systems must be operated over relatively narrow intensity ranges, or with complex compensation circuitry, as well as concern for temperature-sensitive conversion-efficiency changes, none of which are factors with FM.

Digital modulation

Almost all digital fiber systems use direct modulation of the light source. In other words, the light is intensity-modulated from a low (nearly off) level to a high level. The non-linearities that hurt analog performance have little effect on the digital signal. Furthermore, the S/N requirement is much less demanding. For a bit error rate (BER) of one in one billion (10^9), the S/N need only be 12dB. Better yet is the rate of improvement in BER with S/N. A 1dB improvement in S/N provides nearly three orders of magnitude improvement in BER. For these reasons, digital techniques are well matched to fiber optic systems.

The limiting factors for a digital fiber system are bandwidth and noise. For surface-emitting LED light sources the practical limit is 250Mb/s, while edge emitters extend the range by several hundred megabits/second. Laser-based systems are operating in excess of 2Gb/s. The optimum setup at present seems

to be the use of DFB lasers on single-mode fiber. This combination can provide 2 + Gb/s over 30km of fiber with low BER.

The noise generated by the laser or LED usually sets the BER limit for a given bandwidth. The receiver shot noise combined with thermal noise limit the sensitivity that can be achieved. Because all three primary noise sources are functions of bandwidth, the wider the bandwidth, the lower the maximum sensitivity for a given BER. For example, a particular PIN-based receiver operating at 500Mb/s can achieve a sensitivity of -19dBm at a BER of 1 in 10^{12} . This same receiver could only achieve a sensitivity of -16dBm at 1Gb/s because of the doubling of bandwidth.

Practical system configurations

Systems today are generally split between LED systems operating on multimode fiber below 200Mb/s and laser systems operating on single-mode fiber at data rates above 150Mb/s.

LED systems are used primarily for lower-cost systems. The use of multimode fiber allows lower-cost connectors and launches more light. The local area network standard, fiber-distributed data interface (FDDI), is representative with a fiber rate of 125 megabaud, 1,300nm LED sources and 62.5 μ m fiber. These links are good to 2km between nodes. This technology can be pushed to 250 megabaud operation.

Systems requiring longer distances or higher data rates require laser light sources. Most high data rate systems use 1,300nm lasers with single-mode fiber. Almost all long distance telecommunications links fall into this category. The bandwidth advantages of this combination of fiber and light sources suggest this will be the configuration of the future.

Fiber and video today

Fiber offers almost unlimited bandwidth, low weight and complete freedom from EMI (nor does it generate EMI). However, as mentioned earlier, limitations exist in terms of linearity and S/N that have dictated how analog video is transported by fiber.

Most studio-quality video carried over fiber today is analog composite video carried by pulse frequency modulation (PFM) systems. These digital transmission systems are used for entrance links over fiber owned by telephone companies. Digital pulses do not require a linear channel to be transmitted, thus even the non-linear effects of lasers used for

long distance applications have little effect on signal quality.

Digital video and fiber

Composite digital video, such as D-2, requires a serial data rate of 143Mb/s for NTSC and 177Mb/s for PAL. In the fiber world these are relatively low data rate signals that can use either LED or laser systems. Even component D-1's 270Mb/s is not challenging to digital fiber links. Component HDTV will require nearly 1,200Mb/s, which can be carried with current laser systems.

Cost dictates which digital links will use fiber first. Long distance links require fiber for data integrity; they are the first candidates. The distance at which fiber becomes economical depends highly on the data rate and the environment. At digital HDTV rates of 1,200Mb/s, 100 feet is a long distance for coax. Current spikes on the coax can cause errors for periods of 100 μ s, which translates to 120,000 bit errors. Fiber will be essential to error-free connections at digital HDTV rates. Even at D-2 rates, the simplicity of fiber connections for grounding of equipment and interbuilding connections may make the cost of fiber transmitters and receivers attractive.

Long-haul circuits using the telco DS3 protocol (44.736Mb/s) are now in use on fiber for compressed digital NTSC transmission. Recent and continuing advances in data compression will make even the lower-capacity fiber links extremely useful to broadcasters. Meanwhile, work continues in Japan on a 10Gb/s fiber link, which will run 100km between repeaters.

Digital audio and fiber

With these capacities, digital audio is certainly no problem for fiber. The AES/EBU standard interface only requires a 3Mb/s transmission rate (for a stereo signal). Fiber's primary benefit here is in multichannel short- and long-haul paths. Again, telco circuits (DS1 and DS2) via fiber are useful and flexible for a wide variety of audio bandwidths, plus data and control channels. They are useful and cost-effective wherever mono or bidirectional audio/data paths of any type are required between two facilities (STLs, remote sites and multiple studios). Recently, several audio "snake" systems (used for connecting multiple stage microphones to one or more audio mixing consoles) have been implemented with multiplexed digital audio on fiber. Remote-site setup and striking will be eased by the replacement of a large, heavy and electromagnetically vulnerable multipair copper cable (carrying many analog mic-level

signals) with a light and robust single cable. In the audio studio, the multichannel audio digital interface (MADI) format, a serial interface carrying up to 56 digital audio channels, uses fiber for paths greater than 50m for its 100Mb/s data.

Current applications

The use of fiber is widespread among telephone companies, and these paths are used routinely now for local and long-haul broadcast video and audio program circuits, often without the customer's awareness. Many private and state telecommunication networks have been established using fiber for all or part of these systems' paths. The term fiber news gathering (FNG) has been coined for the use of a fiber network between frequently-used remote sites and broadcast stations in Washington, DC, in which a customer-managed switcher at a downtown facility provides cost-effective feeding of analog video news material to all participants.

Next on the horizon is switching in the optical domain. Optical busing and distribution has always been a problem, but recently a fiber optic switch using gallium arsenide technology has been developed, and shows some promise.

Fiber optic links provide the broadcast industry with a media ideally suited to requirements of digital signals, so there is little doubt we will see their usage increase. In addition to its other advantages, the inherent versatility of optical fiber with respect to changing formats and data rates will allow cabling plants to remain in place through many generations of digital standards. This future staying power will offset initially higher costs and conversion expense.

With the advent of digital audio and component, high-definition and digital TV transmissions, along with growth in the number of offerings to consumers, continually wider bandwidths will be required.

DIGITAL PRIMER — AN INFORMAL GUIDE TO DIGITAL TAPE AND COMPACT DISC TECHNOLOGIES

Courtesy of: Panasonic Communications & Systems Co.

By: Mel Lambert

As Steve Woolley, National Sales & Marketing manager, Professional Audio, says: "The future direction of the music recording, broadcast and post-production industries lies in the all-digital studio. Our two new R-DAT digital tape recorders have been designed to allow high quality recordings of music performances, ENG and broadcast remotes, film and video shoots. At the other end of the production chain we are offering two, full-feature Compact Disc players for production studios, on-air applications, background music and automated broadcast facilities."

Digital Audio Buzz Words

To help you better understand the features being offered by these four innovative new products — and, more importantly, their significance to your customers — the following technical briefing provides an explanation of some of the basic buzz words used to describe digital technology.

SAMPLING FREQUENCY:

At the input to all digital recording systems is an **Analog-to-Digital Converter** which, as the name suggests, converts the incoming analog signal or voltage levels to a series of on/off pulses known as **binary pulses** or **bits**, using a process referred to as **Linear Pulse Code Modulation**. (Although other encoding techniques are also available to the digital designer, Linear PCM is used in the large majority of modern recording and processing systems.)

The number of times per second that the input signal is buffered into the A-to-D converter, measured and used to produce a 14- or 16-bit binary number is known as the **Sampling Frequency**. The higher the sampling frequency, the greater the signal bandwidth of the recorded signal. As explained below, the range of frequencies that can be recorded using, for example, a sam-

pling frequency of "X" kHz, are zero Hz to X/2 kHz; in other words a bandwidth of "X/2" kHz.

In practical terms, an R-DAT recorder with a sampling frequency of **48kHz** will record onto tape frequencies from zero Hz to just under 24kHz. By comparison, conventional analog recorders used in production studios are capable, at a tape speed of 7.5ips, of recording signals from around 40Hz to 15kHz; at 15ips the performance may extend from 25Hz to 19kHz.

One drawback with analog recorders, however, is that these performances are only achieved at low to medium recording levels. At high record levels, analog recorders cannot handle signals containing a great deal of high-frequency material. The resultant roll-off at the top end of the audio spectrum can be quite dramatic and, depending on the tape type in use, begin as low as 12-15kHz. Once again, digital technology shines through, because it can offer *extended bandwidth at all record levels*.

Of the currently available sampling frequencies, **44.1kHz** is used in Compact Disc players; the majority of PCM systems that utilize companion video decks; and for pre-recorded R-DAT cassettes. Many professional R-DAT recorders also offer a record sampling frequency of 44.1kHz, to provide compatibility with digital consoles, random-access editing systems and Compact Disc mastering systems.

The ability to connect digital signals directly from one system to another — and thus do away with the need for additional D-to-A and A-to-D stages — will maintain the high quality of digital through the multiple mixing and processing stages possible in the all-digital studio of the near future.

Although it is possible to convert a digital signal recorded at a sampling frequency of, for example, 48kHz, to one that is referenced to a sampling frequency of 44.1kHz, such sampling frequency converters are expensive.

They also produce, some audio engineers feel, a small but unnecessary signal degradation because of the additional stage of signal processing involved. The ability to record an R-DAT cassette at the CD mastering frequency of 44.1kHz has obvious advantages to music producers, while broadcast and post-production facilities will be able to make use of a broad palette of digital recording, editing and processing hardware that operates at the same sampling frequency.

A sampling frequency of **32kHz** is offered on most R-DAT recorders to provide compatibility with Japanese DBS (Direct Broadcast Satellite) systems, which transmit 16-bit digital audio into the home. This signal can then be connected directly to the digital port of an R-DAT recorder, and so avoid an additional A-to-D stage. Its potential broadcast application in the US is still under consideration. The majority of European broadcasters have adopted a "standard" sampling frequency of 32kHz for relaying signals between studios and transmitter sites, for example, although the future of direct broadcasting of digital signals has yet to be resolved.

QUANTIZATION RATE:

The "resolution" of a digital recording system is determined by its **Quantization Rate**, expressed in bits. During the A-to-D conversion process, the resultant number or **digital word** can be of any bit size, although current ICs usually limit this to 14, 16 or 18 bits. Mathematically, a **16-bit** number of binary off/on sequences will provide a maximum of 65,536 discrete levels. Or, put another way, between the softest and loudest levels recorded on tape a 16-bit system will provide over 65,000 unique sound levels. A **14-bit** system, on the other hand, provided only a quarter of the levels provide by a 16-bit system.

Expressed in terms of **Dynamic Range** — the difference in level between the softest and loudest sounds that a system can handle without causing distortion — a 16-bit system will produce a recording with a dynamic range of just over 96dB, while a 14-bit system offers a dynamic range of around 84dB; analog systems, in contrast, are limited to dynamic ranges of between 55dB and 80dB, depending upon tape speed, track format and the use of noise reduction.

Dynamic range parameters are often used interchangeably with **Signal-to-Noise Ratios**. Strictly speaking, dynamic range is the difference between the softest and loudest signals that can be recorded and played back without producing a specified amount of signal distortion, while signal-to-noise ratio (SNR) is a measure of the signal you want, compared to the unwanted signal (usually hum, hiss and other high-frequency sounds). SNR *must* be referenced to the particular weighting curve used to measure the extraneous signals; A-weighted, DIN-spec or 20Hz to 20kHz, unweighted, are just three of the many possible curves used to specify signal-to-noise ratios.

ANTI-ALIASING FILTERS:

As mentioned above, the bandwidth of a recording system based on a sampling frequency of, let's say, 48kHz, will offer a bandwidth of just under 24kHz. The reason for this 2:1 relationship results from the well-known **Nyquist Sampling Theorem**. The theorem states that to unambiguously represent an audio waveform in digital form, the incoming audio signal must be filtered to remove every frequency above half the chosen sampling frequency.

To prevent unwanted frequencies from upsetting the digital sampling process, **Anti-Aliasing Filters** are used in conjunction with a system's A-to-D and D-to-A converters. These lowpass filters (so called because they only allow low-frequency signals to pass through) are difficult to design. All filters produce a certain amount of audio and phase degradation; those

found in digital systems have to be engineered to pass as much of the upper frequencies as possible, but without adding distortion.

Compact Disc players also contain anti-aliasing filters; again, the reconstructed analog signal produced by the D-to-A converter has to be lowpass filtered to remove unwanted signal components.

The use of **Digital Filters** offers many advantages over analog designs, mainly because they can be fabricated to tighter tolerances and their operation is more linear and controlled. The phenomenon of **Oversampling** is related to filtering, in that the digitized signal from an R-DAT or CD player is processed at many times the original 48kHz or 44.1kHz sampling frequency. (This action, in itself, cannot produce audio of higher quality; the audio fidelity of a recording is determined *solely* by the sampling frequency, quantization rate, error detection schemes and encoding/recording techniques.)

The **MASH (Multi-Stage Noise Shaping)** analog-to-digital converters and 64-times oversampling digital filtering utilized in the SV-250 portable R-DAT recorder dramatically reduce both the amount of signal distortion caused by conventional filters and the amount of zero-cross distortion, thereby producing a cleaner, clearer audio signal at low as well as high recording levels.

ERROR CORRECTION AND CONCEALMENT:

Once the audio signals have been digitized, there are various ways they can be recorded onto tape, or coded onto a Compact Disc. Because of the possibilities of dropouts caused by dirt on an R-DAT tape or CD surface, **Error Correction Bits** are added to the data being recorded or encoded. Upon playback, these additional bits are used to reconstruct any lost data.

The way in which the error-detection bits are calculated, and how they are incorporated into the data stream, has been standardized for both R-DAT and Compact Disc, so that a tape recorded on one machine will play back on another, and that CDs from any record label will replay on any player.

To demonstrate to the user how hard the error correction circuits are having to work — and possibly how damaged the tape has become — most R-DAT machines feature **Error-Detection Lights** that illuminate according to the amount of correction that is taking place.

The difference between error "correction" and **Error Concealment** is a subtle but important one. Correction implies that the damaged data has been detected and that all of the lost or missing data has been recovered from the additional error correction bits; in other words the playback would be indistinguishable from the original, undamaged recording. Concealment, on the other hand, implies that massive data loss has been sustained (possibly from a flaw on the CD surface, or a bad crease in the R-DAT tape), and that the error correction bits were insufficient to recover the lost data. Instead, the R-DAT recorder or CD player has been forced to interpolate what the data *might* have been, given recent trends in the signal's level and frequency content, and intelligent guess work. There is a good chance that the user won't be able to hear the difference, although subjective results will depend on the amount of data that has been lost, and the kind of audio material in which the loss has occurred.

MICROPHONE TYPES

Courtesy of: Electro-Voice, Inc.™

MICROPHONE TYPES AND OPERATION

All microphones have two basic components: the diaphragm, and the generating element. The diaphragm is a membrane which vibrates in accordance with the pressure variations of sound. The generating element converts the diaphragm vibrations into electrical voltage. This generating element is one of four factors which determine the type of microphone. The kinds of generating elements vary greatly in expense, fidelity, complexity, ruggedness, and longevity.

Ceramic and Crystal Generating Elements. The diaphragm of a crystal or ceramic microphone is attached to a special material which produces an electric output voltage when it is moved. Such materials are termed "piezoelectric." A typical ceramic microphone is diagrammed in Figure 1. Such microphones generally provide insufficient fidelity and ruggedness, even for the most modest requirements of the professional and serious amateur.

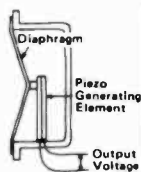


FIGURE 1—
Ceramic/Crystal
Generating Element

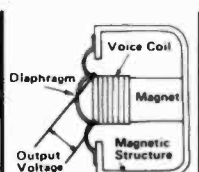


FIGURE 2—Dynamic
Generating Element

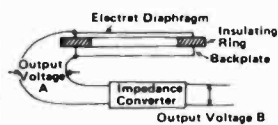


FIGURE 2A—Condenser
Generating Element

Ribbon (or "Velocity") Generating Elements. Ribbon microphones are similar to dynamics, except that a very thin metal-foil ribbon serves as both diaphragm and voice coil. In order to obtain adequate frequency response and output level, the thin ribbon must be exceedingly light. Older ribbon microphones could easily be destroyed by mechanical shock or a sudden blast of air which would stretch and destroy the fragile ribbon. However, the best current designs have been improved for satisfactory durability.

Dynamic Generating Elements. The diaphragm of a dynamic microphone is attached directly to a coil of wire (voice coil) located close to a magnet. When the voice coil vibrates, a voltage is produced. A dynamic microphone is shown in Figure 2.

The dynamic microphone is a proven tool for the public address and instrumental miking requirements of the professional performer. It provides excellent fidelity, extremely stable performance characteristics, and a high degree of ruggedness — all at a reasonable price. These same characteristics are ideal for conventional sound reinforcement and recording, as well. In addition, the diaphragm of a well-designed dynamic microphone is able to withstand the close miking and high sound levels often employed by musicians; all without damaging the microphone or distorting its output. The many desirable features inherent in the dynamic microphone make it a good choice for most applications.

Condenser Generating Elements. The diaphragm of a condenser microphone is a movable plate of a condenser (capacitor), a common component in electrical circuits (Figure 2A). When polarized by applying a direct current voltage, motion of a diaphragm in relation to a fixed backplate produces an output voltage. The extremely high impedance of the condenser generating element is matched to typical inputs by an impedance converter in the microphone. Condenser microphones, many of which are capable of very wide frequency response, have been widely used in recording studios for years. For the performer, due to their relatively high output level, condensers may produce input overload distortion (distortion caused by too great an input signal to a mixer) unless appropriate precautions are taken.

Modern day electret type condenser microphones can offer ruggedness comparable to dynamic microphones. The electret microphone can often yield superior performance at the frequency extremes (high and low) when compared to dynamic types. Because electrets utilize an impedance converter to match the diaphragm signal to the mixer input, they require either a battery or phantom power for operation. Phantom power is a means by which power is supplied to the microphone from either a mixer or power supply by way of the microphone cable. Phantom power eliminates the need for batteries and the problem of replacing dead batteries. Even though electret microphones are more complex in construction, their performance advantages are making them an increasingly attractive choice for exacting applications.

MICROPHONE PICKUP PATTERNS

A microphone's pickup pattern is three dimensional in character and shows how the microphone responds to sound from different directions. Omnidirectional microphones pick up sound from all directions. Unidirectional microphones reject or reduce sound from their sides or rear. The pickup pattern is the second of four factors which determine the type of microphone.

Omnidirectional Pickup Pattern. The pickup pattern of an omnidirectional microphone may be represented as an inflated balloon with the microphone at the center, as shown in Figure 3. Usually a polar pattern is used to represent the pickup pattern, illustrated in Figure 4. The polar pattern shows the loss in output (in dB) experienced as a constant-output sound source moves 360° around a fixed microphone at a fixed distance from the microphone.

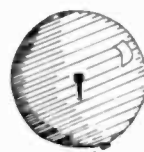


FIGURE 3—
Omnidirectional Pickup Pattern

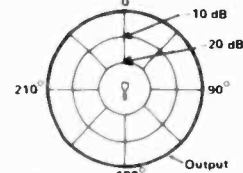


FIGURE 4—
Omnidirectional Polar Pattern

How does an Omnidirectional Microphone Work? The case of the microphone shown in Figure 5 is totally sealed, so that sound pressure can strike only the front of the diaphragm.

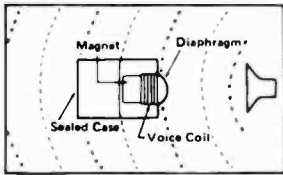


FIGURE 5—Omnidirectional Microphone

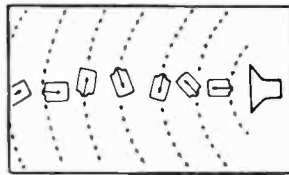


FIGURE 6—Omnidirectional Microphone at Various Angles

Pressure variations passing over the diaphragm move it no matter how the unit is oriented with respect to the sound source! This phenomenon is shown in Figure 6. Thus, microphone output is constant regardless of orientation.

Why an Omnidirectional Microphone? In systems where extremely close working distances are employed, say touching the lips to six inches, the omnidirectional microphone, if it can be used, has several advantages in its favor:

1. For a given price, an omnidirectional microphone generally has a smoother frequency response than its cardioid counterpart. Such smoothness of response is important because any roughness invites feedback.
2. An omnidirectional microphone is significantly less susceptible to breath pops than its cardioid counterpart.
3. An omnidirectional microphone is significantly less sensitive to mechanical shock than its cardioid counterpart.
4. An omnidirectional microphone is often more rugged than its cardioid counterpart.

Unidirectional Pickup Pattern. The most common unidirectional microphone is called a cardioid. Cardioid is a mathematically descriptive term that denotes the geometric form of the pickup pattern. The pattern happens to be crudely heartshaped (hence the term "cardioid"). Side pickup is moderately reduced in a cardioid microphone and rear pickup is dramatically reduced. The polar pattern of a cardioid microphone is shown in Figure 7. The apple shown in Figure 8 would be a good three-dimensional model of the cardioid pattern with the stem representing the microphone.

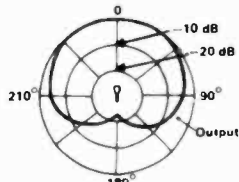


FIGURE 7—Cardioid Polar Pattern

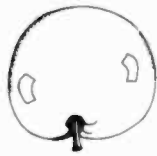


FIGURE 8—Cardioid Pickup Pattern

How does a Unidirectional Microphone Work? In a cardioid unidirectional microphone, the case is not sealed. The sound pressure is permitted to contact the diaphragm from the rear as well as the front. The rear contact occurs through a port which is precisely located in the microphone case.

A simple cardioid microphone is shown in Figure 9 with the sound source at its rear. With sound originating from the rear of the microphone, diaphragm motion is neutralized by equal, in phase sound pressures arriving at each side of the diaphragm, resulting in zero net force acting on the diaphragm. (Note the "plus" sound pressures on both sides of the diaphragm.) However, with sound originating from the front as shown in Figure 10, a delay in the sound

pressure reaching the rear of the diaphragm due to the increased distance (that is, distance to the rear opening plus the distance back to the diaphragm) permits motion of the diaphragm. Microphone output results. (Note the "plus" sound pressure on the diaphragm's front, and the "minus" pressure at the rear.)

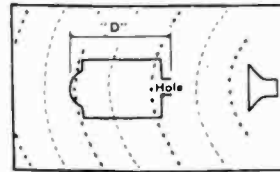


FIGURE 9—"Single-D" Cardioid Microphone with source at rear

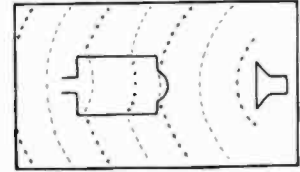


FIGURE 10—"Single-D" Cardioid Microphone with source at front

Why a Cardioid Microphone? The pickup pattern of a cardioid microphone — relatively dead at the sides and rear — tends to increase the working distance (the distance between the sound source and the microphone). The limiting factor is when the distance becomes so great that amplifier gain must be increased until:

1. The sound becomes over-reverberant due to room reflections.
2. The pickup of random background noise becomes excessive.
3. Sound system feedback results from P.A. or monitor speakers.

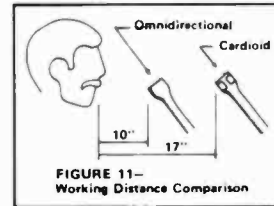


FIGURE 11—Working Distance Comparison

This increase in working distance is theoretically 1.7 to 1, as shown in Figure 11. For instance, if the maximum effective working distance of an omnidirectional microphone is ten inches, then theoretically a cardioid mic can be used at seventeen inches with the same effectiveness!

The feedback-reducing characteristics of cardioid microphones would seem to make a clear-cut case for the use of a cardioid microphone by professional performers. In marginal feedback situations, the cardioid will produce a higher level in the room before feedback occurs. This situation is often encountered in portable P.A. systems and other systems employing high-level stage monitors, where high levels of direct speaker sound reaches the microphone from the sides or rear. Usually in such instances, the loudspeakers are closer to the microphones than would be desirable from a sound-system design standpoint, and care must be taken to maintain proper gain without feedback.

Two vastly Different Types of Cardioid Microphones. A "Single-D" cardioid gives big bass. The simple cardioid microphone described previously (the one with a single port located in the case) has a frequency response which varies strongly with working distance! As shown in Figure 12, at one-quarter inch, the bass response is boosted fifteen dB over the response at 24 inches and beyond! In engineering terms, this type of cardioid is called a "Single-D", named for the single distance between the rear sound entrance and the diaphragm.

The close-up emphasis of bass tones of the Single-D cardioid, called "proximity effect", provides a big, no-mistake-about-it bass sound – and for certain vocal applications, this is a popular sound. The Single-D sound, however, may not provide the super-clarity often desired by today's performer.

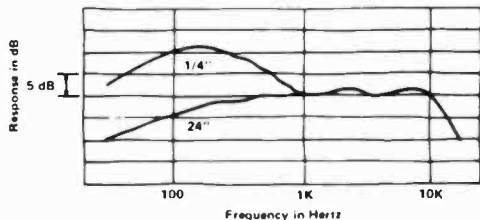


FIGURE 12--"Single-D" Proximity Effect

A "Variable-D[®]" cardioid emphasizes clarity. In order to reduce bass-boosting proximity effect, Electro-Voice developed and patented the "Variable-D" microphone. In a Variable-D, multiple ports are used with high frequencies entering the port closest to the diaphragm, mid frequencies entering midway along the length of the microphone case, and low frequencies entering the port farthest from the diaphragm. A Variable-D microphone is shown in Figure 13.

The virtual elimination of proximity effect of a Variable-D microphone is shown in Figure 14 in comparison to the strong bass boost of the Single-D cardioid microphone.

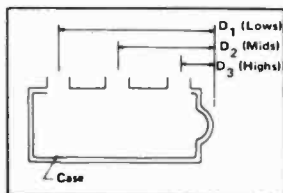


FIGURE 13--"Variable-D" Cardioid Microphone

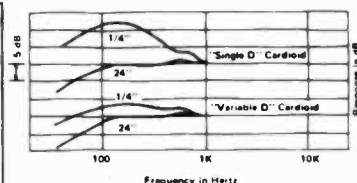


FIGURE 14--Proximity Effect Comparison

Latest Electro-Voice designs employ a variation called "Continuously Variable-D" where the mid- and low-frequency ports are replaced by a long, slotted entrance which has a continuously varying frequency acceptance along its length, with the lowest frequencies entering at the farthest point from the diaphragm. The frequency discrimination of Variable-D or Continuously Variable-D microphone ports can be effectively demonstrated by speaking, with lips touching, into the front, then mid, then rear openings. The change in vocal character will be readily apparent, with the sound very "bassy" at the rear port of the microphone and with much more "treble" evident toward the front port. A Continuously Variable-D microphone is shown in Figure 15.

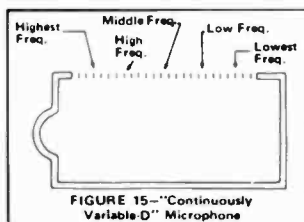


FIGURE 15--"Continuously Variable-D" Microphone

In addition to reduction of the Single-D's proximity effect, Variable-D and Continuously Variable-D cardioids have reduced breath popping and shock sensitivity. Thus, the popularity of the Variable-D microphone is due to its combining of the omnidirectional's clarity and inherent pop and shock resistance with the cardioid's feedback reduction and working distance advantages.

Variable-D and Continuously Variable-D (CV-D) are registered trademarks of Electro-Voice, Inc.

MICROPHONE FREQUENCY RESPONSE

The third factor which determines microphone type is frequency response. Response information for each microphone will help you select for special results. For instance, a microphone with "rising" response will emphasize the brightness of a trumpet or other brass instrument; one with proximity effect (single "D" cardioid) will add bass boost to a close working "thin voiced" singer. Communications microphones almost always have rising response or a "presence peak" to add intelligibility to voice transmission. A flat response, for most accurate sound reproduction as shown in Figure 16, would be typical for studio recording under ideal room and low noise conditions.



FIGURE 16 -- Nominally Flat Response

Choose an appropriately shaped response (an example is shown in Figure 17) for special requirements: rolling-off frequencies of unwanted background noise (such as in a vehicle or plant machinery) and room reverberation; boosting bass; brightening high frequencies or increasing intelligibility.

When choosing a microphone, be certain its frequency response is wide enough to reproduce the sounds you need to reproduce with no perceptible change in quality. It should be pointed out that the response curves shown in Figures 16 and 17 (as well as curves shown on data sheets) were produced with the microphone at a sufficient distance so as to be in the "free field." When microphones are measured at very close distances, changes in the response curve can occur from microphone characteristics, such as proximity effect, which we described earlier. The chart shown in Figure 18 shows the frequency ranges of various instruments as well as the human voice, and it should be of some help when selecting an appropriate microphone with respect to frequency response.

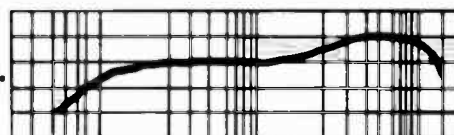
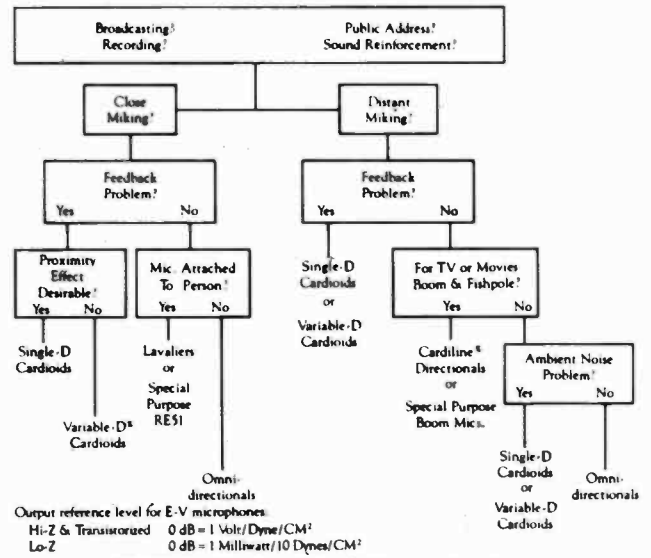
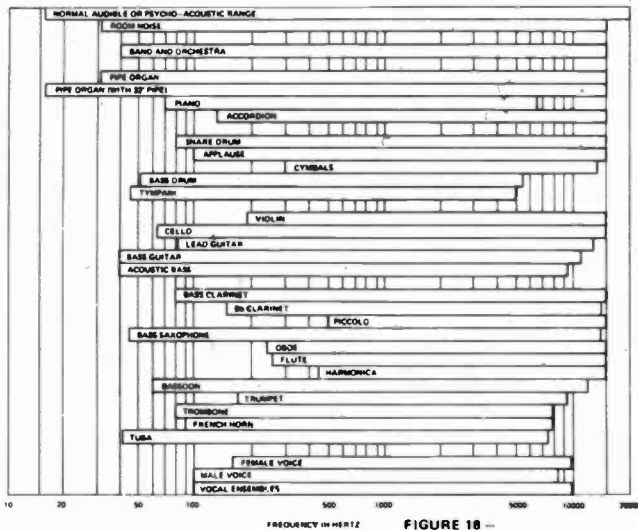


FIGURE 17 -- Typical Shaped Response

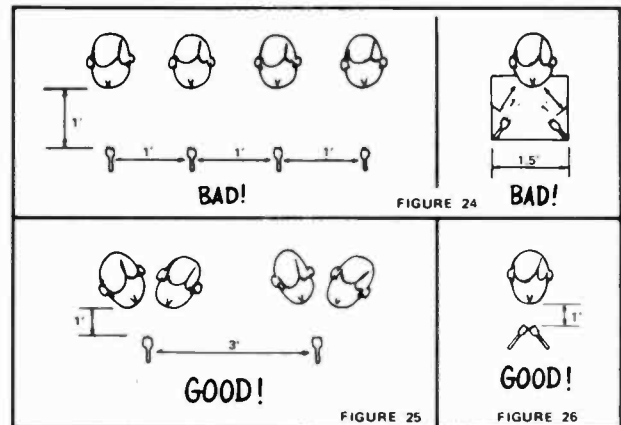
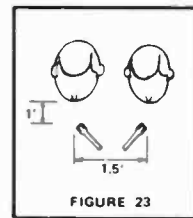
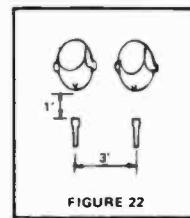


MICROPHONE IMPEDANCE

Choosing Between Low-Z and High-Z Microphones. Microphone impedance is the fourth factor that determines microphone type. High impedance microphones have higher output than low impedance types (about 20 dB). However, low-Z microphones permit the use of longer cables without high-frequency rolloff. Therefore, if microphone cables will be longer than fifteen or twenty feet, only low-Z microphones should be used if the maximum clarity of extended high-frequency response is desired! Low impedance microphones have become the industry standard due to their versatility and the availability of equipment which accept low impedance inputs.

Impedance Matching for Dynamic Microphones. In usual practice, high-Z microphones operate properly when connected to high-Z mixer inputs only. Connection to a low-Z input results in drastic low-frequency attenuation. Low-Z microphones are designed to operate through low-Z inputs. However, they will usually operate in high-Z inputs when the sound system has sufficient gain, and the microphone output level is large. This technique, incidentally, is often used to control input overload since a voltage drop of approximately 20 dB usually results when a low-Z microphone is moved from the mixer's low-Z input to its high-Z input.

Avoiding Multiple-Microphone Interference. Voids which can occur in frequency response when the outputs of two microphones are combined can be avoided if the microphones are at least three times as far apart as either is from the user. The 3-to-1 ratio is illustrated in Figure 22. The ratio is frequently violated in stage microphone placement and is often the culprit for strangely inadequate sound-system performance. Some illustration of "good" and "bad" multiple-microphone placements are shown in Figures 24, 25, and 26. The "bad" placements can ruin the performance of an otherwise excellent sound system!



When two microphones must be used close together, multiple interference can be avoided by placing the heads directly together. (See Figure 26)

When cardioid microphones are used, the 3-to-1 ratio can be reduced somewhat by angling the microphones away from each other as shown in Figure 23.

CAUSES AND CURES OF HUM AND NOISE IN MICROPHONE CABLE

Courtesy of: Canare Cable, Inc.

CAUSES AND CURES OF HUM AND NOISE IN MICROPHONE CABLE

The signal generated by a microphone during quiet periods can be very low in level, only -70dB to -120dB (0.3 millivolts to 1 microvolt). This makes the cable that carries the signal to the mixer very sensitive to electromagnetic interference (EMI), electrostatic coupling of hum, and noise caused by capacitance changes in the cable. Capacitance changes can, in turn, be caused by mechanical vibration and flexing (handling noise) or by temperature changes. *Canare cables are carefully designed and are manufactured to very close tolerances using the highest quality materials available, so that low level microphone circuits will not be affected by these outside sources. The difference is clearly measurable and audible.*

SCR NOISE

Magnetic fields are radiated from power cables, motors and power transformers. Often power line frequency can become contaminated by a rich harmonic spectrum which is generated by saturated transformers, the reactive ballasts of fluorescent lights, and, most drastically, by the "clipped" waveforms emitted by SCR (Silicon Controlled Rectifiers) dimmers. The magnetic fields radiated by these sources cut across the conductors of a mic cable and induce a voltage that is heard as hum (or buzz at higher frequencies). The higher the frequency, the greater the induced voltage, which is why the upper harmonics of SCRs are so objectionable. Twisting the inner conductors of a cable minimizes susceptibility to this electro-magnetically induced noise.

ELECTROSTATIC HUM

The power line and mic cable act as two plates of a capacitor, causing the AC voltage to be electrostatically coupled into the cable, which is heard as hum. This capacitive reactance more readily admits high frequencies, and the higher the impedance of the mic circuit, the greater the induced noise voltage. A grounded, electrically conductive screen around the cable (the shield) offers a low-resistance path to ground and can thus shunt electrostatic hum. However, the effectiveness depends upon the percent of coverage afforded by the shield. Fully wrapped, aluminum tape offers 100% coverage, but is not durable or highly flexible for hand-held or often moved cable. *Canare does not use surround (spiral or serve) wrap shields because they can open up with use. Our braided shields are more difficult to manufacture, but they offer good flexibility in a tight braid that uses many thin strands. This yields the highest possible shield density, between 90% and 97%, depending on the specific cable.*

GROUND LOOPS

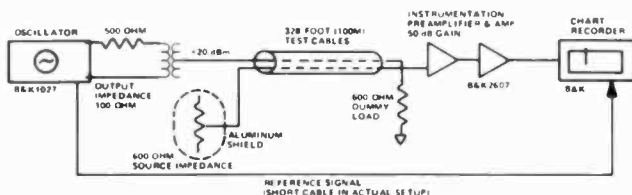
If the shield on a cable that connects two pieces of equipment is connected to ground at both ends, additional ground paths are created in parallel with the hard-wired AC power line grounds. Electrical potential differences (called ground loops) are thus created, causing the problem which is sometimes known as "common mode noise." It may be heard as hum or buzz and in extreme cases, it can also provide a path for internal equipment oscillation at very high frequencies, or radio interference. To avoid such problems, a "floating" line should be used, where none of the center conductors are grounded at either end of the cable (or a "balanced" line, where a transformer center tap is grounded). The shield should then be grounded at only one end of the cable. If common mode noise becomes a problem, try cutting the shield at the mixer end of the mic cable. *Most Canare multi-channel cables include an overall "drain" wire so the ground can be returned from a remote junction box to the mixer to provide positive shielding for the box without causing ground loops.*

CROSSTALK

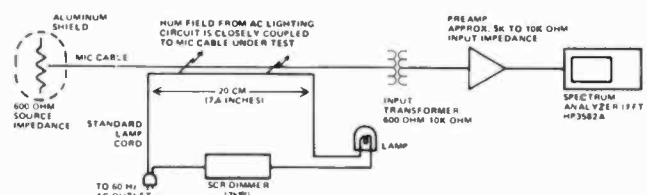
Crosstalk (leakage) occurs when signals enter adjacent channels of a multichannel cable, either by capacitive coupling or electromagnetic induction. *The static coupling is prevented in Canare cables by shielding each channel thoroughly.* Magnetic induction however, is more difficult to deal with since more insulation and shielding do not help. *In Canare L-PE 2-conductor multichannel cables we use a different twisting pitch for each adjacent channel, so the magnetic fields do not align and inductive coupling is minimized.* The worst case occurs when line level signals (-20dB to $+4\text{dB}$ nominal) are applied to some channels, and mic signals on other channels in the same cable. In such cases, *Canare 4-conductor 'STAR QUAD' cable has inherently high rejection of magnetic induction, and offers the best method for avoiding crosstalk.*

HANDLING NOISE

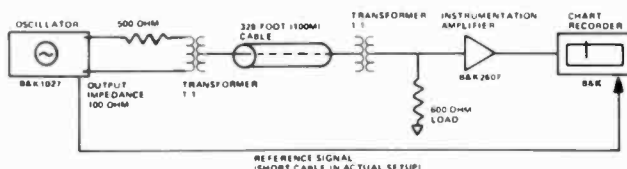
Handling noise is just one form of capacitively induced noise. Sharply bending a cable, vibrating it, or handling it, all can cause the spacing to change between conductors, and between the shield. This changes the capacitance coupling between conductors, and the effect is much like a condenser microphone in parallel with whatever mic you have connected to the end of the cable. In order to minimize such noise, a cable must be mechanically stable. *Canare uses cotton, jute and/or exotic polyester filler fibers to pack cables, so they hold their dimensions. These fillers also prevent stretching, which can induce noise. Additionally, paper, mylar and/or cloth tape, bind multichannel cables so they hold their shape. In the most susceptible of cables, such as high impedance guitar cord, Canare uses a conductive carbon-vinyl plastic jacket inside the shield to dissipate static noise and improve shield density, further reducing handling noise. (Canare GS-6).*



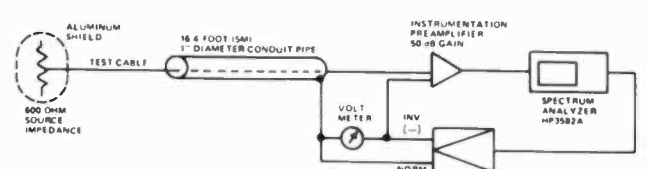
CROSSTALK TEST SETUP



SCR NOISE TEST SETUP



FREQUENCY RESPONSE TEST SETUP



STATIC NOISE TEST SETUP

TELEVISION AND COMPUTER VIDEO

Courtesy of: Covid, Inc.

by Imre A. Csaszar

Csaszar, a designer of video equipment, is president of Covid, Tempe, AZ.

Computer displays have a different visual function than the video displays for industrial or broadcast video. The video systems used throughout the world for entertainment, news and education were designed to broadcast moving pictures of familiar, real-life objects over the airwaves to the masses. The motion focuses visual attention and acuity in the center of the screen, and the corners and edges are treated peripherally.

All are primarily black-and-white systems with a low-resolution color channel overlaid on the medium-resolution black-and-white image. These systems rely on the viewer's visual experience to "fit" the colors to the highest-resolution monochrome image. Even proposed future high-resolu-

Interfacing a computer's output to the video world isn't as complicated as it may seem.

called pixels or pels, the smallest bits of light that make up the picture. These bits, or dots, of light are grouped in patterns to form the characters and lines displayed on the screen of a computer monitor. (See Figure 1.) They often are visible upon close examination, particularly on older equipment.

Often, the graphics used in computer displays are of abstract items that don't exist in nature and are not familiar to the viewer. Also in contrast to video displays is the information in the corners of a computer display screen, which is typically as important as the information in the center. These distinctions in function are the reasons for the technical design differences that will be discussed here, and they must be kept in mind by designers of large-screen data display systems.

The four technical differences between TV video (NTSC/PAL/SECAM) and computer-generated video are:

1. Resolution or detail capability. The higher the resolution, the greater the detail. (See Figure 2.)

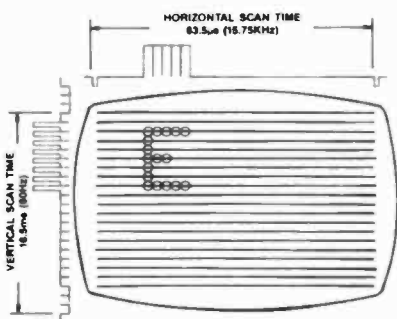


Figure 1. Resolution is limited because a slow horizontal sweep frequency limits the possible number of scan lines at a given frame rate.

tion HDTV systems maintain this relationship.

The visual function of computer displays is different in that they are designed to provide a static image of detailed information, like a printed page. This image is made up of picture elements commonly

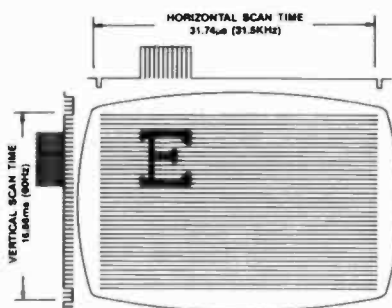


Figure 2. A faster horizontal sweep frequency provides more scan lines and a higher resolution.

2. Scan rate. How fast (in microseconds or milliseconds) or how



The differences between computer outputs and video inputs often require the use of an interface device. (Photo courtesy of Covid, Tempe, AZ)

often (in hertz/second) the beam of electrons in the picture tube scans side to side and up and down to constantly "redraw" the picture that the human eye integrates into a steady image. (See Figure 3.)

3. Retrace and blanking. Retrace is the length of time it takes the beam of electrons to go from the end of one scan line to the beginning of the next. Blanking is the length of time the beam is turned off so that the retrace is not visible on the picture tube. (See Figure 3.)

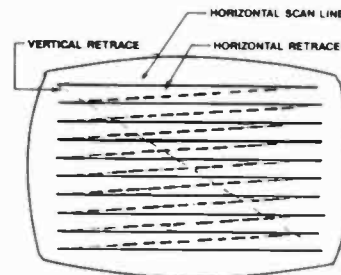


Figure 3. Image scanning occurs from left to right, top to bottom.

4. Overscan/underscan. TV video is overscanned on the picture tube. This means that the electron beam "draws" a picture that is large-

er than the viewable area of the picture tube. Computer video is under-scanned. The electron beam draws a picture smaller than the face of the picture tube.

Resolution

Resolution is determined by many factors, such as video bandwidth; rise and fall times of the electronic circuits; beam spot size; focus and high-voltage regulation of the picture tube(s); the optical characteristics of the faceplate, lenses or screens; and the environment in which the picture is viewed.

The detail capability of TV video is limited by two bandwidth restrictions: approximately 4.7MHz for the luminance (black and white) and 1.5MHz for the chrominance (color) portions of the picture. These figures apply to the RS-170A/NTSC video standard common in the United States and are only slightly better for the PAL and SECAM standards used throughout Europe. The figures were chosen because of the limited space available on the airwaves used for broadcasting and because of the limitations of the technology when television was developed. These design constraints apply, regardless of how well the equipment is designed or how expensive it is.

Computer video has a much wider bandwidth, typically from 20MHz to 100MHz. This is mandated by the greater detail displayed, and can be achieved because no real standards exist. Video from business computers and work stations always is displayed on a specially designed, dedicated monitor that is integral to, or attached to, the computer or terminal with a short low-loss cable. The only bandwidth limitations are technological and financial.

Color usually is fed in three separate signals: red, green and blue (commonly referred to as RGB), each with identical bandwidths. Picture tubes used in computer displays have a much smaller, highly focused electron beam spot size and a finer-pitch screen surface than most broadcast video monitors.

The difference in detail or resolution between TV video and computer-generated video can be compared to the difference in picture quality between a newspaper and a magazine.

Scan rates

Horizontal and vertical scan rates for TV video are specified in meticulous detail by the RS-170A standard. This standard is necessary to ensure compatibility among broadcast and reception equipment and to promote wide acceptance of TV broadcasting by the public. This broadcast standard mandates a horizontal scan frequency of 15,734.263Hz (commonly referred to as 15.75kHz). The vertical scan frequency is derived by dividing the horizontal scan by 262.5, yielding 59.94Hz (commonly referred to as 60Hz). These scan rates produce a picture, called a frame, that has 525 scan lines (262.5 x 2) displayed every 1/30th of a second.

Computer video has no scan rate standards to satisfy compatibility requirements. Computer displays have horizontal scan rates between 15kHz and 75kHz and vertical scan rates between 40Hz to 120Hz. The horizontal and vertical scan rates, together with the video bandwidth, determine the amount of detail that can be shown on the display. The higher the horizontal scan rate and video bandwidth, the higher the detail capability. The lower the vertical scan rate (for a given horizontal scan rate), the higher the detail capability.

Because vertical scan rates below 60Hz are not integrated fully by the human eye, the image appears to flicker. Computer monitors that use lower scan frequencies have phosphors in their picture tubes that keep glowing long after the electron beam has moved on. These are called *long-persistence phosphors*, and they can be identified easily by the ghost image that remains after the appearance of a moving object such as the cursor.

Current designs with vertical scan rates of 60Hz or higher do not rely on long-persistence phosphors. This forces computer-dis-

play designers to use ever-higher horizontal scan rates to achieve the greater detail capability necessary to satisfy the demand for higher-quality text and graphics displays.

Blanking

The blanking time of TV video also is defined strictly in standards, but the retrace time is not. The relationship is this: Retrace is less than blanking, which is 10.5 μ s, and because a horizontal scan line takes 63.5 μ s, the blanking represents approximately one-sixth of each scan line, mostly on the picture's left edge. The vertical blanking is 21 horizontal scan lines (1,333 μ s), which is approximately 1/25th of the picture, and occurs mostly at the top of the raster.

The reason for blanking such a large portion of the TV picture is to "hide" certain non-picture-content signals such as colorburst reference, vertical interval reference signals, vertical interval test signals, vertical interval time code, closed captioning, teletext and other signals contained in the vertical blanking interval. Computers do not have these constraints and seek to maximize the available picture area by using short blanking times. Typical values are 5 μ s or less for horizontal and 800 μ s or less for vertical.

Overscan/underscan

The picture displayed on a home TV set actually is larger than the picture tube by approximately 15%. This overscanning is intended to provide a more pleasing appearance by "filling in" the curves of the older picture tubes. Video producers are well aware of the so-called safe action area resulting from overscan, as defined by SMPTE standards. When a picture displayed on a screen is smaller than the face of the picture tube, it is underscanned. Underscanning reveals data on the extreme top and bottom lines as well as on each corner, maximizing the available picture area.

Special computer displays

These differences require the use of large-screen projectors and video monitors specifically designed to accommodate the stringent demands of computer-generated video. An easy way to identify these devices is by their capability to accommodate a large variety of horizontal and vertical scan rates. These devices also have wideband RGB video and separate sync inputs, usually on BNC connectors, and require shorter blanking times.

Although some TV projectors have RGB inputs, most are unsuitable for computer displays. One exception is the popular IBM Color Graphics Adapter (CGA). (See the related article below.) This "graphics card" operates at scan

rates so close to RS-170A standards that many monitors and projectors with RGB inputs adequately can display its video output signals.

Recently introduced liquid crystal panels can be used with an overhead projector to work with the CGA and the Apple II line of computers. Many of these liquid crystal devices are fairly low-resolution, fixed-pixel displays that are relatively inflexible and seldom work with other computers, terminals or graphics cards. If you plan on buying one of these devices, carefully test the system for the specific application. Testing is particularly important if an IBM EGA card is used, because it can change scan rates during the execution of programs.

Making the connection

Most terminals and computers do not feed the video signals or have the connectors needed for interface with data projectors and monitors. The link between the two are special interfaces that perform several vital functions necessary to successfully implement a complete system. Five important functions must be performed by these computer video interfaces:

1. Allow the full use of the computer's display/monitor. This includes maintaining the picture quality, safety, EMI radiation and serviceability of the computer system or terminal. For reliability, accomplish the interface with a minimum of extra cables.

2. Convert and regenerate the myriad of sync signals used in computers to a standard polarity and amplitude composite-sync required by the projectors. Easy-to-use picture-centering controls often are vital.

3. Buffer and convert the video signals to an analog 75 format. The high-resolution video signals can be sent over hundreds of feet of standard RG-59 video cables without loading the computer's own display or loss of picture detail. Simply extending the unshielded multiconductor wire used by some computers' monitors can cause smearing and ghosting on the magnified projected image.

4. Accommodate the newer terminals and computers that have many operating modes. Current software often determines parameters such as horizontal and vertical scan rates, blanking times, pixel size, color scheme and aspect ratio. Automatic circuitry in the interface will make most of these changes transparent to the user and projector.

5. Be flexible enough to adapt to the inevitable changes in computer hardware. Terminals, video cards and graphic work stations constantly are being upgraded to take advantage of newer features. The video interface and projection system should allow these upgrades to be implemented with minimum effort.

CGA, EGA, MDA, PGA, VGA, MCGA, and HGA. It may look like alphabet soup, but this is a list of acronyms for the various *video cards* used in the world of personal computers. These nicknames of various IBM *display adapters* also are used (and sometimes abused) by the makers of hundreds of *clone* or *work-alike* products. Buyer beware! Some of these clones are not fully compatible, or they may have additional mode and scan-rate capabilities. This is what these cards do:

NAME	MEANING	COMPUTER	HORIZ. VERT. SCAN SCAN RATES RATES		ANALOG OR DIGITAL	NOTES
			kHz	Hz		
FOR PCs						
MDA	Monochrome display adapter	PC, XT, AT	18.02	50	D	
CGA	Color graphics adapter	PC, XT, AT	15.75	60	D	
HGA	Hercules graphics adapter	PC, XT, AT	18.02	50	D	1
EGA	Enhanced graphics adapter	PC, XT, AT	21.85	60	D	2
			18.02	50	D	
PGA	Professional graphics adapter	XT, AT	15.75	60	D	
			31.50	60	A	
VGA	Video graphics array	PS/2	31.50	60	A	
			31.50	70	A	
			35.5	43.5	A	
MCGA	Multicolor graphics adapter	PS/2 #30	31.5	60	A	3
DA	Display adapter	PC, XT, AT	31.5	70	A	4
			XT,AT	Same as VGA	A	
FOR APPLES						
II, IIE, IIGS: common names for Apple II			15.75	60	D	
Macintosh, Mac Plus, Mac SE			22.23	60	D	
Macintosh II			35.00	66	A	
SuperMac (high-resolution cards for Mac II)			48.19	59.3	A	
			53.37	66.1	A	

NOTES:

1. Not IBM, but a standard for monochrome graphics.
2. Changes modes by program control. "Clones" often support HGA standard.
3. A subset of the VGA standard for use with older PCs and the PS/2 model 30.
4. A full set of the VGA features for use with older PCs.

COMPUTER VIDEO INTERFACING AND SYSTEMS

Courtesy of: Extron Electronics © Extron Electronics

Graphic Standards

Computer-Video Interfacing

The internal graphics or graphics card in a computer determines the resolution of the computer's display. If a computer's main function is to display text, such is the case with banking terminals, then a lower resolution graphics or graphics card will be utilized. If the objective of the terminal or computer is to display graphics such as animation, charts, graphics and digitized pictures then a higher resolution graphics standard will be used. This is all determined by the computer manufacturer's market objective for their product. Of course, the higher the resolution the higher the cost of the display. Thus, in many cases, the market is customer driven by application demand but also in some cases it is market driven by manufacturers depending on chip and tech-

nology costs. For example, if more manufacturers are using higher resolution

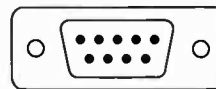
video drivers in their designs and demand and supply is adequate, a higher resolution graphics standard may be less expensive than a lower resolution format. A basic rule of production is the more you sell, the lower it costs to produce it. In the development of graphics and graphics card standards since 1982, both of these factors have been the case. While demand increased every time a higher graphics standard was introduced, eventually the new "standard" became the norm for all manufacturers in the industry and prices always eventually came down.

The following section describes the "stepping stones" of graphics and development as defined by the IBM PC and IBM PS/2 computers:

EGA

D) EGA "Enhanced Graphics Adapter" - Introduced as the standard graphics card in the IBM XT and IBM AT, the EGA card was the second major graphics standard to be mass produced within all the IBM clones. Providing not only a higher resolution than CGA, but also more colors, EGA, by the end of 1985 became the second "standard" graphics card.

Specifications:



DB 9 Pin (female)

H. frequency: 15.75 & 21.8 kHz
V. frequency: 60 Hz
Signal: TTL
Max. resolution: 640 x 350
Colors: 64 color palette
16 displayable

Pin Configuration

pin 1 - Ground
pin 2 - Red Intensity
pin 3 - Red
pin 4 - Green
pin 5 - Blue
pin 6 - Grn Intensity
pin 7 - Blu Intensity
pin 8 - H. Sync
pin 9 - V. Sync

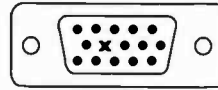
Common characteristics: Two "unused" RCA type phono jacks located above the DB 9 pin. The EGA card utilized either the IBM 5153 (15.75 kHz) or 5154 (21.8 kHz) color monitors.

Computer-Video Interfacing

VGA

F) VGA "Video Graphics Array" - The VGA graphics standard was introduced as the standard output for an IBM PS/2 series computers. With the introduction of the PS/2 Models 30, 50, 60, 70 and 80 in 1987 utilizing VGA graphics permanently mounted in the mother board of the computer's CPU, a new standard resolution was born, and every graphics card manufacturer had VGA compatible cards on the market by 1988. Most VGA cards were/are retrofitable to all IBM PC and compatible computers using the standard IBM bus. These third-party VGA card manufacturers allowed current IBM PC, PC XT, PC AT or compatible users to utilize the same higher PS/2 graphics without

having to buy a PS/2 computer. Specifications:



15 Pin HD (female)

H. frequency: 31.5 kHz
V. frequency: 70/60 Hz
Signal: Analog
Max. resolution: 640 x 480
Colors: 64 color palette
16 displayable

Pin Configuration

pin 1 - Red
pin 2 - Green
pin 3 - Blue
pin 4 - ID Bit
pin 5 - N/C
pin 6 - Red Return
pin 7 - Grn Return
pin 8 - Blu Return
pin 9 - No Pin
pin 10 - Ground
pin 11 - ID Bit
pin 12 - ID Bit
pin 13 - H. Sync
pin 14 - V. Sync
pin 15 - N/C

Common characteristics: All VGA compatible cards have three modes of operation:

Mode 1: 640 x 35070Hz refresh (vertical)
Mode 2: 640 x 400 or 320 x 20070Hz refresh (vertical)
Mode 3: 640 x 48060Hz refresh (vertical)

The mode utilized is determined, in most cases, by the software being used (software default). By providing EGA and PGA emulation modes, VGA cards can utilize software compatible only at those lower resolutions and display them "full-screen" on the computer's local monitor. Because VGA software really didn't fully saturate the market until 1989, these emulation modes were helpful for all current software applications. VGA utilizes either an IBM 8503 monochrome monitor or the 8512 or 8513 color monitors.

X Terminals

courtesy of: Visual Technology, Inc.

WHAT IS X?

X or X.11 or X Window System is a portable software standard that was developed by the Massachusetts Institute of Technology's Project Athena. X, now under the auspices of the X Consortium, has become an industry-wide standard, being adopted as the standard Window System by a majority of minicomputer, mainframe and workstation vendors.

One of the most important features of X is its unique device-independent architecture which allows client programs to display windows containing text and graphics on any display hardware that supports the X protocol. Client programs and display servers can communicate transparently over a network.

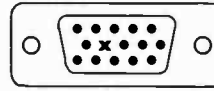
WHAT IS AN X TERMINAL?

An X Terminal is simply the display hardware used to work within a windowing environment. You can think of an X Terminal as being a diskless workstation with its own processor and display device. The similarity stops there, however, because an X Terminal supports the X Protocol and utilizes superhigh resolution graphics needed for its windowing environment.

Computer-Video Interfacing

IBM 8514/A

G) IBM 8514/A Display Adapter Card - The IBM 8514/A display adapter card is a high resolution VGA card utilizing four modes of operation. Introduced also in 1987, 8514/A is an alternative high resolution graphics card to VGA for the IBM PS/2 Models 50, 55, 60, 65, 70, 75 and 80. Because the 8514/A was somewhat expensive, coupled with the fact that very little software was developed for it, it never became an IBM clone "standard" card. Specifications:



15 Pin HD (female)

H. frequency: 31.5/35 kHz
V. frequency: 60/70/87/43 Hz
Signal: Analog
Max. resolution: 1024 x 768
interlaced
Colors: 256,000 color palette
256 displayable

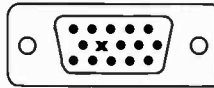
Pin Configuration

pin 1 - Red
pin 2 - Green
pin 3 - Blue
pin 4 - ID Bit
pin 5 - N/C
pin 6 - Red Return
pin 7 - Grn Return
pin 8 - Blu Return
pin 9 - No Pin
pin 10 - Ground
pin 11 - ID Bit
pin 12 - ID Bit
pin 13 - H. Sync
pin 14 - V. Sync
pin 15 - N/C

Common characteristics: The IBM 8514/A displayed the three VGA modes and a fourth mode of 1024 x 768 at a 43 Hz refresh rate. This 43 Hz fourth mode introduces a slight flicker to the display thus making it more applicable to graphics rather than text applications. The 8514/A display adapter utilizes an 8514 monitor.

SUPER VGA

H) Super VGA Cards - Every major third-party graphics card manufacturer has introduced what can be categorized as a Super VGA card since 1988. Super VGA cards are either higher resolution VGA cards or standard VGA cards with more color capability. In fact, the IBM 8514/A graphics card is categorized as a Super VGA card. Because the IBM "standard" VGA is a 640 x 480 maximum resolution card with a 64 color palette, a Super VGA card must be categorized as any VGA type card with a higher resolution than 640 x 480 or with more than a 64 color palette. Most specifications:



15 Pin HD (female)

H. frequency: 31.5-48 kHz
V. frequency: 60-87 Hz
Signal: Analog
Max. resolution: 1024 x 768
non-interlaced
Colors: Up to 256,000 palette
256 displayable
Manufacturers: Video-7, AST,
Paradise, IBM

Pin Configuration

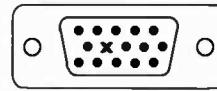
pin 1 - Red
pin 2 - Green
pin 3 - Blue
pin 4 - ID Bit
pin 5 - N/C
pin 6 - Red Return
pin 7 - Grn Return
pin 8 - Blu Return
pin 9 - No Pin
pin 10 - Ground
pin 11 - ID Bit
pin 12 - ID Bit
pin 13 - H. Sync
pin 14 - V. Sync
pin 15 - N/C

Common characteristics: The graphics resolution is either determined by software default or by manual pre-set dip switches. Utilizing a Super VGA card does not mean that all programs suddenly have better graphics. The software program must be able to display the higher resolution modes or the Super VGA card will default to the standard VGA modes. Super VGA cards utilize high resolution multi-scan monitors ranging in frequency from 31 to 48 kHz.

Computer-Video Interfacing

IBM XGA

I) IBM XGA "eXtended Graphics Array" - The XGA graphics standard was introduced by IBM in 1990 as the standard output of the IBM PS/2 Models 90 and 95. As with VGA in other models of the PS/2, XGA is built permanently on the mother-board of the CPU. Touted as a higher resolution VGA or enhanced VGA graphics mode, XGA is IBM's answer to industry Super VGA cards. Specifications:



15 Pin HD (female)

H. frequency: 31.5/35.5 kHz
V. frequency: 43/87 Hz
Signal: Analog
Max. resolution: 1024 x 768
Colors: 256,000 color palette
256 displayable

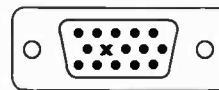
Pin Configuration

pin 1 - Red
pin 2 - Green
pin 3 - Blue
pin 4 - ID Bit
pin 5 - N/C
pin 6 - Red Return
pin 7 - Grn Return
pin 8 - Blu Return
pin 9 - No Pin
pin 10 - Ground
pin 11 - ID Bit
pin 12 - ID Bit
pin 13 - H. Sync
pin 14 - V. Sync
pin 15 - N/C

Common characteristics: Like 8514/A, XGA resolution is determined by either software default or manual settings. XGA utilizes the new 8515, a 13" high resolution color monitor.

IBM IMAGE ADAPTER/A

J) IBM Image Adapter/A - The IBM Image Adapter/A card is a graphics card utilized in the IBM PS/2 Models 50, 55SX, 60, 70 and 80. It allows the IBM PS/2 series to generate Workstation, CAD/CAM or high resolution desktop publishing level graphics. When utilizing the IBM PS/2 series of computers in a desktop publishing application, a two-page or full-page direct view monitor is attached to the graphics output of the Image Adapter/A card. On the other hand, utilizing the Image Adapter/A card will also allow the CAD/CAM level 6091 monitor normally utilized on the RISC 6000 Workstation to be connected to an IBM PS/2. Specifications:



15 Pin HD (female)

H. frequency: 31, 35, 50, 70
and 62 kHz
V. frequency 43, 49, 67, 70
and 94 Hz
Signal: Analog
Max. resolution: 1600 x 1200
Colors: gray scale or color
depending on monitor

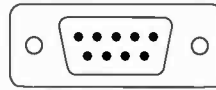
Pin Configuration

pin 1 - reserved
pin 2 - video
pin 3 - Reserved
pin 4 - ID Bit 02
pin 5 - Self-test
pin 6 - Reserved
pin 7 - Video Ret.
pin 8 - Reserved
pin 9 - No Pin
pin 10 - Ground
pin 11 - ID Bit 00
pin 12 - ID Bit 01
pin 13 - H. Sync
pin 14 - V. Sync
pin 15 - ID Bit 03

Common characteristics: IBM is the only manufacturer of the Image Adapter/A card. It utilizes the IBM 8506, 8507 and 8508 monochrome or 6091 color monitors.

MACINTOSH, MAC PLUS, MAC CLASSIC, MAC SE

C) Macintosh, Mac Plus, Mac SE - The Macintosh series of PCs have a built-in black and white video display CRT (cathode ray tube). Because the CRT is built in to the computer, there is no video output for connecting an external video monitor or projector. To add a video output for connection of an external data display monitor, projector or LCD panel, an ICWK (internal computer wiring kit) must be installed.



Using Extron's ICWK gives a 9 pin output

H. frequency: 23 kHz
 V. frequency: 60 Hz
 Signal: TTL
 Max resolution: 512 x 342
 Colors: gray-scale

Pin Configuration
 using an Extron
 ICWK

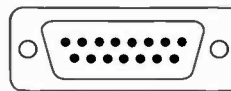
pin 1 - ground
 pin 2 - ground
 pin 3 - red
 pin 4 - green
 pin 5 - blue
 pin 6 - N/C
 pin 7 - N/C
 pin 8 - H. Sync
 pin 9 - V. Sync.

MACINTOSH IIx, IIcx, IIci, IIsi, IIfx

E) Macintosh IIx, IIcx, IIci, IIsi, IIfx - The introduction of the new series of Macintosh computers in 1989 and 1990 introduced an unusual output configuration. The new Mac II card now utilized in all Mac II computers when ordering a separate RGB monitor contains an RGB composite sync output and separate horizontal and vertical sync output. The monitor attached determines whether the composite or separate horizontal and vertical sync output is used. Specifications:

NOTE: Only the Mac IIsi or the Mac LC are capable of outputting 24 kHz (512 x 384) resolution. This occurs only when the 12" color monitor is connected to the 15 pin output. All other color monitors run at 35 kHz.

Common characteristics: The monitor that is connected determines the pin configuration utilized. Some monitors utilize the composite sync output and some utilize the separate horizontal and vertical sync outputs.



15 Pin "D" (female)

H. frequency: 24 & 35.1 kHz
 V. frequency: 68 Hz
 Signal: analog
 Max. resolution: 640 x 480
 1280 x 1024
 Colors: monochrome or
 color, 1.6 million
 256 colors display
 on monitor at one
 time.

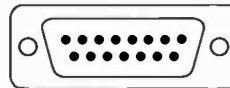
Pin Configuration

pin 1 - Red Ground
 pin 2 - Red
 pin 3 - C. Sync
 pin 4 - ID Bit 01
 pin 5 - Green
 pin 6 - Grn Ground
 pin 7 - ID Bit 02
 pin 8 - N/C
 pin 9 - Blue
 pin 10 - ID Bit 03
 pin 11 - C. & V. Sync Gnd
 pin 12 - V. Sync
 pin 13 - Blue Ground
 pin 14 - H. Sync Gnd
 pin 15 - H. Sync

Computer-Video Interfacing

HIGH RES MACINTOSH II CARDS

F) High Resolution Macintosh II Cards - As with IBM computers, there are third-party graphics card manufacturers for Macintosh II computers. These high resolution Mac II cards are either enhanced Mac II video output cards or even some are higher resolution than standard Mac II resolution. Specifications:



15 Pin "D" (female)

H. frequency: 35-53 kHz
V. frequency: 60-70 Hz
Signal: analog
Max. resolution: 1024 x 768
Colors: 1.6 million palette
256,000 displayable
Manufacturers: SuperMac,
RasterOps
and Radius

Pin Configuration

pin 1 - Red Ground
pin 2 - Red
pin 3 - C. Sync
pin 4 - Sync Ground
pin 5 - Green
pin 6 - Grn Ground
pin 7 - N/C
pin 8 - N/C
pin 9 - Blue
pin 10 - N/C
pin 11 - N/C
pin 12 - N/C (Green-SuperMac only)
pin 13 - Blue Ground
pin 14 - N/C
pin 15 - N/C

Common characteristics: Although most high resolution Mac II cards have a 15 pin "D" output for RGB, and some have a 9 pin "D" gray scale (ECL) output. All of these cards are either 100% compatible with the Apple high resolution RGB card or have higher resolution enhanced modes.

VIDEO

Horizontal frequency range: 15.75 kHz
Vertical frequency range: 60 Hz
Inputs: NTSC, PAL, S-Video or some times even low resolution RGB Sync.

Primary Application: Presentation of low resolution computer sources or large-screen video monitoring.

DATA

Horizontal frequency range: 15-36 (42) kHz
Vertical frequency range: 50-100 Hz
Inputs: NTSC, PAL, S-Video as well as low and medium resolution computer sources.

Primary Application: Presentation of IBM PS/2, VGA, Mac II or medium resolution graphic sources for training or educational purposes.

DATA/GRAPHIC

Horizontal frequency range: 15-55 kHz
Vertical frequency range: 40-120 Hz
Inputs: NTSC, PAL, S-Video and all PC level graphics and low resolution workstations.

Primary Application: Presentation of any PC graphics output or low resolution workstation graphics for presentations, training, mapping or even medical imaging.

GRAPHIC

Horizontal frequency range: 15-72 (80) kHz
Vertical frequency range: 40-150 Hz
Inputs: All video and all RGB analog computer sources.

Primary Application: High resolution three-dimensional imaging and computer animation and design.

III. BANDWIDTH

The bandwidth specification of video signals, interfaces, switchers, distribution amplifiers and cables is one of the performance measurements that helps engineers and system designers in selecting video signal processing equipment that will faithfully reproduce and process video signals for display on monitors and large screen projection systems.

Each piece of electronic equipment has a limited band or range of frequencies in which it can successfully operate. The width of this range or band is called bandwidth. This range is limited by what are called critical frequencies. The upper and lower critical frequencies, calculated as the half power points (-3dB points) of the point of maximum amplitude, are used as the cut off points of the usable frequency band. These point are

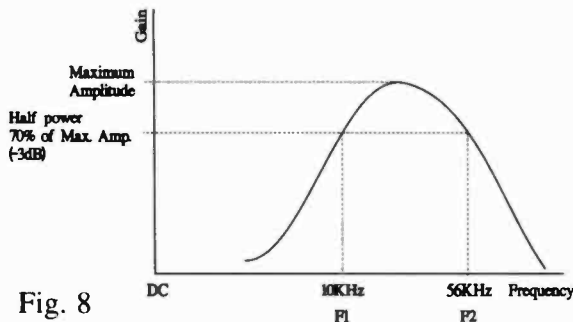


Fig. 8

generally denoted as F1 and F2 as seen in figure 8. The half power points can be calculated as 70% of the maximum amplitude.

Video equipment has a wide range of frequencies which it must be able to pass. Video signals include vertical and horizontal synchronization in addition to the video information itself. The vertical sync signal is

in the Hz range, horizontal sync signal is in the KHz range and video information is always in the MHz range. Low frequencies are as important as high frequencies most

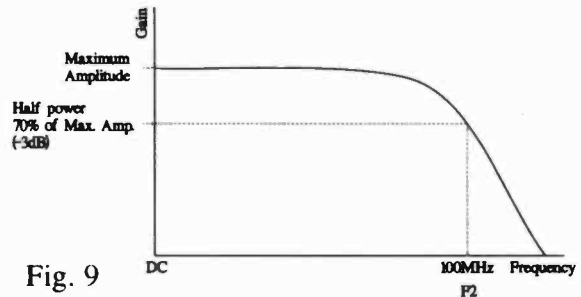


Fig. 9

video equipment on the market is found to specify only the upper critical frequency limit. The lower critical frequency is DC or 0Hz. When a 100 MHz bandwidth specification is listed for a piece of video equipment, it is intended to imply that the bandwidth is from DC to 100 MHz. This is shown in figure 9.

The main objective in evaluating and selecting video processing products is the selection of products that do not alter or limit the frequencies of the original video signal. The "bandwidth rule of thumb" is to use processing equipment that has no less than 3 times the bandwidth of the frequency being processed. For example: the bandwidth of a VGA signal can range from approximately 30-48 MHz thus, you must use equipment with no less than 90 MHz bandwidth.

The loss of video bandwidth can be seen in the image being displayed. Limited bandwidth will cause a reduction in the horizontal resolution. This will be perceived as a lack of sharpness of the leading and trailing

COMPUTER SYSTEMS

BANDWIDTH CONT.

edges of the characters and graphics images being displayed. This "softness" is usually found in projection systems with limited bandwidth trying to display high resolution, wide bandwidth computer data and graphics images. A good test for reduced bandwidth is to view black text on a white background. If there are black horizontal lines after the graph or character being displayed, it can be assumed that this is caused by a loss of high frequency information.

When a video signal passes thru a system with multiple products cascaded, it is important that the entire system is capable of passing the signal successfully. Ideally each unit of signal processing equipment should have 3 times the bandwidth of the original signal. This will reduce the chance of signal degradation. If any one piece of equipment limits bandwidth, the lost information can never be recovered. A chain is only as strong as its weakest link.

Few computers and graphic cards specify the frequencies of their video information. There are many different ways to calculate or estimate a signal's bandwidth. This simple formula can be used to approximate bandwidth within 10%:

FOR NORMAL SIGNALS:

$$BW = \frac{N}{T}$$

FOR INTERLACED SIGNALS:

$$BW = \frac{N}{2T}$$

WHERE:

N= Number of horizontal lines

T= Time of horizontal trace

BW= Bandwidth

NOTE:

$$T = \frac{1}{\text{Horizontal scanning rate in Hz}}$$

EXAMPLES:

VGA:

$$T = \frac{1}{31500\text{Hz}} = .0000285 \text{ sec.}$$

$$BW \text{ of signal} = \frac{768 \text{ lines}}{.0000285 \text{ sec.}} = 26947368\text{Hz}$$

$$BW \text{ for equipment} = 27\text{MHz} \times 3 = 81\text{MHz}$$

HIGH RES CAD CAM WORKSTATION:

$$T = \frac{1}{64000\text{Hz}} = .0000156 \text{ sec.}$$

$$BW \text{ of signal} = \frac{1024 \text{ lines}}{.0000156 \text{ sec.}} = 65641025\text{Hz}$$

$$BW \text{ for equipment} = 66\text{MHz} \times 3 = 198\text{MHz}$$

SYNCHRONIZERS/COMPUTERS

Courtesy of: Prime Image, Inc.

By: William Hendershot III, President

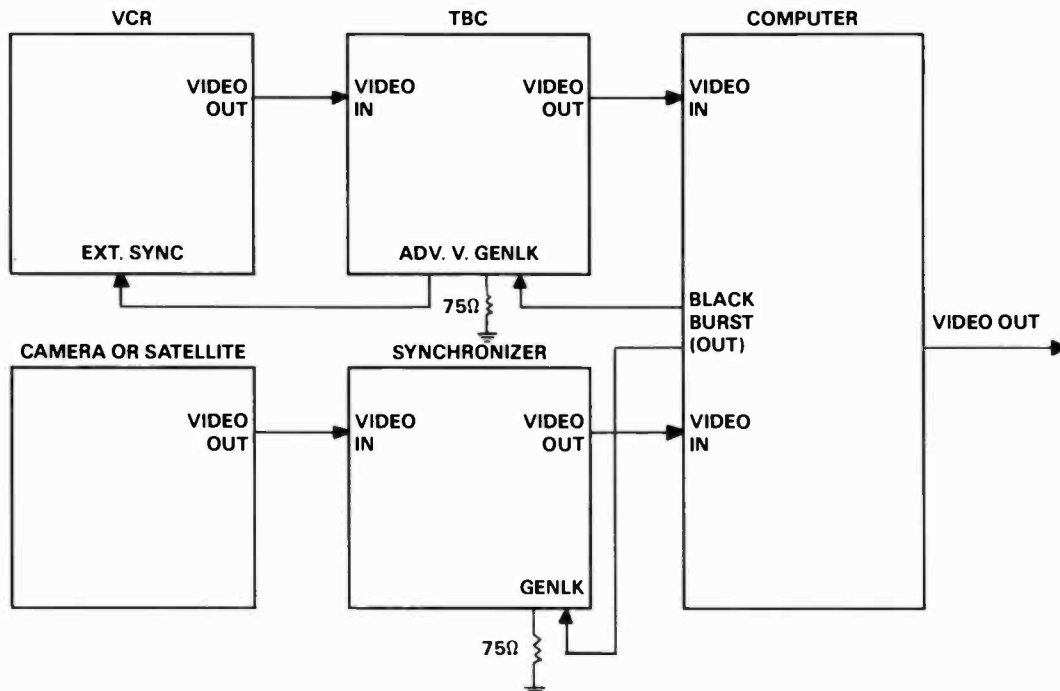
Synchronizers were developed to lock remote feeds to local sync, making possible clean switches, fades, splits and other effects between local and remote non-synchronous picture sources. This is accomplished by removing large, slow timing errors from cable, microwave and satellite feeds. Synchronizers can also be used to connect non-synchronous VCRs, such as consumer type VCRs that do not accept advanced sync, to A/B roll edit systems.

Prime Image synchronizers all have full frame memories, are also time base correctors and have full eight-bit systems. Large, slow timing errors are removed by the 525-line synchronizer digital memory; while the 16-line time base corrector digital memory removes the small, rapid timing errors.

The time base correction capability makes it possible to time base correct unwanted geometric picture distortion due to video tape related conditions. This can be done without any special switches to change from synchronizer mode to time base corrector mode; therefore, synchronizer quality bandwidth is maintained while time base correction takes place. Every Prime Image synchronizer features the very unique ability to completely synchronize and time base correct even non-time base corrected satellite or microwave feeds. Time base correction and synchronization are necessary to meet FCC broadcast requirements.

In today's market synchronizers are available in a wide range of prices for units that meet prosumer needs in the \$3,000.00 range, to wide bandwidth down link cable applications in the \$15,000.00 range. They are available with a wide range of features which offer digital effects, freeze frame and freeze field 1 or 2, variable rate strobe (in field or frame mode), variable noise reduction, switchable comb filter to remove undesirable comb anomalies, and all acceptable synchronizers have front panel accessible full proc amp controls. The current range in transcoding is from straight composite in and composite out for personal computer applications to RGB features for high end computer requirements. As a result of the flexibility and pricing in the current synchronizer market, more and more units are being sold into a wider range of nonbroadcast applications.

Some synchronizers are available with a field-only memory of 262 1/2 lines, which creates the problem of having pictures that move up and down one line with reference to what the synchronizer is locked to. The field-only synchronizers are not infinite window units; however, all Prime Image units are infinite window full frame units.



VIDEO • AUDIO

Section

A series of thick, white, expressive brushstrokes that sweep across the lower right portion of the page, creating a sense of movement and energy.

A34 "Solo" Integrated Post Production System

The Solo Integrated Production System includes:

- 3 time base correctors
- 8-input audio/video switcher
- 2 channels of digital effects
- Full function videotape editor

Time Base Correctors

The output of Solo's 3 switcher buses are each fed into a field store time base corrector. Not only will normal horizontal time base errors of every video input into the Solo be corrected, but the Solo will also synchronize any and all sources which are non-synchronous at the video input. These resynchronized sources may then be incorporated into any of Solo's mix/wipe and digital effects transitions.

Solo's time base correctors also accept control signals from VTRs equipped with Dynamic Tracking. This results in stable picture playback over the entire range of available slow motion from the VTR.

Switcher

The video switcher is organized to provide 2 foreground buses and 1 background bus. Each bus consists of 8 external video inputs, as well as internal color black and an independent color matte generator.

Within the switcher portion of solo there are 2 audio channels associated with each of the first 4 video inputs. The audio input control will normally follow the video buses; when a video mix or wipe takes place, it follows the audio bus.

Digital Video Effects

Standard within the Solo are 2 channels of full fledged 2-D digital effects. With these effects units, it's possible to perform such dazzling video effects as compression and expansion, repositioning, flips and tumbles, variable color inside or outside borders, mosaics, strobing, solarization and posterization, picture splits and much more.

Editor

A full function insert and assemble editor is integrated directly into Solo, providing complete control of up to 6 VTR transports, an external audio mixer and an Abekas A53-D Digital Effects Machine. In addition, Solo's editor directly controls the built-in audio/video switcher and 2 channels of digital effects. There are also 6 general purpose interface (GPI) output triggers to control external peripheral equipment.

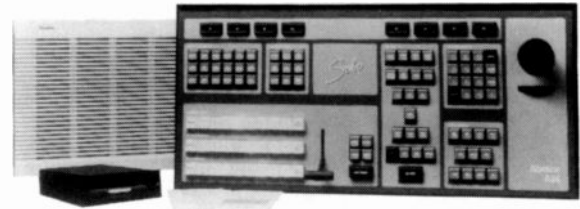
A42 Digital Still Store

Advanced digital video processing yields high quality images, and a microprocessor-based control system ensures powerful and easy-to-use features. A built-in 5 1/4" Winchester disk drive provides the safest on-line picture storage available.

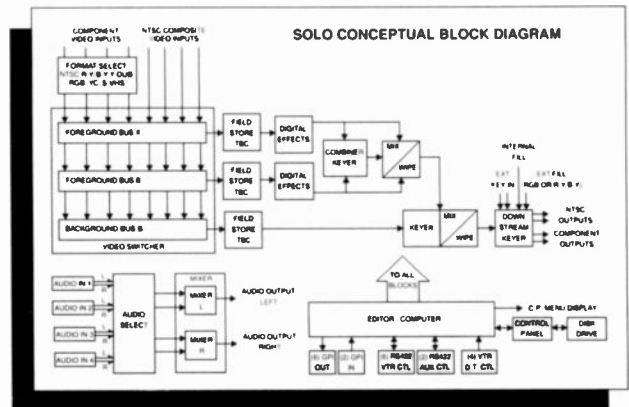
Utilizing a high speed digital streaming tape drive, it stores pictures on a compact 1/4" tape cartridge.

The picture numbering scheme employed in the A42 is completely independent of disk storage locations. Pictures are identified by serial numbers ranging from 0 to 9999 regardless of the on-line storage capacity.

3 sequences of 100 pictures each can be created using any of the recorded pictures. A sequence can be edited at any time by inserting, deleting or substituting pictures.



Solo



A42

Regardless of the function selected, operation is always easy. A complete status display is superimposed on the preview video output to provide information to the operator.

In the dual channel system, pictures can be recalled to both channels independently. While 1 channel is displaying a picture, the other channel can be fully used to record, play back or create sequences. Dissolves or vertical interval cuts can be programmed for on-air transitions between the channels. The dissolve rate can be varied from the control panel.

The A42 provides excellent multi-generation capability which is essential in the composition of multi-layer graphics. The special Graphics Compose mode optimizes the use of the 2 channels for easy graphics creation. Each layer, or the entire graphic, can be stored on the disk.

The A42 has the ability to generate digitally multiburst, color bars and other useful test signals to aid in the maintenance and troubleshooting of the system.

An optional digital interface provides composite digital input and output ports. These ports make it possible to interface the A42 digitally to the A52 and A53-D Digital Special Effects systems.

Not all PSNI Members are Abekas Representatives

DIGITAL VIDEO EQUIPMENT

Abekas
A Carlton Company

A51 Digital Special Effects System

- True 3-D perspective • 3-D location • Rotation about H,V,Z axes
- Variable rotation axis • Global locate, rotate, axis • 3-D corner pinning • Smooth expansion and compression • Variable inside and outside border • Background of any color • Field and frame freeze • Full manipulation of frozen pictures • Variable aspect ratio
- Strobe • Cropping from any and all sides • Solarization/posterization • Variable effect time • Programmable pause • Contact closures for remote operations • Built-in A/B video switching • Forced monochrome • Inverted luminance • Multi-pictures live • Auto-keying of multi-faceted objects • Cube maker • Variable motion types • Serial editor/switcher interface • On-board solids generation
- Engineering setup from control panel • Effects disks compatible with A53-D

The A51 Keyer/Combiner was designed with 2 things in mind—combine 2 channels of A51 and/or provide additional keying power to your existing switcher. The Keyer/Combiner incorporates 3 full bandwidth linear keyers to provide 4 levels of video mixing within the A51 system. The output of the A51 Keyer/Combiner can then be used as a switcher input where additional switcher features can be added. An optional light source package gives the A51 Keyer/Combiner the most comprehensive light sourcing available. Light effects include a wide range of spotlighting, diffuse lighting and reflective lighting (gleams).

Specifications

Video:

- Composite, NTSC or PAL television standard • Bandwidth: 5.5MHz • Differential Phase: 1° • Different Gain: 1% • K Factor: < 1% • S/N: 58dB • (A/D, D/A direct connection) • Component: 525/60 or 625/50 television standard • Luminance Bandwidth: 5.5MHz • R-Y Bandwidth: 2.75MHz • B-Y Bandwidth: 2.75MHz • K Factor: < 1% • S/N: 58dB

Digital Signal Processing:

- 13.5MHz video and key, 4:2:2:4

Inputs:

- Video Input: composite or component analog, synchronous \pm 2 lines (2) • Key Input: composite or noncomposite analog (2) • Reference: 1V, composite analog blackburst, high impedance looping (genlock)

Outputs:

- Video Output: composite or component analog (2) • Key Output: composite or noncomposite analog (2)

Remote Interface Interconnects:

- RS-422: RS-422 slave, selectable protocol • Auxiliary: RS-422/RS-232 master/slave, selectable protocol • GPI: 4 input, 6 output

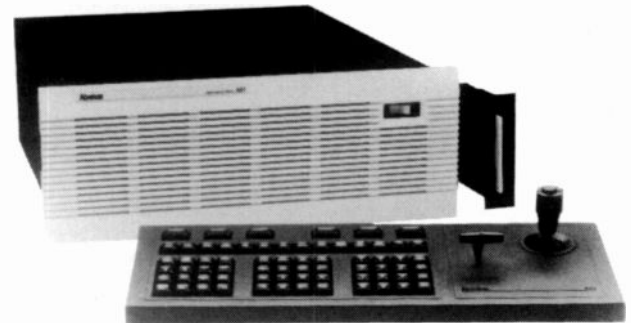
A51 Keyer/Combiner:

- Inputs: 4 video, 4 key, 1 external priority, composite or component • Outputs: 2 video, 1 key, composite or component

A66 Component Digital Disk Recorder

The A66 is a low cost digital component disk recorder compatible with D1 and component analog tape recorder formats. The system is capable of real time recording and replay of over 50 seconds of CCIR 601 4:2:2 digital video on each signal system. Multiple signal systems may be networked together to provide a maximum record capacity of over 200 seconds.

The A66 provides random access editing capabilities with 4:2:2 component digital image quality. The system is capable of zero preroll, single field and single frame animation recording with real time playback of final animation sequences. Slow motion replay is



A51



A66

also possible over a range of \pm 25 times normal speed. A high quality interpolation circuit permits single field, interpolated frame or full frame resolution slow motion and still frame modes.

Due to its advanced features, high performance and low cost, the A66 is the ideal recording system for applications as diverse as pin registered telecine transfers, rotoscoping, graphics composition, D1 compatible editing and automated broadcasting of stills and graphics segments.

Specifications

Video:

- Video Standard: Switchable between 525/60 and 625/50 component television standards • Record Capacity: 50 seconds real time video plus 100 video frames (per signal system) in 525/60 television standard, 60 seconds plus 100 frames in 625/50. Multiple signal systems may be networked to a single control panel for long play, 4:2:2:4 and simultaneous play/record applications • Input Signals: CCIR 601 digital video (2 selectable inputs) • Output Signals: CCIR 601 digital video (2 outputs), analog preview (time code and system status superimposed over monochrome video) • Sampling: D1 compatible, 13.5MHz, 4:2:2 component digital • Y Bandwidth: 5.75MHz • R-Y Bandwidth: 2.5MHz • B-Y Bandwidth: 2.5MHz • K Factor: (2T pulse) < 1% • S/N: 56dB • Reference: analog composite sync or CCIR 601 video input

Communications:

- Control Panel: serial RS-485, 2000' maximum (local power) • 150' with panel powered from chassis • Signal System: serial RS-485, 2000' maximum • LINC: serial RS-422, Abekas LINC protocol • Editor Port: serial RS-422, Sony, SMPTE protocols • Computer/GPI: serial RS-232, simple ASCII protocol

Not all PSNI Members are Abekas Representatives

Prices and Specifications Subject to Change Without Notice.

A72 Digital Character Generator

Any character can be sized from 8 to 511 scan lines high, on screen, instantly. Size changes are made interactively using the cursor up/down keys or the value can be entered directly at the keypad. Once selected, you can produce text in real time. The A72 completely eliminates the rendering time required to size characters off-line. Access to a library of over 1500 typefaces is available. Serif, sans-serif and cursive styles are included in the set of 15 standard typefaces. To achieve the finest character quality, the A72 begins with the highest quality outline information. This is combined with advanced digital signal processing techniques.

Composing your own fonts with the A72 is a simple definition process. Drop shadows, extrusions, outlines, italics, bevels or embossing can all be part of a font and can be created quickly and interactively. Combine the attributes you want for a unique font style and the A72 permits you to store it away for later use. You can squeeze or expand a character, word or line for added impact. You can do word wraps, mark and move blocks of text anywhere on the screen, or copy and paste between pages.

The A72 provides more than 16.7 million colors on-line to choose from. You simply select and work with either the hue, saturation, intensity or red, green and blue color definitions. Solid color, multiple bands of color or combinations of both are possible.

With the defocus function you can create interesting backgrounds with the appearance of depth and modeling. Or form smooth color blends between 2 color points in directions around the points of the compass. The A72's Background Compose function eliminates the need for other graphics equipment to create the eye catching banners and backgrounds that clients want.

The speed of the effect can be preprogrammed or entered just prior to running it: the overall length may be specified in seconds and frames. An adjustable roll window is provided to restrict the effect to only a defined portion of the screen. While your effect is running you can vary its speed interactively. Animations are constructed in the familiar keyframe manner, similar to the A53-D standard. A convenient auto-read feature lets you play selected sequences of images.

The A72 has the ability to scan in full bandwidth R,G,B,K, color icons or pictures. The video may be analog or comply with the CCIR 601 standard with the optional digital I/O board. Internal luminance and RGB chroma keyers are included.

The compositing mode on the A72 means you can now create powerful mix/key effects to combine text and graphics completely within the digital domain. Text may be digitally keyed internally over backgrounds, or used to fill the hole cut by a matte created within the system.

You can even add a second framestore for more complex effects like cuts, wipes and variable rate dissolves between 2 pages of text. These effect transitions are initiated by simply pushing the transfer key.

The A72 supports external data entry and control. Data is input via the RS-422 and RS-232 ports, allowing news, sports or election package material or files from a PC to be displayed on the A72.

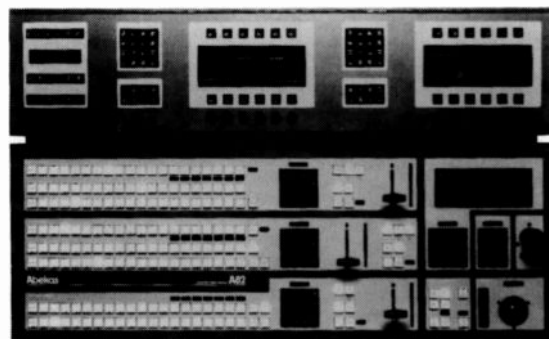
A82 Composite Digital Switcher

This D2 compatible digital switcher provides exceptional keying performance and compositing power with superb video integrity.

Each Mix Effects system of the A82 has 2 full function digital keyers. By virtue of an all-digital architecture, key priorities, as well as complete Mix Effects banks, may be freely exchanged and copied with perfect results.

A unique feature of the A82 is its modular design. You can start with a single Mix Effects module and control panel, then add more switcher modules for additional compositing power as your facility grows. The modular design also means you can use 1 Mix Effects module of the switcher in 1 edit suite while another module is being used in a second room. 6 full chassis and 18 control panels may be integrated on the Abekas network. Up to 4 full Mix Effects modules can be controlled from a single control panel.

The A82 can handle up to 32 primary inputs. Since these inputs can be any combination of video and key there is no need for redundant key inputs. In addition, all primary sources may be given alphanumeric names, so storing events and configuration data is fast, easy and accurate.



With a very large switching matrix, the signal path may be broken and routed to an external processing device and then re-entered via a primary input. This dramatically increases the power and flexibility of a single Mix Effects module.

A framestore in each keyer allows complicated mattes to be drawn or composited with 1 of the wipe pattern generators. In addition, a dedicated box mask is provided. The framestores can also be used to add sparkles and trails to a moving image—adding yet another level of effects capability.

The wipe pattern generators include an extensive range of patterns and modifiers, giving you unlimited variations for transitions, keys or masks. An optional third wipe pattern generator makes wipe transitions for the DSK and between the 2 Mix Effects banks possible.

Standard title borders on each keyer further enhance keying operations. Drop shadows, extruded shadows and outlines are positioned and sized to suit the specific border requirement.

Effects are created from a center pool of 800 keyframes. Individual effects are displayed on a timeline and can be adjusted independently for each Mix Effects system. Keypad effects buttons permit direct recall for faster, more accurate operations. Effects may be given a name. A date stamp of origination is automatically provided for each effect.

Effects may be stored on a DOS-based floppy disk. Disk management functions are available to customize individual files and disks. Switcher configuration data may also be stored for fast recall of the entire switcher setup.

Under edit control, the A82 emulates existing analog switchers, allowing for immediate integration into an editing environment. The switcher also emulates a VTR transport, allowing the editor to jog the switcher timeline. This provides a faster, more accurate preview of the switcher effect, while simultaneously joggling the individual machines making up the edit.

The A82 can simultaneously control up to 4 channels of A53-D digital special effects, in addition to an Abekas digital disk recorder. Elements on these machines can be recalled as a part of a switcher effect and subsequently composited with other images.

Not all PSNI Members are Abekas Representatives

VIDEO/AUDIO PATCHING



Pro-Patch Video Jackfield

PPV-24 MK II

• 2 x 24 array of ADC switching (self-normaling) coax jacks wired back to quick and simple BNC connectors on a clutter-free rear panel • Self-normaling loops internal to the jackfield are color-phase compensated for cross patching • No phase shift occurs between self-normal and patch cord providing a phase coherent patching system

2 x 24 (48 jacks) \$2197.00

Note: Use only 3' patch cord to preserve phase coherent capability of ADC Pro-Patch Video Jackfield.

Note: Use only 36" patch cords for Pro-Patch units.

Note: When ordering, G denotes gold plating on all contact surfaces, N denotes gold plating on the center conductors/springs only.

PPI Panels

• SJ2000 is available in terminating, non-terminating, nickel or gold versions • SJ2000 coax jack is rated for 10,000 insertion/withdrawal cycles • PPI Panels are available in 1³/₄" and 3¹/₂" heights with 12, 20, 24 or 26 circuits • PPI Panels with various hole and spacing configurations are sold separately or loaded with your choice of jacks • PPI Panel with SJ2000 switching (self-normaling) coax jacks makes accessing and connecting video circuits easy

PPI-2224RS-75N Loaded panels, terminated, 2 x 24 . . . \$1020.00

PPI-2224RS Blank panels 98.00

Standard Size Coaxial Patch Cords

CC1072G 12" (.305m) \$21.49

CC1072N 12" (.305m) 16.30

CC1074G 24" (.609m) 21.49

CC1074N 24" (.609m) 16.30

CC1076G 36" (.914m) 21.49

CC1076N 36" (.914m) 16.30

Pro Patch Audio Jackfields

PPA3-14 MK II N.O. 3" x 14", normals brought out \$799.00

PPA3-18 MK II N.O. 3" x 18", normals brought out 799.00

PPA3-14 MK II N.S. 3" x 14", normals strapped at panel 652.00

PPA3-18 MK II N.S. 3" x 18", normals strapped at panel 652.00

PPS3-14 MK II N.O. 3" x 14", stereo version, normals brought out 859.00

PPS3-18 MK II N.O. 3" x 18" stereo version, normals brought out 859.00

PPS3-14 MK II N.S. 3" x 14" stereo version, normals strapped at panel 705.00

PPS3-18 MK II N.S. 3" x 18" stereo version, normals strapped at panel 705.00

Longframe (1¹/₄") Patch Cords

PJ81 1' length \$17.97

PJ82 2' length 18.92

PJ83 3' length 19.59

PJ84 4' length 20.35

PJ86 6' length 21.82

Bantam Patch Cords

PJ712 12" length \$10.26

PJ713 18" length 10.47

PJ714 24" length 10.71

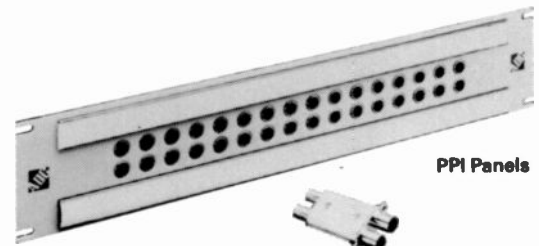
PJ715 30" length 10.92

PJ716 36" length 11.12

PJ718 48" length 11.52

PJ720 60" length 11.96

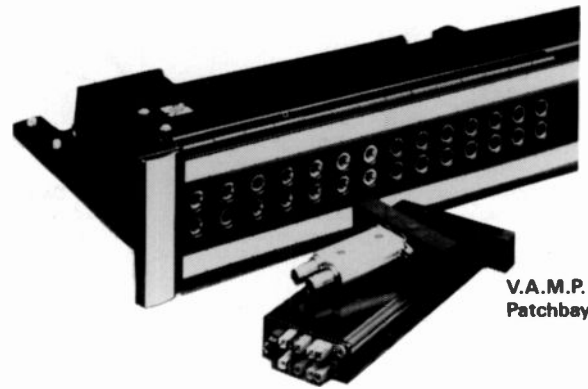
PJ722 72" length 12.37



PPI Panels



Pro Patch Audio



V.A.M.P. Patchbay

V.A.M.P. — Video, Audio Modular Patchbay

• Chassis accepts 20 video and audio modules • Audio module features unique QCP terminations • Video module comes with the ADC SJ2000 self-normaling coax jack • ADC supplies blanks for unused positions to give the appearance of a fully loaded patchbay • Offers all the flexibility you need in a single bay • Ideal if you have limited or changing patching requirements or need audio and video patching in the same bay

VC-1 V.A.M.P. chassis \$110.00

VA-1 V.A.M.P. audio module 39.00

VV-1 V.A.M.P. video module with SJ2000N-75 jacks . . 41.00

VV-2 V.A.M.P. video module with SJ2000N jacks . . . 39.00

VV-3 V.A.M.P. video module with CJ2011N jacks . . . 39.00

VB-1 V.A.M.P. blank module 1.00

Note: V.A.M.P. available through ADC Broadcast Distributors only.



D-12E Cardioid Microphone

Large-diaphragm microphone with high proximity effect. For miking bass drums and other low-pitched instruments, as well as for general vocal applications. Features shock suspended transducer and fixed wire-mesh windscreen. Integral XLR-type connector in microphone shaft. Includes: SA-40 stand adaptor and case.

Frequency Range: 30Hz-15kHz
Sensitivity at 1kHz: -53dBV

D-12E \$439.00



D-112 Cardioid Microphone

Large-diaphragm microphone handles extreme (168dB) sound pressure levels. Excellent on all bass instruments. Rugged construction. Finished in non-reflective dark gray. Includes SA-40 stand adaptor and case.

Frequency Range: 20Hz-17kHz
Sensitivity at 1kHz: -55dBV

D-112 \$249.00



D-125E Cardioid Microphone

Anti-feedback microphone perfect for sound reinforcement. Wire-mesh windscreen and diecast housing assure reliability. Includes: SA-40 stand adaptor and case.

Frequency Range: 100Hz-18kHz
Sensitivity at 1kHz: -54dBV

D-125E \$199.00

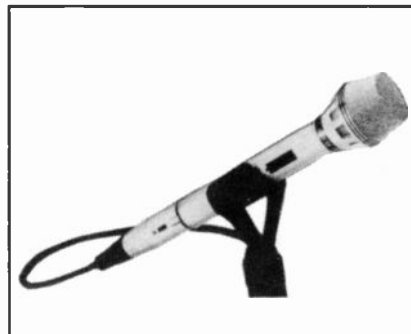


D-130E Omnidirectional Microphone

Ruggedized microphone for field broadcast use. Designed for newscast and ENG applications where durability is of utmost importance. Includes: SA-40 stand adaptor and case.

Frequency Range: 50Hz-13kHz
Sensitivity at 1kHz: -55dBV

D-130E Nickel finish \$159.00
D-130NR Non-reflective dark-gray finish \$159.00



D-190E Cardioid Microphone

Cardioid dynamic microphone with sintered bronze windscreens/pop filter. Cardioid pattern reduces feedback. Smooth frequency response makes it an excellent speech or music microphone for performing and recording use. Includes: SA-40 stand adaptor and case.

Frequency Range: 30Hz-15kHz
Sensitivity at 1kHz: -53dBV

D-190E \$159.00
D-190ES With on/off switch \$179.00

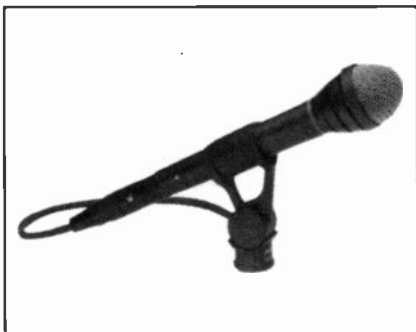


D-1200E Cardioid Microphone

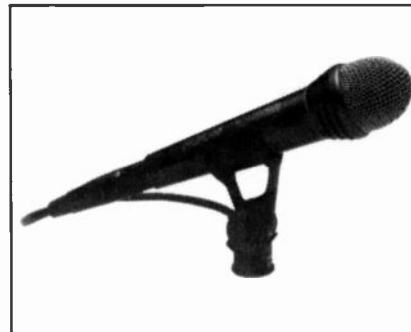
Unique B-M-S switch allows for on-mic equalization to adjust sound of mic for almost any application without sacrificing performance. Includes: SA-41 adaptor and case.

Frequency Range: 25Hz-17kHz
Sensitivity at 1kHz: -52.8dBV

D-1200E \$329.00



D-310



D-321

D-310 Cardioid Microphone

Ruggedized microphone for vocal-music coverage in the home or studio. Shock mounted transducer, diecast housing and dual windscreens/pop filter for reliability. Includes: SA-41 stand adaptor and case.

Frequency Range: 80-18kHz
Sensitivity at 1kHz: -58dBV

D-310 Pictured at far left \$159.00
D-310S With on/off switch \$179.00
D-310NR Same as D-310S but in non-reflective dark-gray finish \$169.00

D-321 Hypercardioid Microphone

Patented magnet/diaphragm suspension system reduces handling noise. Diecast housing and dual windscreens/pop filter withstands repeated abuse. Captive locking screw to secure cable connector to the microphone. Includes: SA-41 stand adaptor and vinyl case.

Frequency Range: 40Hz-20kHz
Sensitivity at 1kHz: -57dBV

D-321 Pictured at left \$239.00

DIGITAL VIDEO SYSTEMS



Centaurus Digital Video Production System With Still Store

- Full 5.5MHz bandwidth • Y/C 358 and composite input/output • Full 8-bit video resolution • Meets broadcast specification RS-170A
- Complete remote operation • Direct connection to numerous editors
- Simple, single key operation • Dual proc amp controls: luma, setup, chroma and hue • Genlock indicator with horizontal and SC phase adjustments • Built-in disk drive with removable digital video data disk
- Stores 1000 frames or 2000 fields of video • Matched frame editing
- S-VHS inputs/outputs • GPI interface with internal programmable sequence memory (list mode) • Display monitor shows full system status, edit listing, retrieval sequence and storage information • Number key utilizes pad for picture storage/retrieval, programmable transition speeds, variable stops, variable background colors and programmable strobing
- Dual infinite window TBCs/synchronizers • A video/stereo-audio routing switcher and special effects generators • Allows inputs and modifier effects to be changed during split screen operation

Centaurus NTSC \$16,500.00
Centaurus Without disk drive. 12,500.00

Centaurus Options

S/S Upgrade For users who already own a Centaurus without the still store option. (Requires \$250.00 factory installation) \$4,000.00
ESD External storage drive system. Provides removable and additional fixed storage for CentaurusCall for Pricing
CCI Allows direct computer control of Centaurus via RS-232 serial interface and allows hook-up of additional keyboards when used with the CKE. \$1,350.00
CKE Permits control of Centaurus from a remote location when used in conjunction with CCI 1,000.00

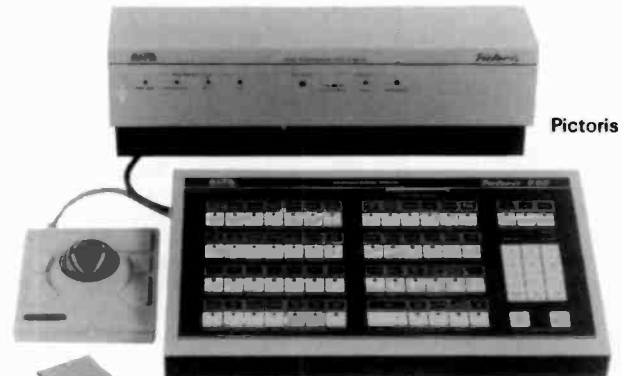


Centaurus

Pictoris Digital Effects Unit

- Linear digital effects • 2-D • Full infinite video compression • Adjustable H and V compression • Variable picture positioning and H and V picture cropping • Displays compressed image over background video
- Adjustable color border hue, position and width • 5 preset transition rates • 5 programmable panel presets for programming smooth and concise effects • Y/C 3.58 and composite inputs and outputs
- 5.5MHz bandwidth • 450 lines resolution • 8-bit, Y/C component processing • Special effects: mosaic, posterization, H and V picture invert, negative image and picture freeze (frame or field) • Auto transitions: dissolves, zoom-in, zoom-out and smooth linear moves between the preset panel settings • Fly picture on or off screen • GPI input for triggering sequence of events stored • GPI output when compressed video reaches zero size • Key output for easy installation to production switchers • Genlock input • Proc amp controls

Pictoris \$9,900.00



Pictoris

Pictoris EDE

Pictoris EDE Enhanced Digital Effects

- Includes Pictoris features plus an optional keyboard to perform the following: Curvilinear motion—Move image along both straight and curved paths; Vary the curviness of a curved path; Paths can be defined by up to 50 keyframes; Effects can be run both forward and reverse
- Flips and tumbles—Horizontal flips and vertical tumbles along any path • Datacard—External, portable storage for user-created effects
- Freeze strobe on foreground image • Easy-to-read video menus and prompts • High bandwidth throughout

Pictoris EDE \$13,500.00

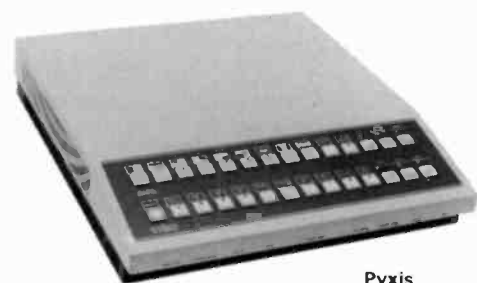
Option

EDE Upgrade Keyboard upgrade from the Pictoris to Pictoris EDE \$3,800.00

Pyxis Digital Video Production Systems

- 2-channel TBC • A/B video switcher • Digital video effects • Audio mixer • 8-bit resolution • Live camera inputs • Editor interface • Dual proc amp picture control • Easy way to move up to professional A/B roll editing
- Works with 1/2" and 3/4" VCRs to synchronize timing, correct picture imbalances and provide smooth transitions between scenes—cuts, soft wipes, dissolves and even digital push-ons and pull-offs
- Also includes posterization and selectable source switching • Meets RS-170 broadcast specifications

Pyxis NTSC \$4,500.00



Pyxis

Pyxis-E Digital Video Production Systems

- Video channels have independent freeze capability that can be used in field or frame mode • Field mode achieves the clearest image when motion is present • Frame mode delivers the highest resolution for detailed originals and graphics • 8-bit resolution • Built-in dual channel picture freeze • A wide spectrum of special effect possibilities and combinations available • To ensure smooth operation and broadcast quality results, the output is frame synchronous

For maximum interfacing flexibility, the system is designed with dual 8-bit infinite window TBC/synchronizers, and can synchronize video from any source, even consumer equipment, without advance sync or feedback connections. This means that you can employ equipment ranging from video cameras to remote feeds to 8mm VCRs to VTRs.

Pyxis-E NTSC \$6,500.00



ANCHOR AUDIO, INC.

PORTABLE SOUND SYSTEMS

Powered and Unpowered Sound Systems

AN-1000 Powered Monitor Speaker

• 50WRMS MOSFET amplifier • Line input 1/4" phone (unbalanced) • Black texture finish • Metal grille • Front volume control • Frequency response 70Hz to 15kHz \pm 4dB with less than 0.15%THD • Can deliver SPL in excess of 100dB at 1 meter • 5 1/4" H x 8" W x 8.5" D. \$324.00

AN-1000ES Powered Monitor With External Speaker Output

• Same features as AN-1000 with 8 ohm external speaker output jack \$342.00

AN-1000M Powered Monitor With Balanced Mic Level Input

• Same features as the AN-1000 with the addition of a balanced Lo-Z (150 ohm) mic input with phantom power (female XLR) • Mic input can be used simultaneously with the line input for a mixed program output . . . \$366.00

AN-1000L Powered Monitor With Balanced Line Level Input

• Same as AN-1000 with a balanced line level input (10K, female XLR) \$366.00

AN-1000AM Powered Monitor With All Options, Balanced Mic Level Input

• Features balanced mic input, line input, buffered line level output, and external speaker output (8 ohm) \$391.00

AN-1000AL Powered Monitor With All Options, Balanced Line Level Input

• Same as AN-1000AM except balanced input is line level \$391.00

AN-1000S Selectable Input Powered Monitor Speaker

• 5 line level inputs selectable with front panel control • Input jack is 6-pin XLR and mating male connector is included • All other features same as AN-1000 • ML-001 option not available • Speaker cable not included. \$487.00

AN-1001 Unpowered Monitor Speaker

• Same as the AN-1000 without amplifier. \$145.00

AN-1400 Powered Broadcast Monitor

• 50WRMS MOSFET amplifier • Mounts directly into Tektronix rack • Input: transformer balanced (10K), female XLR • Front panel headphone jack • Shielded speaker magnet • Tuned port equalization • Frequency response 70Hz to 14kHz \pm 4dB \$543.00

AN-1400S 2-Channel Powered Broadcast Monitor Speaker

• 2 line level inputs (female XLR) • Front panel switchable "A" or "B" transformer balanced • All other features of AN-1400 \$598.00

AN-200M Complete Sound System

• Line level input 55W amplifier • Buffered line out, external speaker out, 2 4 1/2" high compliance speakers • H.F. dome tweeter • Black vinyl enclosure. \$440.00

AN-002 Unpowered Speaker System

• Same as the AN-200 without amplifier • Input: 1/4" phone jack • Impedance: 4 ohms • Power: 50W. \$186.00

AN-256M Complete Audio System With Mixable Inputs

• The perfect integration of mixer, amplifier, and tri-radiant speaker • Reproduces high quality voice and outstanding music fidelity • Can easily handle crowds in excess of 500 • 75W amplifier, 2 microphone inputs (Bal. Lo-Z), line input, line output • Treble and bass equalization • External speaker output • Entire system housed in a durable "Roadie" enclosure and ported for optimum performance \$570.00

AN-256W Wireless Mic and Mixable Input Powered Sound System in "Roadie" Enclosure

• Same powered sound system as the AN-256M with the addition of a wireless mic receiver with telescopic antenna and separate volume control for wireless mic. Note: Need to order companion microphone/transmitter. \$824.00

AN-025 Unpowered Companion Speaker for Use With AN-256M

• Unpowered full range speaker system, same as AN-256M in a Roadie enclosure • Input impedance: 8 ohms • Input jack: sealed 1/4" phone • Speaker cable not included \$252.00

AN-1000 Series Accessories

SM-001 Shielded Magnet Speaker • A special repulsion magnet speaker to confine the spurious magnetic flux to prevent interference with the CRT display when placed adjacent to waveform or other video monitor \$18.00

RM-710 Rackmount Kit (single) • Adapts any of the "1000" series (except 1400s) to mount in standard equipment rack (5 1/2" H x 19" W). Satin black finish \$39.00

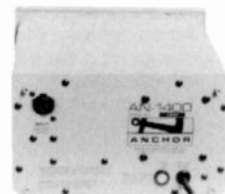
RM-720 Rackmount Kit (dual) • Adapts any 2 of the "1000" series (except 1400s) to mount side by side in standard equipment rack (5 1/2" H x 19" W). Satin black finish. \$39.00



AN-1000



AN-1400



AN-256M



SB-730 Swivel Mount Bracket for "1000" Series • U-shaped metal bracket which supports the "1000" via hand fasteners screwed into sides of "1000" (1/4-20 tee nuts hidden under covering). Includes: Bracket, 2 1/4-20 hand fasteners and 2 nylon friction clutch washers. Black satin finish. \$43.00

SV-722 Selectable Operating Voltage • Slotted selector switch on rear panel permits operation on 110 or 220VAC. \$59.00

PC-730 Protective Transport/Storage Cover for AN-1000 or AN-1001 • Black plastic end covers with Velcro attachment and carrying handle. \$48.00

200 Series Accessories

SB-720 Swivel Mount Bracket for AN-200M and AN-002 • U-shaped metal bracket with slotted mounting holes so sound systems can be easily mounted or removed from bracket. Bracket has 4 1/4-20 threaded inserts in bottom for mounting to SA-703 stand adaptor \$43.00

SB-725 Swivel Mount Bracket for Roadie AN-256M/W and AN-025 • Same features and application as SB-720 above \$43.00

MIC-84 Microphone • Dynamic for handheld vocal use. Balanced Lo-Z with unidirectional pickup pattern. Also has on/off switch and includes 20' cable with XLR (male and female) connectors on each ready to use, padded stand clip. Mic and connectors finished in non-glare black \$83.00

MSB-201 Mic Stand and Boom • Collapsible 2-section mic stand, adjustable height from 36" to 63" (with screw-on swivel boom 33"). Mic stand can be used without boom. Stand and boom finished with durable non-glare black chrome \$62.00

EX-50M Microphone Cable 50' \$78.00

SV-722 Selectable Operating Voltage • Slotted selector switch on rear panel permits operation on 110 or 220VAC. \$59.00

1000/200 Series Accessories

SS-750 Speaker Stand • Collapsible with slip-on adaptor (SA-703). Made of aircraft aluminum for strength and light weight, with satin black anodized finish. Adjustable height from 42" to 70" with 26" between tripod leg tips. Weight capacity: 25 lbs. \$88.00

SA-703 Speaker Stand Adaptor • Adapts 1" diameter speaker stand post to platform surface 4" square. Mounts to bottom of all speaker brackets: SB-720, SB-725 and SB-730. \$15.00

SC-50 Speaker Cable • Length 50' (15.4m) • Heavy-duty speaker cable (18 ga.) with twine strain relief housed in a flexible vinyl jacket with weather-proof phone plugs (male) on each end \$38.00

BATTERIES



LOGIC SERIES

MAGNUM™ 13/14 High Capacity NiCad Batteries

• All MAGNUM batteries incorporate the Gold Mount interface, which is compatible with all the Anton/Bauer quick change battery mounts that are supplied as original equipment by every camera manufacturer • The Impac® case features an externally replaceable fuse, gold plated contacts and internal impact protection for the cells • The Hi-Res ACS® (All Cell Sensing), cold protection circuit and Microcode® Program Module assure safe, dependable, high performance power when used with Anton/Bauer chargers • All MAGNUM batteries utilize a new high energy cell technology that is capable of delivering 25% longer run times • A Microcode® program module and ACS sensor network built into each battery link with Anton/Bauer Logic Series chargers to create the special MAGNUM charge routine necessary to maximize the capacity and life of these new cells • The MAGNUM battery will exhibit excellent performance when charged with standard Lifesaver chargers (non-Logic Series). However, the MAGNUM product has been designed for optimum cycle life and capacity when charged with the Logic Series microprocessor chargers

MAGNUM 14 Logic Series NiCad Battery 14.4V 72Wh • 5³/₄" x 4¹/₂" x 3", 4³/₄ lbs. • Typical run times: 2 hrs. at 35W, 3 hours at 25W, 4 hours at 18W \$555.00

MAGNUM 13 Logic Series NiCad Battery 13.2V 66Wh • 5³/₄" x 4¹/₂" x 3", 4¹/₄ lbs • Typical run times: 2 hrs. at 33W, 3 hours at 22W, 4 hours at 16W 535.00

PRO PAC 13/14 Professional NiCad Batteries

Hi-Res ACS, cold temperature protection and the exclusive Microcode program module to assure safe, dependable performance and warranty protection unparalleled in the video industry.

Pro Pac 14 Logic Series 14.4V 60Wh NiCad Battery • Fast or slow charge • 4³/₄ lbs. • Typical run times: 2 hours at 25W, 3 hours at 18W, 4 hours at 13W \$525.00

Pro Pac 13 Logic Series 13.2V 55Wh NiCad Battery • Fast or slow charge • 4¹/₄ lbs. • Typical run times: 2 hours at 24W, 3 hours at 16W, 4 hours at 12W 505.00

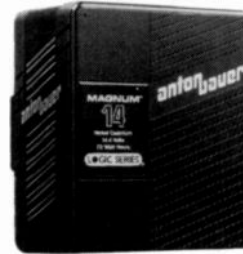
COMPAC MAGNUM® 13/14 High Capacity NiCad Batteries

• The COMPAC MAGNUM is extremely small and lightweight (almost half the size and weight of the Pro Pac and MAGNUM) yet it eliminates all the problems and complaints associated with NP-style slide-in batteries • The high energy MAGNUM cells and charging technique provide up to twice the run time of slide-in batteries, while the high voltage design eliminates all the problems that cripple a 12V battery • The higher capacity Pro Pacs and MAGNUMs are recommended for applications drawing more than 24W or involving lighting • COMPAC MAGNUM includes all the professional features of the MAGNUM batteries • The COMPAC MAGNUM cannot be charged with standard Lifesaver chargers (LSQ4, LSFC, LSQC) and must be charged with a Logic Series MP8, MP4, MAGNUM Quad charger, CMFC or CMQ2

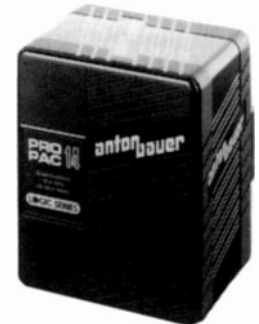
COMPAC MAGNUM 14 Logic Series NiCad Battery 14.4V, 43Wh • 2³/₈" x 3³/₈" x 4¹/₈", 2³/₄ lbs. • Typical run times: 1¹/₂ hours at 28W, 2 hours at 22W, 3 hours at 14W \$285.00

COMPAC MAGNUM 13 Logic Series NiCad Battery 13.2V, 40Wh • 2³/₈" x 3³/₈" x 4¹/₈", 2¹/₂ lbs. • Typical run times: 1¹/₂ hours at 26W, 2 hours at 20W, 3 hours at 13W 275.00

Note: The MAGNUM 13, Pro Pac 13 and COMPAC MAGNUM 13 are universal batteries that will power virtually all ENG/EFP cameras, VCRs, monitors, etc., rated for 12VDC source. However, the MAGNUM 14, Pro Pac 14 and COMPAC MAGNUM 14 will yield superior performance and capacity when the equipment manufacturer specifies compatibility with a 14.4V NiCad battery.



MAGNUM 14



PRO PAC 14



COMPAC MAGNUM 14



MAGNUM 90

MAGNUM 90 Professional VTR Battery

• Designed and built to the highest standards, employing special premium grade NiCad cells and a high impact molded case • Multiple sensor fast charge system (ACS) individually monitors every cell in this battery • Exclusive Triconn® connector mates with all Sony VTRs and chargers yet incorporates a third "Data-Link" contact that connects the all-cell sensing circuit of the battery to the Lifesaver chargers • The MAGNUM 90 features the high energy MAGNUM cells to provide up to 25% greater run time

Logic Series MAGNUM 90 12V 60Wh High Capacity NiCad VTR Battery • 3¹/₂ lbs. • Typical run time: More than 4 hours at 15W . . . \$365.00

Logic Series Pro Pac 90 12V 48Wh NiCad VTR Battery • 3¹/₂ lbs. • Typical run time: More than 3 hours at 16W 330.00

T-SO-90 Pro Pac 90 to Triconn Snap-On Adaptor • Allows Pro Pac 90 to fit any Anton/Bauer Snap-On bracket • On-camera mounting • Wearing on a belt with UniPac holder • Adapts Pro Pac 90 and MAGNUM 90 to charge on the Mobile Fast Charger. \$195.00

NP 13 PLUS High Energy Battery

• Professional slide-in type battery • High voltage design eliminates "memory," capacity loss and cold temperature problems that cripple 12V designs • ACS network along with the LSNP charger can yield up to 50% greater run time over conventional slide-in batteries • Automatic resetting circuit breakers, gold plated contacts and 100% computer testing

It is strongly advised that the NP 13 Plus batteries be charged exclusively with the LSNP charger to assure the high level of performance and life of which these batteries are capable.

NP 13 Plus High Voltage/High Capacity 13.2V 24Wh NiCad Slide-In Type • 1.4 lbs. • Typical run times: 3 hours at 8W, 2 hours at 12W, 1¹/₂ hours at 16W \$130.00

NP-1A 12V 1.8Ah NiCad VTR/Camera Battery • Direct replacement for NP-1 type battery applications • Can be charged with any NP-1/ NP-1A charger • Typical run time: 1 hour at 18W 85.00



BATTERY SYSTEM/CHARGERS

UNIVERSAL NICAD BATTERY BELTS

30/13 Battery Belt • The ultimate battery belt • Powers virtually all portable equipment, including 30V lights, all 13V cameras and VTRs, and UltraLight Modular Lighting System • Construction features include leather belt, Lexan® battery modules, quick release military buckle and anatomical design • Can be worn around the waist, over the shoulder or bandolero style • 30V, 4AH or 13.2V, 8AH switchable • Built-in 115/230V overnight charger • Voltage display • Charge indicator • Input and output circuit breakers • Multiple charge sensors • In low voltage lighting applications 100W maximum total light output (1 or 2 bulbs) • 10A circuit breaker • Waist size: 32" to 48" adjustable • 11 1/2 lbs. \$915.00

Power Strap® 13 Battery Strap • Delivers 2 to 3 times more run time than typical on-board VTR batteries • Designed for use with all portable video recorders and low voltage lighting equipment • Made from rugged, light-weight 1000-denier Cordura®, the Power Strap mounts directly to and becomes part of the existing VTR shoulder strap • Equipped with a U-12MC 12V overnight Micro Charger (16-18 hours), and an accessory webbed belt for conventional use • 4 1/2 lbs. \$425.00

PPSA-D Perpetual Power Belt—Automatic • Accepts 2 13V or 14V Snap-On batteries of any type • When the first battery is depleted, the belt automatically draws from the second • The first battery may be replaced and the process repeated, providing uninterrupted power indefinitely • Features leather belt, quick release aircraft buckle and Lexan control module with voltage display and circuit breaker • The PPSA-D features 2 output connectors for powering a camera and a VTR simultaneously • Not for use with 12V batteries • 100W max. \$335.00

DBH Dual Battery Holder • Slim 2-battery holder with handle which accepts 2 MAGNUM, Pro Pac or COMPAC MAGNUM batteries of the same voltage • A control module monitors battery capacity and switches automatically to the second battery when the first is depleted • The first battery may be replaced and the process repeated, providing uninterrupted power indefinitely • This unit features a low-battery warning LED, 7A circuit breaker and a universal 5-pin XLR output • 5 1/2" x 3" x 6" • 1 1/2 lbs. \$295.00

CC-68 Power Strap/VTR Accessory • Coiled cable (1'-6') • 4-pin right angle XLR female DC input connector that mates with most popular brand recorders \$70.00

CA-30 Fast/Quick Charge Cable • 5-pin XLR to Triconn® adaptor cable • Connects 30/13 belt to Lifesaver 1-Hour Fast Charger (LSFC) • Also connects Power Strap to any Lifesaver Fast or Quick Charger \$70.00

LOGIC SERIES® MICROPROCESSOR FAST CHARGERS

The Logic Series Microprocessor Fast Chargers are the latest additions to the popular Lifesaver family of chargers. The microprocessor automatically identifies the size and voltage of the battery and selects the optimum charge routine and rate for each position. 3 totally independent charge systems set a new standard for charge reliability and safety.

MP-8 Lifesaver Microprocessor 8-Position, 1-Hour Fast Charger • Accepts any combination of 12-14V batteries both Anton/Bauer mount and Pro Pac 90 (BP-90 VTR) type • Size with AC cord: 13" x 22 1/4" x 4" • 21.5 lbs. \$2995.00

MP-4 Lifesaver Microprocessor 4-Position, 1-Hour Fast Charger • Accepts any combination of 12-14V batteries both Anton/Bauer mount and Pro Pac 90 (BP-90 VTR) type • Size with AC cord: 11" x 6 7/8" x 4 3/4" • 8.15 lbs. \$2370.00

PROBE Programmed Battery Evaluator • Microprocessor based accessory for the Lifesaver MP-4 and MP-8 Microprocessor Fast Chargers • Provides basic to complex testing that includes automatic calibration of both capacity and plateau voltage as well as identifying virtually any malfunction including excessive self discharge, "memory," separator failure, shorted cells and reduced capacity • 9 7/8" x 6 5/8" x 3 1/4" • 5.25 lbs. \$795.00

MAGNUM QUAD 4-Position, 1-Hour Fast Charger • Accepts all MAGNUM, COMPAC MAGNUM, Pro Pac, Pro Pac 90 and Power Strap Series batteries • Interfaces with NPCM, expanding this charger to 8 positions • 7 1/2" x 6 1/4" x 4" • 4.4 lbs. • 115/230V, 50/60Hz. \$1295.00

NPCM NP Charge Module • 4-position charge accessory module for MAGNUM Quad which expands capability of MAGNUM Quad to 8 positions (4 NP type, Snap-On or 90 type). \$395.00



Magnum Quad



Logic Series
Microprocessor Fast Chargers

CMQ2 Dual Position COMPAC MAGNUM Charger • Full featured compact, lightweight charger capable of charging 2 COMPAC MAGNUM batteries or 1 full size Logic Series battery in 8 hours • Small size makes it ideal for travel • Features Anton/Bauer's exclusive 3 charge termination modes and the patented Lifesaver routine, which maintains batteries fully charged until they are ready for use • 6 3/4" x 4 3/4" x 3 1/8" • 4 lbs. • 115/230V, 50/60Hz. \$395.00

LIFESAVER® NICAD CHARGERS

• The first 100% safe charging systems • Lifesaver circuit safely maintains fully charged battery indefinitely • 3 automatic charge rates • Logic controlled charge monitor circuit • Battery coupled cell sensing system with hot and cold temperature protection • Integral Anton/Bauer Snap-On bracket directly accepts Snap-On type batteries except COMPAC MAGNUM • Special Triconn 3-conductor connector accepts Pro Pac 90 and other BP-90 type VTR batteries • Not recommended for MAGNUM batteries

LSFC Lifesaver Fast Charger • Single position, 1-hour charger • Accepts all Anton/Bauer 4AH Snap-On, Pro Pac 90 NiCad batteries and all Anton/Bauer battery belts • 7 1/2" x 6 1/4" x 4" • 4.4 lbs. • 115/230V, 50/60Hz. \$595.00

MFC Mobile Fast Charger • Single position universal 1-hour fast charger • Operates from most vehicles with or without engine running • Accepts all Anton/Bauer Snap-On NiCad 13-14V batteries and Pro Pac 90 batteries using T-SO-90 adaptor • Protection circuit disconnects charger if vehicle voltage becomes too low • Operates on 10-15VDC input • 6" x 7 1/2" x 3 1/2" • 2.75 lbs. \$595.00

COMPAC MAGNUM FAST CHARGER

CMFC COMPAC MAGNUM Fast Charger • 4-position, 1-hour sequencer • Programmed for COMPAC MAGNUM 13/14 only. Cannot be used to charge other batteries • Automatic balance mode • Cold/hot protection • ACS • Lifesaver maintenance mode • 120/220V switchable. . . \$795.00

LSNP NP PLUS Lifesaver Fast Charger • Programmed for NP PLUS and other brand slide-in type batteries • 4-position, 1-hour sequencer • 115/230V switchable • Size: 8 7/8" x 7 1/2" x 3 1/8" • 4 lbs. • ACS • Hot/cold protection • Lifesaver maintenance pulse keeps batteries 100% topped with no detrimental heat or aging effects. \$675.00

CASES

Anvil Cases

From heavy-duty transit to lightweight carrying cases. Anvil has developed a comprehensive range of product lines to serve such diverse industries as video production, broadcast, computer sciences, aerospace, telecommunications, microwave technology, test evaluation, military, government and commercial.

Every case is made to order. Anvil does not have stock sizes requiring retrofitting equipment into existing sizes. Anvil designs each case to exact specifications for exact, uncompromising fit and quality. If your equipment is worth protecting, it's worth using an Anvil Case.

Case interiors are custom designed to provide maximum shock absorption and vibration resistance. Soft, resilient unicellular polyfoam is sculptured to fit around your equipment like a glove. Quality control is assured through numerous inspections during and at the conclusion of the manufacturing process.

Anvil Product Lines

A.T.A.—Cases conform to the Air Transport Association 300 category 1.

M.A.C.C.— Military Application Cases and Containers that meet or exceed Mil. Std. 810.

Lite-Line—Anvil's lightweight case.

Forge II—Ideal for local or short distance travel not involving air transport.

Reinforced Forge—Designed for exhibits and displays.

Anvilite II—Designed as a lightweight carrying case.

Fibre—Available in rugged vulcanized fibre or less expensive CH fibre.

A.T.A. Video and Audio-Visual Cases

We can build a strong case around any broadcast, industrial or educational video product, or motion/slide/strip and overhead projectors, as well as multi-image devices and dissolve units on the market. Just give us the model number of your camera, recorder, monitor or any other component or combination—and we'll give you a case that will make sure your components are ready to get the shot when you are, every time.

E.I.A. Rackmount Cases

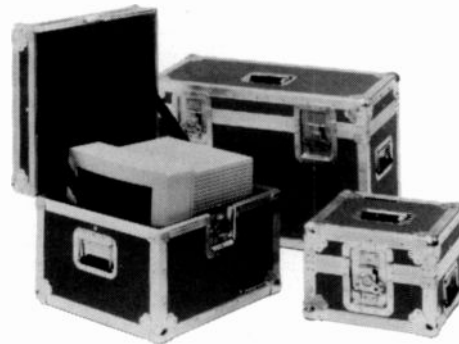
Standard 19" rackmount components can be safely and easily moved to your location. Anvil offers several variations on the rackmount design: front and rear removable lids with or without shock isolation option, pull-over-lid design (case within a case design), or the popular mixer/rack arrangement providing rackmount space horizontally opposed to standard vertical rack space. Whichever way you go, Anvil has the rack case to make for the fastest setup and strike.

M.I.C.S. Modular Interlocking Case System

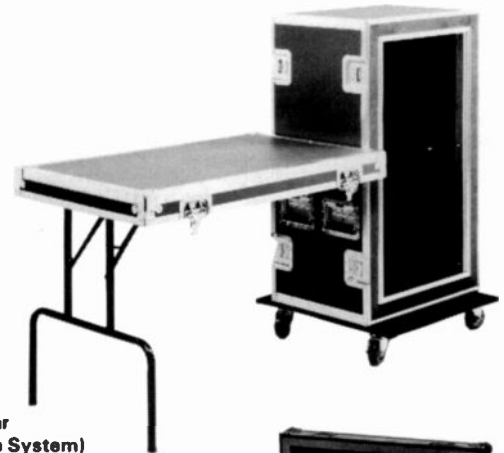
M.I.C.S. cases convert quickly and easily from shipping containers to work centers. Lid removes easily, hinged leg assemblies swing into position and all components lock securely in place. Work surfaces are then attached to the case side.



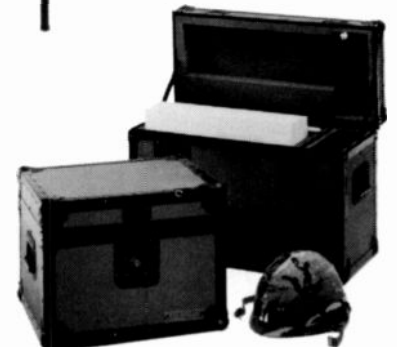
A.T.A. Video and Audio-Visual Cases



A.T.A. Computer Cases



M.I.C.S. (Modular Interlocking Case System)



M.A.C.C.
(Military Application Cases and Containers)

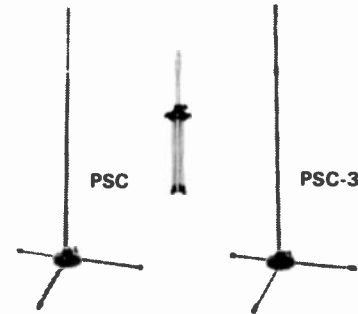
TRIPOD STANDS

Porta-Series Standard and Telescoping Tripod Stands

PSC/PSCE. Lightweight folding stands provide the traveling performer and lecturer with a compact portable stand capable of instant set up and tear down. Single unit vertical tube and tripod base assembly features spring action legs with rubber tips, all-metal grip action clutch and U.S. standard microphone holder termination. Model PSC includes chrome plated tubing and ebony base. PSCE includes ebony finished tube and base.

PSC-3. Telescoping tripod stand, provides efficient set up and transportation convenience for seated and standing performers. Vertical chromed tube assembly is comprised of 3 sections and 2 all-metal clutches for optimum height adjustment. Spring action tripod stand base is finished in ebony with chromed tube legs and rubber tips.

Model	Height Span	Base Spread	Transportation Length	Lbs.	Price
PSC(PSCE)	35"-63"	25"	32"	4 1/2	\$62.00
PSC-3	26"-66"	25"	22"	4	74.33



MICROPHONE FLOOR STANDS

• Will accept all microphones and microphone holders with 9/16"-27 threads • All stands feature stainless steel tubing • Available with choice of rust resistant chrome plating or non-reflective ebony finish (E) where noted • Ebony finish is ideal when stand reflections caused from stage lights are undesirable • Wear-proof clutches allow height adjustment with locking control • 1-piece edge bases for stability • Self-leveling pads reduce vibration and protect surfaces

MS-10C/MS-10CE "Leader" Stands

• Cost efficient assemblies • Dependable performance in music, entertainment, business, education and social functions • MS-10C includes chrome finished tube and circular cast iron base • MS-10CE is supplied with ebony finished tube and circular cast base

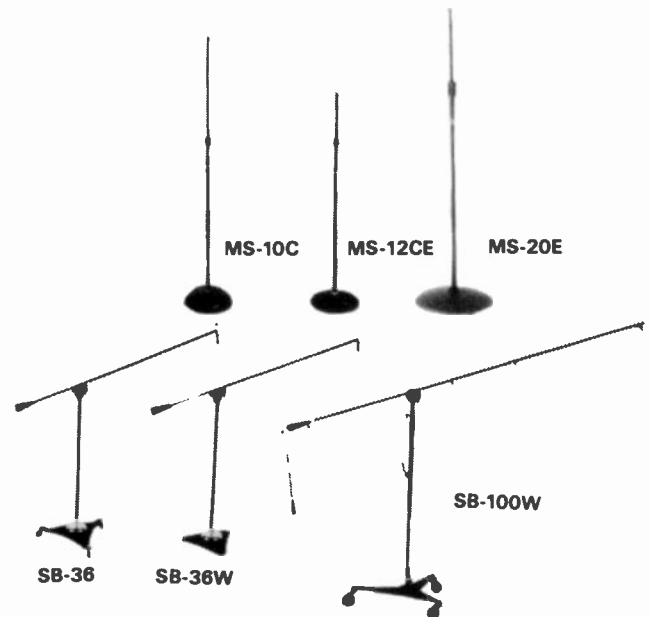
MS-11C/MS-12C/MS-12CE General Purpose Stands With Grip Action Clutch

• Low profile stands feature grip action clutch for quick height adjustment and low silhouette cast base for high stability • MS-11C is supplied with chromed tubing and chrome finish base • MS-12C consists of chromed tube and ebony base • MS-12CE features ebony finished tube and base

MS-20/MS-20E Heavy-Duty Stands With Circular Base

• Long-life stage and studio stands with extra height extension incorporate heavy-duty 1 1/8" diameter tube assembly with grip action clutch, top adaptor and low contour high stability cast iron base • MS-20 features chromed finish tube and ebony base • MS-20E includes ebony finished tube and base

Model	Height Span	Base	Lbs.	Price
MS-10C(10CE)	35"-63"	10" Dia. Round	10	\$40.93
MS-11C	34"-82"	10" Dia. Round	11	55.53
MS-12C(12CE)	34"-82"	10" Dia. Round	12	41.58
MS-20(20E)	37"-66"	12" Dia. Round	14	83.23



SB-100W Professional Studio Boom With Microphone Direction Control

• High quality boom features maximum horizontal and vertical height extension and unique flexible drive for noise-free 350° radius direction rotation and microphone following functions • Horizontal boom assembly consists of a 1-piece chrome-plated tube with gyromatic swivel, flexible drive system, proportioned counterweight and oversized control knobs for effortless friction adjustment of boom rotation • Telescoping vertical tube assembly is chrome-plated and includes retention lock with safety collar. Assembly is supported by an extra stability base with 4" diameter heavy-duty swivel casters with threaded rubber wheels • Cable guides and storage hangers are also provided

Model	Height Span	Boom Length	Base	Lbs.	Price
SB-36	48"-72"	62"	17" Triangular	36	\$308.40
SB-36W	49"-73"	62"	24"	40	355.65
SB-100W	61 1/2"-92 1/2"	110"	34"	47	974.85

STUDIO QUALITY MICROPHONE BOOM STANDS

SB-36/SB-36W Professional Studio Boom With Air Suspension System

• Heavy-duty stands for stage and studio application include integral piston type air suspension system for effortless height adjustment • Models are equipped with 2-piece horizontal chromed tube assembly, 6 lb. adjustable/locking microphone counterweight, heavy-duty swivel, adjustable chrome plated vertical height tube with grip action clutch and 1-piece cast iron triangular base with ebony finish and chrome cover • Model SB-36 is without casters for stationary applications • SB-36W includes premium quality rubber casters for silent mobility • Both models are supplied with guide clips for microphone cable attachment

PB-10/PB-10E Fixed Length Booms

Horizontal boom attachments are fixed length, screw fastening ports-booms with diecast swivel and integral tapered counterweight for stationary applications. Oversized hardware with individual high impact plastic knobs provides free or sliding motion control and fixed positioning. 31" length.

PB-10 Includes chrome finish tubing	\$36.25
PB-10E Finished in non-reflective ebony	37.95

PB-20XE Extendable Length Boom

2-piece horizontal boom with ebony finish tubing is recommended for use in high intensity lighting environments. Includes swivel mount, integral counterweight and oversized knobs. 21"-37".

PB-20XE	\$44.05
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MICROPHONE DESK STANDS/ACCESSORIES



ATLAS / SOUNDOLIER

DIVISION OF AMERICAN TRADING AND PRODUCTION CORPORATION

DESK AND BANQUET STANDS

DS-1 Executive Stand. Attractively styled stand with polished white Carerra marble base and chrome finish tube compliments any desk, conference table or dais. Includes protective desk pads and standard microphone thread termination.

DS-2 Vibration Isolating Stand. Low Silhouette stand features an integral tension variable mount to reduce conductivity of external mechanical vibrations. High stability diecast metal base with protective pads includes notched area for convenient placement of cards or pens. Fixed height tubing is chrome finished. Base is supplied in non-reflective ebony.

DS-5 General Purpose Stand. Fixed height stand includes traditional circular cast iron base and chrome finish tubing for application with any standard microphone.

DS-7/DS-7E Adjustable Stands. Versatile stands have a vertical height adjustment from 8" to 13" and include grip action clutch and ebony finish cast iron base. DS-7 features chrome tubing. DS-7E is supplied with ebony finished tubing.

DS-14 Contemporary Stand. Professionally styled stand includes diecast wishbone shaped base with ebony finish and fixed height chrome tubing.

TS-8 Banquet Stand. Adjustable stand provides quick height variation from 4 1/2" to 26" to meet a variety of oratory needs. Includes grip action clutch, chrome tube assembly and 8" dia. low silhouette chrome base.

Model	Tube Height	Base	Lbs.	Price
DS-1	3"	5" x 7", Marble	2	\$44.85
DS-2	3"	4" x 6", Cast Iron	2	32.10
DS-5	4"	5" dia., Cast iron	2	16.03
DS-7(E)	8"-13"	6" dia., Cast iron	3	22.10
DS-14	3"	Wishbone, Cast iron	2	24.55
TS-8	4 1/2"-26"	8" dia., Chrome	5 1/2	48.13



DS-1



DS-2

DS-5



DS-7/DS-7E



DS-14



TS-8

ACCESSORIES

VM-1. Shock mount accessory reduces external mechanical vibration pick-up of microphones. 4 3/4" H unit is finished in chrome and fits all 5/8"-27 thread microphones.

VM-1 \$24.70

TB-58X/TB-78X. Extension tubes provide 31" of additional height or length to any 5/8" or 7/8" diameter tube, respectively.

TB-58X Requires AD-5B adaptor \$14.58

TB-78X Requires AD-6B adaptor 16.08

US-2. Flange mounting microphone support includes 12 3/4" L boom on spring loaded swivel with 180° vertical cable feedthrough. Accessory is ideal for attaching standard thread microphones to lecterns, consoles, control racks and desks in classroom and laboratory facilities.

US-2 \$39.33

MAC-1. Multi-use adaptor is designed for holding microphones, horizontal booms or accessories with standard 5/8"-27 threads. Versatile unit clamp mounts to 5/8" and 7/8" diameter tubing or to freestanding instruments, keyboards, synthesizers, drum and percussion instruments. Fabricated from high strength extruded aluminum and finished in ebony epoxy. Weight 1.5 lbs.

MAC-1 \$30.58

GN-6/GN-13/GN-19. Flexible goosenecks in 6", 13" and 19" lengths, respectively, attach to any microphone stand or adaptor with standard 5/8"-27 male and female threads. Inside diameter is .338". E models feature ebony finish.

GN-6 \$ 7.48

GN-13 11.13

GN-19 14.70

GN-6E 7.48

GN-13E 11.13

GN-19E 14.70

CO-1B. Connect on swivel clamp provides for the addition of a second microphone with standard 5/8"-27 threads to any floor or desk stand with 5/8" or 7/8" diameter tubing.

CO-1B \$19.88

SO-1B/LO-2B. Snap-on and lock-on accessories, respectively, provide for instantaneous connection and disconnection of microphone holders and boom attachments with standard 5/8"-27 threads.

SO-1B Snap-on \$18.78

LO-2B Lock-on 19.63

LO-2BE Lock-on, ebony 19.63

CH-1B. Cable hanger enables microphone cable to be neatly guided along microphone tubing for improved appearance, movement and storage. Single screw mounting assembly is finished in chrome and fits all tube assembly sizes.

CH-1B \$15.75

BC-1. Bracket clamp with 6" H chrome tube attaches to tables, desks and countertops for mounting microphone and accessory items with standard 5/8" threads.

BC-1 \$24.60

TM-1. Twin microphone mount provides horizontal mounting of two or three microphones onto any stand or podium-top installation. Versatile accessory is 8 3/4" W, finished in chrome and fits all 5/8" thread-on microphones.

TM-1 \$22.05

SW-1B. Gyromatic swivel permits microphone adjustment to any angle. Includes single knob locking mechanism and chrome finish.

SW-1B \$31.80



VM-1



TB-58X



US-2



MAC-1



GN Series



CO-1B



SO-1B



LO-2B



CH-1B



BC-1



SW-1B



TM-1

CONDENSER MICROPHONES
AT801 Electret Condenser (Omni)

• Sensitivity: -48dBm • Impedance: 600 ohms • Frequency Response: 40-18,000Hz • Max. Input SPL: 125dB, 1% THD • S/N: 500dB/μbar
 • Battery: 1.5V AA Type, 6 month life • Switch: on/off • Connector: XLRM (XLRF/1/4" phone) \$130.00
 AT801/XLR XLRf/XLRM \$137.00

AT803b Sub-Miniature Clip-On Electret Condenser (Omni)

• Sensitivity: -49dBm • Impedance: 400 ohms • Max. Input SPL: 130dB, 1% THD • S/N: 45dB/1kHz/1μbar • Battery: 1.5V N Type, 4 month life
 • Switch: on/off audio/battery • Connector: XLRM • Frequency Response: 30-20,000Hz • Also operates on 9-52VDC phantom power . . . \$140.00
 AT803c Ultraminiature omni-directional unterminated for wireless and other applications; bulk packed with tie clip and windscreen \$84.00

AT805b Miniature Clip-On Electret Condenser (Omni)

• Sensitivity: -57dBm • Impedance: 600 ohms • Frequency Response: 50-15,000Hz • Max. SPL: 130dB, 1% THD • S/N: 50dB/μbar • Battery: 1.4V Mercury cell, 600 hours life • Switch: on/off • Connector: XLRM . . . \$88.00

AT811 Electret Condenser (Cardioid)

• Sensitivity: -57dBm • Impedance: 600 ohms • Frequency Response: 50-20,000Hz • Max. Input SPL: 130dB, 1% THD • S/N: 50dB/μbar • Battery: 1.5V AA Type, 6 month life • Switch: on/off • Connector: XLRM (XLRf/1/4" phone) \$145.00
 AT811/XLR XLRf/XLRM \$149.00

AT813 Electret Condenser (Cardioid)

• Sensitivity: -55dBm • Impedance: 600 ohms • Max. Input SPL: 125dB, 1% THD • S/N: 50dB/1kHz/1μbar • Battery: 1.5V AA Type, 6 month life
 • Switch: on/off • Connector: XLRM \$158.00
 AT813/XLR XLRf/XLRM \$164.00

AT815a Electret Condenser/Line/Gradient (Uni-Directional)

• Sensitivity: -44.5dBm • Impedance: 600 ohms • Max. Input SPL: 115dB, 3% THD • S/N: 50dB/1kHz/1μbar • Battery: 1.5V AA Type, 4 month life
 • Switch: flat/roll off • Connector: XLRM • Frequency Response: 40-20,000Hz \$297.00
 AT815a/XLR XLRf/XLRM \$301.50

AT831b Sub-Miniature Clip-On Electret Condenser (Cardioid)

• Sensitivity: -50dBm • Impedance: 400 ohms • Max. Input SPL: 130dB, 1% THD • S/N: 45dB/1kHz/1μbar • Battery: 1.5V N Type, 4 month life
 • Switch: on/off audio/battery • Connector: XLRM • Frequency Response: 40-20,000Hz (close); 70-20,000Hz (distant) • Also operates on 9-52VDC phantom power • Requires output cable • Power supply has mounting brackets or clips \$172.50

AT831c Miniature Cardioid

• Unterminated for wireless and other applications; bulk packed with tie clip and windscreen \$96.50

AT835 Electret Condenser Short Line/Gradient (Uni-Directional)

• Sensitivity: -44.5dBm • Impedance: 600 ohms • Max. Input SPL: 115dB, 3% THD • S/N: 50dB/1kHz/1μbar • Battery: 1.5V AA Type, 4 month life
 • Switch: flat/roll off • Connector: XLRM/XLRM • Frequency Response: 40-20,000Hz \$270.00

REMOTE POWER* CONDENSER MICROPHONES
AT813R Remote-Powered Electret Condenser (Cardioid)

• Sensitivity: -49dBm • Impedance: 200 ohms • Max. Input SPL: 141dB, 1% THD • S/N: 50dB/1kHz/1μbar • Power Requirement: 9-52VDC phantom power • Connector: XLRM • Frequency Response: 30-20,000Hz • For vocal/recording \$227.50


AT815R Electret Condenser Line/Gradient (Uni-Directional)

• Sensitivity: -43dBm • Impedance: 200 ohms • Max. Input SPL: 140dB, 1% THD • S/N: 50dB/1kHz/1μbar • Power Requirement: 9-52VDC phantom power • Connector: XLRM • Frequency Response: 40-20,000Hz \$379.00

AT825 One Point™ X/Y Stereo Field Recording

• Elements: Fixed-charge, back plate permanently polarized condenser
 • Sensitivity: -46dBm • Impedance: 200 ohms balanced • Frequency Response: 30-20,000Hz • Open Circuit Sensitivity: 4.5mV • Channel Balance: < 2dB • Max. Input SPL: 126dB, 1kHz at 1% THD • S/N: < 67dB, 1kHz/1 Pa • Battery Type: Use only "leakproof" AA/UM3 1.5V battery
 • Battery Current: 2mA • Battery Life: More than 1000 hours (alkaline battery) • Phantom Power Requirements: 5-52VDC, 2mA typical (each channel) \$399.00

AT833R Remote Powered Fixed Charge Condenser Instrument Mic (Cardioid)

• Sensitivity: -45dBm • Impedance: 150 ohms balanced • Max. Input SPL: 141dB, 1% THD • S/N: 70dB, 1kHz • Power Requirement: 9-52VDC phantom power • Frequency Response: 30-20,000Hz • Connector: XLRM \$237.00

AT877 Remote Powered Fixed Charge Line + Gradient (Uni-Directional)

• Sensitivity: -41.5dBm • Impedance: 350 ohms balanced • Max. Input SPL: 120dB, 3% THD • S/N: 70dB, 1kHz • Power Requirement: Battery or 12-48VDC phantom power • Frequency Response: 60-14,000Hz • Connector: XLRM \$404.00

DYNAMIC MICROPHONES
AT802 Moving Coil Dynamic (Omni)

• Sensitivity: -56dBm • Impedance: 600 ohms • Connector: XLRM • Frequency Response: 50-15,000Hz \$126.50
 AT802/XLR XLRf/XLRM \$132.00

AT804 Moving Coil (Omni)

• Sensitivity: -53dBm • Open Circuit Sensitivity: 3.5mV • Frequency Response: 50-15,000Hz • Impedance: 600 ohms balanced \$95.00

AT814a Moving Coil Dynamic (Cardioid)

• Sensitivity: -56dBm • Impedance: 250 ohms • Connector: XLRM • Frequency Response: 50-16,000Hz \$182.00
 AT814a/XLR XLRf/XLRM \$186.50

AT838G Moving Coil Dynamic (Cardioid)

• Sensitivity: -63dBm • Impedance: 600 ohms • Connector: XLRM • Frequency Response: 100-10,000Hz • QG3M output connector mates with 3-pin panel jack • 14" gooseneck, 19" total \$114.00
 *Phantom Power

HEADPHONES/HEADSETS



Video/Film ENG/EFP Headphones

DT 48A Dynamic headphones for audiometric use. Calibrated reference standards for acoustical measurements. Supplied with frequency response printout. 16-20kHz. Available only in 5 ohms with an open ended straight cable \$349.95

DT 48K* Dynamic headphone for professional applications. Considered the standard headphone for use in live recording, film monitoring, broadcasting and ENG work. 16-20kHz. Supplied with 3m straight (K), non-detachable cable terminated in 1/4" connector. \$329.95

DT 48WK* Same as the DT 48K supplied with 1.5m coiled (WK), non-detachable cable terminated in 1/4" connector \$339.95

*Note: Specify straight (K) or coiled (WK) cable, stereo or mono wiring and impedance.

Stereo: 8, 25 and 200 ohms; Mono: 16, 50 and 400 ohms

DT 770 Pro Dynamic stereo headphone, closed circumaural design for background noise attenuation. Features include diffuse-field equalization, replaceable ear cushions and bass reflex. Spring-steel padded headband, heavy-gauge coiled cord and gold plated 1/4" stereo phone jack, 600 ohm impedance \$249.95

DT 96AK* Dynamic, multi-purpose headphone used in many language labs. 30-17kHz. Supplied with 3m straight, detachable, open ended cable (K96.00) \$169.95

*Note: When ordering specify straight (K) or coiled (WK) cable and 50 or 400 ohm impedance.

DT 505 Dynamic mini earphone supplied with ear loop (OB 506) and straight, open ended cable. Mono only. Optional ST 505 'steto-clip' available for binaural listening. Available in 50 ohm impedance \$42.95

DT 100 Dynamic studio headphone used in audio recording and monitoring applications. 30-20kHz \$189.95

DT 102 Dynamic, single-muff communication headphone designed for monitoring broadcast, TV, theater and discos. 30-20kHz . . . \$139.95

Stereo: 8, 50, 100, 200, 400, 600, 800 and 2000 ohms
Mono: 16, 100, 200, 400, 800, 1200, 1600 and 4000 ohms

Professional Broadcast and Intercom Headsets

DT 108 Dynamic single-muff headset with built-in dynamic boom mic (200 ohm). Designed for live remote broadcasting, studio, film and TV, 2-way communication. Standard headset for most intercom systems \$204.95

DT 108.4 Same as the DT 108 but supplied with built-in amplifier for carbon-level mic inputs found on many ENG cameras. 200 or 600 ohm balanced mic line. Available in 400, 600, 2000 or 6000 ohm headphone impedance. Straight, non-detachable, open ended cable. \$259.95

DT 109 Same as the DT 108 in a dual-muff configuration \$254.95

*Note: For ordering purposes please specify straight (K) or coiled (WK) cable and impedance. DT 108 and DT 109 are available in the following impedances: 8, 50, 100, 200, 400, 800 and 2000 ohms.

DT 109.4 Same as the DT 108.4 but in a dual-muff configuration \$309.95

DT 109.5 Same as the DT 108.5 but in a dual-muff configuration \$279.95



DT 48



DT 108



DT 109



DT 159

Sports Headset Microphones

DT 159 Dual earcup headset microphone. Designed for on-the-air or behind the scene applications where isolation from ambient noise and the highest levels of speech intelligibility are required. Adjustable microphone boom permits quick adjustment when worn by the user. Available in mono, dual mono or stereo configurations in a wide variety of impedance combinations \$539.95
DT158 Single earcup version \$499.95

DT209 Dynamic, dual-muff headset with built-in dynamic boom mic (200 or 600 ohm). Low cost alternative for broadcast and intercom communications. Available in 50 or 400 ohm headphone impedances. Straight, non-detachable, open ended cable. \$179.95

Cables for DT 100, DT 108, DT 108.4, DT 109, DT 109.4, DT 109.5, DT 158, DT 159 Headsets

K96.00	Straight 5' (1.5m) open ended cable.	\$ 16.95
WK96.00	Coiled 5' (1.5m) (relaxed) version of the K96.00	\$ 26.95
K96.07	Straight 5' (1.5m) cable with 1/4" phone jack wired in stereo.	\$ 24.95
WK96.07	Coiled 5' (1.5m) (relaxed) cable with 1/4" phone jack wired in stereo	\$ 30.95
K100.00	Straight 10' (3m) cable open ended	\$ 24.95
WK100.00	Coiled 10' (3m) cable open ended	\$ 30.95
K100.05	Straight 10' (3m) cable with 1/4" phone jack wired mono.	\$ 29.95
WK100.05	Coiled 5' (1.5m) (relaxed) version of the K100.05	\$ 35.95
K100.07	Straight 10' (3m) cable with 1/4" phone jack wired in stereo.	\$ 29.95
WK100.07	Coiled 5' (1.5m) (relaxed) version of the K100.07	\$ 37.95
K109.0	Straight 5' (1.5m) cable open ended	\$ 32.95
K109.00	Straight 10' (3m) cable.	\$ 32.95
WK109.00	Coiled 10' (3m) cable open ended	\$ 37.95

Studio, Instrumental and ENG/EFP Microphones

- M58 Omnidirectional moving coil dynamic ENG/EFP mic. Internal shockmount. 40-20,000Hz \$229.95
- M69 Dynamic unidirectional studio mic. Hypercardioid characteristic. 50-16,000Hz 249.95
- M88 Dynamic unidirectional studio mic. Hypercardioid characteristic. 30-20,000Hz 399.95
- M59 Cardioid handheld interview mic for ENG/EFP with Nextel non-reflective finish 399.95
- M101 Dynamic studio mic. Omnidirectional characteristic. 40-20,000Hz 229.95
- M130 Dynamic bi-directional studio mic. Figure-8 characteristic. 40-18,000Hz. Double ribbon element 529.95
- M160 Dynamic unidirectional studio mic. Hypercardioid characteristic. 40-18,000Hz. Double ribbon element 499.95
- M201 Dynamic unidirectional studio mic. Hypercardioid characteristic. 40-18,000Hz 299.95
- M260 Dynamic unidirectional mic. Hypercardioid characteristic. 50-18,000Hz. Ribbon element 349.95
- M260S Same as M260 with lockable noise-free on/off switch . . . 369.95
- M380 Dynamic directional mic. Bi-directional characteristic. 15-20,000Hz. Figure-8 pickup pattern 299.95
- M420 Dynamic unidirectional mic. Hypercardioid characteristic. 100-12,000Hz 229.95
- M422 Dynamic unidirectional mic. Supercardioid characteristic. 100-12,000Hz 159.95

Vocal Microphones

- M300 Dynamic unidirectional mic. Cardioid characteristic. 50-15,000Hz \$199.95
- M300S Same as M300 with lockable, noise-free on/off switch . . 219.95
- M400 (Soundstar MKII) Dynamic unidirectional mic. Supercardioid pickup pattern. 40-16,000Hz 279.95
- M400S Same as M400 with lockable noise-free on/off switch . . 299.95
- M500 Dynamic unidirectional mic. Hypercardioid characteristic. 40-18,000Hz 379.95
- M500S Same as M500 with lockable noise-free on/off switch . . 399.95
- M600 (Soundstar MKII) Dynamic unidirectional mic. Hypercardioid characteristic. 40-16,000Hz 379.95
- M600S Same as M600 with lockable noise-free on/off switch . . 399.95
- M700 Dynamic unidirectional mic. Hypercardioid polar pattern . . 329.95
- M700S Same as M700 with lockable noise-free on/off switch . . 349.95

Podium Microphones

- M260.80 Dynamic unidirectional mic. Hypercardioid characteristic. Similar to the M260 with built-in bass rolloff for high reverberation applications. 100-18,000Hz \$349.95
- SHM 415 Dynamic unidirectional mic. Cardioid polar pattern. Permanently attached to 590mm long, 18mm dia. gooseneck 319.95
- SHM 420-11-300 Dynamic unidirectional mic. Hypercardioid polar pattern. Permanently attached to 300mm long, 11mm dia. gooseneck 299.95
- SHM 422-11-360 Dynamic unidirectional mic. Supercardioid polar pattern. Permanently attached to 270mm long, 11mm dia. gooseneck 179.95
- SHM 422-11-220 Same as the SHM 422-11-360 with 220mm long gooseneck 169.95

Microphone/Gooseneck Combinations

- SHM 20-130.14 Hypercardioid miniature condenser mic. Mounted permanently to 5 1/8" gooseneck with 5/8" female thread mount. Supplied with 3' cable terminated in miniature binder connector for use with TS 190 wireless pocket transmitter \$179.95
- SHM 20-130.15 Similar to the SHM 20-130.14 with 3' cable terminated in 3-pin male XLR connector with self-incorporated preamp requiring 12-48V phantom power source 339.95
- SHM 20-200.15 Same as the SHM 20-130.15 with 7 7/8" gooseneck 359.95
- SHM 20-200.14 Same as the SHM 20-130.14 with 7 7/8" gooseneck 189.95
- SHM 20-300 N Hypercardioid miniature condenser mic mounted permanently to 11 3/4" gooseneck with 3-pin female XLR connector at bottom for direct plug-in connection 339.95
- SHM 20-300 S Same as the SHM 20-300 N with on/off switch . . 349.95



- SHM 20-300 N(CM) Similar to the SHM 20-300 N except supplied with 3-pin male XLR connector at bottom for direct plug-in connection \$339.95
- SHM 20-300 N(CM)S Similar to the SHM 20-300 S except supplied with 3-pin male XLR connector for direct plug-in connection . . 349.95
- SHM 20-300.14 Same as the SHM 20-130.14 except with 11 3/4" gooseneck 199.95
- SHM 20-300.14/1 Same as the SHM 20-300.14 except the gooseneck is supported with a rigid center approximately 5" long 209.95
- SHM 20-300 N.15 Hypercardioid miniature condenser mic mounted permanently to 11 3/4" gooseneck with 5/8" female thread mount. Supplied with 3' cable terminated in 3-pin male XLR connector with self-incorporated preamp requiring 12-48V phantom power source . . \$369.95
- SHM 20-300.15/1 Same as the SHM 20-300.15 except the gooseneck is supported with a rigid center approximately 5" long 399.95
- SHM 20-500 Same as the SHM 20-300 except with 19 3/4" gooseneck 339.95
- SHM 20-500S Same as the SHM 20-300S except with 19 3/4" gooseneck 349.95
- SHM 20-500.14/1 Same as the SHM 20-300.14/1 except with 19 3/4" gooseneck 229.95
- SHM 20-500.15/1 Same as the SHM 20-300.15/1 except with 19 3/4" gooseneck 419.95
- HM560 Head-worn ribbon vocal mic. Terminates with 3-pin male XLR. 20-20,000Hz. Bidirectional 379.95
- HM560 V.04 Same as HM560 with preamp for higher output level. 429.95
- HEM 561.14 Head-worn electret condenser vocal mic, terminates in Binder connector for direct interface with TS 190 wireless pocket transmitter 299.95
- HEM 561.15 Head-worn electret condenser vocal mic, terminates with 3-pin male XLR, requires 48VDC 399.95

Microphone Clamps

- MKV6 Clothespin type plastic clamp for cylindrical shafts with diameter from 19-32mm \$14.95
- MKV8 Swivel stand adaptor clamp for cylindrical and conical mic shafts with diameter from 22-32mm 17.95
- MKV9 Same as MKV8 but designed for 19-21mm shafts only . . 17.95

Windscreens

- WS58 For M58/ENG/EFP mic \$ 15.95
- WS59 Gray polyurethane foam windscreen for M59 mic. 24.95
- WS69 Open-cell polyurethane foam windscreen. Provides maximum wind noise suppression. Protects against mechanical shock for M69 and M88 mics. Gray color 19.95
- WS69 Same as above. Available in red, blue, yellow and green . . 24.95
- WS86 All-metal wire mesh windscreen. Built-in elastic suspension for M69 and M88 189.95
- WS101 Same as WS69. For M101 and M201 mics. Gray color . . . 14.95
- WS101 Same as above. Available in red, blue, yellow and green . . 14.95
- WS260 Same as WS69. For M130, M160 and M260 mics. Gray color 23.95
- WS260 Same as above. Available in red, blue, yellow and green. . . 23.95

TRIPODS/HEADS/ DOLLIES



Fluid Heads

3063 Mini Fluid Head Measuring just 5" x 5" x 5" (excluding handle), this lightweight, fluid-type damped tripod head pans a full 360° and features a camera platform that measures 2 3/4" x 3". The Mini Fluid Head comes with a versatile handle which is positionable on either side and can be separated into two individual segments, each 9" in length. The Mini Fluid Head can be tilted 45° up and 90° down continuously, with detent at -45°, and has separate pan and tilt locks. Vertical drag is continuously adjustable\$167.95

3126 Micro Fluid Head Only 2 lbs. including an adjustable handle. Perfect for lightweight (up to 6 lbs.) VCR cameras. It measures 4 1/4" x 5 3/4" x 2 3/4" (excluding handle); pans smoothly a full 360°; can be tilted up or down 90°; has pan and tilt locks, and continuously adjustable drag. Platform has adjustable positioning slot designed so handle can be on either left or right side\$76.95

3130 QR Micro Fluid Head Same as 3126 except features a quick release plate\$84.95

3066 Cine/Video Fluid Head This lightweight, professional quality, fluid-damped tripod head is designed for Cine and Video cameras weighing up to 22 lbs. The large, removable camera platform has a mounting stud that travels in a 3 1/2" slot and facilitates balancing at the camera's center of gravity. In addition, there are three locking detents for the platform, any of which can be used. Pans smoothly 360° and the panning drag can be adjusted by a large pawl-controlled lever. The tilting range is 60° up to 90° down. Detent can be set to limit the downward movement to 45°. Separate locks, independent of the drag system provide a positive hold in any position\$388.95

3160 XL Fluid Head Lightweight fluid head capable of handling cameras up to 9 lbs. Features a special "quick release plate" which lets you attach and detach the camera quickly and easily. The adjustable handle can be located on either the right or left side of the head\$95.95

3115 Ball Camera Leveler This is an ideal adjunct to the 3063 Mini Fluid Head. It works like a claw ball in that you mount it to your tripod, you can remove the camera and head quickly to mount on another tripod similarly equipped, and you can level your camera even if you haven't leveled the tripod. Ideal for use in the field on uneven terrain\$42.95

Tripods with Fluid Heads

3170 Tripod with Micro Fluid Head Versatile, easy to handle and sets up quickly and easily. Sturdy legs are made of tubular hard-finish aluminum and each has sure-grip lever locks. Designed for VCR cameras (our 3001) can hold up to 6 lbs.

3170\$154.90
3165 3011 Tripod with 3160XL Fluid Head173.40

3124 Tripod With Micro Fluid Head A lightweight all-aluminum tripod (our 3011) that's sturdy, stable, versatile, easy to use and easy to carry. It weighs only 7 lbs. with our Micro Fluid Head (Order Code 3126) that features real, fluid-effect action.

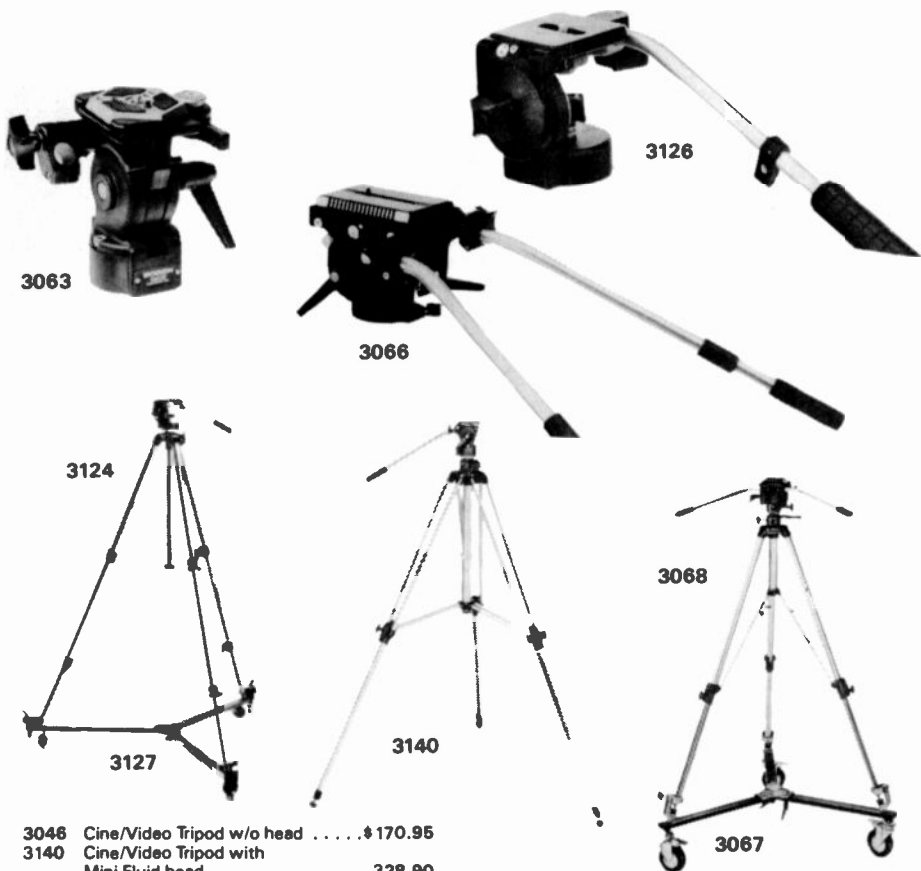
3124\$179.90
3122 As above but in black anodized finish188.90

3129 3011 Tripod with 3126 Micro Fluid Head and 3127 Dolly264.90
3145 Video Tripod Caddy38.95

3149 3126 Micro Fluid Head with 3211 Tripod with black anodized finish and 3127 Dolly273.90

3163 3160XL Fluid Head with 3011 Tripod198.90
3164 As above plus 3127 Dolly283.90

3046 Sturdy Tripod All aluminum double-braced, two section design weighs only 7 lbs., 4 oz. It extends to a full 73" with the Mini Fluid Head. 19" geared center post. Folds to a compact 32 1/2" for traveling. Legs are furnished with convertible cushion/spike tips.



3048 Cine/Video Tripod w/o head\$170.95
3140 Cine/Video Tripod with Mini Fluid head328.90
3142 Same as above in black anodized finish343.90

3068 Universal Cine/Video Tripod Weighs less than 12 lbs., extends to 66". Legs are furnished with convertible cushion/spike tips. For precise positioning, there is a centerpost which permits 9" of extension. The unique variable-angle center brace system on the tripod allows minimum elevation of the tripod platform as low as 18".
3068\$279.95

3065 Universal Tripod with 3066 Fluid Head668.90

3069 Universal Tripod with 3066 Fluid Head and 3067 Dolly905.90
3118 Universal Tripod with 3063 Mini Fluid Head437.90

3191 Cine/Video Tripod with tandem legs • Retractable, spring-loaded spike tips • 100mm diameter claw-ball leveler • Variable leg angles within a 180° arc with two click stop positions • Quick-flip lever leg locks • Stainless steel fittings with enamel castings and built-in leg straps for transporting • 11 lbs. without head • Handles cameras up to 22 lbs. when used with 3066 fluid head (more with other heads) • 32" and extends to 54 1/2" without head
3191\$500.00

3194 Cine/Video Tripod with Tandem Legs and 3066 Fluid Head888.95

3061 Heavy-Duty Cine/Video Tripod Ideal field tripod. Closed length is only 37 1/2", extends to a full 63". It can be set as low as 12". With its built-in claw ball, the camera head can be leveled quickly under all use conditions. The Heavy-Duty Tripod weighs just 17 lbs. 2 oz.
3061\$337.95

3062 Heavy-Duty Cine/Video Tripod with 3066 Fluid Head726.90

3064 Heavy-Duty Cine/Video Tripod, with 3066 Fluid Head and 3067 Dolly963.90

Dollies

3067 Deluxe Cine/Video Dolly Designed specifically for use with the Universal and Heavy-Duty Tripods. Individually braked wheels measuring 5" in diameter, and a unique leg locking system make it easy to assemble and disassemble for transporting. The tripod legs are captured in a 38" diameter circle and the doorway clearance needed for the fully assembled dolly is only 39 1/2"\$237.00

3127 Portable Video Dolly Features sure-lock no rock system. Heavy-duty quick fastening rubber straps hold tripod in place. 20" radius, folds to a compact 22 1/2"\$85.00

3137 Variable Leg Spread Dolly Has a special feature that allows you to adjust the radius from a max of 20" to as little as 12 1/2"\$106.95

Auto Dollies When you depress the centrally located foot pedal of either the Auto Dolly or the Folding Auto Dolly, you release all three wheels. When you lift the pedal, cam action raises the wheels free of the ground and the weight of the dolly and tripod rest on separate feet.

• The Auto Dolly weighs 6 lbs. • Incorporates Shepherd Casters, and is easily assembled • Spread from center to tripod leg socket is 18 1/2" • The Folding Auto Dolly features 3" wheels • Weighs 9 3/4 lbs. • Spread from center to tripod leg socket is 20" • Folds to a compact 29"

On either dolly, mounting and dismounting the tripod is accomplished by cam operated kick-locks.

3056 Auto Dolly\$139.95
3156 Folding Auto Dolly183.95
3254 Black Folding Auto Dolly202.95

802/802-W Series II Articulated Array® Loudspeakers

Common Features

- Transducer Complement: Eight 4 1/2" Bose D-11B full range drivers
- Nominal Impedance: 8 ohms • Sensitivity—Single Speaker: 99dB SPL (1W, 1m, 300Hz-3kHz) 92dB SPL (1W, 1m, 50Hz-16kHz); Stacked Pair: 102dB SPL (1W, 1m, 300Hz-3kHz) 95dB SPL (1W, 1m, 50Hz-16kHz); Column of Four: 104dB SPL (1W, 1m, 300Hz-3kHz) 96dB SPL (1W, 1m, 50Hz-16kHz) • Usable Frequency Range: 50Hz to 16kHz
- Power Handling Capacity: 240W continuous pink noise, 50Hz-16kHz • Maximum Recommended Amplifier Power: 320W per speaker • Horizontal Beamwidth: 120° • Vertical Beamwidth: Single speaker: 100°, Stacked pair: 80°, Column of four: 60°

The 802 and 802-W Series are full range, equalized loudspeakers designed for high quality reinforcement of voices and music. The 802 speaker is ideal for applications requiring a rugged, portable enclosure, while the 802-W speaker is intended for use in permanent indoor sound system installations.

802-II Additional Features

- Input Connections: Two parallel-wired 1/4" phone jacks, two parallel-wired male XLR connectors • Fusing: Built-in 4A quick-acting fuse (replaceable)

802-IIea./\$978.00

802-W-II Additional Features

- Input Connections: Screw-type barrier strip terminals • Fusing: External 4A quick-acting fuse recommended in most applications

802-W-IIea./\$978.00

802-C System Controller

- Sophisticated signal processing device which combines the functions of three equalizers, an automatic switching circuit and an electronic crossover • Automatically selects the proper crossover function and equalization curve for a given system application through the use of a switching network operating in conjunction with the unit's output jacks • In addition to signal routing based on equalization requirements, the switching network indicates mode of operation on its front panel • Fits standard 19" equipment rack

802-Cea./\$370.00

302-II Acoustimass® Bass System

- Incorporates innovative transducer loading system • Cabinet is constructed of impregnated resin board with uniformity characteristics superior to those of particle board or plywood • Corners are molded for stacking and recessed handles are built into the sides of the cabinet • Woofers are protected by individual grilles inside the cabinet • Stacking grooves on the cabinet top accept the matching cabinet ridges which are molded into all 802 speakers

302-IIea./\$1272.00

Professional Wave™ Systems

- Extended-bandwidth, high-performance, fixed-installation sound systems suitable for use in a number of applications • Entirely modular and consist of three components: 1) Acoustic Wave® Cannon™ System (AWCS); 2) 802™ Series II loudspeaker; 3) WSC-1 Wave System Controller • Components are lightweight and modular • 802-II speakers can be easily placed for optimum coverage and clarity • AWCS can be locked together to form arbitrarily shaped and sized arrays, making it possible to custom fit them unobtrusively into each individual acoustic environment • AWCS operates over a bandwidth of 25-125Hz

AWCS Acoustic Wave Cannon System \$1596.00

WSC-1 Wave System Controller

- Two-channel active equalizer and crossover device • Specifically designed to control and monitor Bose 802-II loudspeakers and the Bose AWCS

WSC-1 Wave System Controller \$990.00



802 Series II, 802-C System Controller and 302-II Bass System



402-E Active Equalizer

402/402-W Articulated Array Loudspeakers

Common Features

- Transducer Complement: Four 4 1/2" Bose D-22A high sensitivity drivers • Nominal Impedance: 8 ohms • Sensitivity: Single Speaker 98dB SPL (1W, 1m, 300Hz-3kHz), 93dB SPL (1W, 1m, 90Hz-16kHz) • Stacked Pair: 101dB SPL (1W, 1m, 300Hz-3kHz), 95dB SPL (1W, 1m, 90Hz-16kHz) • Useable Frequency Range: 90Hz to 16kHz • Power Handling Capacity: 120W continuous pink noise, 90Hz-16kHz • Maximum Recommended Amplifier Power: 150W per speaker • Horizontal Beamwidth: 120° • Vertical Beamwidth: 60° (single speaker), 60° (stacked pair)

The 402 and 402-W systems are equalized loudspeakers designed for full-range reinforcement of voice and music. The 402 speaker is ideal for applications requiring a rugged, portable enclosure, while the 402-W speaker is intended for use in permanent indoor sound system installations.

402 Additional Features

- Enclosure construction: mica-reinforced polyethylene copolymer structural foam • Input connections: Two parallel-wired quick-acting fuse (replaceable)

402ea./\$598.00

402-W Additional Features

- Enclosure construction: acrylic-coated walnut-grain vinyl laminate on particle board • Input connections: fusing screw-type barrier strip terminals, external 3A quick-acting fuse recommended in most applications

402-Wea./\$598.00

402-E Active Equalizer

- Input connections (per channel): one Hi-Z unbalanced 1/4" phone jack • Input Impedance: > 1M ohm • Output Connections (per channel): one 1/4" phone jack • Output Level: 6V into 2K ohms or higher; 3V into 600 ohms • Power Requirements: 110VAC, 50/60Hz, 3W • Assures smooth, accurate spectral response across the entire operating range of the system • Sharp subsonic and ultrasonic band-limiting filters reduce power waste, stage noise, high-frequency instability and interference • Two independent signal channels are provided in a compact unit that fits into two spaces of a standard 19" equipment rack

402-Eea./\$ 204.00

402 System Set Consists of two 402 speakers, one

402-E Active Equalizer and one TK-4 Transit Kit.ea./1318.00

RMK-4 Rackmount Kitea./62.40

SS-5 Speaker standea./143.50

WB-2 Wall bracketea./60.40

DISTRIBUTION/GRID HARDWARE GRIP EQUIPMENT/LADDERS



Studio Distribution

Rigid, 16 gauge, one-piece 3 1/2" x 4 1/2" steel construction of desired length, with internal wiring to meet all electrical codes. Available with mounting hardware for any possible situation, standard 18" or 24" pigtail with connector of your choice. A unique four circuit cyc box for powering your cyc lights. Unit available completely assembled including 1 1/2" ID pipe (not included in price below) ready to hang...saving time and cost at installation. Comes primed and painted with 3" permanent decal assuring circuit identification from the control console.

Grid Connector Strips

05015-WB	
10' Strip, 4 20A * Pigtails	\$482.50
05018-WB	
13' Strip, 5 20A * Pigtails	543.25
05021-WB	
16' Strip, 6 20A * Pigtails	672.00

Other Configurations Available
Price on Application

* Add \$17.00 per Circuit for 20A NEMA Twist Lock.
Add \$18.50 per circuit for Parallel Blade "U" Ground
Note: Price for Connector Strip Bracket Assemblies, Single Pipe are included in price of Connector Strip and are completely assembled ready to install. They are shipped in a wooden crate, price included.

Wall Boxes

Fabricated to the high standards of the above mentioned connector strip with desired number of circuits and ampacity. Ready for wall or pipe mounting.

05310-WB	
Two Pigtails, 2-20A	\$112.00
05315-WB	
Three Pigtails, 2-20A, 1-50A	161.50
05311-WB	
Three Pigtails, 3-20A	150.00

Other Configurations Available
Price on Application

Replacement 3", 3 color circuit numbers	.50
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Grid Hardware

All hardware may be purchased to suspend the complete lighting grid system. Included would be load channel, for ceiling mounting positions, all thread, required nuts and bolts, beam clamps, concrete anchors, grid hardware and pipe cut to length.

05107-WB	
Light Pipe	ft./\$2.65

The heart of good lighting is the grid system. It is very important to use 1 1/2" ID light pipe.

05194-WB	
Light Pipe Handling Charge	ft./\$.20

05109-WB	
Grid Lock	\$15.60

Used to fasten perpendicular 1 1/2" ID light pipe together when constructing a grid. Also used for movable light pipe to place a light at any position in the grid. The grid lock will not let the pipe torque.

05113-WB	
Beam clamp 3/8", attaches "Load Channel" to most types of angle iron, such as truss deck beams	\$ 6.25

05114-WB	
Bolt Assembly 3/8", attaches "Load Channel" (as above) when slots are provided by truss deck beams (money savings)	4.00

05115-WB	
Sleeve Anchor 3/8" (for low PSI density concrete ceiling and floors)	.85

05116-WB	
Wedge Anchor 3/8" (for high PSI density concrete ceiling and floors)	2.25

05117-WB	
Toggle bolt 3/8" assembly for hollow wall	1.85

05118-WB	
Load Channel, slotted sections, 20' x 1 5/8" x 1 5/8", 12 gauge	87.50

05112-WB	
Load Channel Splicing Clamp	12.00



05119-WB	
All Thread Suspension Rod, 3/8" x 12' plated	\$ 7.50
05120-WB	
Locking Spring Nut	1.25
05121-WB	
Square Locking Washer	1.25
05122-WB	
Hex Head Nut, 3/8"	.10
05123-WB	
Flat Washer, 3/8"	.10
05124-WB	
Lock Washer, 3/8"	.10
05125-WB	
Connector Strip Bracket Assembly, Single Pipe	25.00
05126-WB	
Connector Strip Bracket Assembly, Double Pipe	31.50
05191-WB	
Corner 90° Cyc Light Pipe, 4 1/2' radius, 1 1/2" ID Slip Couplings—both ends	75.00
05192-WB	
Pipe Cuts, 1 1/2" ID	3.30
05193-WB	
Pipe Threads, 1 1/2" ID	6.00
05195-WB	
Light Pipe Coupling	4.75
05196-WB	
Light Pipe Wall Flange, 1 1/2" ID	4.75
05197-WB	
Movable Light Pipe, 6' x 1 1/2" ID	18.00
05198-WB	
Light Pipe end plug 1 1/2" ID	1.75
05109-WB	
Grid Locks, 1 1/2" x 1 1/2" for Movable Light Pipe	13.00

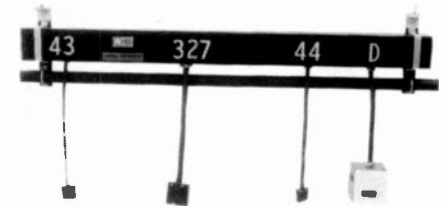
Matthews Grip Equipment

When your video or film production calls for grip equipment, Matthews has it!

Studio Ladders

Designed to meet or exceed all safety standards. These ladders are manufactured to work to grid height providing a 6' reach from ladder platform to grid with a 30" safety rail. The ladder is fabricated from 1" square tubing with all joints welded. Gaffers storage chest and basket for extension cables and other frequently used studio equipment are recommended. The large casters are rubber with toe touch locking. A second ladder is recommended for larger studios. Finished with two coats of durable enamel.

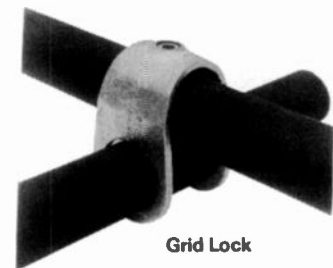
09210-WB	Studio Ladder for 8' Grid	\$ 950.00
09211-WB	Studio Ladder for 9' Grid	990.00
09212-WB	Studio Ladder for 10' Grid	1035.00
09213-WB	Studio Ladder for 11' Grid	1085.00
09214-WB	Studio Ladder for 12' Grid	1115.00
09215-WB	Studio Ladder for 13' Grid	1240.00
09216-WB	Studio Ladder for 14' Grid	1315.00
09217-WB	Studio Ladder for 15' Grid	1395.00
09218-WB	Studio Ladder for 16' Grid	1460.00
09219-WB	Studio Ladder for 17' Grid	1510.00
09220-WB	Studio Ladder for 18' Grid	1625.00
09221-WB	Studio Ladder for 19' Grid	1700.00
09222-WB	Studio Ladder for 20' Grid	1825.00
09228-WB	Gaffers Basket	72.50
09229-WB	Gaffers Tool Box, Locking	289.00



Grid Connector Strips



Wall Box



Grid Lock



Studio Ladder



Curtains—Cyc

Cyclorama curtains are seamless up to 125' in length and 28' in height. The cloth is inspected before fabrication to assure against weaving flaws and sewn to our rigid specifications. These cycloramas are available in three colors—white, CBS gray, powder blue/green.

Seamless Lino-Weave

This curtain has a 4" heavy-duty binding at the top with spring harness snaps on one foot centers. The 2 3/4" bottom hem has a #90 lead tape weight sewn 1" above the bottom of the hem in a separate muslin pocket. The side hems have a 2" heavy-duty binding with eyelets on 2" centers for tauting the curtain. Tow cord with handle is provided for easy transporting of curtain. The curtain is flame-proofed and flawless (as per the standards of the mills and converters) and is fabricated to the highest quality workmanship. Tow cords are also furnished.

	Sq. Ft. (15'0" & under)	Sq. Ft. (15'1" & over)
07005-WB White	\$4.10	\$6.50
07006-WB CBS Gray	4.25	6.80
07007-WB Powder Blue	4.35	7.00

Seamless Scrim

07038-WB White	\$1.95	POA*
07039-WB Black	2.25	POA*

Tauting Poles

Tauting poles are used generally with the CYC curtain to assure proper vertical tension on the cycloramas. They stand vertical at both ends of the CYC with adjustable claws attached through the vertical eyelet on the curtain. The base is weighted with a sandbag. The curtain is then adjusted to a proper tautness by the pair of poles.

07013-WB Tauting Pole Base (one left and one right hand) (2 req'd) \$ 65.00 ea.
07014-WB (8') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 56.00 ea.
07015-WB (9') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 63.00 ea.
07016-WB (10') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 70.00 ea.
07017-WB (11') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 77.00 ea.
07018-WB (12') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 84.00 ea.
07019-WB (13') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 91.00 ea.
07020-WB (14') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 98.00 ea.
07021-WB (15') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 105.00 ea.
07022-WB (16') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 112.00 ea.
07023-WB (17') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 119.00 ea.
07024-WB (18') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 126.00 ea.
07025-WB (19') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 133.00 ea.
07026-WB (20') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 140.00 ea.
07027-WB (21') Tauting Pole with Guy Wire and Turnbuckle (2 req'd) 147.00 ea.

Eyelet Claws

07031-WB Eyelet Claws to attach Tauting Pole to CYC Curtain (2" centers required)	\$15.00
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Sand Bag

07029-WB Sand Bag, 50 lb. size, non-spill saddle bag type made of heavy-duty duck with inner liner and Velcro fasteners. Used to hold base and pole in position	\$60.00
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Curtains—Background

The background curtains are also fabricated to rigid specifications. Usually it is recommended that the first background curtain be chrome-key blue. This then permits chrome-keying and when not illuminated may be used to produce a limbo effect. Tow cords are also furnished.

Spectrocolor III

	Sq. Ft.
07058-WB Primary Red	\$2.80
07059-WB Ultimate Green	2.80
07060-WB Chroma-Key Blue	2.80
07062-WB Silver Haze	2.80
07063-WB Limbo Black	2.80

Velcro Fastener

07068-WB 8' Velcro Fastener	\$20.00
07069-WB 9' Velcro Fastener	22.50
07070-WB 10' Velcro Fastener	25.00
07071-WB 11' Velcro Fastener	27.50
07072-WB 12' Velcro Fastener	30.00
07073-WB 13' Velcro Fastener	32.50
07074-WB 14' Velcro Fastener	35.00
07075-WB 15' Velcro Fastener	37.50
07076-WB 16' Velcro Fastener	40.00
07077-WB 17' Velcro Fastener	42.50
07078-WB 18' Velcro Fastener	45.00
07079-WB 19' Velcro Fastener	47.50
07080-WB 20' Velcro Fastener	50.00
07081-WB 21' Velcro Fastener	52.50
Cyc/Background Tow Cord Hardware (pair)	38.50
Cord per foot (pair)	25
(Figure Curtain Height Less 6')	

07083-WB Swatch Book	\$2.50
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Cyc Ground Row

Made of fiberglass for durability and to allow compound curvatures. Color of the ground row matches the cyclorama curtain. Hides all cyclorama floor fixtures. When using top cyc lighting, the ground row is tinted with gels.

If designed, the ground row may be painted to match any color background curtain by using tempa paint and washing with water when production is complete. Works 5' from cyc curtain.

Cyc Light Ground Row

07085-WB 4 1/2" radius corner section	\$508.00
07086-WB 8' straight section	585.00
07087-WB 6' radius corner section	590.00

Cyc Curtain Ground Row

07088-WB 9' radius corner section	\$475.00
07089-WB 8' straight section	450.00
07090-WB 13' radius corner section	625.00

Curtain Track and Accessory Hardware

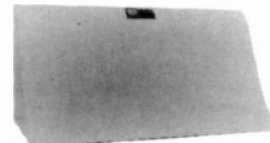
It is most important that the curtains be suspended properly to assure even travel at the studio floor and stability of the track system. Wall brackets are available in 6" increments from the studio wall. Suspension brackets are used where wall mounting is not possible. All brackets assure proper spacing between the tracks. Grid mounted track hangers are available for studios where the grid pipe extends to the studio wall. Hardware is available for the mounting to any type of wall, including hollow.

Track and accessories have been selected to assure a perfect installation. Curtain carriers are supplied with the proper trim chain ready to attach the cyc or background curtains. The dual track method is recommended. Track switching can be purchased upon installation or can be installed at a later date. A complete package, ready to install, includes preformed corners, assuring proper diameter for accurate corner illumination and ease of curtain travel.

07170-WB 5' section of straight cyc/background track	\$ 16.50
07111-WB 10' section of straight cyc/background track	33.00
07112-WB 15' section of straight cyc/background track	49.50
07113-WB 20' section of straight cyc/background track	66.00
07114-WB 9' radius, 1/4 circle cyc/background track	60.00
07115-WB 9' radius, crating charge	30.00
07118-WB 4 1/2' radius, 1/4 circle cyc/background corner track	30.00
07119-WB 4 1/2' radius, crating charge	21.00
07122-WB Track Switch, Right Hand	465.00
07123-WB Track Switch, Left Hand	465.00
07124-WB Inter Track Switch Assembly	940.00



Curtains—Cyc



Cyc Curtain Ground Row

07125-WB Switching Pole	\$137.00
07127-WB Trim Chain per foot . . . . .	.65
07128-WB Nylon Wheel Carrier with Bumper Assembly	6.00
07129-WB Hanging Clamp	1.75
07130-WB Ceiling Clamp	6.90
07131-WB Splicing Clamp	5.00
07132-WB Carrier Stop	2.00
Wall Brackets	
07138-WB 4" Single Track Wall Bracket Assembly	\$25.50
07141-WB 8" Double Track Suspension Bracket Assembly	21.25
07142-WB 12" Double Track Wall Bracket Assembly	33.25
07143-WB 18" Double Track Wall Bracket Assembly	35.75
07144-WB 24" Double Track Wall Bracket Assembly	38.50
07145-WB 30" Double Track Wall Bracket Assembly	41.00
07146-WB 36" Double Track Wall Bracket Assembly	43.75
07147-WB 42" Double Track Wall Bracket Assembly	46.50
07153-WB 24" Double Track Corner Wall Bracket Assembly	43.75
07154-WB 30" Double Track Corner Wall Bracket Assembly	46.50
07155-WB 36" Double Track Corner Wall Bracket Assembly	49.00
(Can be used for monitor/shelf bracket)	
Truss or Ceiling Suspension	
07161-WB Beam Attachment Assembly for 8" Suspension Bracket	\$25.00
07162-WB Hanging Clamp Assembly for Single Track Suspension (each includes 18" x 3/8" all-thread rod)	22.00
Grid Pipe Suspension	
07163-WB Track Suspension Bracket Top (1 1/2" ID to Track)	\$11.00
07164-WB Track Suspension Bracket Top Corner Right Hand (1 1/2" ID Pipe)	11.00
07165-WB Track Suspension Bracket Top Corner Left Hand (1 1/2" ID Pipe)	11.00
07167-WB Track Suspension Bracket Bottom (1 1/2" ID to Track)	10.50
07168-WB Track Suspension Bracket Bottom Corner Right Hand (1 1/2" ID Pipe to Track)	10.50
07169-WB Track Suspension Bracket Bottom Corner Left Hand (1 1/2" ID Pipe to Track)	10.50
07172-WB Accessory Suspension Bracket (with 3/8" Attachment Hole)	9.75
07171-WB Accessory Suspension Bracket (with 3/8" Threaded Stud)	10.00
07170-WB Accessory Suspension Bracket (with 3/8" Threaded Socket)	12.00
07177-WB All Thread 3/8" coupling	1.10

TAPE CARTRIDGE EQUIPMENT



Phase Trak 90 Record/Playback

Front Panel Metering

The LED meters will indicate left and right channel input or output audio. The meter scale extends from +5 to -4dB in 1dB intervals, with VU ballistics for the meter section and peak ballistics for the peak indicator.

Automatic Tape Analysis

A microprocessor tape analysis system eliminates the fear of introducing a new brand of audio tape. The Phase Trak 90 RPS will automatically evaluate a new tape and memorize the bias, level and EQ settings to obtain optimum performance.

4 Record Cue Circuits

The 4 standard cue circuits include 150Hz, 1kHz, 8kHz and an RS-232-to-FSK encoder. The RPS also incorporates record defeat and cue erase functions.

Automatic Splice Finder

When the SPL switch on the front panel is pushed, the RPS will run at 22.5 ips until the splice detector locates the tape splice.

Test Oscillator

A built-in test oscillator facilitates maintenance on the Phase Trak 90RPS. 8 tones can be selected ranging from 50Hz up to 16kHz, along with a convenient "sweep mode" switch.

Automatic Non-Encoding Phase Correction

The phase correction circuit continually monitors and corrects the phase relationship between the playback audio of the right and left channels. The output of any cartridge will undergo automatic phase correction when it is played through the Phase Trak 90—regardless of what machine was used to produce the cartridge originally.

Excellent Audio Performance

The Phase Trak 90 boasts a signal to noise ratio of > 80dB (stereo, with Dynaflex noise reduction operational). At ± 2dB, 40Hz to 16kHz, the excellent frequency response delivers audiophile quality in any application. Wow and flutter specifications are also outstanding at < 0.12%.

Automatic High/Low Level Sensing

Provides automatic level switching for cartridges recorded at higher levels (typically 250nW/m) through the application of optical sensing tabs on the front of the cartridge.

4 Standard Cue Circuits

The Phase Trak 90 comes equipped with 4 standard digital cue sensor circuits including an FSK (3.5kHz) decoder which provides an RS-232 compatible data output for automatic logging.

Modular Construction

The Phase Trak 90 is completely modular for the ultimate in servicing convenience. All modules are easily removed from the back of the cabinet. Test points and adjustments are reached by removing the top cover. In addition, all modules feature gold-to-gold pin and socket contacts to enhance long term reliability. A rear panel headphone jack is provided for independent monitoring.

Air Damped Solenoid

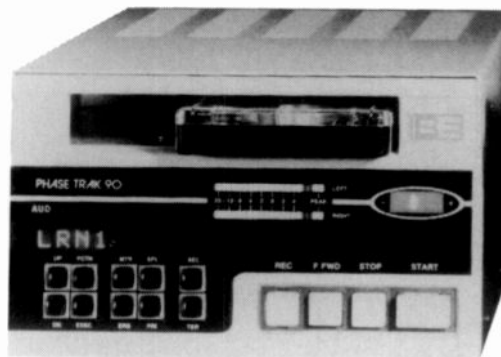
Firm pinch roller pressure is ensured through the use of a powerful, air damped solenoid. This solenoid features electronic current regulation for superior reliability. It applies sufficient pressure to pull virtually any type of tape while maintaining cool, silent operation.

Reliable DC Servo Motor

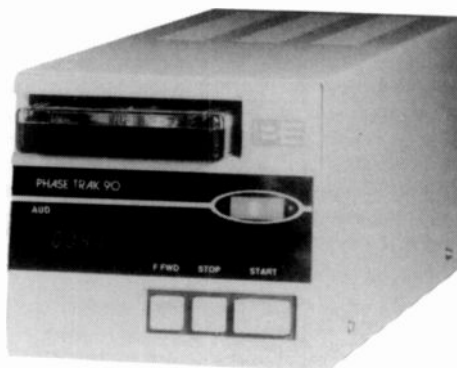
The Phase Trak 90 features a crystal-controlled, brushless DC servo motor. This provides dependable operation with low wow and flutter, high efficiency and low acoustic noise. Through the Vari Speed control it is possible to adjust the motor speed ± 10% with an external oscillator.

Cartridge Guidance System

Right and left side guides grip the cartridge as it enters the deck and applies just enough force to ensure proper positioning. At the same time, 2 spring loaded top guides apply downward pressure. The result is silky-smooth cartridge insertion and excellent positioning regardless of variations in cartridge size.



Phase Trak 90 Record/Playback



Phase Trak 90 Playback

Phase Lok V Head Block

The Phase Lok V head block offers a locking azimuth adjustment that is independent of the height and zenith adjustments. This allows the user to achieve near-perfect head alignment quickly and easily.

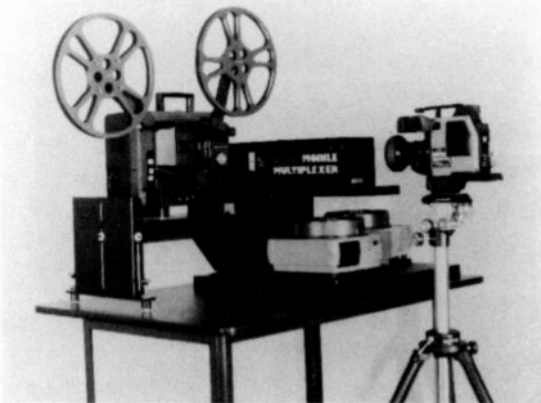
Digital Timer

An easy-to-read digital timer is standard on the Record/Playback, and optional on the Phase Trak 90 Playback unit. The timer counts up, and is synchronized to the motor to give you an accurate reading of actual "tape" time. You can set the timer to freeze at the EOM or at the end of the tape. This allows you to determine the actual message length or total cartridge length.

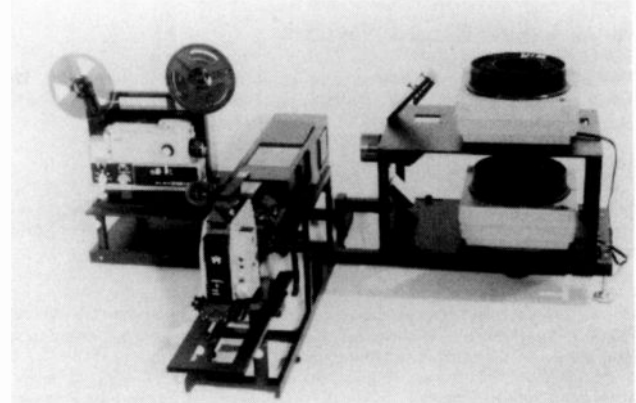
900-9000-000	PT90P Mono, Playback (A and AA size carts)	\$2550.00
900-9002-000	PT90PS Stereo, Playback (A and AA size carts)	2750.00
900-9003-000	PT90RPS Stereo Record Play (A, AA, B and BB size carts)	4550.00

Options and Accessories

900-9013	Rack shelf for 19" EIA rack, 7.0" H (recommended)	\$200.00
900-9113	Rack shelf for 19" EIA rack, requires 5.25" H	200.00
900-9014	Rack shelf filler panel, 1/3 rack, for 900-9013	30.00
900-9015	Rack shelf filler panel, 1/2 rack, for 900-9013	40.00
900-9017	Rack shelf filler panel, 1/6 rack, for 900-9013	30.00
970-9000	Encode software for direct connection of PT 90RPS to IBM compatible PC. Requires computer with RS-232C port	139.00
970-0099	Tape sensor foil tab kit (package of 100)	15.00
950-0105	Extender card, 50-pin, PT 90P/PS, PT 90RPS (playback)	130.00
950-0106	Extender card, 60-pin, PT 90RPS (record)	155.00
597-9000	Service manual for Phase Trak 90 (1 manual shipped with each unit)	50.00



573-200



502-100

Series 573 Mobile Multiplexer

The Series 573 Mobile Multiplexers accept input from 2 slide projectors and are equipped with a third input port which is usually used for 16mm input. It is not practical to use the third input for a slide projector. Buhl makes other multiplexers to handle 3 or more slide projectors. No projection lenses are needed for the 2 slide projectors because the optics are built into the multiplexer itself. The 16mm projector for the third input does require its own projection lens. The video camera uses its normal zoom lens. The camera can be mounted on a tripod but most users find the camera mount a convenient accessory.

- 573-200 3.0" or less (camera lens diameter) . . . \$1450.00
- 573-312 Camera mount for 573 Series multiplexers for semi-permanent mounting. . . .340.00
- 575-132 Eiki 16mm telecine optical projector. SNT-OT 5-bladed shutter, synchronous motor, diffusion device, lens not included . . .POR*
- 575-112 Buhl projection lens for Eiki 16mm135.00
- 575-125 Buhl projection lens for ELMO 16mm135.00

573-420 Modular Bipler

Modular system for film or slide transfer to video.

- 573-420 Bipler unit without projectors, accepts either of 2 inputs via a movable internal mirror \$696.00
- 573-430 Adjustable height stand accepts either Kodak Ektagraphic Series II or Series III slide projector150.00
- 574-066 Lens with extended barrel and ND filter holder for Kodak Ektagraphic slide projector, for slides to video via bipler.159.00
- 573-450 Camera mount for modular bipler eliminates need for a tripod or dolly.261.00

Tyrone Video Transfer System

• L-Shaped Configuration:

The L-shaped layout makes it easy for the operator to monitor both the projector and camera adjustments during the transfer process.

• Interchangeable Inputs:

The projector and shelf become a single unit that can be removed or replaced without losing basic adjustment.

• Aerial Image:

Aerial image means that there is no grainy screen to degrade image quality. The video camera sees the image formed "in air." The image is made visible to the camera by the carefully engineered field lenses which are part of the bipler's optical system.

• Black Mirror:

The optically polished black mirror positions the image correctly for the video camera. It serves to reduce the light from the projector to levels that the video camera can handle, and is rotated by the external lever to select the input port.

• Removable Internal Screen:

A small screen can be inserted between the field lenses so that the aerial image is visible to the naked eye during setup. The screen is removed before recording.

Developed from Buhl's original modular bipler, the Tyrone Video Transfer System is an integrated unit to handle 16mm, Super 8mm, 8mm or slides to video.

The concept is that the projector and shelf become a single unit which, once aligned, can be removed and replaced without losing the basic adjustments. This is accomplished by fitting each shelf with carefully machined locating slots, which in turn fit into precision points on the Tyrone shelf holder.

Tyrone Video Transfer System includes:

- Optical system
 - Custom alignment shelf for film or slide projector. (User must specify make and model number of projector.)
 - Custom camera mount. (User must specify make and model of video camera, lens centerline height and distance from the tripod socket to the tip of the lens.)
- 502-100 Tyrone \$1200.00
 - 502-000 Additional shelf and riser. (User must specify make and model of projector)150.00
 - 502-001 "T" configuration add-on shelf and riser for right side. (User must specify make and model of projector)315.00
 - 505-100 2 projector 35mm dissolve system to hold and align 2 Ektagraphic III slide projectors in dissolve mode. Objective lens included. Does not include projectors or dissolve control (accepts vertical or horizontal slide format)990.00

*Price On Request

CE-25/CE-75 Computerized Editing Systems

Common Features

List Management

- Full internal list management • Includes Seek or Scroll to any event, Recall any event, Insert, Delete, or Replace any event with or without Ripple • Full 999-line EDL can be saved to or loaded from: the standard 3.5" disk drive, an optional second 3.5" disk drive, an 8" RT11 drive, or 30 MG hard drive • EDL may also be saved to a printer • EDL can be converted to a CMX or GVG compatible format, or a CMX/GVG formatted EDL can be read into either a CE-25 or CE-75 from a 3.5" disk with the optional CMX/GVG RT 11 EDL conversion software

GPIs

- Offer 1 standard fixed point General Purpose Interface • GPIs can be used to trigger a DVE, CG, DSK, or even a remote controllable ATR

Standard Hardware

- Delivered with a main CPU electronics frame, a dedicated editing keyboard, an internal 3.5" disk drive, an edit status monitor, a preview switcher, serial VTR interfaces, with a serial video switcher interface for the CE-75 as standard equipment • Additional disk drives and programmable GPI relays are available • External keyboard can be connected to either system, further extending each system's power

Macros

- CE-25 has 2 24-keystroke macros, while the CE-75 features 4 24-keystroke macros • Macros allow those cumbersome, repetitive, multi-keystroke sequences to be stored and recalled with 1 keystroke • All macro commands are displayed as they appear on the keycaps • Once a macro is created, it can be stored with the system setup configuration and be available for every edit session

Preview Switcher

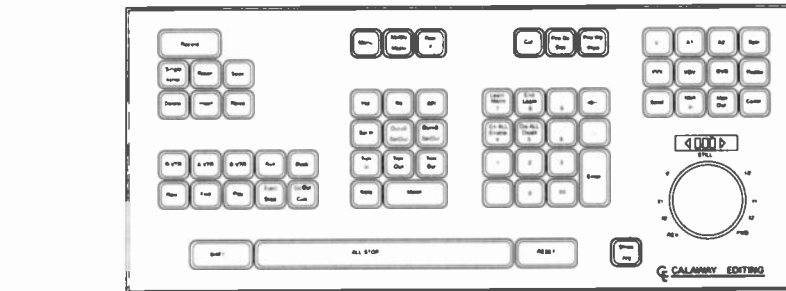
- 2 x 1 composite video stereo audio preview switcher is included • Preview switchers provide an accurate glitch-free method of performing preview edits • With a preview switcher, now only 1 video and audio monitoring system is required to review any source in the system, including the output from the video switcher, audio mixer, or record VTR • Internal sync generator provides for stable edits when editing without TBCs in a cut-only session

VTR Interface

- Interface to most RS-422 Sony protocol serial VTRs • Parallel control VTRs, such as the Sony VO5850, Panasonic AG 7500A and JVC BRS811U, require an optional interface that includes a longitudinal time code reader • Most RS-422 serial video switchers can be interfaced with the CE-75

CE-25

Includes common features plus: • 2 serial VTR interfaces—1 source and 1 record • Internal 3.5" disk drive standard • List management standard • Designed to perform frame-accurate simple cut edits; also creates an off-line EDL • Since few on-line edits have only 1 source VTR, the CE-25 retains not only the B-VTR, Aux and Black keys, but also the Dissolve and Wipe keys for list creation • Optional 2 GPIs • Optional Ampex 1" VTR protocol software • Optional CMX/GVG EDL disk drive conversion software • Optional Klean and Keen



Model	Description	25	75	110	210	400	Price
Interfaces							
CE-ESAM	Audio mixer serial interface (ESAM I/II)		✓				\$ 800.00
CE-25 GPI	2 programmable GPIs	✓					695.00
CE-75 GPI	4 programmable GPIs		✓				695.00
CE-210 GPI	8 additional programmable GPIs				✓		1995.00
CE-E ²	Parallel to serial VTR interface	✓	✓	✓	✓	✓	1700.00
CE-MXP29	Sony MXP-29 parallel audio mixer control (requires CE-ESAM for CE-75)		✓	✓	✓	✓	2250.00
Preview Switchers							
CE-PVW	2 x 1 video and 2-channel audio preview switcher	✓	✓	✓	✓	✓	\$ 1295.00
	When not purchased with system	✓	✓	✓	✓	✓	1695.00
CE-RGB PVW	RGB video only preview switcher	✓	✓	✓	✓	✓	2995.00
ACONN	Audio connector kit for preview switcher	✓	✓	✓	✓	✓	50.00
Disk Drives							
FD-350	Second 3.5" 720K floppy disk drive	✓	✓	✓	✓	✓	\$295.00
HD-30	30M byte internal hard disk drive	✓	✓	✓			895.00
Miscellaneous Software							
CMX/GVG EDL	3.5" disk RT-11 file conversion	✓	✓	✓			\$750.00
Turbo Trace +™	EDL cleaning and tracing program	✓	✓	✓	✓	✓	995.00
CTP-1	Videotape-based training package	✓	✓	✓	✓	✓	200.00
Cables							
CE-25 SWCH	RS-422 serial VTR control cable for CE-25 (25')	✓					\$300.00
RS-422	RS-422 serial VTR control cable (25')		✓	✓	✓		120.00
SWCH	Video switcher and audio mixer cable (25')		✓	✓	✓		300.00
KDXTR-1	Keyboard and display extension cable (50')		✓	✓			350.00
KDXTR-2	Keyboard and display extension cable (25')	✓	✓				250.00
MCXTR	Motion controller extension cable (50')			✓	✓		150.00
Rackmounts and Miscellaneous Hardware							
RS-1	Rack slides	✓	✓	✓	✓		\$95.00
DTC-1	Desktop CPU top panel	✓	✓	✓	✓		75.00

CE-75

Includes common features plus: • 3 serial VTR interfaces—2 source and 1 record • Internal 3.5" disk drive standard • 1 serial video switcher interface • List management standard • An Aux and Black input are provided for editing to non-VTR sources • All video switcher crosspoints are assignable • Record VTR is assignable, directly from the editing keyboard • Edit can be previewed 6 different ways • Switcher dissolves and wipes can be previewed, without rolling any VTRs • Optional 4

GPIs • Optional Ampex 1" VTR protocol software • Optional CMX/GVG EDL disk drive conversion software • Optional Klean and Keen

Upgrade

• Have built-in upgrade path • Upgrading a CE-25 to a 6 VTR CE-150 or even an 8 VTR CE-200 requires only a software and keyboard change, and an additional VTR interface card

CE-25\$5300.00
CE-758160.00

CE-210/CE-400

Computerized Editing Systems

Common features:

- Direct RS-422 Sony-type and Ampex VTR protocol
- Video and audio crosspoint selection
- NTSC 2/4-field color framing
- PAL 8-field color framing
- Edit video; audio 1, 2, 3 and 4
- Audio/video split edits
- Preview: VVV, BVB, VBV plus outpoints
- Preview of dissolve/wipe transition
- Sync roll with EDL listing
- 6-character alpha reel number
- Reassignable record/source VTRs
- Multiple record VTRs with assignable track selection
- Auto assemble A and B mode
- Enable/disable any/all events in EDL
- 8 constant registers
- Save/recall current marks
- Calaway, GVG I/II EDL formats
- CMX 3600, 340X and old EDL formats
- Conversion between EDL formats
- 3.5" DOS/RT-11 disk read/write
- Turbo Trace + EDL cleaning and tracing
- Save EDL to disk
- Print EDL
- EDL backup to disk/printer
- EDL disk directory
- Seek through LED by event number
- Scroll through EDL
- Format a disk
- EDL display on or off
- Recall event from EDL
- Replace events/marks into EDL
- Insert or delete event in EDL
- Ripple
- Shift record times in EDL
- Renumber events in EDL
- Move events in EDL
- Copy events in EDL
- Restore EDL—OOPS
- Single key match cut calculate
- Action match
- Back time calculator
- Time code calculator
- Insert or delete notes in EDL
- Set current event number
- Re-sort EDL
- EDL "logging" mode
- GPI saved to EDL
- Multiple VTR DT speed triggers
- VTR speed fit calculator

- VTR speed match frame calculator
- V-EFX memory triggers, upload and download memory registers
- TBC memory triggers, upload and download memory registers
- Master/slave control of 3 sets
- M/S saved to EDL
- Macros saved to disk
- Macro delay
- Macro pause for keyboard entry
- English display of macros
- Film time code conversion

CE-210

Includes common features plus:

- 6-VTR control
- 8 serial VTR ports
- Direct RS-422 video switcher interface
- Direct RS-422 audio mixer interface
- 3000-line EDL
- 8 programmable GPIs
- 24 24-keystroke macros

CE-210 \$19,900.00

CE-400

Includes common features plus:

- 7-VTR control
- 16 RS-422 serial ports assignable for VTR, video switcher, audio mixer, TBC, DVE and pvw switcher control
- 9999-line EDL
- Multiple EDLs on-line (bins)
- 24 50-keystroke macros
- 16 programmable GPIs
- Multiple transition "cluster" edit events
- Look-ahead auto assemble

CE-400 \$34,800.00

CE-110 4-VTR

Computerized Editing System

- 4-VTR control
- ASCII or dedicated editing keyboard style
- Direct RS-422 Sony-type and Ampex VTR protocol
- 4 serial VTR ports
- Direct RS-422 video switcher interface
- Direct RS-422 audio mixer interface (ESAM I/II protocol)
- Video and audio crosspoint selection
- NTSC 2/4-field color framing
- PAL 8-field color framing
- Edit video; audio 1, 2, 3 and 4

- Audio/video split edits
 - Preview: VVV, BVB, VBV plus outpoints
 - Preview of dissolve/wipe transition
 - Sync roll with EDL listing
 - 6-character alpha reel number
 - Reassignable record/source VTRs
 - Auto assemble A and B mode
 - Enable/disable any/all events in EDL
 - 8 constant registers
 - Save/recall current marks
 - 1980-line EDL
 - Calaway, GVG I/II EDL formats
 - CMX 3600, 340X and old EDL formats
 - Conversion between EDL formats
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 - Renumber events in EDL
 - Move events in EDL
 - Copy events in EDL
 - Single key match cut calculate
 - Action Match
 - Back time calculator
 - Time code calculator
 - Insert or delete notes into EDL
 - Set current event number
 - Re-sort EDL
 - EDL "logging" mode
 - 8 programmable GPIs
 - GPIs saved to EDL
 - VTR DT speed triggers
 - VTR DT speed fit calculator
 - V-EFX memory triggers
 - TBC memory triggers
 - Master/slave control of 3 sets
 - Master/slave saved to EDL
 - 12 24-keystroke macros
 - Macro delay
 - English display of macros
- CE-110 4-VTR editor with QWERTY keyboard \$12,900.00
- CE-110 4-VTR editor with dedicated keyboard . . . 12,900.00

CASES



From initial design to finished product, every case we make is treated as an architectural structure. Some manufacturers build a simple wooden box, add some hardware to the exterior, and call it a "flight case." We build Calzone cases from the inside out. 1-of-a-kind Calzone design innovations, like our patented Interlocking Double Angle Construction, allow us to create an internal structural framework to provide exceptional durability, long life and unmatched protection for your valuable equipment.

In addition to our concept of an internal substructure, we also use the finest quality furniture-grade plywood, metal-to-wood-to-metal riveting, our patented Deep Grooved Aluminum Valance and heavy grade laminate external shells. Calzone's high density polyfoam interiors can be custom shaped to accommodate any type of equipment—from electric guitars and keyboards to computers, video cameras and specialized government testing equipment.



Standard and Custom Rackmount Cases

Escort®

- Shock dispersion ball corner • High density polyester foam
- Flushmounted recessed spring-loaded handle for easy access and handling • Large spring-loaded catch to secure lid to mainframe, locking catches optional • Interlocking double angle $\frac{1}{4}$ " or $\frac{1}{2}$ " forms sub-frame structure • Corner structure brace, double or triple rivet
- Extruded .093 gauge interlocking valance • Heavy gauge full length piano hinge

Pro Line II

- Full length piano hinge • Shock absorbent polyether foam lining
- Form fit corner • Spring-loaded handle with rubber grip • Small recessed spring-loaded catch • Corner brace protects corner of valance
- Custom extruded interlocking valance • Custom double angle, internally riveted • Poly tolene laminate on $\frac{1}{4}$ " plywood (gray or black)

Convoy®

- Double angle construction where applicable • Nickel plated butt hinge • Nickel plated flat stock corner with self-standing foot • Attache style catch with lock • Plastic molded, color coordinated, easy grip handle • $\frac{1}{8}$ " custom extruded valance • Foam lined protection
- $\frac{1}{8}$ " ABS plastic molded and precision formed • Optional shoulder strap

Ultima Series

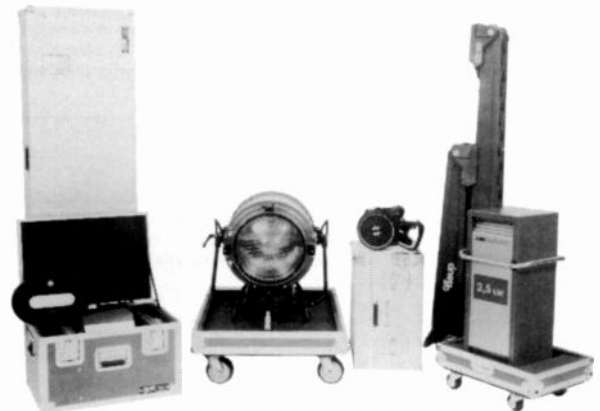
- Lightweight • Durable • $\frac{1}{4}$ " plywood top and bottom with an exterior gray tolex laminate • High density polyether foam lining • Full length piano hinge • Nickel plated hardware • Lockable latches • Metal reinforced handle for carrying ease

Video/Cinematography Cases

Whether you're shooting a live remote, music video, feature length film or making an audio/video presentation, you often have to travel with equipment worth thousands of dollars. Considering the delicate nature of cameras, projectors, recorders, editing and lighting gear, mics, etc., the relative cost of the Escort and Convoy cases is a small price to pay to ensure the complete protection and long life of your gear. We custom build cases designed around the way you work to save you time and money on location. We build a variety of standard cases along with special custom order models to handle any type of equipment imaginable.

High quality Escort wardrobe, drawer and utility cases come in a wide selection of standard sizes and can be custom built to handle any kind of stage costumes, makeup, wigs, related clothing and accessories.

Escort and Convoy audio visual cases come in all standard sizes and can be built to carry projectors, stands, screens, slides and accessories. Everything you need to take your multimedia show on the road without worrying about damage.



Cinematography



Video/Broadcast

Expensive and fragile recorders, monitors, projectors, editing/processing equipment and communications gear deserves the kind of extra protection provided by durable and easy to handle Escort and Convoy cases. All cases are available in video sizes and formats, or can be custom built to your requirements.

Get your equipment to the location without any worries about road-shock. Our standard and custom cases for cameras, lenses, magazines, lights, stands and power packs represent the ultimate in protection and ease of handling. They can also help organize your equipment for complicated and remote location shoots.

The Ultima Series offers today's musicians an attractive, streamlined case to protect their keyboards, mixers, recorders and drum machines during local transport. Our custom aluminum shell makes it an extremely lightweight case providing maximum protection at nearly half the price of related A.T.A. type cases.

Multi-Channel "Modular" Cable Systems

Canare offers a large selection of pre-wired components and cable systems, available in standard 8, 12, 16, 24 and 32-channel arrangements. All systems are configured in a "modular" style design to ensure easy component interfacing, future expansion, simple set-up and tear-down, as well as readily serviceable parts. Cable systems utilize the finest Cannon J.A.E. multipin K and MS type connectors and Cannon XLR connectors, so that you can be assured of good contacts and maximum durability, no power-robbing nicks, broken leads, shorts or intermittent contacts. After exhaustive research and testing, we have determined that Cannon XLR and Multipin connectors offer the best choice in performance and features. They have strong silver pin contacts that won't pull out or loosen and also have the lowest contact resistance not only initially, but after months of use, where cheaper connectors are subject to contact corrosion. The Multipin connectors use a bayonet type "screw-lock" sleeve for fast, positive connections. Connector dust caps on a short steel cable protect the connectors when the system is being stored or transported.

Technical Note:

In order to help avoid signal losses and prevent degradation of signal-to-noise ratio, it is important to keep contact resistance as low as possible, especially in large systems with many connectors between the microphone and the mixer. Quality contacts do make a difference.

Pigtails

"Fan-Outs" are typically used for terminating multi-channel snake mic lines to a mixing console. We use only Canare L-4E6S or L-4E5C Star Quad single channel mic cable for our "tails." All models are configured with either Cannon XLR Male or Cannon XLR Female to a Cannon K-type or MS-type multipin connector. Lengths are approximately 5' each. These pigtailed cables are carefully wired in a common ground scheme and thoroughly tested by Q.C. before final release. Each individual channel has a large, durable, number ring collar, attached and floating over the cable for quick identification. A sturdy dust cap is included for multipin storage protection.



Microphone Cable

L-4E6S

The first choice for handheld microphones. Flexible, smooth to the touch, extra-strong standard diameter STAR QUAD cable that fits perfectly in all XLR-type connectors. With 40 separate strands in each conductor, breakage due to flexing is all but eliminated, especially at or close to the solder joint. Large color selection aids in cable identification and decor coordination. Available colors: Black, Blue, Brown, Gray, Green, Orange, Purple, Red, Yellow and White.



Model	No. Chan. (Quad)	No. of Cond. Per. Chan.	Std. Lengths	Wt. (lbs./1000')	Nom. O.D. (in.)	Cond. strand. (Qty./mil.)	Cross sec. Area (mil. ²)	AWG size	Pitch of Quads (in.)	Shield Coverage (%)	Insulation type	PVC Jacket Nom. Thick. (mil.)	Electrical Characteristics/Quad					
													Nom. D.C.R. (ohm/1000')	Shield D.C.R. (ohm/1000')	Nom. CAP (PF/ft)	Nom. Imp. (ohm)	Nom. Atten. (V/1000')	Group Delay Time (ns/ft)
L-4E6S	1	4	500' 1000'	33	.237	40/3.15 310 #24			.79	>95	Irradiated Polyethylene	44	30	9.1	46 57	44	0.9	1.80

Pre-assembled Cables



For extra convenience, Canare offers pre-wired ECO mic cables in various lengths and colors.

- ECO05FB 5' cable
- ECO25FB 25' cable
- ECO15FB 15' cable
- ECO50FB 50' cable

Audio Cables

CABLE	DESCRIPTION	MODELS	LENGTH (FT.)	WIRING DIAGRAM
NC3FX-B L-4E6S BLK, BLU, BRN, GRN, ORN, PURP, RED, YEL, WHT	MIC/LINE CABLE	ECO05FB ECO15FB ECO25FB ECO50FB	5 15 25 50	
F-15 GS-6 BLK, BLU, GRN, ORN, RED, YEL, WHT	GUITAR/INSTRUMENT CABLE	GO12CH GO03F GO10F GO15F GO20F GO25F	1 3 10 15 20 25	
TT253 L-4E5C BLK, BLU, GRN, GRN, ORN, RED, YEL	BANTAM PATCH-BAY CABLE	TTO18CH TTO03 TTO06	1.5 3 6	
F-10 GS-6 BLK, BLU, GRN, ORN, RED, YEL, WHT	RCA LINE CABLE	RC005F RC015F RC015F	5 10 15	
EP-4-11-1C 4S11 GRY	SPEAKER CABLE	SCO10F SCO15F SCO25F	10 15 25	
F-17S L-4E5C BLK, BLU, GRN, GRN, ORN, RED, YEL	MIDI CABLE	MCO05F MCO15F MCO25F	5 10 25	

Other assemblies available on special order. Please call for information.

BROADCAST LENSES



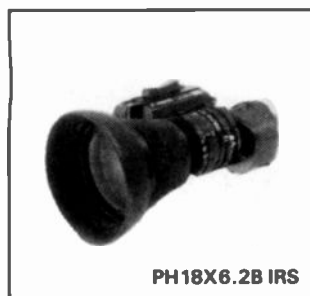
For 2/3" CCD and Tube Color TV Cameras

Lens	Zoom Ratio	Range of Focal Length	With Extender	Maximum Relative Aperture	Angular Field of View	Minimum Object Distance (M.O.D.)	Object Dimensions at M.O.D.	Operation System	Built-In Extender
J18X8.5B IRS ENG/EFP	18X	8.5-153mm	-	1:1.7 at 8.5-113mm 1:2.3 at 153mm	54.7°X42.4° at 8.5mm 3.3°X2.5° at 153mm	0.9m	86.2X64.6cm at 8.5mm 4.9X3.6cm at 153mm	Semi-Servo	2X
		17-306mm	2X	1:3.4 at 17-226mm 1:4.6 at 306mm	29.0°X22.0° at 17mm 1.6°X1.2° at 306mm		43.1X32.3cm at 17mm 2.4X1.8cm at 306mm		
J14X8B IRS ENG/EFP	14X	8-112mm	-	1:1.7 at 8-91mm 1:2.1 at 112mm	57.6°X44.8° at 8mm 4.5°X3.4° at 112mm	0.7m	87.8X65.9cm at 8mm 6.1X4.6cm at 112mm	Semi-Servo	2X
		16-224mm	2X	1:3.4 at 16-182mm 1:4.2 at 224mm	30.8°X23.3° at 16mm 2.3°X1.7° at 224mm		43.1X32.3cm at 16mm 3.1X2.3cm at 224mm		
J14aX8.5B IRS ENG/EFP	14X	8.5-119mm	-	1:1.7 at 8.5-103mm 1:2.0 at 119mm	54.7°X42.4° at 8.5mm 4.24°X3.18° at 119mm	0.8m	75.5X66.6cm at 8.5mm 5.5X4.1cm at 119mm	Semi-Servo	2X
		17-238mm	2X	1:3.4 at 17-206mm 1:4.0 at 238mm	29.02°X21.97° at 17mm 2.12°X1.59° at 238mm		38.6X29.0cm at 17mm 2.8X2.1cm at 238mm		



Lens	Zoom Ratio	Range of Focal Length	With Extender	Maximum Relative Aperture	Angular Field of View	Minimum Object Distance (M.O.D.)	Object Dimensions at M.O.D.	Operation System	Built-In Extender
J8X6B IRS ENG/EFP	8X	6-48mm	-	1:1.7 at 6-33mm 1:1.9 at 48mm	72.5°X57.6° at 6mm 10.5°X7.9° at 48mm	0.3m	51.3X38.5cm at 6mm 6.4X4.8cm at 48mm	Semi-Servo	2X
		12-96mm	2X	1:3.4 at 12-66mm 1:3.8 at 96mm	40.3°X30.8° at 12mm 5.2°X3.9° at 96mm		25.7X19.2cm at 12mm 3.2X2.4cm at 96mm		
J8X6B KRS A ENG/EFP	8X	6-48mm	-	1:1.7 at 6-33mm 1:1.9 at 48mm	72.5°X57.6° at 6mm 10.5°X7.9° at 48mm	0.3m	51.3X38.5cm at 6mm 6.4X4.8cm at 48mm	Semi-Servo	-
J15X9.5B KRSII Semi-Professional	15X	9.5-143mm	-	1:1.8 at 9.5-112mm 1:2.3 at 143mm	49.7°X38.3° at 9.5mm 3.5°X2.6° at 143mm	0.95m	86.2X64.7cm at 9.5mm 5.7X4.3cm at 143mm	Semi-Servo	-
J15X9.5B IRS Semi-Professional	15X	9.5-143mm	-	1:1.8 at 9.5-121mm 1:2.1 at 143mm	49.7°X38.3° at 9.5mm 3.5°X2.6° at 143mm	0.95m	80X60cm at 9.5mm 5.4X4.1cm at 143mm	Semi-Servo	2X
		19-286mm	2X	1:3.6 at 19-242mm 1:4.2 at 286mm	26.1°X19.7° at 19mm 1.8°X1.3° at 286mm		40X30cm at 19mm 2.7X2.1cm at 286mm		
J12X10B KRS Semi-Professional	12X	10-120mm	-	1:1.7 at 10-101mm 1:2.0 at 120mm	47.5°X36.5° at 10mm 4.2°X3.2° at 120mm	1.1m	89.8X67.3cm at 10mm 7.6X5.7cm at 120mm	Semi-Servo	-

For 1/2" CCD Color TV Cameras



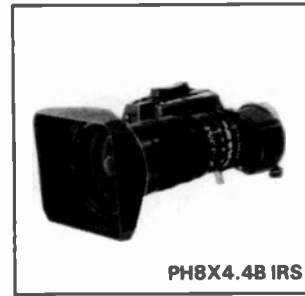
PH18X6.2B IRS



PH14aX6.6B IRS



PH13X6.6B IRSIIA



PH8X4.4B IRS

Lens	Zoom Ratio	Range of Focal Length	With Extender	Maximum Relative Aperture	Angular Field of View	Minimum Object Distance (M.O.D.)	Object Dimensions at M.O.D.	Operation System	Built-In Extender
PH18X6.2B IRS ENG/EFP	18X	6.2—112mm	—	1:1.4 at 6.2—93mm 1:1.7 at 112mm	54.6°X42.3° at 6.2mm 3.3°X2.5° at 112mm	0.9m	86X64.6cm at 6.2mm 4.8X3.6cm at 112mm	Semi-Servo	2X
		12.4—224mm	2X	1:2.8 at 12.4—186mm 1:3.4 at 224mm	28.9°X21.9° at 12.4mm 1.6°X1.2° at 224mm		43X32.3cm at 12.4mm 2.4X1.8cm at 224mm		
PH20X6.2IE Type C	20X	6—120mm	—	1:1.4 at 6—114mm 1:1.5 at 120mm	66.1°X43.6° 3°X2.3°	0.6m	81.3X61.0cm 4.0X3.0cm	Semi-Servo	1.5X, 2X
		9-180mm	1.5X	1:2.1 at 9—171mm 1:2.2 at 180mm	39.1°X29.9° 2°X1.5°		53.3X39.8cm 2.7X2.0cm		
		12-240mm	2X	1:2.8 at 12—228mm 1:3.0 at 240mm	29.9°X22.6° 1.5°X1.1°		40.2X30.1cm 2.0X1.5cm		
PH14aX6.6B IRS ENG/EFP	14X	6.6—92.4m	—	1:1.4 at 6.6—83mm 1:1.55 at 92.4mm	51.7°X40° at 6.6mm 4°X3° at 92.4mm	0.8m	71.2X53.4cm at 6.6mm 5.18X3.87cm at 92.4mm	Semi-Servo	2X
		13.2—184.8mm	2X	1:2.8 at 13.2—166mm 1:3.1 at 184.8mm	27.3°X20.6° at 13.2mm 1.98°X1.49° at 184.8mm		36.4X27.4cm at 13.2mm 2.67X2.0cm at 184.8mm		
PH13X6.6B IRS IA ENG/EFP	13X	6.6—86mm	—	1:1.4 at 6.6—86mm	51.7°X40° at 6.6mm 4.3°X3.2° at 86mm	0.8m	72.3X54.2cm at 6.6mm 5.6X4.2cm at 86mm	Semi-Servo	2X
		13.2—172mm	2X	1:2.8 at 13.2—172mm	27.3°X20.6° at 172mm 2.1°X1.6° at 172mm		36.5X27.3cm at 13.2mm 2.9X2.2cm at 172mm		
PH8X4.4B IRS Wide Angle	8X	4.4—35mm	—	1:1.4 at 4.4—35mm	72.5°X57.6° at 4.4mm 10.5°X7.9° at 35mm	0.3m	51.3X38.5cm at 4.4mm 6.4X4.8cm at 35mm	Semi-Servo	2X
		8.8—70mm	2X	1:2.8 at 8.8—70mm	40.3°X30.8° at 8.8mm 5.2°X3.9° at 70mm		25.7X19.2cm at 8.8mm 3.2X2.4cm at 70mm		



PH15X7B IRS



PH15X7B KRSII



PH12X7.5B KRS



PH10X8B KRS

Lens	Zoom Ratio	Range of Focal Length	With Extender	Maximum Relative Aperture	Angular Field of View	Minimum Object Distance (M.O.D.)	Object Dimensions at M.O.D.	Operation System	Built-In Extender
PH15X7B IRS ENG/EFP	15X	7—105mm	—	1:1.4 at 7—95mm 1:1.55 at 105mm 1:2.8 at 14—190mm 1:3.1 at 210mm	49.1°X37.5° at 7mm 3.5°X2.6° at 105mm	0.95m	80.0X60.0cm at 7mm 5.4X4.1cm at 105mm	Semi-Servo	2X
		14—210mm	2X	1:3.1 at 210mm	25.8°X19.5° at 14mm 1.8°X1.3° at 210mm		40.0X30.0cm at 14mm 2.7X2.1cm at 210mm		
PH15X7B KRSII ENG/EFP	15X	7—105mm	—	1:1.4 at 7—95mm 1:1.55 at 105mm	49.1°X37.8° at 7mm 3.5°X2.6° at 105mm	0.95m	80.0X60.0cm at 7mm 5.4X4.1cm at 105mm	Semi-Servo	2X
PH12X7.5B KRS ENG/EFP	12X	7.5—90mm	—	1:1.4 at 7.5—83mm 1:1.5 at 90mm	46.2°X35.5° at 7.5mm 4.1°X3.1° at 90mm	1.1m	86.9X65.2cm at 7.5mm 7.4X5.6cm at 90mm	Semi-Servo	—
PH10X8B KRS ENG/EFP	10X	8—80mm	—	1:1.4 at 8—58mm 1:1.7 at 80mm	43.6°X33.4° at 8mm 4.6°X3.4° at 80mm	1.1m	82.9X62.2cm at 8mm 8.7X6.5cm at 80mm	Semi-Servo	—

DIGITAL EFFECTS/ DIGITAL STILL STORE



MS800 Series 'Maurice' Digital Effects Systems

- Operates as TBC for any source and copes with wide tolerance of input timing levels • Infinite window TBC • Digital effects including zoom and pseudo-perspective • Simultaneous key processing • Still store optional
- Component input/outputs • Y/C input/output for S-VHS • 4 composite inputs with internal switches • Remote control operation via serial input
- Programmable 2-color borders • Built-in drop shadow generation • Background generation • False color imaging • Pixellation • Horizontal and vertical mirrors • Color correction capabilities • Test card generation
- Broadcast standard digital decoder option • Spatial filter for smoother zooms and noise reduction • Y/C horizontal and vertical compensation
- Picture encryption/de-encryption capable • Self-calibration and auto diagnostics • 4:2:2 digital input/output for all digital studio operations
- Transversal filter decoder

MS830 'Maurice Minor II' Single Channel Effects System: (1) P163 'Maurice Minor II' Control Panel, (1) P164-38XP Digital Effects TBC/Synchronizer \$16,995.00

MS831 'Maurice Minor II' Single Channel Effects System with BIM (Built-in Mixer): (1) P163 'Maurice Minor II' Control Panel, (1) P164-38XPB Digital Effects TBC/Synchronizer with SEG \$18,995.00

MS832 'Maurice Minor II' Dual Channel Effects System with BIM: (1) P163 'Maurice Minor II' Control Panel, (1) P164-38XP Digital Effects TBC/Synchronizer, (1) P164-38XPB Digital Effects TBC/Synchronizer with SEG \$33,995.00

MS850 'Maurice' Single Channel Effects System: P152A 'Maurice' Touchscreen Controller, (1) P164-38XP Digital Effects TBC/Synchronizer \$18,995.00

MS851 'Maurice' Single Channel Effects System with BIM: (1) P152A 'Maurice' Touchscreen Controller, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$20,995.00

MS852 'Maurice' Dual Channel Effects System with BIM: (1) P152A 'Maurice' Touchscreen Controller, (1) P164-38XP Digital Effects TBC/Synchronizer, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$35,995.00

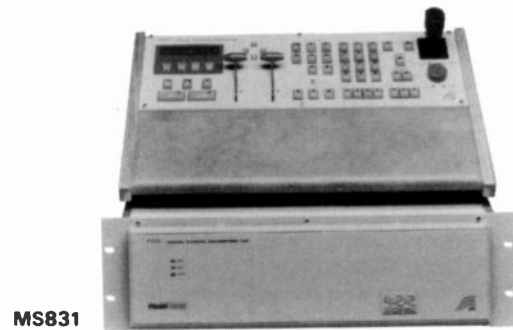
MS850B 'Maurice II' Single Channel Effects System: (1) P152B 'Maurice II' Touchscreen Controller, (1) P164-38XP Digital Effects TBC/Synchronizer \$21,995.00

MS851B 'Maurice II' Single Channel Effects System with BIM: (1) P152B 'Maurice II' Touchscreen Controller, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$23,995.00

MS852B 'Maurice II' Dual Channel Effects System with BIM: (1) P152B 'Maurice II' Touchscreen Controller, (1) P164-38XP Digital Effects TBC/Synchronizer, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$38,995.00

MS853B 'Maurice II' 3 Channel Effects System with BIM: (1) P152B 'Maurice II' Touchscreen Controller, (2) P164-38XP Digital Effects TBC/Synchronizer, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$53,995.00

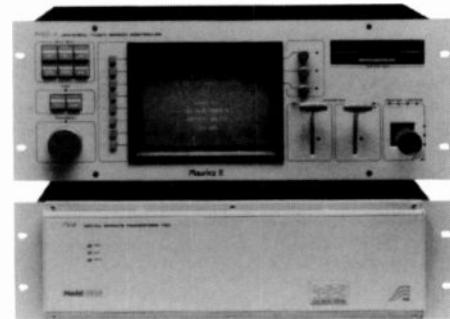
MS854B 'Maurice II' 4 Channel Effects System with BIM: (1) P152B 'Maurice II' Touchscreen Controller, (3) P164-38XP Digital Effects TBC/Synchronizer, (1) P164-38XPB Digital Effects TBC/Synchronizer with BIM \$68,995.00



MS831



MS832 Plus



MS851B

ANCILLARY EQUIPMENT

Slide Store Systems

SS167-18 4:2:2 Digital Slide Store System. Includes: P164-18 TBC/synchronizer, P167-10 digital still image storage unit, 167-KB keyboard, 167-VDU monochrome VGA monitor \$21,995.00

SS167-38 4:2:2 Digital Slide Store System. Includes: P152B 'Maurice II' touchscreen controller, P164-38XP digital effects TBC/synchronizer, P167-10 digital still image storage system \$31,995.00

Slide Store Products

P167-10 4:2:2 Digital Still Image Storage System. Requires P164 series TBC/synchronizer. Note: May require 164-UG-167. Call \$9,995.00

164-DIF 4:2:2 Digital Still Image Interface Board and Software. Requires P164 series TBC/sync and fits in IBM-AT computer. Note: May require 164-UG-167. Call \$2,995.00

167-KB "AT" Keyboard For P167-10 when not using P152B \$195.00

167-VDU Monochrome VGA Monitor For P167-10 when not using P152B \$195.00

164-UG-167 Upgrade Kit To give P167 and 164-DIF operation in P164. Note: For SNs below 24000, call \$500.00

Vision Mixer/Keyers

164-BIM Composite Built-in Mixer (BIM) For P164 series \$2,000.00

P177-20 Y/C Mixer/Keyer Controlled from P164 series \$4,995.00

P177-30 YUV Mixer/Keyer Controlled from P164 series \$4,995.00

Note: P177 units can be substituted for the 164-BIM in any 'Maurice' DVE system for an additional \$3,000.00

Broadcast Encoders/Decoders

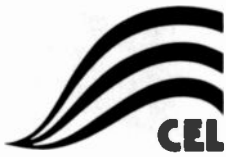
P170-10 Digital Adaptive PAL Comb Decoder For P164/P165 \$13,995.00

P171-10 Digital 4:2:2 Multi-Standard Encoder \$10,995.00

Routing Switchers

P169V Manual and serial control 8 x 4 unit \$2,495.00

P169A/3 3-channel audio follow unit for P169V \$895.00



STANDARDS CONVERTERS

STANDARDS CONVERTERS

'Tetra Plus' Standards Converters

TS165 'Tetra Plus' Broadcast Standards Converter System • Bi-directional 4:2:2, 8-bit standards converter • Motion adaptive 4-field, 4-8 line interpolation • Hycomb comb filter decoder for PAL/NTSC 3.58/4.43 inputs • Hycomb sub-board decoder for SECAM/PAL-M/PAL-N inputs • DIO card for CCIR 601 digital input and output • ENC2 O/P card for PAL/NTSC 3.58/4.43 outputs • SECAM O/P card for SECAM output • P171-10 digital 4:2:2 multi-standard encoder (PAL/NTSC) • P180 stereo audio delay compensation unit \$75,995.00

P165-50 'Tetra Plus' Broadcast Standards Converter • Bi-directional 4:2:2, 8-bit standards converter • Motion adaptive 4-field, 4-8 line interpolation • Hycomb comb filter decoder for PAL/NTSC 3.58/4.43 inputs • Hycomb sub-board decoder for SECAM/PAL-M/PAL-N inputs • DIO card for CCIR 601 digital input and output • ENC2 O/P card for PAL/NTSC 3.58/4.43 outputs • SECAM O/P card for SECAM output • P180 stereo audio delay compensation unit \$64,995.00

P165-44 'Tetra Plus' Broadcast Standards Converter • Bi-directional 4:2:2, 8-bit standards converter • Motion adaptive 4-field, 4-8 line interpolation • ADC standard decoder for PAL/NTSC 3.58/4.43/SECAM inputs • ENC2 O/P card for PAL/NTSC 3.58/4.43 outputs • SECAM O/P card for SECAM output \$39,995.00

'Tetra' Standards Converters

P165-40 Bi-directional 4:2:2, 8-Bit Standards Converter With motion adaptive 4-field, 4-8 line interpolation \$28,995.00

P165-40SEC Bi-directional 4:2:2, 8-Bit Standards Converter With motion adaptive 4-field, 4-8 line interpolation and SECAM output board installed \$31,995.00

P165-40DIO Bi-directional 4:2:2, 8-Bit Standards Converter With motion adaptive 4-field, 4-8 line interpolation and D1 digital I/O board installed \$31,995.00

P165-40HY Bi-directional 4:2:2, 8-Bit Standards Converter With motion adaptive 4-field, 4-8 line interpolation and Hycomb decoder for PAL/NTSC 3.58/4.43 inputs only \$33,995.00

P165-40HYSEC Bi-directional 4:2:2, 8-Bit Standards Converter With motion adaptive 4-field, 4-8 line interpolation with Hycomb decoder for PAL/NTSC 3.58/4.43 inputs only and SECAM output board installed \$36,995.00

'Standi' Standards Converter

P165-22 'Standi' Bi-Directional Standards Converter 4-field converter for PAL/NTSC 3.58/4.43 and SECAM inputs. PAL and NTSC 3.58/4.43 outputs \$18,995.00

Low Cost Standards Converters

P156/2 P-N Standards Converter PAL/SECAM inputs, NTSC output \$8,995.00

P156/2 N-P Standards Converter NTSC input, PAL output \$8,995.00

Optional Equipment

165-SEC SECAM Output Board For P165-22 and P165-40 \$3,000.00

165-HYCOMB Wideband Composite Comb Decoder For P165-40, PAL/NTSC 3.58/4.43 inputs only \$5,000.00

165-40-R Remote Panel For P165 (serial control) \$3,200.00

165-UG-TEST Optional software for P165-40 (SN 01510 and above). Will add: • Manual adaption control • Broadcast test patterns • P180 control giving 1 additional frame of audio delay. \$1,000.00

RM164 Rackmount Slide Kit For P164/P165 \$295.00

164-EXT Extender Card For P164/P165 \$320.00

Broadcast Audio Delay

P180 Stereo Audio Delay Compensation Unit For P165 series. Serial control from 'Tetra' units \$4,995.00

Broadcast Encoders/Decoders

P170-10 Digital Adaptive PAL Comb Decoder For P164/P165 \$13,995.00

P171-10 Digital 4:2:2 Multi-Standard Encoder \$10,995.00



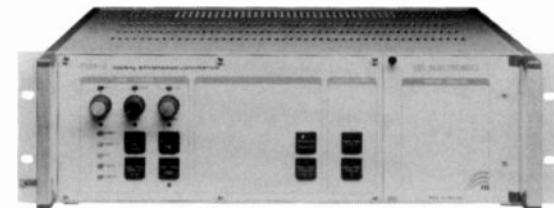
P165-50



P165-40



P165-22



P156/2

'Tetra' Upgrades

165-UG-FAD Upgrade for existing P165-40 models (SNs up to 01830). Will add: • Improved vertical resolution • Manual adaption control • Broadcast test patterns • P180 control giving facility for extra frame of audio delay \$2,000.00

165-SEC SECAM Output Board For the P165-40 Tetra \$3,000.00

165-UG-180 Upgrade kit for P180 control from P165-40 Tetra. Includes replacement IVI board. Note: For SNs below 01377, call \$1,200.00

165-UG-SEC Upgrade kit for SECAM output from P165-40 Tetra. Includes replacement IVI board and SECAM output board. Note: For SNs below 01377, call \$4,500.00

165-UG-DIO Upgrade kit for digital D1 input/output on P165-40. Includes DIO board. Note: For SNs below 01377, call \$3,500.00

165-UG-HY Upgrade kit for installation of Hycomb wideband composite decoder in P165-40 Tetra. Includes replacement IVI board. Note: This upgrade will limit inputs to PAL/NTSC 3.58/4.43 only and is only necessary on SNs below 01509. \$6,500.00

165-MOD-443 Factory installed upgrade for NTSC 4.43 output on P165-40 Tetra. Includes replacement ENC2 encoder board. Note: This upgrade is only necessary on very early models \$1,200.00

165-MOD-SEC Factory installed upgrade for SECAM output and P180 control on P165-40 Tetra. Includes 165-UG-SEC and 165-SEC SECAM board \$5,000.00

AD INSERTION SYSTEMS/ SWITCHERS



Full Random Access, Random Pod and Random Pod Sequential Ad Insertion Equipment

Adcart Random Access Ad Insertion System

The Adcart is an ad insertion system designed for random pod or full random access operation. Its primary components include a Channel Control Unit, Tape Encoding Unit and System Control Unit.

CCU-402A, Channel Control Unit

The basic CCU is housed in a 3 1/2" high rack enclosure and inserts ads into 2 CATV networks. CCUs can be chained together to form a system of any desired size. The VCR-to-channel assignments can be easily made from the terminal keyboard without moving any jumpers or cables. The system can be configured to have 1, 2, 3 or 4 VCRs on 1 channel, 1 or 2 VCRs on each of 2 channels, or VCRs shared between 2 channels.

Its features include: front panel status display, all-channel CRT status display, full stereo audio, computer adjusted audio levels, flexible VCR channel assignments, preview bus, memory backup without batteries, latest audio/video IC multiplexing and switching circuitry and 2 auxiliary outputs \$7500.00

CCU-202A, Channel Control Unit

This newest CCU has nearly all the features of the CCU-402A, but handles all ad insertion functions for 2 channels, controlling 1 or 2 videocassette players (instead of up to 4), designed especially for random-pod sequential use \$4500.00

TEU-1A, Tape Encoding Unit

1 TEU is required in an Adcart system to encode advertiser information via a CRT terminal onto commercial spot reels, including company name, spot name, account executive, etc. \$2500.00

SCU-1A, System Control Unit

An SCU is required in any system using 2 or more CCUs. The unit provides the central management functions that enable the system to share the CRT terminal or PC interface and printer. Also features automatic error reporting. Only 1 SCU is needed in a system, no matter how large \$2500.00

Options and Accessories

APC-100A Adcart PC Software

Used when controlling an Adcart via an IBM PC or compatible computer. The software allows the operator to develop, control and edit schedules in advance and store weeks worth of verification data. Interfaces with most traffic management systems on the market. The APC-100A is very user friendly and has full-color, easy-to-read menus, help screens and editing screens \$1500.00

ASP-100A, Adcart PC Automatic Schedule Program Software

Now offered as a standard feature of Adcart PC Software, the ASP-100A was previously available only as a \$1000.00 option. Designed specifically for interconnects, the ASP retrieves logs and sends schedules at selected times between selected headends. The ASP-100A runs in conjunction with Adcart PC Software, versions 2.10 and higher, on IBM PC-AT or PC-AT compatibles \$1500.00

AVS-10A, Patchmaster

The Patchmaster is a broadcaster-quality bridging audio-follow-video routing switcher. If it is desired to check signal levels or quality at different points in an ad insertion system, the Patchmaster can be used to switch these signals to a central monitoring point \$1295.00
AVS-10AS Patchmaster stereo 1550.00

NSS-5A, Network Share Switcher

Used in conjunction with any full random access, random pod or sequential ad insertion equipment, the Network Share Switcher enables commercials to be inserted into as many as 4 networks from a single ad insertion source. Insertion is performed on a first-come, first-served basis, on selected channels, or on all channels.

Its features include: 4 digital DTMF cue tone decoders, full-screen terminal programming and status monitoring, full logging and verification of switching and cue tone receipt, avail collision monitoring and logging, and power failure relay bypass \$3500.00

Sequential Ad Insertion Equipment

CIS-2A, Li'l MoneyMaker

The Li'l MoneyMaker is a single-channel, single-VCR, sequential ad insertion playback system.

Its features include: microprocessor control, portable tone pad programming, complete preview capability, vertical interval switching, digital DTMF tone decoding, programmable preroll times, selectable VCR or satellite priority, selectable VCR start delay, built-in Aux source fill switcher for blackouts, and is compatible with most 1/2" or 3/4" VCRs \$995.00

CIS-1A, Spotmatic Jr

The Spotmatic Jr is a single-channel, single-VCR, sequential ad insertion playback system with built-in verification circuitry and printer.

Its features include: microprocessor control, portable tone pad programming, complete preview capability, vertical interval switching, digital DTMF tone decoding, programmable preroll times, selectable VCR or satellite priority, selectable VCR start delay, built-in Aux source fill switcher for blackouts, compatible with most 1/2" or 3/4" VCRs, and built-in logging and verification printout, program and status printouts \$1595.00

Options and Accessories

ALS-5A, Logmatic

The Logmatic is a fully-automatic, 4-channel ad insertion logging system designed specifically to interface with an IBM PC or compatible computer and full size 80-column printer. Multiple Logmatics can be chained together to handle additional channels in groups of 4. The unit can send data directly to a printer or store the data until it is retrieved by a remote or local personal computer. Logmatic PC Software is required when interfacing with a personal computer.

Its features include: expandable to 400 channels, 4000-event memory storage, memory power backup, logs advertiser and spot IDs, logs event times, drives any full size 80-column printer \$995.00

LSW-100A Logmatic PC Software

The LSW-100A is a software product which is used to interface a personal computer to an ALS-5A, Logmatic. The software runs on the PC, gives a full screen user interface, and carries out the functions of retrieving, storage and sorting. \$1250.00

NSS-4B, Network Share Switcher

Used in conjunction with a single channel, sequential ad insertion system, the Network Share Switcher enables commercials to be inserted into as many as 4 networks from a single ad insertion source. Insertion is performed on a first-come, first-served basis.

Its features include: 4 digital DTMF cue tone decoders, 4 preroll delay timers, composite sync output, cue tone decoder disable switches and power failure relay bypass \$1595.00

CHANNEL ONE LIGHTING SYSTEMS, INC.

CYCLORAMA SYSTEMS/ ACCESSORIES

Cyclorama Curtain Track

• Ease of installation† • Rigid alignment of splices • Effortless, walk-along carriers may be pushed or pulled • Pre-formed corner radii • All components aluminum or plated or painted steel • One free set custom track layouts (additional sets available for fee)

Cat. No.	Description	Price
70.110	Single track	per ft./\$ 9.00
70.115	Single track with double track brackets	per ft./12.00
70.120	Double track	per ft./17.00
70.130	Triple track	per ft./27.00
70.140	Quad track	per ft./37.00

70.120 Double Track System

The double track system is recommended for the seamless Linoweave and background curtains. The track, corner track sections, track brackets, splicing clamps and all other necessary accessories required to install the double track system are included.

Track Features

• Extruded aluminum I-beam • Minimum 14 gauge aluminum with interior horizontal web for additional stiffness and to prevent carriers riding up on the track • Bottom flange has 10° topside slope • Inside to outside automatically centering carriers on track

Carrier Features

• 1" wheeled, nylon ball-bearing carrier with bumper, 20° included angle between wheels for self centering on track • One carrier per foot of curtain width, plus one

Splicing Clamp Features

• Extruded aluminum clamp slides over track and may be coincident with hanger bracket to facilitate system layout and installation • Clamp rigidly aligns both spliced track ends resulting in smooth joint • Splicing clamp may also be used as track clamp to minimize components

Track Clamp Features

• Extruded aluminum clamp slides over track firmly attaching track to hanging brackets • Single screw attaches clamp to track—and clamp to bracket providing quick, easy, one-handed, low maintenance installation

Wall Bracket Features

• Brackets made of 1/4" x 2" heavy duty steel slotted 8" apart, center to center in horizontal leg for mounting bracket clamps • Three 7/16" holes on vertical leg for attaching to wall

Important Note

It is recommended that exact inside studio dimensions be sent to Channel One—carefully noting all obstacles. By so doing, we can often eliminate problems—and save money.

†Normal installation: two (2) inexperienced men can install double track system in a 30' x 40' studio in two (2) days.

Cyclorama and Background Curtains

Linoweave Cyclorama Curtains

• Seamless—flameproofed, 100% woven cotton • Top—heavy-duty 3 1/2" wide interfacing with 5/8" brass eyelets on one foot centers and 1 1/2" S-hook • Sides—2" interfacing sewn for stiffness and reinforcement with 5/8" brass eyelets on two foot centers for use with tauting poles • Bottom—4" hem with separate pocket or No. 8 jack chain weight, sewn 1/2" above bottom, preventing chain "wear-through" • Total curtain fabricated to ± 1/2" tolerances

Cat. No.	Description	Price
72.101	CBS Gray	Per sq. ft./\$3.40
72.104	Black	Per sq. ft./ 4.40



Cyclorama Curtain Track



Track Switch

Polyvue and Velour Background Curtains

• Purchased in pairs gives stage effect • Pleated effect when hand gathered • Inherently flame resistant • 28 colors • Fabricated to the same standards as Linoweave curtains: Polyvue, 72" vertical panel seams; Velour, 54" vertical panel seamsPOR*

Tauting Pole

Keeps cyclorama taut to eliminate texture in background which might result from sagging cloth • Pole made of 2" x 2" x 3/16" aluminum teebar • Base of 1 1/2" square tubing • Guy wire and turnbuckle provide proper tension • Tauting poles are used in pairs and the ability to move them insures proper curtain tension for perfect backgrounds • 8'-21' setsPOR*

Tauting Pole Eyelet Claw

• Joins cyclorama curtain to tauting pole • Claw hooks into curtain eyelet and is adjustable to insure proper horizontal curtain tension • Two foot spacing required \$10.90

71.201 Eyelet claw \$10.90

Sand Bag

• Designed to hold fifty (50) pounds of sand and lay across the tauting pole base to hold base and pole in position

71.301 Sandbag, 50 lb. saddle \$50.00



Grid Hardware I

Grid Hardware II

Grid Hardware

• All-thread, nuts, bolts, beam clamps, etc., to complete installation of connector strips or pipe grid to I-beams or truss deck based on no greater than 5' centers • Detailed assembly instructions sent with equipmentPOR*

*Price On Request

BATTERY CHARGERS/ ANALYZERS/RECONDITIONERS



CASP®/1000 Universal Battery Support System

- Microprocessor-based for maintaining any rechargeable batteries
- Reflex battery reconditioning will rejuvenate NiCad batteries, even when they have deteriorated to the point that they will no longer hold a charge
- Different types of charging are built into the machine depending on the kind and condition of battery
- This capability includes fast charge, slow charge, dual-rate charge and simultaneous trickle charge

The CASP/1000 system has 6 input-output channels to which batteries may be connected. Corresponding to each channel are 6 process indicator lights, to display the process state of each channel.

Up to 6 batteries of varied types may be connected simultaneously to the system. A sequencer circuit automatically polls each connector in a predetermined sequence, providing inputs to the battery recognition circuit. This circuit identifies battery types and provides this information to the system microprocessor.

Depending on the function, or operating mode, which has been selected for the system, such as "Charge," "Analyze" or "Recondition," the microprocessor instructs the system circuitry to conduct the desired process. In the case of "Analyze," for example, the pre-programmed current/voltage source performs discharge and charge functions necessary to the correct and complete diagnosis of every battery connected to the system. The sequencer multiplexes the necessary inputs and outputs to the relevant channels and batteries. The process indicator lights inform the operator of the state of the process which is taking place in each channel.

All operations of the CASP/1000 are initiated and controlled by the 3 keys on the system keyboard: Charge (green), Analyze (yellow), and Stop (red). To perform various functions the keys are pressed 1 or more times. Indicator lights behind the keys glow or flash at different rates to signal the process which is taking place. Audible signals augment the visual indicators.

All functions which are being performed, as well as the condition of each battery connected to the system, can be printed out on an optional serial printer. An RS-232 port is provided for this requirement \$1950.00
CASP/1000 With printer and software 2508.00

CASP/1200 Universal Battery Support System

Same as CASP/1000 plus:

All operations of the CASP/1200 are initiated and controlled by the front keyboard: An LCD display provides readout of Battery Identification as well as Function, Task and Completion Codes. In addition, an internal speaker emits tones for input verification, errors and process termination. All functions which are being performed, as well as the condition of each battery connected to the system, can be printed out on an optional serial printer.

The CASP/1200 can be accessed through an RS-232 port for uploading or remote operation. Uploading may be accomplished by using a CASP/2000 or personal computer. Remote operation is also possible, allowing the CASP/1200 to be operated from a computer. Software for use with IBM compatible and Apple II personal computers is available \$2495.00

CASP/1200 With printer and software 3026.00
CASP/1200 With printer, discharge booster and software . . . 3686.00

CASP/2000 Universal Programmable Battery Support System

Includes same basic features as CASP/1000 plus:

- Available in 0-42VDC/0-14ADC and 0-78VDC/0-10ADC
- Keyboard to reprogram other batteries or new batteries
- Integral LCD display provides broad array of information about the functions of the system (battery description, ampere-hour capacity, voltage and charge/discharge currents)
- Can be a reliable power supply
- Optional serial printer can produce reports as well and graph battery charge/discharge curves
- Also indicates on printout weak cells



CASP/1200



CASP/2000

CASP/1000	78V/10A	.....	\$ 1950.00
CASP/1200	78V/10A	.....	.2495.00
CASP/1200DC	42V/14A	.....	.3150.00
CASP/2000-L	42V/14A	.....	.4495.00
CASP/2000-H	78V/10A	.....	.4495.00
CASP/2000DC	42V/14A	.....	.4495.00

CASP Universal Battery Support Systems

CASP/1000 Printer (C 120D), software (TD-639)	.....	\$2508.00
CASP/1200 Printer (C 120D), software (TD-639)	.....	.3026.00
CASP/1200 Printer (C 120D), discharge booster (CDC-65), software (TD-639)	.....	.3686.00
CASP/2000L Printer (C 120D)	.....	.4741.00
CASP/2000H Printer (C 120D)	.....	.4741.00
CASP/2000L Discharge booster (CDC-65)	.....	.4931.00
CASP/2000H Discharge booster (CDC-65)	.....	.4931.00
CASP/2000L Printer (C 120D), discharge booster (CDC-65)	.....	.5401.00
CASP/2000H Printer (C 120D), discharge booster (CDC-65)	.....	.5401.00
CASP/2000H, CASP/1200 Printer (C 120D), null modem plug (524600-039)	.....	.7135.00

CASP Software

IBM compatible program disks are available for access to individual and complete sets of CASP parameter tables and remote operation of up to 4 CASP units simultaneously.

IBM/CASP	Table modifying and remote operation	\$ 195.00
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Accessories

CDC-65	Discharge booster	\$695.00
CD 120D	Serial printer kit, includes RS-232 cable495.00
121084-001	Cable accessory case affixed to top of CASP	.....	.75.00
121459-001	Transport case, heavy-duty, weatherproof with equipment cushions	.....	.695.00
524600-039	Null modem plug for CASP-to-CASP downloading	.....	.25.00
526250-001	RS-232 cable	.....	.45.00

CHARACTER/ GRAPHICS GENERATORS

CHYRON CORPORATION

CHYRON IV SERIES CHARACTER AND GRAPHICS GENERATORS

4200 and 4100 EXB Character/Graphics Generators

- 27ns Chyron character resolution
- Full-function control keyboard
- Versatile, high quality font library
- True proportionally-spaced characters
- Automatic character kerning
- 12 full font-loading positions
- True character overlay
- See-through characters
- 512-color palette selection
- Solid or multicolored backgrounds
- Multicolored character and logo display
- Multiple character edges
- Roll and crawl in multiple speeds
- Adjustable roll window size
- Slow reveal in multiple speeds
- Automatic lower third displays
- Animation program sequence controller (PSC)
- *Motion II high resolution digital graphic effects
- *Motion II Channel Control Module (CCM)—mixes, wipes, fades
- Automatic centering
- Insert/delete controls
- Automatic left or right justification
- Row exchange
- Squeeze and expand for characters, words or rows
- Automatic color and font change
- Re-position for character or row
- Block message move or delete
- 256 tab positions
- Automatic right or left italics in 14° increments
- Diagonal typing
- Flash
- Clock/event timer
- Visible safe title area
- Off-line edit channel
- Flexible "Vidisc" floppy disk storage system
- RS-232 standard computer interface
- Software intensive/modular design

Chyron IV Series expandability has been the predecessor to Chyron's philosophy that systems need not be obsolete from 1 year to the next. That is as true of the Chyron 4100 EXB as it has been with other generations. The 4100 EXB contains all of the standard features of the 4200 with the exception of Motion II and can be easily field converted to a 4200 with the addition of Motion II and the Motion II Channel Control Module (CCM).



Optional Features

- Full-resolution second channel
- Multimode graphics module (MGM)
- *Motion II high resolution digital graphic effects
- *Motion II Channel Control Module (CCM)—mixes, wipes, fades
- Digitizing tablet
- Winchester hard disk
- Multiple "Vidisc" disk drives
- Additional full-function control keyboards
- Recall-only keyboard
- Additional font libraries
- Camera font compose
- Custom font/logo compose service
- International font libraries
- Right-to-left text entry
- Subtitling interface includes: SMPTE/EBU time code reader/generator
- Election reporting interface
- Weather service interface included with MGM
- Sports scoreboard unit
- General purpose interface (GPI)
- Color encoder
- Downstream keyer

4100 EXB and 4200 with Motion II priced from \$41,000 to \$90,000, depending upon configuration.

*Motion II and Motion II Channel Control Module (CCM) are options which will convert the 4100 EXB to a 4200.

Multimode Graphics Module (MGM)

Option for Chyron IV

- Standard RS-170 input
- 512-color palette
- Full screen display capability
- Accepts drawing tablet input
- Resizing of graphics
- Cut and paste
- Standard geometric library
- Infinite montaging of multiple graphics
- Montaging of text channels
- Area fill
- Custom brush compose
- Palette animation
- Satellite weather service interface

The Multimode Graphic Module (MGM) provides a multitude of graphic abilities never before associated with a character generator. In addition to standard camera font compose, the MGM offers an advanced camera font compose that is unparalleled in the industry today.

An important extra dimension is added by the MGM's background graphics abilities. High resolution background graphics (1024 x 512 pixels) can be created either from standard black-and-white camera input or hand drawn with an optional digitizing tablet. Up to 16 colors may be selected from a

512-color palette, as well as a wide variety of brush sizes and styles, color full, color pickup, etc. Circles, rectangles and other graphic primitives are automatically drawn at the touch of a key. Completed portions of the background graphic can be cut and pasted and varied in size. Backgrounds can also be montaged over other backgrounds for an unlimited layered effect. Palette animation is an important function of the MGM. The colors of the background graphics can be animated for exciting effects such as glow, glitter, neon and color trails.

Weather service interface of the MGM can accept and display high resolution weather graphics from Weather Service International (WSI) or Environmental Satellite Data, Inc. (ESDI). The weather graphics are transmitted over telephone line* to the Chyron IV and stored on Chyron's Winchester disk for subsequent display on command.

In foreground mode, the MGM provides an extremely advanced form of camera font compose that will quickly and easily create standard and multi-color graphics. Fonts can be automatically modified and added to your font library.

When background graphics are created with the MGM, they can be displayed as a single graphic or combined with text and other graphics on Chyron IV's channel 1 or 2 and stored as a single message on Winchester disk.

*Data terminal and modem are required.

Steadicam Camera Stabilizing Systems (Universal Model 3A) For Film and Video Cameras

All Steadicam (Universal Model 3A) Systems Include:

• Operator's vest • Adjustable stabilizer support arm • Camera mounting assembly featuring a 3³/₄" high-intensity adjustable viewing monitor • Telescoping/balance post • Fore/aft rotating balance control • Side-to-side balancing camera base plate assembly • 2 NC-12 NiCad battery packs • 2 NCC-12 chargers • Docking bracket • 3 cases accommodating the camera operator's vest, stabilizer support arm, camera mounting assembly and related accessories

- 3C015** Steadicam Universal Model 3A. For use with film and video cameras up to 40 lbs. \$42,000.00
1C007 Steadicam Universal Model 3A. For use with film and video cameras up to 30 lbs. 41,500.00

Note: For most 16mm cameras and EFP video cameras use 1C007. To use Steadicam interchangeably in all formats substitute or adjust the stabilizer support arm and servo control system.

Steadicam Stabilizer Support Arms

- 1L144** Adjustable standard-load stabilizer arm, as spare. May be adjusted in the field. For use with cameras up to 40 lbs. Adjustable springs, articulated elbow and quick right/left hand connecting system \$14,200.00
1L151 Adjustable light-load stabilizer arm, as spare. Features same as 1L144 but for cameras up to 30 lbs. . 13,750.00

Steadicam EFP

Steadicam EFP packages include the following standard accessories:
 • Operator's vest • Adjustable stabilizer arm for cameras weighing 12 to 24 lbs. • EFP chassis (camera mounting assembly) • Soft case for arm • Hard case for vest • Hard case for camera mounting assembly • Docking bracket • J-7 zoom control

Batteries and monitor configurations vary with package chosen—see below.

- 5C200** Steadicam EFP NTSC with black and white LCD monitor and Anton/Bauer Magnum 14 battery \$23,500.00
5C201 Steadicam EFP NTSC with black and white LCD monitor and Magnum 14 battery adaptor, without battery 23,000.00
5C202 Steadicam EFP NTSC with black and white LCD monitor and PAG battery adaptor, without battery . . . 23,000.00
5C205 Steadicam EFP NTSC with color LCD monitor and Magnum 14 battery 24,500.00
5C206 Steadicam EFP NTSC with color LCD monitor and Magnum 14 battery adaptor, without battery . . . 24,000.00
5C207 Steadicam EFP NTSC with color LCD monitor and PAG battery adaptor, without battery 24,000.00

Power Supplies for All Versions of Steadicam (Universal Model)

- 1K216** Battery pack—NC-12 \$525.00
1K2117 Charger—NCC-12 for above. Overnight charge . . 425.00

Servo-Control Systems

WRC-4 Wireless Lens Control System

• Designed with 4 individual channels, the battery operated WRC-4 controls focus, iris and zoom for most popular film and video lenses and controls camera run/stop for 16 and 35mm motion picture cameras, via radio frequencies • The handheld transmitter features: for focus, a "brake-away" large knob control; for iris, an integral slidepot control; for zoom, a "brake-away" thumb control • Each channel features 2 trim pots to permit quick setup of customized parameters • To use the WRC-4 with a camera in non-Steadicam applications, such as remote crane setup, simply add the JB-4 junction box to the system • WRC-4 is designed to work with Cinema Products' Z8 combined motor and



bracket and will also operate with other popular lens control motors and appropriate motor mounting bracketry • Note that in video applications, the WRC-4 will interface directly with existing zoom lens motors

- 3S407** \$4,500.00
3S401 ZB-4 zero backlash lens motor drive/bracket system 2,500.00
3S410 CP motor amplifier. Wireless motor amp, 3-channel 1,500.00
MOT-039516 Heden motor (requires 3S410 for WRC-4 operation) 1,950.00
FGS-007601 Idler gear set. Allows use of Heden motor with most film and video lenses 575.00
FGS-007350 Idler gear mounting bracket for Heden motor . . . 350.00
FGS-007600 RSB universal video gear system 300.00
D78-2320 Junction box (JB-4). Permits WRC-4 wireless controls to be used with most film camera/lens combinations when Steadicam is not in use (3M006) 475.00

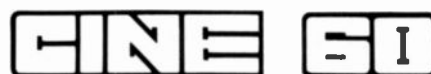
Steadicam Jr™

• Designed for 8mm, Hi8 and VHS-C camcorders • Eliminates hand-held shakes • Allows camera to float on air • 2 lbs. • Ergonomic inter-gimbal handle • Platform features a mounting plate assembly for camera balance designed to facilitate 2-axis (front/ rear and side-to-side) trimming with micrometer precision • 3¹/₂" integral high resolution monochrome monitor • A flush mounted soft touch toggle switch is adaptable for connection to the pause circuits of many camcorders • Steadicam "Obie" Light—low intensity light operates off the Steadicam Jr's internal batteries, providing 3200°K output • Will not burn out a subject's features • Steady stand—to initially set up the camcorder or for use on a table as a "floating tripod," the handle of the Steadicam Jr is placed in the stand so that trim can be adjusted front-to-rear and side-to-side • Once adjusted it is always ready • Steadicam Jr uses 4 "C" cells, 1.5VDC each

- 8C100** Steadicam Jr for 8mm and Hi8 camcorders . . . \$595.00
8C102 Steadicam Jr for VHS-C and Super VHS-C camcorders 595.00
8H100 Travel case for camcorder, Steadicam Jr and accessories 75.00

Full Line of Steadicam Accessories Available—Please Inquire

BATTERY BELTS/PACKS/ BATTERY SYSTEM



30V Battery Belts/Packs

For Cine 60 Sun-Guns, Lowel, LTM, Colortran, Frezzi, Arri, Anton-Bauer, Mole-Richardson, Cinema Products, De Sisti, Kobold, lanero, and other battery lights. 4AH capacity operates 30V 250W lamp 26 minutes. 7AH capacity operates 250W lamp 42 minutes. 2-pin Amphenol connector and 5-pin XLR on fast charge models, 2-pin Amphenol on Overnite models.

Cat. No.	Volts/Amps	Charge Rate	Fast Charge Rate w/Fast Charger	Weight	Price
6304	30V, 4AH	Overnite		11 lbs.	\$ 765.00
8304FC	30V, 4AH	Fast Charge*	1 hr.	11 lbs.	814.00
7004	30V, 7AH	Overnite		15 lbs.	1224.00
7004FC	30V, 7AH	Fast Charge*	2 hrs.	15 lbs.	1285.00

Same as 30V Battery Belts but in a battery pack style.

9104	30V, 4AH	Overnite		10 lbs.	\$ 804.00
9104FC	30V, 4AH	Fast Charge*	1 hr.	10 lbs.	859.00
9704	30V, 7AH	Overnite		14 lbs.	1265.00
9704FC	30V, 7AH	Fast Charge*	2 hrs.	14 lbs.	1296.00



7004FC
6304

Switchable 30V Belts/Packs

Cine 60's versatile power for most portable equipment and Sun-Guns.

30V/14.4V Switchable Battery Belts

3014	30V, 4AH/14.4V, 8AH	Overnite		11 lbs.	\$ 861.00
3014FC	30V, 4AH/14.4V, 8AH	Fast Charge*	1 hr.	11 lbs.	919.00
3017	30V, 7AH/14.4V, 14AH	Overnite		15 lbs.	1318.00
3017FC	30V, 7AH/14.4V, 14AH	Fast Charge*	2 hrs.	15 lbs.	1379.00

30V/14.4V Switchable Battery Packs

9014	30V, 4AH/14.4V, 8AH	Overnite		10 lbs.	\$ 861.00
9014FC	30V, 4AH/14.4V, 8AH	Fast Charge*	1 hr.	10 lbs.	919.00
9017	30V, 7AH/14.4V, 14AH	Overnite		14 lbs.	1318.00
9017FC	30V, 7AH/14.4V, 14AH	Fast Charge*	2 hrs.	14 lbs.	1379.00
1430	30V, 10AH/14.4V, 20AH	Overnite		26 lbs.	2195.00

30V/13.2V Switchable Battery Belts

3013	30V, 4AH/13.2V, 8AH	Overnite		11 lbs.	\$ 845.00
3013FC	30V, 4AH/13.2V, 8AH	Fast Charge*	1 hr.	11 lbs.	903.00
30137	30V, 7AH/13.2V, 14AH	Overnite		15 lbs.	1292.00
30137FC	30V, 7AH/13.2V, 14AH	Fast Charge*	2 hrs.	15 lbs.	1353.00

30V/13.2V Switchable Battery Packs

9013	30V, 4AH/13.2V, 8AH	Overnite		11 lbs.	\$ 845.00
9013FC	30V, 4AH/13.2V, 8AH	Fast Charge*	1 hr.	11 lbs.	903.00
90137	30V, 7AH/13.2V, 14AH	Overnite		14 lbs.	1292.00
90137FC	30V, 7AH/13.2V, 14AH	Fast Charge*	2 hrs.	14 lbs.	1353.00
1330	30V, 10AH/13.2V, 20AH	Overnite		26 lbs.	2130.00

*Requires Fast Charger. Overnite charger built-in.

VRX Voltage Converter. Plugs in between battery and video cable. Converts 14.4V to 13.2V. Powers 13.2V cameras, VTRs, Betacams. Maximum 48W. 5-pin male XLR input, 5-pin female XLR output \$64.00

6400-Y Power Adaptor. Allows battery to run a battery light and camera simultaneously. Plugs in between battery, video cable, and light cable. 5-pin male XLR input, two 5-pin female XLR outputs. With the VRX plugged into one output to power a 13.2V Betacam or camera, and the second output providing 14.4V to operate a 14.4V, 70W battery light, excellent battery utilization is assured. \$60.00

Lifeguard "KFC" Battery Belts/Packs

All Lifeguard "KFC" batteries feature a built-in two-rate Lifeguard Charger which, when connected to AC, keeps the battery fully charged and ready for use indefinitely without heat buildup or voltage depression. 4A and 8A batteries charge fully in four hours. 7A and 14A batteries, in seven hours. Precision cell sensors in the battery terminate the charging when the battery is "full," automatically switching to a "Lifeguard" rate which maintains the battery in "Ready" condition, fully charged indefinitely. Sensing circuits and visual indicators, white for maintenance rate, red for charging rate, provide continual monitoring of battery condition. All Lifeguard "KFC" batteries can also be fast charged with Cine 60 Universal Fast Chargers Models 9400, 9422, 9400-U. Model 94DC30 Mobile Fast Charger is used for fast charging 12V, 13.2V and 14.4V 8A and 14A batteries and 30V batteries from a vehicle.

Cat. No.	Volts/Amps.	Connectors	Charge Rate*	Fast Charge	Weight	Price
12V Lifeguard Battery Belts and Packs						
8307KFC	12V, 4AH Belt	5-Pin XLR	4 hrs.	1 hr.*	5 1/2 lbs.	\$ 697.00
7007KFC	12V, 7AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	7 1/2 lbs.	866.00
8327KFC	12V, 8AH Belt	5-Pin XLR	4 hrs.	1 hr.*	10 lbs.	958.00
7027KFC	12V, 14AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	13 lbs.	1367.00
9127KFC	12V, 8AH Pack	5-Pin XLR	4 hrs.	1 hr.*	9 lbs.	1004.00
9727KFC	12V, 14AH Pack	5-Pin XLR	7 hrs.	2 hrs.*	13 lbs.	1379.00
13.2V Lifeguard Battery Belts and Packs						
8308KFC	13.2V, 4AH Belt	5-Pin XLR	4 hrs.	1 hr.*	6 lbs.	\$ 726.00
7008KFC	13.2V, 7AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	8 lbs.	878.00
8328KFC	13.2V, 8AH Belt	5-Pin XLR	4 hrs.	1 hr.*	11 lbs.	992.00
7028KFC	13.2V, 14AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	14 lbs.	1408.00
9128KFC	13.2V, 8AH Pack	5-Pin XLR	4 hrs.	1 hr.*	10 lbs.	1034.00
9728KFC	13.2V, 14AH Pack	5-Pin XLR	7 hrs.	2 hrs.*	14 lbs.	1415.00
14.4V Lifeguard Battery Belts and Packs						
8306KFC	14.4V, 4AH Belt	5-Pin XLR	4 hrs.	1 hr.*	6 lbs.	\$ 758.00
7006KFC	14.4V, 7AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	8 lbs.	891.00
8326KFC	14.4V, 8AH Belt	5-Pin XLR	4 hrs.	1 hr.*	11 lbs.	1025.00
7026KFC	14.4V, 14AH Belt	5-Pin XLR	7 hrs.	2 hrs.*	15 lbs.	1450.00
9126KFC	14.4V, 8AH Pack	5-Pin XLR	4 hrs.	1 hr.*	10 lbs.	1067.00
9726KFC	14.4V, 14AH Pack	5-Pin XLR	7 hrs.	2 hrs.*	14 lbs.	1460.00
30V Lifeguard Battery Belts and Packs						
8304KFC	30V, 4AH Belt	5-Pin XLR/2-Pin Amp.	4 hrs.	1 hr.*	11 lbs.	\$ 959.00
7004KFC	30V, 7AH Belt	5-Pin XLR/2-Pin Amp.	7 hrs.	2 hrs.*	15 lbs.	1430.00
9104KFC	30V, 4AH Pack	5-Pin XLR/2-Pin Amp.	4 hrs.	1 hr.*	10 lbs.	1004.00
9704KFC	30V, 7AH Pack	5-Pin XLR/2-Pin Amp.	7 hrs.	2 hrs.*	14 lbs.	1442.00

*Requires Fast Charger

Option 8994 220V built-in two-rate charger in lieu of 115V built-in two-rate charger \$28.00



9704FC



3014FC

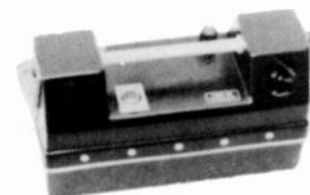


VRX

6400-Y



8304KFC



9128KFC

Main Stations

A Main Station is a combination intercom station and system power supply.

- CS-210 Main Station** 2-channel headset station, monitors 1 or both; selectable program input (mic or line-level), stage announce. Portable or rackmount. Applications include: theatre, concerts, rental firms \$675.00
- 820020 Rackmount Kit** for CS-210 (3.5" H). 55.00
- MS-200C Main Station** 2-channel speaker station, monitors 1 or both channels. Selectable talk/listen/program functions: stage/studio announce. Applications include: fixed installations, video/theatre directors \$785.00
- MS-200C-GM** Same as above with gooseneck microphone 935.00
- MS-400A Main Station** 4-channel rackmount headset/speaker operation, 2A power supply, mic/line program input, SA (stage/studio announce) output, user selectable program interrupt (IFB) and ISO function (3.5" H). \$1228.00
- MS-400A-GM** Same as above with gooseneck microphone . . 1378.00
- SB-412A Main Station** 4-channel, same specs as MS-400A but no speaker (has ext. speaker jack). Has switch matrix to assign each of 12 stations (or 12 groups) to any of the 4 channels or a disconnected off line. Applications include: video production/theatre with constant re-patching needs \$1891.00
- SB-412A-GM** Same as above with gooseneck microphone . . 1927.00

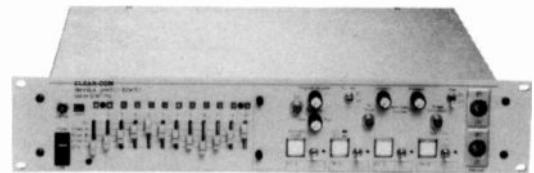
MS-812 Master Station

- LCD display simplifies station programming • Up to 12 party-line intercom channels • Stores 4 complete programming configuration 'set-ups' • Individual front panel channel 'listen' volume trim controls • 4 programmable 'preset' buttons • Program signal assignable to all channels • Can operate up to 8 external IFB channels • Automatic headset detection • Dual action electronic latching 'light touch' control buttons • Variable button illumination
- MS-812-8** 8-channel master station \$2795.00
- MS-812-12** 12-channel master station. 3070.00
- IFB-40** 4-channel IFB/ISO option. 400.00
- IFB-80** 8-channel IFB/ISO option. 675.00
- ISO-16** 16-channel ISO only option 125.00
- 710229** 4-channel expansion card 275.00
- CP-56** Elco connector option 125.00
- CP-30** Tuchel connector option 195.00
- IP-1200** MS-812 interconnect panel 1500.00

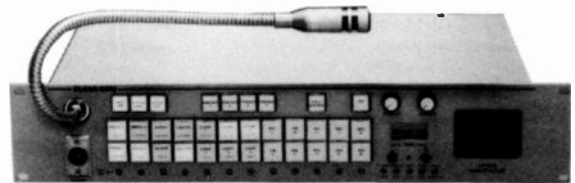
Rackmount Remote Stations

A remote station does not contain a power supply. It obtains DC power from a system power supply or main station.

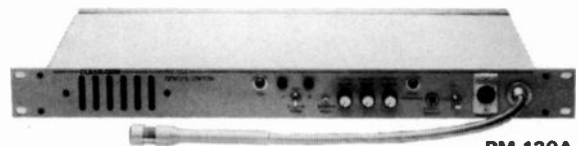
- MR-102A Headset Station** 2-channel (A or B selectable) headset station mounts in console or standard 2-gang electrical box (headset operation only) \$198.00
- MR-104A** Same as above except 4-channel selectable 284.00
- RM-120A Remote Station Single Space Rackmount Speaker** station, two-channels (monitor A, B, or both). Dynamic/carbon headsets; Stage Announce; selectable talk/listen/program functions. Applications include: video/theatre production \$577.00
- RM-120A-GM** Same as above with gooseneck microphone 727.00
- RM-400A Remote Station** 4-channel headset/speaker station, rackmount mic/line level program input, SA (stage/studio announce) output, user selectable program interrupt (IFB) and ISO function (3.5" H) \$ 995.00
- RM-400A-GM** Same as above with gooseneck microphone . . 1145.00
- KB-111A Speaker Station** 2-channel select speaker station, uses handset or push-to-talk mic. Mount in 6" x 8" electrical box or portable enclosure. Applications include: theatre/security. 283.00
- KB-112 Speaker Station** Speaker station with push-to-talk mic; talk/listen can be controlled remotely. All functions selectable. Applications include: dressing rooms/paging/security 299.00



SB-412A



MS-812



RM-120A



1021M

Enclosures for KB-111A and KB-112 Speaker Stations

P-Box Portable wedge shaped enclosure, metal and wood construction, for KB-111A (single channel only) and KB-112 \$141.00

M-Box Portable rectangular shaped enclosure, metal construction, for KB-111A (single channel only) and KB-112 117.00

1021M Amplified Monitor Speaker

- Magnetically shielded • Bi-amplified • 18W • 2-way speaker system with output levels of 95dB SPL • Only one rack space high • Full-range, high fidelity sound • Exceptional bass response • Discrete 2-channel monitoring • Completely self-contained and self-powered • Electronically balanced or unbalanced, line-level XLR inputs • Bar-type LED peak level meters • Stereo/mono switch

Monitor Applications

- Stereo/2-channel program audio • Video/audio tape machines
- "Off air" receivers • Patch bay signals • Wireless microphone receivers
- Cue/on audio console outputs
- 1021M**. \$595.00

AUDIO EQUIPMENT



Station/Camera ISO System

The ISO-4000 Station/Camera ISO system is designed to easily and quickly establish private, 2-way communications between 2 (or more) intercom stations. The ISO-4000 uses a microprocessor to provide maximum user flexibility and minimum control/tally cabling. It provides priority/override, individual and global reset, and group preset capabilities. It is a modular system that can expand to accommodate up to 16 ISO stations and 6 control stations. The system is comprised of the following components:

- ISO-4003 4x3 ISO System Electronics** Central electronics that supports up to 16 ISO stations and up to 3 control locations: Factory equipped for 4 ISO stations, expandable to 16 using up to 3 additional IXM-43 expansion modules. Number of control locations is not expandable beyond 3 (5.25" H) \$1755.00
- ISO-4006 4x6 ISO System Electronics** Central electronics that supports up to 16 ISO stations and up to 6 control locations. Factory equipped for 4 ISO stations, expandable to 16 using up to 3 additional IXM-46 expansion modules (5.25" H) \$1985.00
- IXM-43 4x3 ISO Expansion Module** Adds 4 additional ISO station capability to an ISO-4003 \$385.00
- IXM-46 4x6 ISO Expansion Module** Adds 4 additional ISO station capability to an ISO-4006 \$445.00
- ICP-4 ISO Control Module** Provides selection and tally of 4 ISO stations. For rackmount applications (with accessory 820022 rackmount) or custom console mounting \$475.00
- ISO-4 ISO Control Module** Same as above but for installation in MS-808 main stations \$475.00
- ITM-1 ISO Transfer Module** Required modification to multi-channel intercom stations. Module transfers station's 2-way intercom audio from normal operation to the private ISO channel. Factory installed only \$150.00

Accessories for ISO Series

- ITC-1 Multi-pin Connector Assembly** Installs in ISO-4003/6. Required to access individual ISO station intercom circuits (i.e., to enable individual station/channel assignment via MX-820/840 Matrix Switch) \$155.00
- EFS-1 Extended Function Software** Consists of alternate software and a non-volatile memory chip. Factory or field installable. Note: Requires at least 1 ICP-4 or ISO-4 to access the extended functions . . . \$500.00
- YC-66 6-Pin Y Adaptor** Enables paralleling of 2 6-pin ISO data cables \$95.00
- 820022 Rackmount Kit** To rackmount 1, 2 or 3 ICP-4 ISO control panels \$80.00

IFB (Program Interrupt) Systems

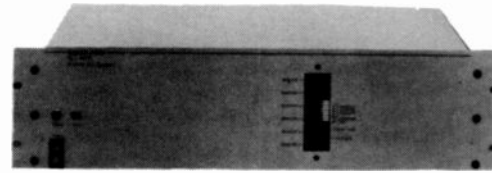
The IFB system is a modular system capable of operating as a stand-alone system, or being integrated with MS-808 Master Stations. It transmits an interruptible program signal to individual talent receivers via standard 2-conductor shielded microphone cable. It is a distributed amplifier system with the earphone amplifier located at the talent's position. It features unlimited expansion capabilities (up to 96 talent channels and 50 control locations).

PIC-4000B IFB Electronics This unit contains all of the audio and switching circuitry for selecting 1 of 2 program signals, routing the signals to 4 independent talent channels and interrupting, with variable program attenuation, the signals from 1 or more control points. It requires 24VDC power from a Clear-Com Intercom System or power supply \$794.00

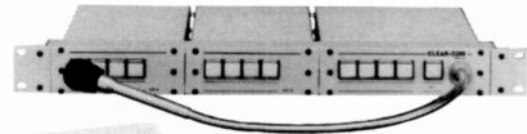
MA-4 Talent Access Master Control Station This unit provides individual access to 4 talent channels and All Call access to all of the talent channels in the system. Designed for direct console mounting or rack-mounting in an optional rackmount adaptor. Includes a panel mounted gooseneck microphone and all required local electronics . . . \$645.00

MA-4N Same as above without mic (for use with external mic or intercom station equipped with ITM-2) \$95.00

AX-4 Talent Access Expansion Station This unit connects to the MA-4 Control Station, expanding the talent channel selection capabilities by 4 additional channels per AX-4. Multiple AX-4 units can be linked together to control a maximum of 96 talent channels. \$450.00



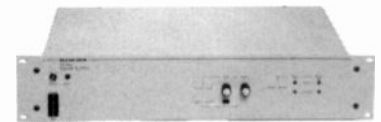
ISO-4000 Central Electronics



MA-4 Plus 2 AX-4s



TR-532



PS-452

IFB-4 Program Interrupt Module This unit is the equivalent of the AX-4, designed for mounting in the MS-808 Master Station \$455.00

TR-50 Talent Receiver This small, portable unit contains the amplifier to power the talent's earphone. It connects to the PIC-4000B via standard 2-conductor shielded microphone cable. A miniature in-the-ear receiver is included with each TR-50 \$123.00

TR-532 Stereo/Spilt Feed Talent Receiver This unit contains 2 discrete amplifiers to feed the "Interrupt" and "Non-interrupt" signals from the PIC-4000B on a standard mic cable to separate ears of a sportscaster-type headset or standard stereo earphones. It also provides a passive loopthrough output of the headset's microphone for on-air applications \$295.00

ITM-2 IFB Transfer Module Required modification to multi-channel intercom stations. Module transfers station's 2-way intercom audio from "normal" operation to the private IFB channel. Factory installed only. For use with MA-4N. \$150.00

System Interfaces

IF-4B Modular System Interface Connects Clear-Com to TV cameras and other 4-wire devices. The 1 rack unit frame can accommodate from 1 to 4 interfaces to satisfy the end user's needs. There is also a printed circuit card version that comes with mounting hardware for custom installations. The major applications include cameras, telco lines, walkie-talkies and satellite links. The unit includes a built-in test jack for quick nulling of the transmit/receive hybrid. Other features include a transmit level indicator, and the transmit output is switchable between line and mic levels.

- IF-4-B-1 \$425.00
- IF-4-B-2 \$550.00
- IF-4-B-3 \$675.00
- IF-4-B-4 \$800.00

TW-12B System Interface Connects 2 separate Clear-Com and/or RTS Intercom Systems together, maintaining correct levels and impedances. Provides transformer coupled audio isolation and onto-coupled signaling to eliminate ground loop induced hum, buzz and noise \$799.00

Power Supplies

- PS-20 Portable Power Supply** Portable or rackmount; regulated. Selectable 1- or 2-channel. Supports up to 60 stations. \$390.00
- 820021 Rackmount kit for PS-20** \$75.00
- PS-452 2-Channel Power Supply** 2-channel; regulated; with short circuit and overload monitoring. Supports up to 100 stations. For all large permanent installations \$738.00

Beltpacks

RS-501 Beltpack • Single-channel, lightweight beltpack • All digital, noiseless, electronic switching • Remote mic kill function • Visual signalling • Carbon type headset jack optional • The RS-501 is the standard beltpack station for use in all applications • Accepts dynamic or electret mics • 4-pin male headset connectors, 3-pin male and female line connectors \$198.00
RS-501-CM Same as above with carbon headset jack \$223.00

RS-502 Beltpack • Two-channel beltpack • Allows access to either one of two separate intercom channels • Includes all features of the RS-501 plus dual channel signalling • Applications include video/theatre production, industrial • 4-pin headset connector, 6-pin female line connector (no loopthrough) (programmable options) \$270.00
RS-502-CM Same as above with carbon headset jack \$295.00

Note: RS-502 and RS-502-CM require YC-36 adaptor to connect to a standard Clear-Com system.

RS-502-TW Two-channel, 4-pin headset, 3-pin male and female connectors, channel B call light only, programmable options . . . \$295.00

RS-502-CM-TW Same as RS-502-TW with carbon headset jack \$320.00

Note: RS-502-TW and RS-502-CM-TW require TWC-10 adaptor to connect to a standard Clear-Com system.

RS-502-TWR Two channel, RTS compatible, no call lights, 4-pin headset connector, 3-pin male and female connectors, programmable options \$325.00

RS-502-CM-TWR Same as RS-502-TWR with carbon headset jack \$350.00

RS-522 Stereo Beltpack • Two-channel, dual listen, binaural beltpack • Allows completely selectable simultaneous listening and talking on two separate channels • Binaural split-feed headset output • Includes all features of the RS-501 and RS-502 • Applications include video/theatre production, industrial, lighting design. \$298.00
RS-522TW Stereo, two-channel, 3-pin cable \$323.00
RS-522-TWR Stereo, two-channel, RTS compatible \$353.00

Series 500 Rackmount Options

(1.75" H) Not available on -CM versions

RM-A Rackmount for 501, 502 factory installed \$117.00

820037 Same as above, kit only \$75.00

RM-A/2 Dual unit rackmount for 501, 502 factory installed. . . \$136.00

820038 Same as above, kit only \$94.00

RM-B Rackmount for 522 factory installed (1.75" H) \$145.00

820039 Same as above, kit only \$103.00

RM-B/2 Dual unit rackmount for 522 factory installed . . . \$259.00

820040 Same as above, kit only \$214.00

Series 500 Accessories

RMK-1 Remote Mic Kill Control Unit
 Shuts off series 500 beltpack microphone circuits . . \$191.00

TWC-10 2-Channel/3-Pin Cable Adaptor
 Allows two Clear-Com channels to operate on a single 3-pin microphone cable. Requires "TW" option on stations. Up to 15 "TW" beltpacks can operate off of one TWC-10 \$141.00

YC-36 3-Pin to 6-Pin "Y" Adaptor
 Combines two 3-pin cables into one 6-pin cable to connect to standard 6-pin 2-channel beltpacks (RS-502 and RS-522) \$60.00

Minicom Intercom Components

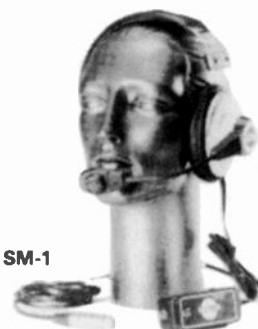
SM-1 Headset/Station • Single muff headset/beltpack station combination • Headset permanently attached to the miniature beltpack via a 4' straight cord • Beltpack terminates in a 3-pin female XLR type connector via a 4' straight cord • Listen volume control • Microphone on/off switch • No signaling. \$215.00

DM-1 Headset/Station • Double muff headset station • Same specs as SM-1 \$231.00

PK-3 Power Supply • Portable regulated power supply • Low-cost • Single channel • Operates up to 25 Minicom headset stations . . \$164.00



RS-502



SM-1

SM-PAC1 Package System • Two SM-1 headset/beltpack stations • One PK-3 power supply \$655.00

DM-PAC1 Package System • Two DM-1 headset/beltpack stations • One PK-3 power supply \$595.00

Dynamic Headsets

CC-26 Headset • Single-muff • 6' straight ultra-thin cord • Ultra-lightweight headset (2 1/4 oz.) • Dynamic, noise-cancelling mic element (4-pin XLR) \$142.00

CC-75B Headset • Most rugged model • Good sound-attenuation • Flexible boom-mount mic with auto-on/off switch • Indestructible ABS plastic construction • Supplied with ear sock for extra comfort • Applications include theatre, rental firms • 5' coil cord (4-pin XLR) \$130.00

CC-240B Headset • Double-muff version of CC-75B. \$150.00

DT-108 Headset • Single-muff Beyer headset with 5' straight cord and ear sock (4-pin XLR) \$236.00

DT-109 Double-muff Beyer headset, same as above \$265.00

DT-109/6 Headset • Beyer headset matched to Clear-Com specs and wired with split-feed earphones • Broadcast-quality mic • High noise-attenuation; very comfortable • Applications include sportscasting. \$274.00

PH-7 Headset • Double-muff • High-fidelity • Noise-cancelling • Most sound attenuating model \$225.00

HS-6 Handset • Telephone-style handset with push-to-talk switch \$78.00

PT-4 Mic • Rugged push-to-talk mic • Mounting clip included, 2' coil cord (4-pin female XLR type connector). \$48.00

ES-1 Ear sock for all headsets (1 pair) \$6.25

Accessories

MX-820 8 x 20 Matrix assignment switch, rackmount, assigns up to 20 stations/groups to any one of eight intercom channels (3.5" H) \$475.00

MX-840 8 x 40 Matrix assignment switch, rackmount, assigns up to 40 stations/groups to any one of eight intercom channels (3.5" H) \$657.00

WP-2 2-channel selectable intercom outlet wall plate consists of a 3-pin male XLR type connector (for connection to a portable intercom station) and a two-position selector switch to select operation on channel A or B. Mount in a wall, console, or standard single gang electrical box \$38.00

WP-2/6 2-channel intercom outlet wall plate consisting of a 6-pin male XLR type connector for connection to standard Clear-Com 2-channel remote stations (RS-502 and RS-522) \$56.00

BA-1 System/channel isolator and DC power adaptor . . . \$71.00

QP-100A 3-way splitter (1-in, 3-out) \$75.00

GM-1 Gooseneck microphone retrofit kit for current model rackmount products only \$165.00

YC-100 Headset Y cable \$82.00

YC-36 3-pin to 6-pin "Y" adaptor (1 male 6-pin, 2 female 3-pin) combines two 3-pin cables into one 6-pin cable to connect to standard 6-pin 2-channel beltpacks (RS-502 and RS-522) \$60.00

YC-66 6-pin "Y" adaptor (1 male 6-pin, 2 female 6-pin) enables paralleling of two 6-pin cables \$95.00

EDITING SYSTEM



CMX-300 Editing System

- Easy picture-oriented operation
- Edit points, transitions and A/B roll can be viewed immediately
- A minimum of key operations is required, offering a wide selection of functions
- Audio or video delay (split-edit) can be established in Jog mode
- Precise editing in four-field and eight-field sequences in PAL mode
- Storage of 999 edits
- CMX edit decision lists can be displayed on the monitor, printed, and saved to the built-in disk drive
- Interface for three machines with optional fourth machine
- Various machine makes and types can be combined
- Control of external effect switchers, two-channel TBCs or optional built-in crosspoint switcher, thus no preview problems with different EE-timing of the VTRs
- GPI outputs
- Dynamic graphic representation of the edits and machine positions
- Video inserter for status information

Concept

For use as an offline editing system, edit decisions according to picture content have priority. Time code, the language of the technical system, is used to split up the edit decisions into reproducible events.

Doing creative jobs, the time code should always be present as additional information, but the priority of the time code should be left to the internal technology. The CMX-300 has a built-in disk drive and produces a CMX edit decision list.

For universal use, combining and connecting various makes and types of machines is possible. Six serial ports are available for direct machine control, optional connection of external interfaces, video effect switcher, sound fader, two-channel TBCs, etc. The configurations and control protocol can be selected from the control panel and remain stored even after switching off.

Operation

The left side of the control panel is allocated for all functions needed for the sources, while the right side is allocated for all functions needed for recording.

Both machine control panels are identical. For playback, there are selection keys for the playback source, type of transition (cut, fade, wipe). For recording, there are selection keys for video and audio tracks, split-edit, preview and record.

The interfaces of the CMX-300 each have synchronization functions and are not only intelligent "command transmitters." With this, it is possible to synchronize all machines with each other during edit decisions and to shift each of them in relation to each other with the least amount of operating steps. The Jog mode also controls the preview switcher and effects switcher. Cuts transitions and fades can be determined according to the picture and sound without using time code information and can also be altered without a preview by use of preroll.

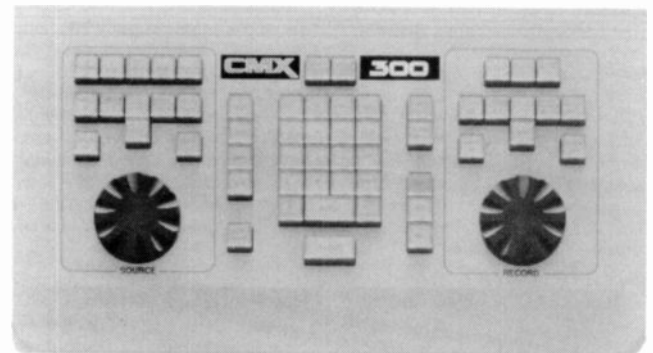
The Jog control has an electro-magnetic grid for switching from frame to frame. A complete revolution moves the tapes by one second.

A modification of the edit point with the conventional method (e.g., trim) is possible. In the engaged state, the machine immediately positions itself to the new correct value.

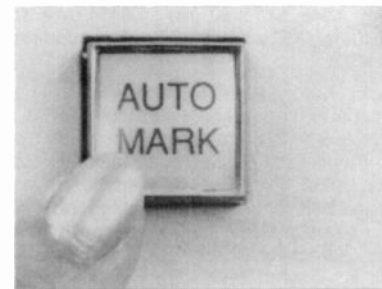
The AUTOMARK function allows edit decisions to be made exclusively with the use of the two machine remote controls and with one key.

With split-edit functions, i.e., video or audio delay edit, delay can be found by means of "seeing and hearing" and no longer has to be determined by the input of time values in a trial and error manner.

The recording function is also accessible without "automatic operation," i.e., it is possible directly from Play.



CMX-300



Status Information

Depending on requirements and methods of operation various types of status displays are possible. The display of all selectable functions, time code values, etc., can be either displayed on a data monitor or switched at will onto the preview video monitor.

In preview, the edit points and the relative positions of the machines to each other can be inserted in the preview monitor by means of moving graphics.

Professional, well illuminated keys on the control panel give additional information about the present status.

Seldom used functions can be set by means of a display menu. Selection is performed by using the Job control.

Specifications

Central Unit

CPU: MC 68000 • Memory: 512K byte • Memory Buffering: Rechargeable battery • Floppy Drive: 3.5" built-in • Printer Output: Centronics • Preview X-Point Switcher: 2x1 video, two channel audio • Display: optional monitor or video insert • VTR Interface: RS-422 serial • Video/Audio Switcher Interface: RS-422 serial • Interface to Ext. PC: RS-232 serial • Power Consumption: 120/220/240V, approx. 100W

Operating Console

• Type: Desktop • Interface: Serial to central unit • Operating Keys: Illuminated function keys and two Jogknobs (record and source) • Dimensions: 18.8" x 10.4" x 1.72"

Supplied Parts and Accessories

Central unit, operating console, console cable, power cable, three remote cables for serial controlled VTR, each 15', one disk with operating program, one disk for EDL, operating manual

Options

Crosspoint switcher (plug-in); Sync-Pulse-Generator with five outputs; Datamonitor with cable; Matrixprinter with cable; Interface for parallel controllable VTR; Interface for parallel controllable ATR

CMX-300 \$ 10,950.00



EDITING SYSTEM

OMNI 1000 Editing System

The OMNI 1000 controls all the equipment of the editing suite: VTRs, audio and video switchers, ATRs, disc, CGN, DVE, TBC remotes and more. With its 68020 CPU and real-time operating system, the OMNI 1000 directly controls all interfaces without an I², stores CMX, SMPTE, expanded OMNI EDLs and other files on its 40M byte hard disk and 3.5" microfloppy. The OMNI display is designed with high resolution and bit mapped, user configurable X-windows. OMNI features include: sync group for improved multiple machine roll and slaving, learn keys that can be edited, EDL undo, device memory saved with edit or by file and hard disk file management. Optional features include a usage log for assigned devices, lookahead auto assembly/preview and super audio.

System Specifications

- Central Controller: MC68020, 16MHz • Interface: Standard: VTR, disc, GPI, audio and video switcher. Option: DVE, CGN, TBC remote. CMX single and multi I² also supported • Communication Format: Serial RS-422/38.4K baud and RS-232/9600 baud • Communication Protocol: CMX and SMPTE ES-Bus • Active Ports: 9 and GPI • Assignable Ports: 22 • EDL Format: OMNI, SMPTE, all CMX • EDL List I/O Disks: Standard: 40M byte hard disk, 1.44M byte 3.5" floppy • EDL Printer Option: Serial, 132-column, 80-column compressed

Modem Port

- Display Monitor Option: 14" high resolution, super VGA • Edit Accuracy: Frame accurate, auto/manual color frame, PAL-pair self correcting or manual 4 or 8 field correction • Time Code Standards: SMPTE drop/non-drop frame, EBU • Tape Timer: machine dependent • Television Standards: NTSC, PAL, SECAM • Keyboard: expanded 133-key ASCII. Integrated search knob, trackball included • Electronics: 7" rack height. Includes internal hard disk and microfloppy • Preview Switcher: composite or component optional, 4-channel audio

Windows

- X-window • Setup, current event and EDL sections are windows • Pop key to cycle windows • Scroll bar for EDL and current event • Time code transfer between windows • User configurable display size and position

Dynamic Motion Memory

- Frame accurate • Sequences may be learned dynamically (on-the-fly) or programmed speed change triggers may be edited • Fit/fill mode • All information goes into EDL • Match frame possible to any point in motion sequences • Multiple VTRs, each with unique motion memory speeds, may be involved in edit • Dedicated entry speed key • VTRs, DVE or disk may be used with Dynamic Motion Memory • Mark files • Constant stores 9 time codes in a "scratch pad" area

Preview Functions

- Full edit • Output previews • Lookahead preview option • Composite/component preview switcher options • E-E preview

List Management Functions

- Sort modes • Move event(s) in EDL • Re-edit event in EDL • Record start time • Delete events • Record on/off • Text editing • Undo: restore last version of list • Copy events • Autoclean

General Purpose Interface (GPI)

- Fast, direct access to GPIs • All information goes to EDL • 1-page trigger screen • 16 outputs standard • TTL open collector • Up to 99 GPI triggers per event • Triggers can be relative to source, master or absolute

Machine Control Functions

- Rewind • Fast forward • Scan/reverse play • Stop (individual devices) • Slow/reverse slow • Cue (individual devices) to head of preroll • Cue-function keys • Go to • Still • Replay any recorded event • Jog forward • Jog reverse • Search up to 27 speeds • Eject • Jog with trackball • Allstop • Record • Ready (time out adjustable)

Edit Mode Selections

- Video • Audio 1 to 4 • Audio follow video capabilities • Split edit: delay audio or video • Multiple tracks split in or out • Multiple split lines can be edited with mark, set and trim keys • Video and audio switchers enable/disable • Crosspoints, transition type, transition rate

Super Audio Option

- Chase • Track overlap with ping pong • Audio mapping from source to record tracks • Different track selections on multiple recorders



OMNI 1000

Edit Transition Selections

- Cut • Split cut ('L' cut) • Dissolve from/to • Dissolve rate • Wipe from/to • Wipe code • Wipe rate • Change wipe pattern • CMX, SMPTE or standard wipe patterns • Key in and out (background/foreground/duration) • Delayed key • Key cut in and out • Open end edit/closed end edit • Fast dissolve/wipe/key with/without match cut

Time Code Functions

- Set in and out time/set multiple in and out times • Set duration/set multiple durations • Backtime duration • Trim in and out times/trim in and out multiple times • Time code entry can include equations • Fast trim: + and - keys used for trimming • Mark in and out times/mark multiple in and out times • Autotrim record and source devices • Match cut calculation • Multiple current events • Time code calculator • Mark clear • Mark reset directly key resets all marks • Shift mark reset recalls a selected buffer • Open end clears out time and duration for all machines involved in current event • Recall and shift recall • Restore last mark from any edit • Time transfers in menu/constants/mark files • Fetch: time transfers from EDL

Edit Decision List Display/Input/Output

- Scroll list • Page scroll • Autocroll: EDL follows master • Display: move EDL highlight by event number, record time code, note, reel name • Disk on saves each edit to hard disk after record • Print disk file directories • Print EDL • Bins (multiple EDLs in memory) • Cut and paste EDL between bins • 4-character machine status in active display menu • Time and date stamp on EDLs • Machine name • Disk save/load • Multiple EDL files on disk • Autoclean from bin to bin • Sort from bin to bin • Events to 9999992 • Disk file management • Single or multiple files can be selected, deleted, moved or copied; sorted by name, type or date; and locked • Scroll EDL with cursor keys or trackball • Expansion of individual EDL event to include all event information, including triggers, etc. • Notes can be edited

Automatic Edit Assembly Functions

- ('A' mode) sequential assembly • ('B' mode) reel-by-reel assembly • Pre-que sequential assembly • Pre-que reel-by-reel assembly • Look-ahead assembly option • Assembly directives can be saved: preset pre-que default, enabling or disabling • Skip, bell and wait flags

Hardware Options

- 8" disk • Ethernet • Hardware diagnostics for VTRs • Preview switcher, component or composite • Printer • Display monitor

OMNI 1000 \$39,000.00

Hardware Options

80-column printer \$ 395.00
 14" monitor status display 500.00
 Preview switcher, composite 1,250.00
 Preview switcher, component 1,500.00
 8" floppy disk drive 1,500.00
 Ethernet TBA*

Software Options

Usage log \$ 750.00
 Lookahead assembly/preview 1,250.00
 Super Audio 1,250.00
 TBC interface 450.00
 DVE interface 450.00
 CGN interface 450.00

*To Be Announced

LIGHTING KITS

Colortran.

REPORTERLIGHT KITS—HMI PORTABLE/ LOCATION LIGHTING

270W Reporterlight Kit I

Kit includes:

- 310-002 Lamphead, manually operated focusing
- 118-101 4-leaf barndoor
- 171-052 Electronic ballast to operate on mains, including mains cord
- 130-102 Diffusion filter in pouch
- 130-202 Conversion filter in pouch
- 148-202 Kit I carry case
- 476-655 HMI lamp 270W, single-ended socket
- 320-002\$4700.00

270W Reporterlight Kit II

Kit includes: Same as Kit I with the following exceptions:

- 130-301 Special reflector with additional lens
- 148-203 Kit II carry case
- 320-003\$4950.00

270W Reporterlight Kit III A

Kit includes: Same as Kit I with the following exceptions:

- 310-003 Lamphead with motor-driven focusing (for remote control—alternative to 310-002)
- 320-004/A\$5015.00

270W Reporterlight Kit III B

Kit includes: Same as Kit II with the following exceptions:

- 310-003 Lamphead with motor-driven focusing (for remote control—alternative to 310-002)
- 320-004/B\$5265.00

270W Reporterlight Battery Kit

- 310-002 Lamphead, manually operated focusing
- 118-101 4-leaf barndoor
- 140-105 Electronic battery ballast
- 140-201 110/120V charger
- 140-101 NiCad battery 30V, 7AH
- 130-102 Diffusion filter in pouch
- 130-202 Conversion filter in pouch
- 138-015 Mounting bracket
- 476-655 HMI lamp 270W, single-ended socket
- 148-210 Carry case
- 156-101 Carrying strap
- 320-006\$6190.00

270W Reporterlight Battery System Kit

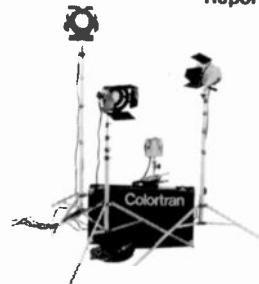
- 140-105 Electronic battery ballast
- 140-201 110/120V charger
- 140-101 NiCad battery 30V, 7AH
- 140-304 Car adaptor to operate on 12VDC
- 156-101 Carrying strap
- 148-204 Carry case
- 320-005\$5400.00

Accessories

- 130-302 Lens in holder\$ 230.00
- 130-303 Special reflector only90.00
- 140-302 15' extension cable100.00
- 140-101 NiCad battery 30V, 4AH1520.00
- 140-105 Electronic battery ballast2250.00
- 140-201 110/120V charger590.00
- 140-304 Car adaptor to operate on 12VDC2040.00
- 148-204 Carry case, Reporterlight battery system kit380.00
- 156-101 Carry strap, Reporterlight battery kit25.00
- 171-052 Electronic ballast to operate on mains, including mains cord1900.00
- 130-305 Lens (only) without holder35.00
- 476-655 HMI lamp 270W, single-ended socket450.00
- 152-051 Mini-stand with 5/8" stud95.00
- 152-052 Compact stand125.00
- 152-053 Compact stand, castered125.00



Reporterlight



Pro-Kit IV



Mini-Pro With Handle



Battery Belt Kit

ENG/LOCATION LIGHTING KITS

Mini-Pro Kit

Designed for use with 30V battery power, 120V or 220V. Draws 15A at 120V and 8A at 220V.

Kit includes:

- (3) 100-091 Mini-Pro
- (2) 118-016 4-leaf barndoor
- (1) 122-137 Scrim set—single, half single
- (1) 142-011 25' extension cable
- (1) 148-030 Metal case
- (3) 152-050 Mini-stand with 1/2" stud
- (3) 176-092 600W, 120V lamp (150-050 kit)
- (3) 176-094 650W, 220V lamp (150-051 kit)
- 150-050 120V with metal case\$1200.00
- 150-051 220V with metal case1200.00

Pro-Kit IV

Designed for use with 120V or 220V lamps for foreign location work. Draws 20A at 120V and 11A at 220V.

Kit includes:

- (2) 100-091 Mini-Pro
- (2) 104-341 Mini-Broad
- (3) 118-016 4-leaf barndoor
- (1) 142-011 25' extension cable
- (1) 148-030 Metal case
- (3) 152-050 Mini-stand with 1/2" stud
- (1) 156-012 Gaffer grip
- (2) 176-002 650W, 120V lamp (150-052 kit)
- (2) 176-092 600W, 120V lamp (150-052 kit)
- (2) 176-007 800W, 220V lamp (150-053 kit)
- (2) 176-094 650W, 220V lamp (150-053 kit)
- 150-052 120V with metal case\$1400.00
- 150-053 220V with metal case1400.00

Battery Belt Kit

Batteries are rechargeable NiCad cells. Belt comes complete with 14-hour overnight charger and an integrated cable. Charger is designed for 120V and 240V input power.

Kit includes:

- (1) 100-091 Mini-Pro
- (1) 140-003 30VDC cord
- (1) 140-021 Battery belt with charger unit (120V/240V)
- (1) 148-030 Carry case (metal)
- (1) 156-005 Mini-Pro handle
- (1) 176-090 250W, 3400°K, 30V lamp, 25 hours
- 150-063\$1700.00
- 150-065 Battery belt kit with fast charge capacity1800.00
- 150-066 Battery belt kit with high speed charger2600.00

Colortran.

FILL/FLOOD TONING LIGHTS

Fill/Flood Toning Lights

Mini Soft-Lite and 1K/4kW Soft-Lite

• Ultra lightweight • High light output with soft shadows • Combo stud fits 5/8" studs or 1 1/8" females • Ventilation system increases lamp life • Ideal for location interiors for soft-fill lighting • All aluminum construction

104-171 Mini Soft-Lite

Shares all the standard features listed above plus: • 2 switches for intensity control • 14 lbs. \$550.00

- 120-021 Diffusion frame 40.00
- 138-059 Safety cable 9.00
- 152-053 Compact stand castered 170.00

104-181 1k/4kW Soft-Lite

Shares all the standard features plus: • 4 individually switched lamps for intensity control • Single pin plugs • 25 lbs. \$960.00

- 120-022 Diffusion frame 70.00
- 138-059 Safety cable 9.00
- 142-102 Extension cable #14/3 25' 20A female T.L. NEMA L5-20P male U-ground (2 required) 80.00
- 142-400 Cable, 25' #8/3 with female single pole pin plugs and 100A stage plug 310.00
- 152-054 Super stand with adaptor. 380.00
- 158-003 C-clamp assembly to modify for pipe mounting 20.00

Lamps, ANSI-Code for Mini and 1K/4kW Soft-Lites

- 176-019 500W, 120V, 2900°K, 10,000 hour, EJD \$65.00
- 176-021 1000W, 120V, 3200°K, 500 hour, FCM 25.00
- 176-025 750W, 120V, 3200°K, 500 hour, EJJ 50.00
- 176-027 800W, 220V, 3200°K, 150 hour, EME 40.00

Broad

• Designed for wide field, medium throw applications • "quartz" lamps provide long life and constant light output • Designed for continuous duty applications • Wide variety of lamps • All accessories secured with safety clip • Heavy-duty sockets provide improved cooling and lamp life

- 104-031 Stand model \$320.00
- 104-035 Hanging model 300.00



Mini Soft-Lite

Accessories for Broad and Multi-Broad

- 118-010 4-leaf barndoor \$120.00
- 120-007 diffusion frame 35.00
- 138-059 Safety cable 9.00
- 152-053 Compact stand castered 155.00

Set-Light

• For uniform lighting of large surfaces • Barndoors provide sharp cutoff • Heavy-duty sockets provide improved cooling • Wide range of "quartz" lamps • 1-piece reflector for increased output • Compact size for tight mounting positions

- 108-005 Hanging model \$240.00
- 138-059 Safety cable 9.00

Lamps, ANSI-Code for Broad, Multi-Broad and Set Light

- 176-019 500W, 120V, 2900°K, 10,000 hour, EJD \$65.00
- 176-022 1000W, 120V, 3200°K, 400 hour, frosted, FHM 30.00
- 176-024 500W, 120V, 3200°K, 400 hour, frosted, FDN 35.00
- 176-026 750W, 120V, 3200°K, 400 hour, frosted, EMD 40.00
- 176-027 800W, 220V, 3200°K, 150 hour, EME 40.00

Cyc Strip

• 1-piece reflector for high output • Wide range of tungsten halogen lamps • Heavy-duty sockets for improved cooling and lamp life • 1-light through 3-light models equipped with male connectors 1 end and female connectors other end for convenient feed-through and curve lighting problems • 4-light through 9-light equipment with center feed male connectors for easy installation

- 108-475 1-light, 2-connector, M. and FM. 20A. 3P. Pin \$ 340.00
- 108-495 2-light, 4-connector, M. and FM. 20A. 3P. Pin 460.00
- 108-505 3-light, 6-connector, M. and FM. 20A. 3P. Pin 610.00
- 108-595 4-light, 4-connector, M. 20A. 3P. Pin 720.00
- 108-535 6-light, 3-connector, M. 20A. 3P. Pin 930.00
- 108-565 9-light, 3-connector, M. 30A. 3P. Pin 1380.00
- 120-020 Diffusion frame 25.00
- 126-014 Safety frame 45.00
- 138-059 Safety cable 9.00
- 158-009 Pipe and floor mounting assembly 70.00
- 158-014 Yoke and C-clamp mounting assembly for 1-light cyc units 85.00
- 158-016 Yoke and C-clamp mounting assembly for 2-light cyc units 85.00
- 158-017 Yoke and C-clamp mounting assembly for 3-light cyc units 85.00

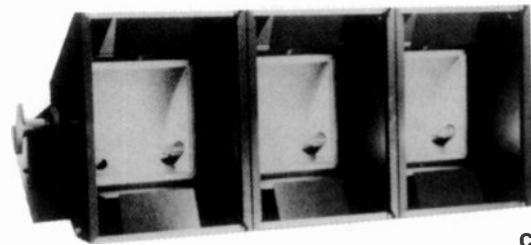
Lamps, ANSI-Code

- 176-019 500W, 120V, 2900°K, 10,000 hour, EJD \$65.00
- 176-022 1000W, 120V, 3200°K, 500 hour, frosted, FHM 30.00
- 176-024 500W, 120V, 3200°K, 400 hour, frosted, FDN 35.00
- 176-026 750W, 120V, 3200°K, 400 hour, frosted, EMD 40.00
- 176-027 800W, 220V, 3200°K, 150 hour, EME 40.00

NOTE: Mounting assembly not included with Cyc Strip.

Far Cyc

• Will uniformly illuminate 40 vertical feet of cyc on 12' centers 10' from cyc • Designed to operate on 20A circuits • Reduces power consumption by as



Cyc Strip

much as 50% • Light output is flat from top to bottom • Color frame design permits uniform radiation over color media • Uneven fading is eliminated • Color media life increased by as much as 50% • 1kW lamps available

- 108-365 1-light, M. 20A. 3P. Pin, 17 lbs. \$ 330.00
- 108-385 2-light horizontal, 2-connector, M. 20A. 3P. pin, 26 lbs. 615.00
- 108-415 3-light horizontal, 3-connector, M. 20A. 3P. pin, 37 lbs. 860.00
- 108-395 4-light, 4-connector, M. 20A. 3P. Pin, 43 lbs. 1090.00
- 120-058 Color frame (1 per lamp) 35.00
- 138-059 Safety cable 9.00
- 138-064 Safety frame (1 per lamp). 60.00

Lamps, ANSI-Code

- 176-142 1500W, 120V, 3200°K, 400 hour, frosted, FGT \$95.00
- 176-182 1000W, 120V, 3200°K, 500 hour, FFT 60.00

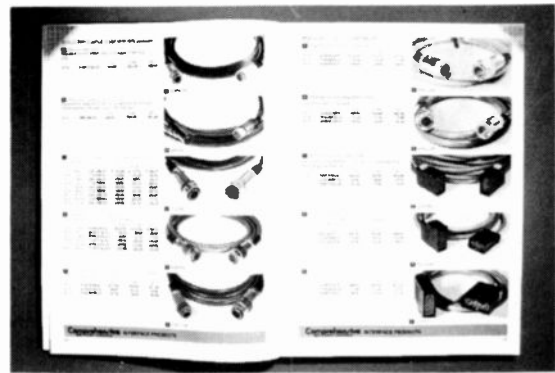
Far Cys furnished with mounting assembly, spill masks and grounding connectors.

INTERFACE PRODUCTS

A staggering selection of cables, video and audio adapters, and connectors is shown in *The Professional's Choice, Comprehensive Video's Complete Book of Professional Video Accessories*.

Whatever your input or output, here's where you'll find all your interface needs... over 2,000 cables, connectors and adapters for every professional video application imaginable.

This full selection includes Video Cables, RGB Cable Assemblies, Super VHS, and EIAJ Multi-Pin Cable Assemblies. You'll see a range of Audio Cables, including XLR, Mini, RCA, Standard Phone and Adapter Cables. In addition, there are Video Adapters and Audio Connectors to suit every need.



FIELD INTERFACE REPAIR KITS

Comprehensive recognizes that on-location, field work often means emergency hook-ups or replacement of bent or broken adapters or misplaced cables. We've created these Field Interface Repair Kits which contain the most needed video and audio connector and cables, as well as the tools you'll need to get the job done accurately and fast!

The Ultimate Trouble Shooter

TK-160 Trouble Kit

Contents:

(19) of the most used tools, including a circuit tester, BNC crimp tool, miniature screwdrivers and soldering iron.

(8) cables, including 5 video, 2 audio, and one 8 ft. extension cord.

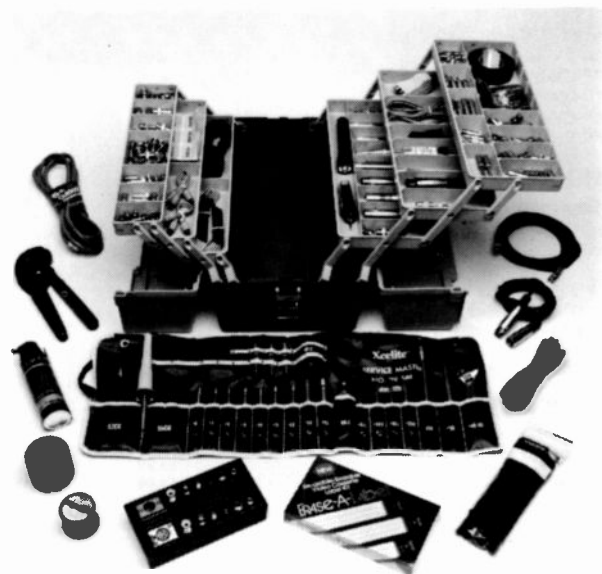
(72) Connectors, including BNC, "F" Plug, XLR and standard phone.

(57) of the most-often needed Adapters.

TK-160 (A \$900 Value) \$539.00

TK-Custom

If the TK-160 doesn't quite suit your needs, design your own trouble kit. Mix and match at least 160 total pieces of audio and/or video connectors and adapters we stock. We'll package them in a convenient case, ready to keep you out of trouble anywhere, anytime. For details, call your local dealer. Prices will vary, some restrictions apply.



VDAP-1 Video Adapter Kit

Adapt and interface with Video Connectors —includes 75 Ohm Terminators.

Contents:

- 3 BP-UJ BNC Plug to UHF Jack
- 3 BJ-UP BNC Jack to UHF Plug
- 2 BT BNC Jack, Plug, Jack (T)
- 2 B-BL BNC Jack to Jack (Barrel)
- 2 U-BL UHF Jack to Jack (Barrel)
- 2 F-BL "F" Jack to Jack (Barrel)
- 2 B-TM BNC 75 Ohm Terminator
- 1 BT-J BNC Jack, Jack, Jack (T)
- 1 BJ-BP-L BNC Jack to Plug (Right Angle)
- 1 PJ-BL Phono Jack to Jack (Barrel)
- 4 PP-BJ Phono Plug to BNC Jack
- 1 PP-UJ Phono Plug to UHF Jack
- 1 PP-FJ Phono Plug to "F" Jack
- 4 PJ-BP Phono Jack to BNC Plug
- 1 PJ-UP Phono Jack to UHF Plug
- 1 PJ-FP Phono Jack to "F" Plug
- 1 F-TM "F" 75 Ohm Terminator
- 1 BP-BL BNC Plug to Plug (Barrel)

VDAP-1 \$79.95

BOX-3 Replacement Box \$9.50

ADAP-1 Audio Adapter Kit

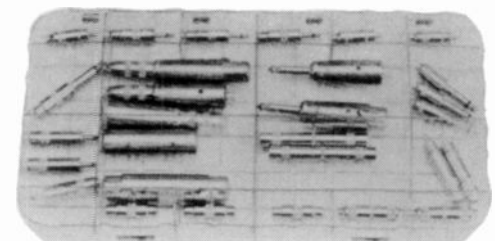
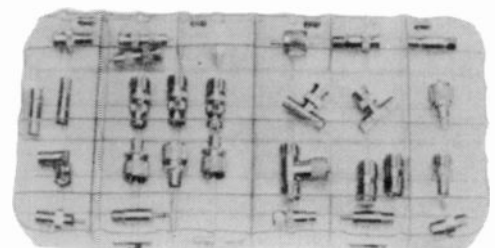
Adapt and interface with Audio Connectors.

Contents:

- 3 MP-PJ Mini Plug to Phono Jack
- 3 MP-SPJ Mini Plug to Standard Phone Jack
- 3 PP-MJ Phono Plug to Mini Jack
- 3 PJ-BL Phono Jack to Jack (Barrel)
- 2 PP-SPJ Phono Plug to Standard Phone Jack
- 2 MJ-BL Mini Jack to Jack (Barrel)
- 2 SPP-MJ Standard Phone Plug to Mini Jack
- 2 SPP-PJ Standard Phone Plug to Phono Jack
- 2 SPJ-BL Standard Phone Jack to Jack (Barrel)
- 1 PP-XLRJ Phono Plug to 3-Pin XLR Jack
- 1 SPP-XLRJ Standard Phone Plug to 3-Pin XLR Jack
- 1 XLRP-PJ 3-Pin XLR Plug to Phono Jack
- 1 XLRP-SPJ 3-Pin XLR Plug to Standard Phone Jack
- 1 XLRP-BL 3-Pin XLR Plug to Plug (Barrel)
- 1 XLRJ-BL 3-Pin XLR Jack to Jack (Barrel)

ADAP-1 \$79.95

BOX-1 Replacement Box \$9.50



For additional information see the "Interface" section of *Comprehensive's Complete Book of Professional Video Accessories*

Prices and Specifications Subject to Change Without Notice.

VIDEO CABLES

BNC Plug to Plug		1-4	5-49	50+
BB-C-1.5	1.5 ft.	\$ 9.99	\$ 8.99	\$ 7.99
BB-C-3	3 ft.	10.49	9.44	8.39
BB-C-6	6 ft.	12.89	11.60	10.31
BB-C-10	10 ft.	13.49	12.14	10.79
BB-C-25	25 ft.	15.99	14.39	12.79
BB-C-50	50 ft.	22.99	20.69	18.39

BNC Plug to Phono (RCA) Plug				
B-PP-C-1.5	1.5 ft.	\$ 3.99	\$ 3.59	\$ 3.19
B-PP-C-3	3 ft.	6.99	6.29	5.59
B-PP-C-6	6 ft.	8.99	8.09	7.19
B-PP-C-10	10 ft.	10.99	9.89	8.79
B-PP-C-25	25 ft.	13.99	12.59	11.19

"F" Plug to Plug Push-on				
FF-C-3	3 ft.	\$3.99	\$3.59	\$3.19
FF-C-6	6 ft.	5.59	5.03	4.47
FF-C-10	10 ft.	5.99	5.39	4.79
FF-C-25	25 ft.	7.99	7.59	6.83

Phono (RCA) Plug to Plug - Video				
PP-PP-CV-1.5	1.5 ft.	\$ 4.99	\$ 4.49	\$ 3.99
PP-PP-CV-3	3 ft.	6.59	5.93	5.27
PP-PP-CV-6	6 ft.	8.99	8.09	7.19
PP-PP-CV-10	10 ft.	9.49	8.54	7.59
PP-PP-CV-25	25 ft.	12.49	11.24	9.99

EIAJ MULTI-PIN CABLE ASSEMBLIES

Professional EIAJ 8-Pin VTR & Monitor Cables

E8P-E8P-5	5 ft.	\$29.99		
E8P-E8P-10	10 ft.	32.99		
E8P-E8P-17	17 ft.	38.99		
E8P-E8P-25	25 ft.	44.49		
E8P-E8P-33*	33 ft.	49.99		
E8P-E8P-50	50 ft.	59.99		
E8P-E8P-82*	82 ft.	74.99		
E8P-E8P-164	164 ft.	104.50		

Professional EIAJ 10-Pin Camera Extension

E10P-E10J-1*	1 ft.	\$ 34.99		
E10P-E10J-5	5 ft.	39.99		
E10P-E10J-10	10 ft.	45.99		
E10P-E10J-17*	17 ft.	53.99		
E10P-E10J-25	25 ft.	63.99		
E10P-E10J-33*	33 ft.	72.99		
E10P-E10J-50	50 ft.	91.99		
E10P-E10J-82*	82 ft.	124.99		
E10P-E10J-164*	164 ft.	235.99		

*equivalent to SONY cable lengths.

Professional 14-Pin Camera Cables

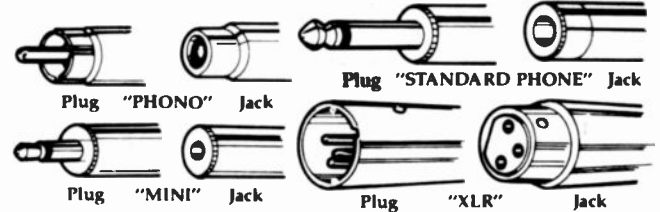
E14P-E14J-7*	7 ft.	(2m)	\$ 93.99		
E14P-E14J-10	10 ft.	(3m)	99.99		
E14P-E14J-17*	17 ft.	(5m)	113.99		
E14P-E14J-25	25 ft.	(7.6m)	128.99		
E14P-E14J-33*	33 ft.	(10m)	159.99		
E14P-E14J-50	50 ft.	(15.2m)	199.99		
E14P-E14J-75	75 ft.	(22.8m)	249.99		
E14P-E14J-82*	82 ft.	(25m)	264.99		
E14P-E14J-100	100 ft.	(30.4m)	299.99		
E14P-E14J-164*	164 ft.	(50m)	372.99		

*equivalent to SONY cable lengths.

SUPER VHS CABLES

4-Pin Plug to 4-Pin Plug				
S4P-S4P-6	6 ft.	\$17.95	\$17.05	\$16.16
S4P-S4P-10	10 ft.	21.95	20.85	19.76
S4P-S4P-15	15 ft.	26.95	25.60	24.26
S4P-S4P-25	25 ft.	38.95	37.00	35.06
S4P-S4P-50	50 ft.	68.95	65.50	62.05
4-Pin Plug to 4-Pin Jack				
S4P-S4J-6	6 ft.	\$27.95	\$26.55	\$25.15
S4P-S4J-10	10 ft.	31.95	30.35	28.75
S4P-S4J-25	25 ft.	45.95	43.65	41.35
4-Pin Plug to 7-Pin Jack				
S4P-7J-6	6 ft.	\$25.95		
S4P-7J-10	10 ft.	29.95		
S4P-7J-25	25 ft.	45.95		

Reference Guide



SUPER VHS CABLES (continued)

4-Pin Plug to 7-Pin Plug			
S4P-7P-6	6 ft.	\$25.95	
S4P-7P-10	10 ft.	29.95	
S4P-7P-25	25 ft.	45.95	

AUDIO CABLE

Mini (3.5mm), Phono and Std Phone (1/4") Cables		1-4	5-49	50+	
MP-MP-10	Mini Plug to Plug	10 ft.	\$3.59	\$3.23	\$2.87
MP-MP-25	Mini Plug to Plug	25 ft.	4.59	4.13	3.67
MP-MJ-10	Mini Plug to Jack	10 ft.	2.59	2.33	2.07
MP-MJ-25	Mini Plug to Jack	25 ft.	3.99	3.59	3.19
MP-PP-10	Mini Plug to Phono (RCA) Plug	10 ft.	2.19	1.97	1.75
PP-PP-10	Phono (RCA) Plug to Plug	10 ft.	1.99	1.79	1.59
PP-PP-25	Phono (RCA) Plug to Plug	25 ft.	3.19	2.87	2.55
PP-PJ-25	Phono (RCA) Plug to Jack	25 ft.	3.19	2.87	2.55
SPP-SPP-10	Standard Phone (1/4") Plug to Plug	10 ft.	4.39	3.95	3.51
SPP-SPP-25	Standard Phone (1/4") Plug to Plug	25 ft.	5.79	5.21	4.63
SPP-SPJ-10	Standard Phone (1/4") Plug to Jack	10 ft.	4.39	3.95	3.51
SPP-SPJ-25	Standard Phone (1/4") Plug to Jack	25 ft.	5.89	5.30	4.71
SPP-PP-10	Standard Phone (1/4") Plug to Phone (RCA) Plug	10 ft.	3.99	3.59	3.19
SPP-PP-25	Standard Phone (1/4") Plug to Phone (RCA) Plug	25 ft.	5.99	5.39	4.79

Audio Adapter Cables

SP-2-C	Phone (1/4") Jack to Mini Plug, 3ft.	\$3.39	\$3.05	\$2.71
SP-4-C	Phono (RCA) Plug to Two Parallel Phono (RCA) Jacks, 6".	3.39	3.05	2.71
SP-5-C	Phono (RCA) Jack to Two Parallel Phono (RCA) Plugs, 6".	3.39	3.05	2.71
D5P-4PP	Din 5-Pin Plug to Four Phono (RCA) Plugs, 6 ft.	3.49	3.14	2.79

XLR Microphone Extension Cables

XLRP-XLRJ-3	3 ft.	\$15.59	\$14.03	\$12.24
XLRP-XLRJ-6	6 ft.	17.79	16.01	14.23
XLRP-XLRJ-10	10 ft.	21.99	19.79	17.59
XLRP-XLRJ-15	15 ft.	25.89	23.30	20.71
XLRP-XLRJ-25	25 ft.	35.45	31.91	28.36
XLRP-XLRJ-50	50 ft.	45.45	40.91	36.36
XLRP-XLRJ-75	75 ft.	55.45	49.91	44.36
XLRP-XLRJ-100	100 ft.	79.99	71.99	63.99

XLR to Mini, Phono and Standard Phone Cables (10 ft.)

XLRP-MP-10	XLR Plug to Mini Plug	\$13.99	\$12.59	\$11.19
XLRP-MJ-10	XLR Plug to Mini Jack	13.99	12.59	11.19
XLRJ-MP-10	XLR Jack to Mini Plug	13.99	12.59	11.19
XLRJ-MJ-10	XLR Jack to Mini Jack	13.99	12.59	11.19
XLRP-PP-10	XLR Plug to Phono Plug	13.99	12.59	11.19
XLRP-PJ-10	XLR Plug to Phono Jack	13.99	12.59	11.19
XLRJ-PP-10	XLR Jack to Phono Plug	13.99	12.59	11.19
XLRJ-PJ-10	XLR Jack to Phono Jack	13.99	12.59	11.19
XLRP-SPP-10	XLR Plug to Standard Phone Plug	17.99	16.19	14.39
XLRP-SPJ-10	XLR Plug to Standard Phone Jack	17.99	16.19	14.39
XLRJ-SPP-10	XLR Jack to Standard Phone Plug	17.99	16.19	14.39
XLRJ-SPJ-10	XLR Jack to Standard Phone Jack	17.99	16.19	14.39

Two Phone (RCA) Plugs, Stereo Both Ends

4PP-C-1.5	1.5 ft.	\$1.79	\$1.61	\$1.43
4PP-C-3	3 ft.	2.49	2.24	1.99
4PP-C-6	6 ft.	2.89	2.60	2.31
4PP-C-10	10 ft.	3.39	3.05	2.71

VIDEO/AUDIO ADAPTERS AND CONNECTORS

Comprehensive
VIDEO SUPPLY CORPORATION

VIDEO ADAPTERS

BNC		1-4	5-49	50+
BT	BNC Jack to Plug to Jack (T)	\$5.19	\$4.67	\$4.15
BT-J	BNC Jack to Jack to Jack (T)	4.99	4.49	3.99
B-BL	BNC Jack to Jack (Barrel Type)	3.99	3.59	3.19
B-BLCM	BNC Jack to Jack Chassis Mount (Barrel Type)	5.99	5.39	4.79
BP-BL	BNC Plug to Plug (Barrel Type)	4.99	4.49	3.99
BJ-BP-L	BNC Jack to Plug (Right Angle)	6.99	6.29	5.59
"F"				
F-BL	"F" Jack to Jack (Barrel Type)	\$.69	\$.62	\$.55
F-BLCM	"F" Jack to Jack Chassis Mount (Barrel)	1.69	1.60	1.52
FJ-FP	"F" Jack to "F" Plug	1.69	1.60	1.52
FJ-FP-L	"F" Jack to "F" Plug Right Angle	1.79	1.61	1.43

Phono (Video)

PT	Phono (RCA) Jack to Plug to Jack (T)	\$3.49	\$3.31	\$2.96
PT-J	Phono (RCA) Jack to Jack to Jack (T)	3.89	3.50	3.11
PJ-BL	Phono (RCA) Jack to Jack (Barrel)	1.29	1.16	1.03
P-BLCM	Phono (RCA) Jack to Jack Chassis Mount (Barrel)	2.99	2.69	2.39
PP-PJ/R	Phono Plug to Phono Jack Right Angle	4.49	4.26	4.04

Between Series: BNC, UHF, "F", & Phono (Video)

BP-UJ	BNC Plug to UHF Jack	\$2.89	\$2.60	\$2.31
BJ-UP	BNC Jack to UHF Plug	2.89	2.60	2.31
FP-UJ	"F" Plug to UHF Jack	1.79	1.61	1.43
FJ-BP	"F" Jack to BNC Plug	3.49	3.14	2.79
FJ-MP	"F" Jack to 3.5mm Mini Plug	1.79	1.61	1.43
FJ-UP	"F" Jack to UHF Plug	1.99	1.89	1.79
PP-BJ	Phono (RCA) Plug to BNC Jack	2.99	2.69	2.39
PP-FJ	Phono (RCA) Plug to "F" Jack	1.99	1.89	1.79
PP-UJ	Phono (RCA) Plug to UHF Jack	1.99	1.89	1.79
PJ-BP	Phono (RCA) Jack to BNC Plug	2.49	2.24	1.99
PJ-UP	Phono (RCA) Jack to UHF Plug	1.39	1.32	1.25
PJ-FP	Phono (RCA) Jack to "F" Plug	1.99	1.89	1.79

VIDEO CONNECTORS

BNC				
BP	BNC Plug for RG-59/U Cable, solder type	\$2.99	\$2.69	\$2.39
BP-C	BNC Plug for RG-59, Crimp type	1.99	1.89	1.79
BP-CA	BNC Crimp Plug for RG-59/U	3.39	3.22	3.05
BP-CK	BNC Crimp Plug for RG-59/U	3.99	3.79	3.59
BP-E	BNC Plug Fast-Fit for RG-59/U	2.89	2.60	2.31
BP-C-8281	BNC Plug for 8281 crimp type	3.89	3.50	3.11
BP-E-8281	BNC Plug Fast-Fit for 8281 Cable	4.25	4.03	3.82
BJ-CM	BNC Jack Chassis Mount for RG-59U	1.89	1.70	1.51
B-TM	BNC Plug 75 Ohm Terminator	2.99	2.69	2.39

Canare 75 Ohm BNC

BCP-C4	Canare 75 Ohm BNC Crimp-on Plug for RG-59B/U	\$ 3.99	\$3.89	\$3.79
BCJ-RU	Canare 75 Ohm BNC Female Recessed Panelmount to Solder Pin	5.99	5.89	5.79
BCJ-JRU	Canare 75 Ohm BNC Double Female Recessed Panelmount	8.99	8.89	8.79

"F"				
FP	"F" Plug Crimp-on	\$.25	\$.22	\$.20
FP-E	"F" Plug Fast-Fit Push-on	.49	.44	.39
FP-ES	"F" Plug Fast-Fit Screw-on	.59	.53	.47
F-TM	"F" Plug 75 Ohm Terminator	.49	.44	.39
FJ-CM	"F" Jack Chassis Mount	.39	.35	.31

Phono (Video)

PP-C	Phono Plug with attached ferrule (Crimp)	\$.59	\$.53	\$.47
PP-V	Phono Plug Solder type	1.49	1.34	1.19
PJ-CM	Phono Jack Chassis Mount	.59	.53	.47
P-TM	Phono Plug 75 Ohm Terminator	1.99	1.79	1.59

Super VHS

RM-7J	7-pin Female Dub connector	\$13.99	\$13.29	\$12.59
RM-7JCM	7-pin Female Chassis Mount	8.95	8.06	7.16
RM-7PCM	7-pin Male Chassis Mount	8.95	8.06	7.16
S4P	4-pin Male connector	2.99	2.69	2.39
S4J	4-pin Female connector	2.99	2.69	2.39

EIAJ Monitor and VCR Connectors

E8P	8-pin Plug Cable End	\$7.19	\$6.47	\$5.75
E8J	8-pin Jack Cable End	7.19	6.47	5.75

EIAJ VCR and Editor Remote Control Connectors

E20P	20-pin Plug Cable End	\$11.99	\$11.39	\$10.79
E20J	20-pin Jack Cable End	8.99	8.09	7.19
E33P	33-pin Plug Cable End	16.95	16.10	13.56
E33J	33-pin Jack Cable End	12.79	11.51	10.23

EIAJ VCR and Editor Remote Connectors (cont.)

E33PCM	33-pin Plug Chassis Mount	6.99	6.29	5.59
E33JCM	33-pin Jack Chassis Mount	9.99	9.49	8.99
E34J	34-pin Jack Cable End	9.99	8.99	7.99
E34P	34-pin Plug Cable End	18.99	17.09	15.19
E45P	45-pin Plug Cable End	12.69	12.05	11.42
E45J	45-pin Jack Cable End	10.49	9.44	8.39

Camera Connectors

E10P	10-pin Plug Cable End	\$11.99	\$11.39	\$10.79
E10J	10-pin Jack Cable End	11.99	11.39	10.79
E12P	12-pin Plug Cable End (JVC)	9.99	8.99	7.99
E12J	12-pin Jack Cable End (JVC)	7.59	6.83	6.07
E14P	14-pin Plug Cable End	28.95	26.06	23.13
E14J	14-pin Jack Cable End	36.95	35.10	33.25

AUDIO ADAPTERS

Mini (3.5mm)

MP-PJ	3.5mm Mini Plug to Phono (RCA) Jack	\$1.15	\$1.03	\$.92
MP-SPJ	3.5mm Mini Plug to 1/4" Standard Phono Jack	1.39	1.25	1.11
MJ-BL	3.5mm Mini Jack to Jack (Barrel)	1.99	1.79	1.59

Phono (Video)

PJ-BL	Phono (RCA) Jack to Jack (Barrel)	\$ 1.25	\$ 1.12	\$ 1.00
PP-MJ	Phono (RCA) Plug to 3.5mm Mini Jack	1.25	1.12	1.00
PP-SPJ	Phono (RCA) Plug to 1/4" Std. Phono Jack	1.79	1.61	1.43
PP-XLRJ	Phono (RCA) Plug to 3-pin XLR Jack	8.99	8.09	7.19
PP-XLRP	Phono (RCA) Plug to 3-pin XLR Plug	8.99	8.09	7.19

Standard Phone (1/4")

SPJ-BL	Standard Phone Jack to Jack (Barrel)	\$ 2.59	\$ 2.33	\$ 2.07
SPP-MJ	Standard Phone Plug to 3.5mm Mini Jack	1.19	1.07	.95
SPP-PJ	Standard Phone Plug to Phono (RCA) Jack	2.09	1.88	1.67
SPP-XLRJ	Standard Phone Plug to 3-pin XLR Jack	9.99	8.99	7.99
SPP-XLRP	Standard Phone Plug to 3-pin XLR Plug	8.99	8.09	7.19
SPP-XLRPS	Standard Phone Plug Stereo to 3-pin Stereo XLR Plug	9.99	9.89	9.79
SPP-XLRJS	Standard Phone Plug Stereo to 3-pin Stereo XLR Jack	10.99	17.09	8.79

XLR Cannon Type

XLRP-PJ	3-pin XLR Plug to Phono (RCA) Jack	\$9.99	\$8.99	\$7.99
XLRP-SPJ	3-pin XLR Plug to 1/4" Standard Phone Jack	9.99	8.99	7.99
XLRP-BL	3-pin XLR Plug to Plug (Barrel)	9.99	8.99	7.99
XLRJ-PJ	3-pin XLR Jack to Phono (RCA) Jack	9.99	8.99	7.99
XLRJ-SPJ	3-pin XLR Jack to 1/4" Standard Phone Jack	9.99	8.99	7.99
XLRJ-BL	3-pin XLR Jack to Jack (Barrel)	10.99	9.89	8.79

AUDIO CONNECTORS

Mini (3.5mm)

MJ	3.5mm Mini Jack Cable End	\$.89	\$.80	\$.71
MJ-CM	3.5mm Mini Jack Chassis Mount	.69	.62	.55
MP	3.5mm Mini Plug Cable End	1.19	1.07	.95

Phono (RCA)

PJ	Phono (RCA) Jack Cable End	\$.79	\$.71	\$.63
PJ-CM	Phono (RCA) Jack Chassis Mount	.69	.62	.55
PP	Phono (RCA) Plug Cable End	.69	.62	.55

Standard Phone (1/4")

SPJ	Standard Phono Jack Cable End	\$1.89	\$1.70	\$1.51
SPJ-S	Standard Phono Jack Stereo Cable End	1.79	1.61	1.43
SPJ-CM	Standard Phono Jack Chassis Mount Cable End	.95	.85	.76
SPP	Standard Phono Plug Cable End	1.29	1.16	1.03
SPP-SP	Standard Phono Plug w/Spring Relief Cable End	1.69	1.52	1.35

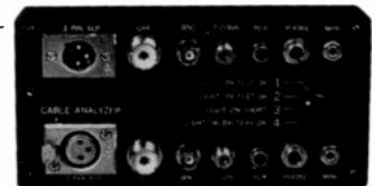
XLR (3-pin Cannon Type)

XLRJ	3-pin XLR Jack Cable End	\$6.39	\$5.75	\$5.11
XLRJ-CM	3-pin XLR Jack Chassis Mount	8.59	7.73	6.87
XLRP	3-pin XLR Plug Cable End	5.39	4.85	4.31
XLRP-CM	3-pin XLR Plug Chassis Mount	4.99	4.49	3.99

CABLE TESTER

CA-7 Audio and Video Cable Tester

- A single instrument that does the job previously requiring two separate instruments
- Accepts 3-pin XLR, standard (1/4") phone, BNC, UHF, "F", Phono (RCA) and (3.5mm) Mini plugs
- Tests for shorts, broken conductors and continuity
- Built-in lights indicate test conditions
- 9V battery included



CA-7 \$49.95

For additional adapters and connectors see the "Interface" section of Comprehensive's Complete Book of Professional Video Accessories

Prices and Specifications Subject to Change Without Notice.

TCG-1000 SMPTE Time Code Generator

Comprehensive's own SMPTE Time Code Generator/Reader/Insertter packs all the features you'd expect to find in a unit far more expensive than our TCG-1000.

Measuring a trim 2" x 3" x 4", the TCG-1000 weighs only 8 oz. and is battery-operated for go-anywhere portability. It comes with its own AC power adapter for added flexibility.

This multi-featured machine indicates drop or non-drop frame time code for use with all 1/2", 3/4" and 1" formats, provides reshaped time code output, and displays time code or user bits. The TCG-1000 creates window dubs that can be adjusted for horizontal and vertical size position and reads time code at play speed.

Improved: Now our TCG-1000 comes with the ability to read and display SMPTE time code at search speeds at no extra cost to the user. the actual speed range of the TCG-1000 is from far less than ± 10 time play speed.



Features:

- Sharp, easy-to-read characters.
- Dark or "see-through" mask surrounding display.
- Jamsync mode that jams to time code input and outputs new time code.
- Simple on-screen preset of time code and user bits.
- Field-1 and Field-2 indicator.

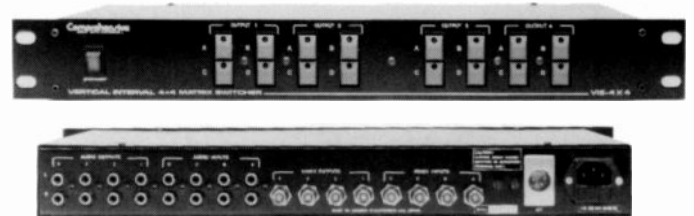
TCG-1000 \$479.00

VIS-4x4 Matrix Switcher

Comprehensive's professional 4x4 Matrix Switcher is a precision device that allows the user to route stereo audio and video signals from 4 inputs to any or all of its outputs.

The 4x4 digital matrix design allows selection of either the audio or video signal, or both at the same time, from each of up to four sources. That information can then be sent out to any combination of one, two, three, or four machines, integrating different components and facilitating their use together.

- Professional matrix switcher combines audio console (stereo) and video components from custom system integration with no compromise in signal quality.
- Vertical interval switching to route any one of 4 inputs to any or all of the four outputs.



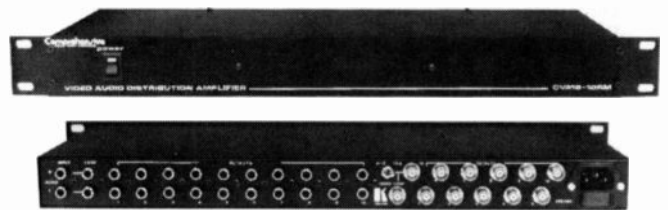
- Rack mountable switchers can be piggybacked to increase input/output capabilities.
- Noise-free electronic switches operate smoothly and quietly.

VIS 4x4 \$699.00

CVA1B-10RM Video Audio Distribution Amplifier (Rack Mount)

The CVA1B-10RM is a high performance video and stereo audio distribution amplifier, with studio specifications, for professional applications. It is an enhanced version of the CVA1B-10S distribuaiton Amplifier.

The CVA1B-10RM performs as an interface allowing a single input source of composite video and stereo audio to be split into ten identical outputs. Specially designed lownoise video amplifying and impedance matching circuitry prevent loss of quality during signal distribution.



A highly reliable and "cool running" unit, the CVA1B-10RM is perfect for nonattended remote applications.

CVA1B-10RM \$499.00

CVA1B-5 Video/Audio Distribution Amplifier

The CVA1B-5 is a top quality and compact "workhorse" which was designed for applications where a straight-forward 5 output Video and Audio (mono) distributor is required. The heavy-duty design and excellent reliability of the CVA1B-5 has made it our most popular seller. This little sister to our CVA1B-10S just doesn't give up and we recommend it highly for various distribution applications, including multi-monitor feeding and multi-tape copying.

The main features of the CVA1B-5 are:

- High reliability and heavy duty design for long term operation
- Use of highest quality components and "BNC" type Video connectors
- Compatible with all existing TV and VIDEO standards including 3/4 inch, VHS, Beta, NTSC, PAL and SECAM



- Uses high isolation video amplifiers and impedance matching networks and high S/N ratio audio amplifiers to feed up to 5 separate outputs

CVA1B-5 \$299.00

AV BLOCKS: POCKET-SIZED MARVELS FOR VIDEO AND AUDIO EFFECTS

When you need a special effect in the field and do not want to lug a full sized SEG with you, AV BLOCKS are what you need. You can "hot-switch" or dissolve between camera inputs, adjust video levels, and distribute video signals. Mix, switch, balance, monitor or distribute your audio as well. In the studio or editing suite, take advantage of features such as GPI triggers, black burst generator, level adjusts, and auto transitions.

Wherever more than one camera or microphone is in use, you'll find an application for the AV BLOCKS.

AVBLOCKS give the professional sound or television operator unsurpassed effects power in a pocket sized module. The AV BLOCKS family includes mini-versions of the equipment you would not expect in a product of this size. Perfect for creating a low-budget production suite or as add-ons to larger systems, AVBLOCKS are neat, sleek and attractively priced. Start your collection of AV BLOCKS now!

Features:

- Meets highest possible professional specifications
- Ruggedly constructed to be maintenance free
- Designed for studio or field use
- Externally powered by almost any external low voltage power pack
- Internally powered by a rechargeable battery pack

DGM-110 Video Mixer

- Precise digital video mix processor
- Programmable auto-transition rate
- GPI trigger
- A/B mixing or fade to/from black
- Internal black generator and sync processor
- Signal to noise ratio is >75 dB
- Bandwidth from 10 MHz - 0.5 dB

DGM-110 \$339.00

DGA-110 Video Distribution Amplifier

- 1 in 3 out
- DC video clamping
- Gain control
- Equalization control
- Low power standby mode
- Signal to noise ratio is >75 dB
- Bandwidth from 10 MHz - 0.5 dB

DGA-110 \$289.00

DGS-110 Video Switcher

- 3 Inputs plus black to 1 output
- Precise vertical interval switching
- Internal black generator
- Clamping on all inputs
- Signal to noise ratio is >75 dB
- Bandwidth from 10 MHz - 0.5 dB

DGS-110 \$349.00

DVP-110 Video Processing Amplifier

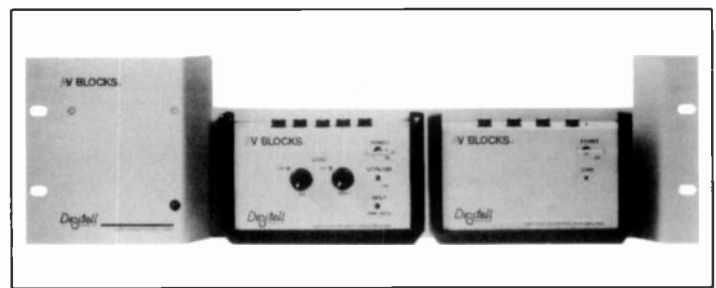
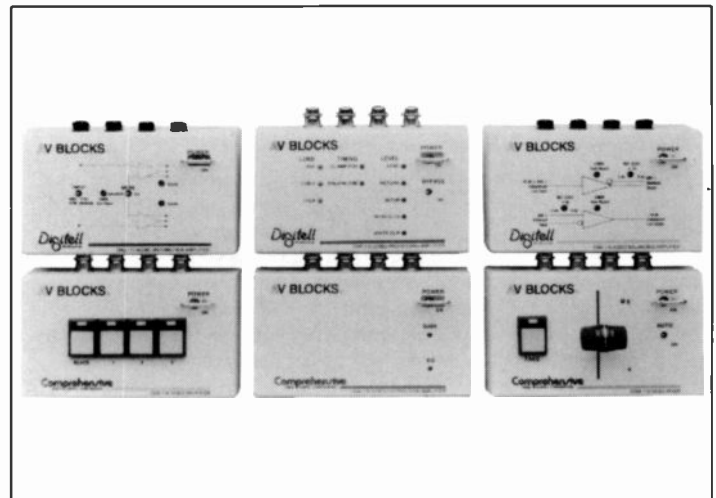
- Sync, black and picture level controls
- DP, DG and Equalization control
- White clip level
- Output DC video offset control
- H timing indication
- GPI output for video loss
- GPI input for ultra fast switching
- Signal to noise ratio is >75 dB
- Bandwidth from 10 MHz - 0.5 dB

DVP-110 \$359.00

DSW-110 Audio Switcher

- Switchable as 3 ch balanced or stereo inputs
- Switchable 600 Ohms/47K Ohms input
- Mute channel
- Quiet switching
- Excellent hum rejection (high CMRR balanced mode)

DSW-110 \$395.00



DRM-1A Powered Rack Frame

DBA-110 Audio Balancing Amplifier

- Converts -10 dB 47K Ohms unbalanced to 600 Ohms balanced nominal level
- Converts 600 Ohms balanced to -10 dB 47K Ohms unbalanced
- Selectable 600 Ohms balanced nominal level as 0, +4, +8dBm
- Excellent hum rejection (high CMRR)

DBA-110 \$349.00

DMX-110 Audio Mixer

- Three balanced Mic/Line inputs
- Stereo balanced 600 Ohms outputs
- Switchable low cut filter per channel
- Independent left and right assignment switches

DMX-110 \$395.00

DMA-110 Audio Monitoring Amplifier

- Stereo power amplifier
- Independent gain controls
- Switchable 600 Ohms/47K Ohms balanced inputs
- Switchable low cut filter

DMA-110 \$315.00

DAD-110 Audio Distribution Amplifier

- Switchable as 3 ch balanced or stereo outputs
- Disable switch for common mode rejection
- Switchable 600 Ohms/47K Ohms input
- Gain controls

DAD-110 \$349.00

AVSP-1 Power Supply \$17.95

DRM-1A Powered Rack Frame

- Two rubber hugs pre-mounted
- Built-in main power supply
- Switchable 110/240V AC
- Two fully regulated and protected outputs

DRM-1A \$189.00

For more information see the "Video Electronics" section of Comprehensive's Complete Book of Professional Video Accessories

Prices and Specifications Subject to Change Without Notice.

VIDEOTAPE LOGGING, EDIT LIST MANAGEMENT AND EDIT LIST CONVERSION SOFTWARE

Comprehensive
VIDEO SUPPLY CORPORATION

LOG MASTER™

A videotape logging and library management software product designed to record time code points and scene descriptions. After you have searched for specific scenes within your database of reellogs, you can create a CMX compatible edit decision list. Other features include tracking the tape by reel number, reel id, or reference number. Log Master Plus adds the capability to install Log Master onto a Local Area Network and uses a faster search routine. The optional CVNET interface gives you full VTR control from your computer keyboard and will read VITC or longitudinal time code.

LOG-MST	Log Master software only.	\$ 795.00
LOG-MST-P	Log Master Plus software only.	\$1295.00
LOG-TCR	Log Master software and time code reader board. Requires one expansion slot.	\$1295.00
LOG-CVNET	Log Master software and VTR machine control.	\$3195.00

Log Master runs on an IBM PC/XT/AT or PS/2 running DOS 2.11 or higher with 512KB RAM.

Demo Disk is available; specify size needed.



EDIT LISTER™

Edit list management software that will clean, compile, revise, store and transfer an edit list to or from virtually any edit controller equipped with an RS-232 serial port. Handles such high level list management functions as re-edit with ripple, clean for A or B mode (checker board) assembly, add and delete events, and much more.

EL-B-SS	for IBM PC/XT/AT, PS/2 or compatible running DOS 2.11 or higher with 256KB RAM and serial card.	\$750.00
EL-TCR	Time Code Reader Board for Edit Lister requires one expansion slot.	\$595.00



EDL TRANSLATOR™

A program that translates an edit list to or from most any disk or list format for virtually any editing system. Greatly expands the number of off-line and on-line systems that you can support, without adding costly hardware to your system. Compatible with EDIT LISTER.

EDL-TRANS EDL TRANSLATOR software for IBM PC/XT/AT, PS/2 or compatible running DOS 2.11 or higher with 512KB RAM. \$695.00



EDIT TRACKER™

A multi-generation list tracing program. Lets you use off-line edited masters as source tapes, editing down a generation when changes are needed, rather than re-editing from scratch. Can trace back through up to 12 generations of edit lists, merging them together and incorporating all changes made along the way. Compatible with EDIT LISTER and EDL TRANSLATOR.

ET-B for IBM PC/XT/AT, PS/2 or compatible running DOS 2.11 or higher with 256KB RAM. \$695.00



For more information see the "Computer Aided Video" section of Comprehensive's Complete Book of Professional Video Accessories

Prices and Specifications Subject to Change Without Notice.

**THE Highband 1500:
LONG-RANGE AND INTERFERENCE FREE**

Comprehensive's Wireless Microphone System

Perfect for all types of field production, the Highband 1500 systems provide high frequency transmission of audio signals where distance or obstacles make a wired mic unacceptable. Whether you are shooting from atop the pressbox and the announcer is on the sidelines; from the rear of the church with the couple at the altar; or from the van with the announcer across a busy street, the Highband 1500 systems provide clean, crisp audio without the restrictions of a cable.

The Highband 1500 operates on long range, interference free, high band VHF frequencies (203-215 MHz), not 49 MHz cordless phone channels. It also utilizes a patented companding (noise reduction) system for overload and noise free performance. You can purchase the system separately or with one of the popular brand name lavalier microphones listed below. The Highband 1500 will make a tremendous difference, adding professional quality audio, to all your productions.

HBT-1500 Lavalier Bodypack Transmitter

- Audio ON/OFF and transmitter ON/OFF for ease of use
 - Audio cord acts as antenna— No extra antenna needed
 - Input level control for optimum adjustment
 - Low battery LED indicator
 - Hinged battery compartment for quick pop-in battery replacement.
- Uses standard 9V alkaline battery
- Mini XLR connector

HBR-1500 Wireless Receiver

The HBR-1500 wireless receiver is ruggedly built and packed with professional features. The receiver is powered by a 9V alkaline battery in a convenient "pop-in" battery compartment. LED lights indicate Low Battery and Receiver Signal. Controls include Output Level and Mute adjusts. Audio Output and Headset connectors are 3.5mm miniature plugs. An attached softwire antenna extends from the top of the receiver. Systems are available on three channels in the VHF high band: 209.15 MHz "D", 215.2 MHz "E" and 203.4 MHz "F."



Highband 1500 Receiver and Transmitter

Price Includes, (1) HBT-1500, (1) HBR-1500 and (1) Mini 3-Pin XLR jack connector.
Highband 1500 \$225.00

NOTE: Lavalier Microphone is not included. You purchase the one you want, and we will ship it wired and ready to go with the Highband 1500.

Select Your Choice of Lavalier Microphone (Includes 3-Pin XLR Jack)

AT-831L	Audio Technica 831 Lavalier Microphone	\$120.00
GLM-100	Crown GLM-100 Lavalier Microphone	\$165.00
ECM-44	Sony ECM-44 Lavalier Microphone	\$ 99.00
ECM-144	Sony ECM-144 Lavalier Microphone	\$ 59.00
ECM-55	Sony ECM-55 Lavalier Microphone	\$199.00
ECM-77	Sony ECM-77 Lavalier Microphone	\$259.00
B-109	Beyer 10.9 Lavalier Microphone	\$259.00
WL-83	Shure Omni-Directional Lavalier Microphone	\$165.00
WL-84	Shure Supercardioid Lavalier Microphone	\$195.00

THE PERFECT FIELD PRODUCTION MIXER!

Look no further for an affordable compact mic mixer.

If you have been looking for an affordable, compact mic mixer that is perfect for basic field production, your search is over. The MM-3100 incorporates the features most requested by video and audio sound engineers, sportscasters and electronic news professionals. It provides broadcast quality mixing by preserving the signal, avoiding all modification and distortion. Its wide, flat frequency response and rugged construction make it ideal for the most demanding applications. It's compact enough to be used anywhere!

The MM-3100 combines three balanced input signals and permits these combinations to be changed easily regardless of the differences in the signal generator to conduct line testing. When you consider the reliability and the extraordinary mechanical workmanship that went into this mixer, we are convinced you will be amazed at its performance. **MM-3100 \$315.00**

Dollar for dollar the MM-3100 is one of the best field production mixers available on the market today.

Features:

- Three balanced mic inputs with individual volume controls
- One balanced mic output, switchable +4/-20 dBu output level
- Calibrated volume control scales
- 18 VDC phantom power switchable for each microphone input
- Input number three is switchable to line level input
- Switchable low-cut filter for each input
- Master gain control
- LED display indicating quasi-peak levels
- Battery check switch
- Two 9 Volt battery compartments
- Tone generator



- Aluminum housing
- Socket for external AC/DC power source

MM-ADAPTOR AC Adaptor unit for MM-3100

\$17.95

Note: The performance of the MM-3100 is reduced when voltage below 16 VDC is used.

Optional Case for the MM-3100

We've made an excellent product even better by creating a custom carrying case that includes the convenience features most asked for. Constructed of waterproof Cordura®, the MM-CASE is durable and padded for security. We've thought of everything...from pockets to hold cables or a spare battery to an oversized belt loop, swivel clips on the strap and an over-the-shoulder strap, padded for extra comfort. We've even designed a velcro closing in the front and back to make it easy to reach the mixer's controls and cables.

All this for just \$59.00.

For more information see the "Audio" section of Comprehensive's Complete Book of Professional Video Accessories

SOFTLIGHTS AND TRIPODS

SOFTOUCH™ SOFTLIGHTS

SOFTOUCH™ "ACE"

Comprehensive's most compact softlight. Excellent as small fill light for one or two subjects or for small group applications. Comes equipped with 16' line cord and parallel blade U-ground plug.

ST-ACE \$295.00

SOFTOUCH™ "DEUCE"

A great all-round location softlight that uses two lamps. Independent switching permits either left, right, or both lamps to be illuminated. Comes with 16' line cord and parallel blade U-ground plug.

ST-DEUCE \$375.00

SOFT-STAND™

Especially designed for use with the SOFTOUCH DEUCE, Comprehensive's SOFT-STAND is finished in attractive black and chrome. It weighs only 6 lbs. 9 oz. and extends from a collapsible height of 37" to 83 1/2".

SOFT-STAND \$79.00

SP-AK Softpair ACE Kit

The ideal, "quick-take" location system, this is the answer for those times when you have to make that "talking head" shot of the C.E.O. or tape an impromptu "one-on-one" interview. The SP-AK helps you achieve outstanding results and it's an ideal way to expand your present system.

Includes:

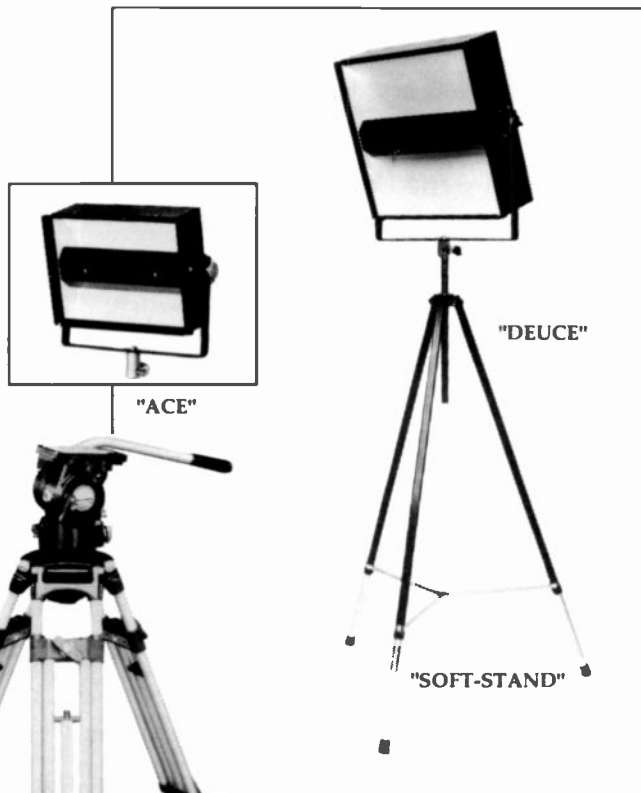
- (2) ST-ACE lights
- (2) LSP light stands
- (2) FWM lamps
- (1) GT-10 gray gaffers tape
- (1) PRC-S case

Dimensions: 37 1/2"L x 19"W x 9"H

Weight: 42 lbs. 8 oz. (Lamps included)

SP-AK Kit \$829.00

LP/SP-AK Lamp Pak for SP-AK \$90.00



BILORA TYPE-SIX TRIPOD

Strength, stability and versatility at an affordable price.

6144 ULTRA-COMPACT TRIPOD WITH FLUID HEAD

The all-time best-seller in its class, it is remarkably stable, yet collapses to a convenient 20 inches for hassle-free transport. Weight" 5 1/2 lbs.

Capacity: 18 lbs.

6144 \$ 185.00

RELIANT 30 TRIPOD

With specifications demanded by professional videographers the Reliant 30 is available at a price you can't afford to overlook.

The RELIANT 30's fluid head provides smooth camera movement with a maximum capacity of 33 pounds. Separate drag and lock knobs provide for a full range of pan/tilt movement resistance as well as a secure lockdown. A knob engaged spring counterbalance keeps your camera level and avoids sudden tilt action. The 100mm ball and bubble level allow for balancing on all surfaces.

The RELIANT 30's three section legs expand from 35" to a maximum height of 66" and are secured in place by the extendable spreader.

RELIANT 30 \$1760.00

PROFESSIONAL TRIPOD

More stable, more rigid, light and easy to use.

PRO-930 Tripod

PRO-930 PROFESSIONAL TRIPOD

Panning is smooth and jerk-free with the 2-way, 360°, all-metal head with fluid system and long panning handle that can be changed for left or right-handed use. The PRO-930 features a pneumatic center column which prevents camera damage and has three-part legs with interchangeable steel/rubber feet. Can be set at any height from 29 to 69 inches.

Weight: 5 1/2 lbs. Capacity: 60 lbs.
PRO-930 \$299.00

6144 Tripod

For additional information see the "Lighting" and "Positioning, Storage and Transport" sections of Comprehensive's Complete Book of Professional Video Accessories

EDIT MASTER
PC Based Edit Controller

All The Videotape Editor You Will Ever Need...at A Price You Can Afford.

EDIT MASTER™ computer-based videotape editing systems offer state-of-the-art performance and ease of operation at highly competitive prices.

EDIT MASTER: Full-featured at the start...

The power of EDIT MASTER comes from a vast array of standard features usually found only in expensive systems. Features that satisfy the most demanding needs, such as:

- Direct control of serial and parallel VTRs
- Active edit memory of 900 events
- Interformat editing capability
- Advanced list management and cleaning
- Auto assembly in A & B mode
- Multiple edit list formats
- VITC and LTC readers and generators
- On-line, context-sensitive help
- Full serial switcher control with E-MEM Upload and Download
- Master/Slave and assignable GPIs
- Variable speed control of DT VTRs
- Multiple preview types available, including preview outpoint
- Support of 4 channels of audio
- Edit list input/output for disk, serial communications, papertape and printer

EDIT MASTER offers you the ability to upgrade and expand your system as your needs change. You can specify the number of VTRs to control, as well as their formats—VHS, S-VHS, Hi8, 3/4-inch, Betacam, MII or 1-inch. You can even mix formats for true interformat editing. And you can control both parallel and serial VTRs from the color-coded keyboard. Choose GPI-triggered switcher control or full serial switcher control with E-MEMs and six assignable GPIs. You can even choose the IBM or compatible MS-DOS computer on which to run your EDIT MASTER System.

AND NOW...EDIT MASTER'S POWERFUL FEATURES ARE AVAILABLE FOR THE MAC!

All the features you get in EDIT MASTER are standard in EDIT MASTER MAC... plus

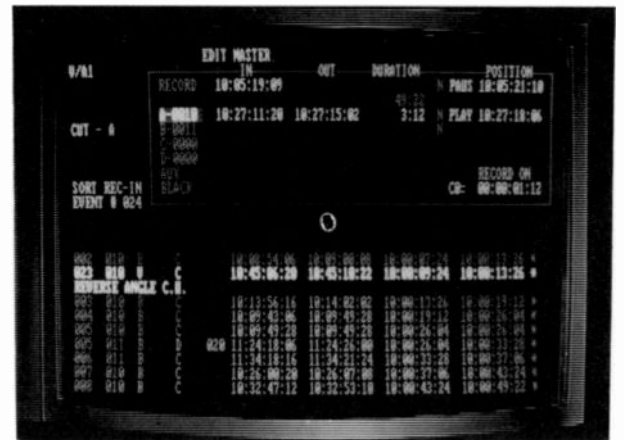
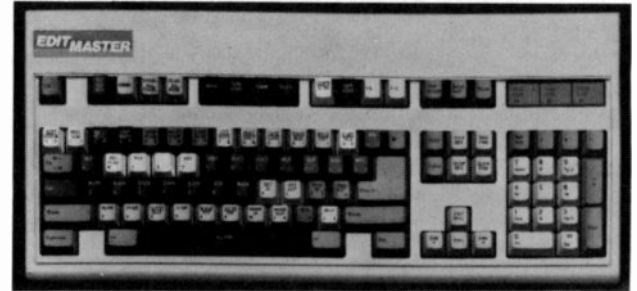
- Dual edit "bins" of 999 events each, allowing two edit lists in memory simultaneously
- Dual Marks Table
- Full EDL Copy, Cut and Paste capabilities with record time ripple
- Sync Roll editing, permitting cuts between sources "on the fly" with list creation
- CVNET FINETUNE™ VTR adjustment built in
- Pop-up Time Code Calculator
- Import/Export "PICT" files

EDIT MASTER MAC will run on any Macintosh from the Plus up. An optional color-coded MAC Keyboard following the familiar EDIT MASTER style of keyboard editing is available and the Jog/Shuttle Knob Controller can be ordered for machine control. Use the Mouse or "fly" from our EDIT MASTER MAC custom keyboard and you'll immediately recognize the look and feel of a program designed specifically for the MAC user.

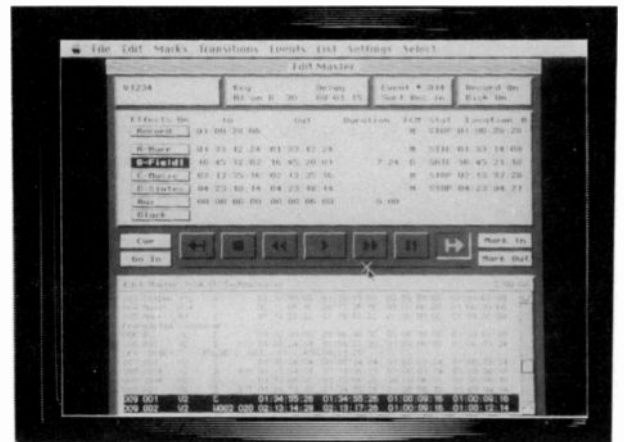
... and accessories to grow with.

Jog/Shuttle Knob Controller is available for either the IBM or MAC versions of EDIT MASTER. User definable keys make this a recommended option for every edit bay.

VITC (Vertical Interval Time Code) This option gives you the accuracy of time code without having to sacrifice an audio channel.



EDIT MASTER Screen



EDIT MASTER MAC Screen

Character Inserter lets you create window dubbed tapes. You can choose the position, size, background and color of the time code numbers. To check the accuracy of source tapes, a longitudinal time code phase indicator is included.

DOS Computer Requirements
IBM XT-Turbo/AT or compatible
640K RAM
2 Disk Drives
RS-232 Serial Port
Game Port
Monochrome or Color Monitor
DOS 2.0 or higher

MAC Computer Requirements
Apple Macintosh Plus, SE, or
MAC II Series or compatible
2 Megabytes RAM or higher
Hard Drive
2 Serial Ports (8 pin)
Macintosh System Software 6.0.5
or higher

CV Technologies' EDIT MASTER™ is available only through authorized CV Technologies dealers.

COLOR MONITOR SYSTEM



CONRAC

6545/6550 Micromatch™ Color Monitor System

• Automatic setup with 6550 Micromatch Photometer • Soft-touch user controls • SMPTE "C" Phosphors • Beam current feedback and comb filter • 13" or 19" PIL CRT sizes • Selectable RGB or NTSC/PAL inputs

The Micromatch Color Monitor System consisting of the 6545 Color Monitor and optional 6550 Photometer is designed for the professional video studio environment. Advanced microprocessor based technology and automatic calibration set new standards in performance, stability, and operation. Critical evaluation of broadcast signals, color balancing, and matching, animation, and graphics are typical of the applications for which the 6545 Color Monitor is ideally suited.

Featuring microprocessor controlled automatic color alignment, the 6545 is a full featured, professional class color picture monitor for broadcast and post-production applications. Both 13" and 19" CRT versions of the 6545 are available in a rack-slide or cabinet configuration. The 6545 accepts NTSC, PAL, or RGB inputs. A high resolution, self-convergent, in-line CRT is used, with SMPTE "C" phosphors for best color match and white field uniformity. The 6545 features a comb filter luminance/chroma separator selectable from the front panel. When not selected, conventional filter and notch separation is used.

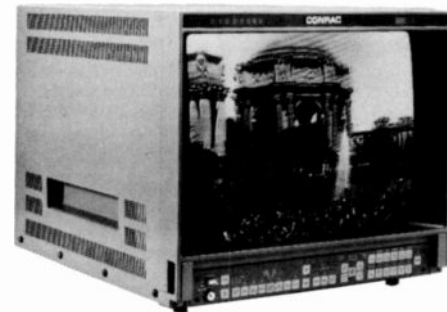
The 6545 monitor features quick (20 sec) automatic white balance adjustment using the 6550 Micromatch photometer. Other standard features include both NTSC and PAL decoders co-resident on the same circuit board, with auto-selection of decoding mode. Other front panel selectable functions include: H and V delay, underscan, and individual control of the three electron guns. Operating power is provided by an efficient switched mode power supply; simple switch selection of input voltage permits operation from either 115 or 230VAC input power. Standard features include a built-in CRT degausser, fail-safe scan circuits, and wideband video amplifiers.

The optional 6550 Photometer is uniquely designed to work with the 6545 monitor. The 6550 captures colorimetric data directly from the screen of the 6545 and transfers it to a memory in the 6545 by means of an umbilical plugged into the front of the monitor. The monitor's memory processes this information to achieve a desired white balance. In addition, the 6550 has an internal memory for storing variable colorimetric data, which permits the transfer of specific color values to any number of other 6545 monitors for purposes of standardizing a suite of equipment.

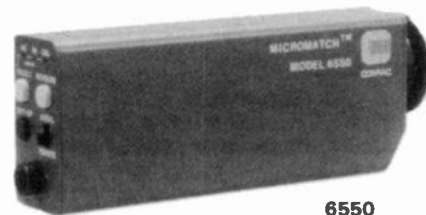
Specifications

Visual Performance

Resolution: > 800 TV lines
Linearity and Geometry: ± 1.5% of raster height
Black Level Stability: < 1% change of peak luminance from 10% to 90% APL
Raster Size Stability: < 0.4% change from 0% to 100% APL at 20fL peak luminance
Max. Usable Brightness: 60 fL with a sine² window
Interlace: 2:1 > 90%
Aspect Ratio: 4:3
CRT Type: 13V or 19V precision-in-line gun, dot mask, clear faceplate
Pitch: 13V: 0.31mm
 19V: 0.44mm
Phosphor Colorimetry: SMPTE "C"



6545C19



6550

Chromaticity Coordinates (± 0.005 Tolerance):	Phosphor	X	Y
	Red	0.630	0.340
	Green	0.310	0.595
	Blue	0.155	0.070
Convergence	Display Portion	13V	19V

Max. Deviation (mm):	Center circle = height	0.5	0.5
	Elsewhere	0.7	0.9

Color Stability: Photometer readings of red, green and blue displays show differential variations of less than 1% over a 500-hour period. The color temperature of white does not change by more than one MPCD (Minimum Perceptible Color Difference) unit between monochrome and color input signals

Protection: High voltage shut-down with loss of horizontal or vertical deflection

Frequency: 47-63Hz

Power: 200W max.

Weight: 13" 50 lbs.
 19" 80 lbs.

Options

Component video (special quote)

6545RS 19	19" monitor with rack slides and bezel	\$5865.00
6545C 19	19" monitor with cabinet	5865.00
6545Y 19	19" monitor with cabinet and ceiling or pedestal mount capability	5995.00
6545RS 13	13" monitor with rack slides and Bezel	5640.00
6545C 13	13" monitor with cabinet	5560.00
6545Y 13	13" monitor with cabinet and ceiling or pedestal mount capability	5690.00
6550	Micromatch Photometer (optional)	1895.00

D-75 Single or Dual Channel Power Amplifier

The Crown D-75 power amplifier, requiring only 1³/₄" (4.45cm) of vertical rack space, was designed to operate safely and continuously into a variance of load requirements. The D-75 provides 35W per channel minimum continuous average power (both channels operating) into an 8 ohm load over a bandwidth of 20Hz-20kHz at a rated sum total harmonic distortion that is 0.05% of the fundamental output voltage. The frequency response of the unit varies no more than ± 0.1dB from 20Hz-20kHz at 1W into 8 ohms. Features of the D-75 include active balanced inputs, Cannon XLR connectors, an easily accessible mono-stereo switch, and front panel LEDs indicating overloads and signal presence. A special feature of the D-75 is the provision for isolating chassis ground from electrical ground. \$549.00



D-75

D-150A-2 Single or Dual Channel Power Amplifier

The Crown D-150A-2 is a single or dual channel power amplifier designed for precision amplification of frequencies from DC Hz to 20kHz. The design of the D-150A-2 provides extremely low harmonic and intermodulation distortion with very low noise. A switch on the rear of the unit allows stereo or mono operation with no internal wiring changes. In the mono mode, the D-150A-2 is capable of a 50V balanced line output. The unit operates on AC current from 120V to 240V. 80W continuous average power per channel into 8 ohms at .05% THD.

The D-150A-2 embodies the simplest and yet most accurate distortion display available in any audio product. The IOC (Input-Output Comparator) senses any form of amplifier non-linear behavior and reports its existence through front panel LEDs. Slew-induced distortion, protection circuit activation, and clipping distortion will all be detected by the IOC circuit at levels below the rated distortion of the amplifier. Thus, the amplifier becomes a valuable tool in the hands of the user to facilitate proper amplifier-speaker-environment matching, as well as a continuous monitor of the purity of the signal reproduction through the amplifier under actual operating conditions \$879.00



D-150A-2 Series II

DC-300A-2 Single or Dual Channel Power Amplifier

The Crown DC-300A-2 is a single or dual channel power amplifier designed for precision amplification of frequencies from DC to 20kHz, 0Hz-20kHz. The design of the DC-300A-2 provides extremely low harmonic and intermodulation distortion with very low noise. A switch on the rear of the unit allows stereo or mono operation with no internal wiring changes. In the mono mode, the DC-300A-2 is capable of a 70V balanced line output. The unit operates on AC current from 120V to 240V. 155W continuous average power per channel into 8 ohms at .05% THD.

The DC-300A-2 embodies the simplest and yet most accurate distortion display available in any audio product. The IOC senses any form of amplifier non-linear behavior and reports its existence through front panel LEDs. Slew-induced distortion, protection circuit activation, and clipping distortion will all be detected by the IOC circuit at levels below the rated distortion of the amplifier. Thus, the amplifier becomes a valuable tool in the hands of the user to facilitate proper amplifier-speaker-environment matching, as well as a continuous monitor of the purity of the signal reproduction through the amplifier under actual operating conditions.

The DC-300A-2 contains output protection circuitry pioneered by Crown. This circuitry protects the unit completely against shorted, mismatched, or open loads and completely eliminates the need for DC fuses and mode switches to protect the amplifier. With this unique protection system, the DC-300A-2 can safely drive any speaker load, resistive or reactive, without any fear of harming the amplifier. The speakers can be paralleled with no deterioration of sound quality since changing one load impedance only affects the maximum power available, not the ability of the amplifier to produce clean sound.



DC-300A-2 Series II

The DC-300A-2 has two totally separate direct-coupled amplifier circuits employing dual integrated circuit op amp input stages and silicon transistors in succeeding stages. The DC-300A-2 exhibits essentially flat frequency and phase response down to DC and eliminates thumping from non-symmetrical wave forms. Output stages utilize Crown class AB + B circuitry in which the driver transistors carry the quiescent bias current while the output transistors serve only as boosters which sense and deliver large currents \$1199.00

MICROPHONES AND ACCESSORIES



PZM®, PCC®, GLM™, SASS™ and CM Microphones and Accessories

PZM (Pressure-Zone Microphone) works on a principle of sound detection, utilizing the pressure zone at an acoustic boundary to eliminate phase-cancellation problems common to other microphones.

The active element in a PZM mic is an electret-condenser capsule, mounted so it faces the boundary and lies within the pressure zone. All incoming sound is received free of coloration caused by phase interference between direct and reflected sound. The sound pickup pattern of the PZM is hemispherical with no axis.

The PZM family of microphones will reproduce sound levels up to 150dB without distortion. Whispered conversations thirty feet away are clearly reproduced.

The GLMs (Great Little Microphones) are miniature condenser microphones of professional quality. They attach to musical instruments or clothing for sound reinforcement and recording. A full line of mounting accessories is available.

- PZM-30R Studio PZM, 5" x 6" boundary plate, black, XLR connector. Emphasized high-frequency response \$349.00
- PZM-30F Studio PZM with flat high end. 6" x 5" black boundary plate, XLR connector \$349.00
- PZM-6R Low-profile PZM for conference or plexiglass panel. Emphasized high-frequency response, 2 1/2" x 3". Male XLR connector on 15' cable, black \$349.00
- PZM-6F Low-profile PZM, flat high end. Black boundary plate, 2 1/2" x 3". Male XLR connector on 15' cable \$349.00
- PZM-20R Mounts flush with a table, or in a standard 4" x 4" electrical box. Built-in electronics adapt the unit for phantom powering, black \$319.00
- PCC-160 Supercardioid surface-mounted microphone for stage floors, lecterns, and news desks. Increases gain-before-feedback and rejects unwanted sounds to the rear. Male XLR connector on 15' cable \$295.00
- PCC-200 Same as PCC-160 but with internal gating circuitry. \$329.00
- SASS-P PZM stereo microphone. Sharp and spacious imaging. Mono-compatible. No matrix required. Battery/phantom and low-cut switches. 20Hz-18kHz. All accessories included \$899.00
- SASS-B Stereo boundary mount for B+K 4006/4003 microphones. Like SASS-P but 10dB less noise \$799.00
- PH-4B 48V phantom power supply for all types of microphones. XLR connectors for four mics. 12" x 7 1/10" x 1 3/4". Ears available for rack-mounting. Operates on 120 or 240VAC \$189.00
- PZM-180 Tabletop, handheld or adaptor-mounted microphone. Built-in power supply interface, phantom power or internal battery. Fiber-reinforced high-impact plastic body and boundary. 7" long. XLR connector \$189.00
- GLM-100 Miniature omnidirectional condenser microphone. High SPL capability; reduced pickup of handling noise and wind noise. Male XLR connector on 8' cable \$199.00
- GLM-100/E Comes without connector for connection to a wireless mic transmitter \$98.00
- GLM-200 Miniature hypercardioid condenser microphone. Increases gain-before-feedback; reduces pickup of leakage, background noise and room acoustics. Male XLR connector on 8' cable \$229.00
- GLM-OHM Boom stand mount. Boom arm length is 60"; boom diameter is 1/4" \$49.00
- CM-200 Handheld cardioid condenser mic for stage vocals/instruments. Smooth, articulate sound. Very low handling noise and pop. Lo-Z balanced \$209.00
- CM-310 Differoid™ Handheld differential condenser mic for stage vocals. Cardioid. Warm, crisp sound. Extremely high gain-before-feedback. Lo-Z balanced \$259.00
- CM-30 Miniature choir microphone, super cardioid condenser, 40Hz-20kHz, mounts in electrical box in ceiling \$215.00
- LM-200a Lectern microphone with noise-free swivel-mount, black or brown, super cardioid \$289.00
- LM-190a Same as LM-200a but 3" shorter \$269.00



- LM-300 Economical and elegant miniature gooseneck mic, low-cut filter, natural sound, optional LM-300SM shock mount \$247.00
- US-1 Universal supply adapts any wireless lavalier mic to low-Z balanced input. Battery/phantom \$149.00
- Sound Grabber Black, Hi-Z, built-in battery power supply \$99.00
- PH-1A Single channel battery phantom unit \$69.00
- ASA1 Mic stand adaptor \$15.00
- RMPB Kit Rack ears for PH-4B \$15.00
- WS-1 Windscreen for PCC-160 \$29.00
- GLM-DM Mounts a GLM to a drum \$4.50
- GLM-CM Mounts a GLM to a cymbal \$29.00
- GLM-TB Mounts a GLM to a tie or garment \$7.25
- GLM-TT A "tie tac" accessory for GLM. \$4.50
- GLM-UM Universal clip GLM accessory \$7.50
- GLM-HM Mounts a GLM to a horn \$16.50
- GLM-WS2 GLM windscreen, ball shape \$4.50
- GLM-WS3 GLM windscreen, sock shape \$4.50
- PS-24 Plug-in 120V to 24V supply for LM Series \$10.00
- GLM-SM Surface mount \$7.00
- GLM-CH Accessory to hang GLM-100 or GLM-200 mics over a choir \$9.00
- GLM-BC Belt clip cable straw relief \$5.00

PZMicrophone®, PZM, Pressure Zone Microphone, PCC and Phase Coherent Cardioid are registered trademarks, and GLM™ is a trademark of Crown International, Inc.



CT-200



CT-800



CT-400



CT-1600

Com-Tech™ Series Power Amplifiers

The Com-Tech Series is available exclusively for commercial sound contractors, along with an optional Installation Protection Plan.

Com-Tech amps drive "constant voltage" lines without expensive, distortion producing "step-up" transformers. That includes not just common 70V lines but also 25, 35, 50, 100 and even 140V "constant voltage" lines.

P.I.P. compatibility is standard, making this series very versatile. For example, the P.I.P.-ISO provides full output isolation to iso-modified amplifiers for the ultimate in ground isolation.

Full display of vital functions is provided with front panel mounted ODEP, IOC and SPI (Signal Process Indicator) indicators.

A hybrid cooling system takes advantage of heat convection and adds variable-speed forced air assistance only when necessary.

Specifications

Hum and Noise: At 26dB gain with 8 ohm load: 105dB below rated output (A-weighted) from 20Hz to 20kHz

Input

Impedance: Nominally 20K ohms balanced and 10K ohms unbalanced

Controls: Enable, channel 1 and 2 input level, dual-mono (dual, bridge-mono, parallel-mono), output mode (8/4 ohm, 70V), input sensitivity (Crown: 0.775V for full output or 26dB voltage gain. Amcron: 1.2V for full output or 26dB voltage gain)

Connectors

Inputs: Balanced 3-terminal barrier block on standard P.I.P. module

Output: 4-terminal barrier block

P.I.P.: Standard P.I.P. connector accessible through rear panel

AC Line: 3-wire male connector attached to a 5' cable

Harmonic Distortion (THD):

< 0.05% from 20Hz to 1kHz and increasing linearly to 0.1% at 20kHz, delivering rated power into 8 ohms/channel

Intermodulation Distortion (IMD):

< 0.05% from 10mW (CT-200, CT-400) or 44mW (CT-800, CT-1600) to rated power into 8 ohms/channel at 26dB gain

Load

Impedance: Rated for 16, 8, 4 ohms, and 70V usage only. Safe with all types of loads (even reactive ones)

Output Power in Dual Mode With Both Channels Driven

FTC Continuous Average Power at 0.1% THD from 20Hz to 20kHz:

CT-200: 105W—8 ohms, 125W—4 ohms, 95W-70V line

CT-400: 195W—8 ohms, 175W—4 ohms, 195W-70V line

CT-800: 285W—8 ohms, 440W—4 ohms, 415W-70V line

CT-1600: 525W—8 ohms, 810W—4 ohms, 825W-70V line

Maximum Average Power at 0.1% THD With 1kHz:

CT-200: 110W—8 ohms, 150W—4 ohms, 105W-70V line

CT-400: 210W—8 ohms, 230W—4 ohms, 225W-70V line

CT-800: 300W—8 ohms, 480W—4 ohms, 440W-70V line

CT-1600: 540W—8 ohms, 875W—4 ohms, 890W-70V line

Dimensions and Weight

CT-200 19" standard rackmount width, 3.5" H, 16" D behind mounting surface. 29 lbs., 6.5 oz. \$ 790.00

CT-400 19" standard rackmount width, 3.5" H, 16" D behind mounting surface. 31 lbs., 12.5 oz. 1050.00

CT-800 19" standard rackmount width, 5.25" H, 16" D behind mounting surface. 46 lbs., 12 oz. 1550.00

CT-1600 19" standard rackmount width, 7" H, 16" D behind mounting surface. 57 lbs., 14 oz. 1990.00

AUDIO PROCESSING EQUIPMENT



160XT Mono Compressor/Limiter

- OverEasy or classic hard-knee compression • Dual RMS display monitors input or output with a 19 LED display. Simultaneously monitors gain reduction over a 40dB range with 12-LED display • Hardwire bypass • Stereo-strappable (2 units required) • True power summing when stereo coupled • Infinity + compression provides "dynamic reversal" effects • Compression ratio continuously variable from 1:1 through infinity:1 to -1:1 • Threshold variable from -40 to +20dBu • Output gain variable from -20 to +20dB • +24dBu input and output levels • Input and output connections via XL type connectors or 1/4" tip/ring/sleeve phone • Active balanced inputs and outputs provide hum and RF rejection • Provision for optional active-balanced output • Rackmountable

The 160XT delivers outstanding performance and easy-to-use operational flexibility in a single rackmount package. Its metering system provides an instantaneous picture of the gain reduction of the compressed signal compared with either the input or the output level.

160XT\$459.00
 AB-1 Active-balanced output card.30.00

163X Compressor/Limiter

- OverEasy compression • Single-slider control with gain reduction LEDs • Finger-adjustable level set • Front panel 1/4" high-impedance instrument pack • Stereo-stappable for true stereo compression limiting • Rackmountable

For recording situations, rear panel line-level inputs and outputs permit direct hookup of mixers, consoles and direct boxes. For live use and studio overdubs, any musical instrument can be plugged into the convenient front panel Hi-Z input, which features an adjustable trim to accept the full range of various instrument and pickup levels without distortion.

163X\$169.00

165A Mono Compressor/Limiter

- Compression ratio continuously variable from 1:1 to infinity:1 • In automatic mode, compressor attack and release times are determined by program material dynamics. In manual mode, variable attack and release rates allow the 165A to be used as an ultra-fast or slower RMS-detecting limiter • PeakStop® circuit prevents unwanted peaks from getting through • Separate detector input allows compression pre-emphasis and other effects • Each 165A is equipped with matched RMS detectors for stereo-strapping operation without the signal-summing errors of conventional strapped compressors • Analog RMS meter is switchable to read input or output levels or the amount of gain reduction over a 30dB range • Active balanced input for hum and RF rejection • 24dBu input/output capability • Rackmountable



160XT



163X



165A



166

The 165A OverEasy compressor/limiter gives the operator complete control of the compression and limiting characteristics. The choice of automatic or manually set attack and release rates provides the ultimate in flexibility. The control design and layout reflect the concern of the sophisticated user for repeatable, precise settings.

165A\$999.00
 CA-165 Coupling cable to connect 2 165As
 for stereo operation30.00

166 Dual-Channel Compressor/Limiter/Noise Gate

- Noise gate with switchable release rate • LED shows gate operation • Variable OverEasy compressor with infinity:1 effects • PeakStop for a more pleasant clipping sound • Side-chain monitoring for easy setup of frequency-dependent or anticipatory processing • Output level control, +21dBu maximum output • Hardwire bypass • 1U-high rackmount • Gate threshold control allows an 80dB input range. The attack of the gate is very fast and the release is switchable (fast or slow) • Dual-mono or stereo operation is possible employing the RMS true power summing method

The gate threshold control allows an 80dB input range. The attack of the gate is very fast and the release is switchable (fast or slow). The compressor is the OverEasy circuit for great sounding effects and compression. PeakStop is a "soft clipping" circuit that rounds off the peaks of the waveform; the result is a good sounding ultra-fast limiter. Dual-mono or stereo operation is possible, and each channel has a hardwire bypass.

166\$626.00



**900 SERIES MODULAR SIGNAL PROCESSING SYSTEM
FS900/F900A Rackmount Powered Frames**

The FS900 is a slim-line (1U high) rackmount powered frame for a pair of 900 Series modules. The F900A is a 5 1/4" high rackmount powered frame for up to nine 900 Series modules.

FS900 2 active slots \$399.00
F900A 9 active slots 759.00

Accessories

BP-900A Blank panel module for use with F900A and FS900 frames. \$12.00
900-EXT Extender card for 900 Series 99.00

902 De-esser Module

- Variable frequency de-essing
- Full band ducking
- Auto threshold sensing
- User may choose conventional crossband attenuation or attenuate only the necessary portion of HR range
- 10-LED display shows gain reduction 0-20dB
- Maximum output level: + 24dBV into 600 ohms or more

902 \$449.00

903 Compressor/Limiter Module

- Stereo strappable
- OverEasy® characteristic
- Infinity plus compression
- Independent detector input permits compression pre-emphasis, anticipatory compression or other effects
- 10-LED display allows monitoring over a 40dB range
- + 24dBV into 600 ohms or more maximum output level
- 20Hz-20kHz ± 1dB frequency response

903 \$449.00

904 Noise Gate Module

- Key input
- Downward expansion capability
- Programmed latch mode
- OverEasy threshold
- Adjustable attack and release rates
- Flexible parameter settings
- Attenuation limit control
- Programmed latch mode (PLM) circuit
- 10-LED display monitors gain, reduction over a 60dB range
- + 24dBV into 600 ohms or more maximum output level

904 \$499.00

905 3-Band Parametric Equalization

- 3 simultaneous bands of equalization
- Infinite notch on each band
- Shelving or contour on high and low
- Each EQ band has controls that vary the boost or cut by 15dB
- HF and LF bands have a switch for contouring (shelving)
- Clip light shows overdriving (distortion) anywhere within the circuit

905 \$499.00

911/941A/942A Noise Reduction Modules

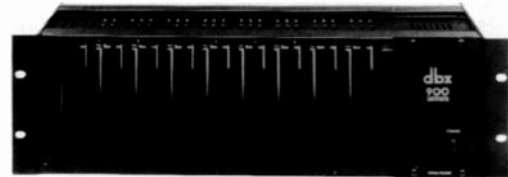
- 40dB noise reduction minimum
- Type I: For all high-quality tape machines
- Type II: Broadcast noise reduction for any noisy medium

The 911 is a 1-channel simultaneous record/play (encode/decode) professional NR module using dbx Type I. Type I is for pro-quality recorders having flat frequency response (± 1dB 20Hz - 20kHz) up to high levels and operating at 15ips or greater.

The 941A (2-channel encode) and 942A (2-channel decode) combination is virtually identical to the 911 in performance, including



FS900



F900A



904



905



929

the amount of noise reduction. The main difference is that dbx Type II is suited for media of non-linear frequency response (e.g., limited headroom): cassette or cart machines, microwave STLs, etc.

Each of these dbx NR systems doubles the dynamic range of the associated medium to 115dB or more. Depending on the medium's inherent noise (45-50dB S/N ratio is the minimum range), Type I and Type II each achieve noise reduction of at least 40dB.

911 1-channel Type I encode/decode \$239.00
941A 2-channel Type II encode only 259.00
942A 2-channel Type II decode only 269.00

929 Single-Ended Noise Reduction Module

- Sharply reduces constant hiss in a variety of applications. Constant audio and videotape and optical soundtrack hiss is the main target
- Adjustable for maximum effectiveness and flexibility
- No encoding required
- Balanced inputs and outputs
- 2 channels, stereo-strappable
- Fast sliding-filter design
- Multi-function quieting knob
- 20Hz-20kHz ± 1dB frequency response

929 \$399.00

933 Mixer/Distribution Amplifier

- Offers user a choice of either 3 inputs to 1 output or 3 outputs from 1 input
- Changeover is easily accomplished via internal switching
- Each channel, as well as gain and discreet muting, is completely isolated from the others
- Fully balanced inputs and outputs
- Possible applications for the 933 are: master signal feed to transmitter, studio monitor and archival tape recorder

933 \$349.00

DIGITAL RECORDING/ EDITING SOFTWARE

digidesign

Sound Tools

Digital Recording and Editing System for Macintosh and Atari Computers

- 16-bit, 44.1kHz (and 48kHz) stereo direct-to-disk digital recording and playback
- AES/EBU and S/PDIF digital formats (with digital interface)
- Non-destructive playlist editing
- High quality real-time dynamics compression/expansion/noise gate
- Stereo time compression/expansion
- Pitch shift with time correction
- 2:1 or 4:1 data compression options
- Real time parametric/graphic EQ
- Continuous SMPTE resynchronization
- Sample editing/transfer (Macintosh version only)

Sound Tools is a stereo direct-to-disk recording and playback system with extensive editing features and powerful digital signal processing functions. Sound Tools is ideal for music editing and mastering, and audio post production for any application that requires high-fidelity audio and high-speed, flexible editing. Sound Tools consists of the Sound Accelerator digital signal processing card, Sound Designer II audio editing software, analog interface and digital interface.

Compatibility: Macintosh II family

- Sound Tools With analog interface \$3285.00
- Sound Tools With digital interface \$3285.00
- Sound Tools With analog and digital interface \$4280.00

Audiomedia

CD-Quality Recording, Editing and Playback for Multimedia

- Includes NuBus card and audio editing software
- Includes Sound Access, an XCMD/XFCN for Director, HyperCard support
- Sophisticated, yet easy-to-use editing tools
- Powerful real time digital signal processing

Audiomedia is based on the highly acclaimed Sound Tool System, bringing you the same tools the music pros have used at a fraction of the cost. Audiomedia allows you to add high-fidelity sound to multimedia presentation packages such as Director, HyperCard and SuperCard without using much needed memory. Audiomedia plays directly from your hard disk—a CD quality soundtrack uses only 50K of RAM and loads instantly, allowing you to dedicate the majority of your computer's RAM to your visuals.

Compatibility: Macintosh II

- Audiomedia \$995.00

DECK

Digital Multitrack Recording Software

DECK uses the direct to disk recording capabilities of Sound Tools or Audiomedia to turn the Macintosh into a CD-quality 4-track digital recording studio. DECK features unlimited track bouncing and sound on sound recording, automated mixdown, MIDI file playback while recording and playing audio, digital effects (with Audiomedia) and optional 2:1 data compression. DECK retails for \$349.00.

Compatibility: Macintosh II

- DECK \$349.00



MacProteus

32-Voice Digital Sound Module

MacProteus is a polyphonic (32 voices), multitimbral (up to 16 instruments at once) 16-bit digital sound module on a Mac II NuBus card. Based on E-mu Systems' popular Proteus, MacProteus features digitally sampled "real" instruments such as piano strings, guitar, etc., and can be controlled via a MIDI keyboard or MIDI Manager compatible sequencer for recording or live performance. MacProteus has 2 outputs, a headphone jack and includes front panel software.

Compatibility: Macintosh II

- MacProteus \$895.00
- With Opcode Systems' EZ Vision™ \$995.00

SampleCell

16-bit Stereo Sample Playback Card

- 16-bit, 16-voice, stereo sample playback card
- SampleCell Editor sample management software
- 600M byte CD-ROM sound library disk
- Sound Designer II SC sample editing software

SampleCell is a 16-bit RAM-based stereo sample playback card for the Mac II. SampleCell features 16 CD quality voices, 8 polyphonic outputs and up to 8M bytes of standard Mac II RAM. SampleCell includes a 600M byte CD-ROM sound library disk, interface software and Sound Designer II SC software for sample editing and universal sample transfer. Additional SampleCell cards add 16 more voices each, and the system is compatible with Sound Tools or Audiomedia, creating a direct to disk digital recording and sampling system on the Mac. RAM upgrades are available from Digidesign or through RAM vendors.

Compatibility: Macintosh II

- SampleCell With 0M byte RAM \$1995.00
- SampleCell With 8M byte RAM \$2995.00

Video F/X™ Desktop Video Production System

• Picture-based editing • Video switcher • Stereo audio mixer • Character generator • Graphics and title keyer • Wipes and dissolves • Macintosh graphics I/O • Timecode generator • Full machine control • Non-linear editing

The Video F/X system provides a full range of video production capabilities: storyboarding and scripting; logging, previewing and trimming clips; creating and keying of graphics over live video; wipes and dissolves; import and export of anti-aliased Macintosh® graphics and text; import of Macintosh animation; as well as auto-assembly of the final videotape or export of a CMX®-compatible edit decision list.

Video F/X supports a wide range of tape decks to meet your specific project and budget requirements.

Video F/X also integrates random access, non-linear editing, allowing you to edit and preview your programs in real time.

Built-in PostScript® graphics and fonts produce anti-aliased, broadcast quality graphics and character generation.

Soft F/X™ Desktop Video Production Software

Soft F/X software provides stand-alone, non-linear digital editing on a Macintosh II. After digitizing the video with the Video F/X system and storing it on a hard disk, you can edit entirely from your Macintosh. You do not need a VTR or a Video F/X unit attached in order to use Soft F/X. Yet you still have the capabilities for broadcast quality editing found in Video F/X, including graphics, audio, wipes and dissolves.

Soft F/X is ideal for multi-user projects where writers and editors need to work simultaneously, sharing the Video F/X system for digitizing the footage and auto-assembly of the final tape. (Soft F/X users can also get access to Video F/X at authorized Video F/X service bureaus.)

Hardware Features

Video Inputs

• NTSC source 1, 2 and record video in • RGB video in • External reference (color black) • Digital video in/out to DFB card

Video Outputs

• NTSC, RGBS and alpha preview out • NTSC program out • VTR reference 1 and 2 out

Video System Functions

• Automatic full system genlock • Internal master sync pulse generator • Internal NTSC decoder and encoder, software controlled • Internal A/D and D/A converters (8 bits per channel) • Software controlled source 1 and source 2 input gains • Internal test signal generation and calibration • Full software control from the Macintosh

Video Switcher Functions

• Edit preview switcher (video and audio) • 2 matte generators (background and wipe border color) • Two 2 x 1 linear keyers • Transition generator supporting mixes and wipes (hard, soft and bordered) • Digital wipe pattern generator

Audio Inputs

• 2 stereo audio channels

Audio Outputs

• Stereo audio preview • Stereo audio program

Audio Mixer

• Computer-controlled mixing of 2 stereo audio channels • Software controlled audio input gain • Tone generator

Control Ports

• Source 1 and source 2 control out • Record VTR control out • Macintosh serial port

Machine Control

• Control for source and record VTR • Up to 3 VTRs for A/B roll editing (option) • Frame accurate (± 0 frames) • SMPTE RS-422 serial control

Ratings

• UL listed • FCC Class A

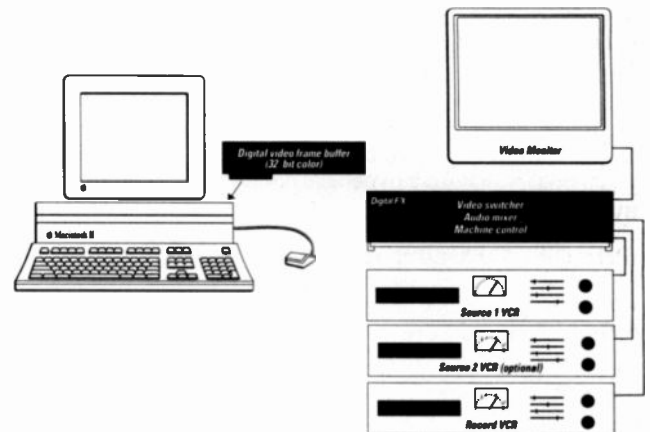
Supported VTR/VCRs*

Source**

• Betacam SP: Sony BVW-60, 65, 70, 75 • Betacam: Sony BVW-40 • U-Matic SP: Sony VO-9800, 9850; Sony BVU-900, 920, 950 • S-VHS: Panasonic AG-7650, 7750 • Hi8: Sony EVO-9800

Record**

• Betacam SP: Sony BVW-70, 75 • Betacam: Sony BVW-40 • U-Matic SP: Sony VO-9850, BVU-950 • S-VHS: Panasonic AG-7750



DFB Card

Input/Output

• Digital video in/out (to Video F/X system unit) • Macintosh NuBus connector

Frame Buffer

• 640 x 486 32-bit (8 bits each RGBA) • Apple 32-bit QuickDraw compatible

Software Features

Graphics Functions

• Import PICT, PICT2 and EPSF files and render to video as video graphics • PostScript titler with translucent drop shadow • Anti-aliasing of PostScript titles and graphics • 16.7 million colors with opacity control • Real-time video frame grab • Selectable colors in RGB or Macintosh color wheel • Gradient, airbrush and cut/paste tools • Graphics export to PICT2 files • Import of PICS animation files (option)

Editing Functions

• Scripting and storyboarding • Clip logging, definition and organization • Split audio edits • Edit preview (video and audio) • Video mix, wipe, fading and key control • Mixes and wipes of keyed graphics over live video • Graphical timeline view of edit list • EDL export in CMX-compatible and Video F/X format • Auto-assembly from EDL • Tape striping application • Integrated non-linear, disk-based editing • A/B roll (option)

Each Video F/X System Includes:

• Video F/X system unit (analog I/O, video switcher, machine control, audio mixer) • Digital frame buffer card (DFB) • Video F/X user's guide • Video F/X application software • Configuration, setup and calibration software • System cabling • Calibration and tutorial tape • Practice record tape • Introduction to Video F/X tape (VHS)

Software Options

• A/B roll upgrade (includes cables) • PICS animation support

Soft F/X Desktop Video Production Software

Macintosh Requirements

• Any Macintosh II • 8M bytes of RAM • 200M byte hard drive (600M bytes recommended)

Software Features

Graphics Functions

• Import PICT, PICT2 and EPSF files and render to video as video graphics • PostScript titler with translucent drop shadow • Anti-aliasing of PostScript titles and graphics • 16.7 million colors with opacity control • Selectable colors in RGB or Macintosh color wheel • Gradient, airbrush and cut/paste tools • Graphics export to PICT2 files

Editing Functions

• Scripting and storyboarding • Clip logging, definition and organization • Split audio edits • Edit preview (video and audio) • Video mix, wipe, fading and key control • Mixes and wipes of keyed graphics over live video • Graphical timeline view of edit list • EDL export in CMX-compatible and Video F/X format • Integrated, non-linear, disk-based editing • A/B roll

* Includes all cables for connecting entire system.

** Consult your dealer for latest VTR list and A/B roll decks.

MONOCHROME MONITORS

DOTRONIX, INC.

MONOCHROME VIDEO MONITORS

6VM917 Single 6" Black and White Monitor

- 600 lines horizontal resolution • 100% solid-state circuitry
- Desktop or console mount design • Fast AFC circuit • 8MHz video bandwidth • Heavy-duty single chassis construction
- Continuous DC restoration • Regulated power supply for stable operation • Time-lapse VTR capability • Easy-to-remove chassis assembly • Intercompartment shielding prevents crosstalk • Coaxial connectors mounted at 60° angle • Front-mounted major controls and adjustments • External sync provisions • Metal cabinet • 7" x 5⁷/₈" x 10⁷/₈" • 8³/₄ lbs.

6VM917 \$555.00

6VM917T Triple 6" Black and White Monitor

- Three 6" monitors in a row with rack/desktop metal cabinet
- 7" x 17¹/₄" x 10⁷/₈" • 28 lbs.

6VM917T \$1694.00

9VM1030 9" Black and White Monitor

- General purpose 9" monitor • 1000 lines horizontal resolution • Convenient up-front operating controls • Simplified service adjustments • Time-lapse VTR capability • Heavy-duty single chassis construction • 100% solid-state circuitry • Fast AFC circuit • Regulated power supply for stable operation
- Switchable underscan standard • 7.95" x 8.82" x 11.02" • 13.5 lbs.

9VM1030 \$299.00

9VM1030 Green 03/Amber 04 306.00

12VM1050 12" Black and White Monitor

- 20MHz bandwidth • 1000 lines horizontal resolution • Carrying handles • Switchable underscan standard • Time-lapse VTR capability • Rugged, heavy-duty single chassis construction
- 100% solid-state circuitry • Regulated power supply • Fast AFC circuit • Metal cabinet • 10.47" x 11.57" x 12.01" • 18 lbs.

12VM1050 \$329.00

12VM1050 Green 05/Amber 06 336.00

14VM1060 14" Black and White Monitor

- Low profile • 20MHz bandwidth • 1000 lines horizontal resolution • Carrying handles • Metal cabinet • Switchable underscan standard • Heavy-duty single chassis construction
- 100% solid-state circuitry • Fast AFC circuit • Regulated power supply for stable operation • Time-lapse VTR capability
- 10.31" x 15.37" x 12.5" • 24 lbs.

14VM1060 \$389.00

14VM1060 Green 03/Amber 04 395.00

15VM939 15" Black and White Monitor

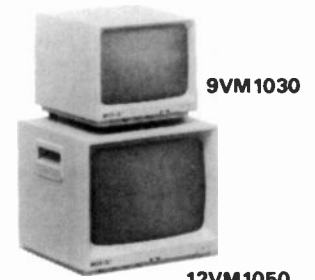
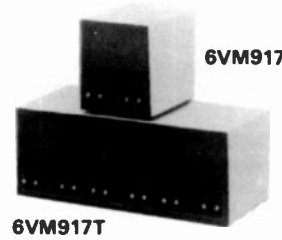
- 100% solid-state circuitry • 1000 lines (or better) resolution
- Front-panel operating controls • Regulated power supply
- Plug-in module incorporation of major components • CRT bleeder discharge system • Superior gray scale • Time-lapse VTR capability • Fast AFC circuit • 15MHz video bandwidth
- Switchable DC restoration • Complies with federal rules governing X-radiation • Metal cabinet • 10¹/₂" x 15⁹/₈" x 12⁷/₈" • 29 lbs.

15VM939 \$780.00

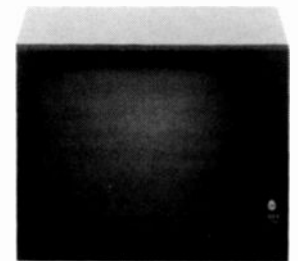
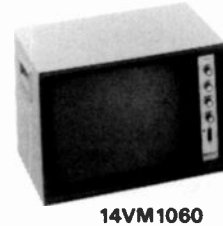
17VM922 17" Black and White Monitor

- Silicon 100% solid-state circuitry (except CRT) • 800 lines (or better) resolution • Front-panel operating controls • Regulated power supply • Fast AFC action for optimum VTR operation
- Bleeder discharge systems for CRT • Back porch clamp • 15MHz video bandwidth • Switchable DC restoration
- Time-lapse VTR capability • Superior gray scale • All major components incorporated in plug-in modules • Metal cabinet
- 15" x 16¹/₄" x 11⁷/₈" • 33 lbs.

17VM922 \$875.00



12VM1050



23VM952 23" Black and White Monitor

- Front "slide-out circuitry" for reduced down time and on-the-spot servicing • Also permits in-the-wall installation in areas where rear access is impossible • 20MHz video bandwidth • Switchable DC restoration • 800 lines horizontal resolution • Silicon 100% solid-state circuitry • All major controls are front mounted • Power supply is regulated • Superior gray scale and VTR capability • 17³/₄" x 22¹/₂" x 16¹/₂" • 60 lbs.

23VM952 \$1075.00

Rackmounts

9-1030 RMD	Dual rackmount for two 9VM1030 monitors \$ 75.00
12-1050 RMK	Rackmount kit for 12VM1050 monitor 75.00
14-1060 RMK	Rackmount kit for 14VM1060 monitor 75.00
15-939 RMK	Rackmount kit for 15VM939 monitor 75.00
17-922 RMK	Rackmount kit for 17VM922 monitor 75.00
23-CYA	Ceiling yoke adaptor for 23VM952 monitor 75.00
190041-00	Ceiling hanger assembly 200.00

Graphics Factory Video Graphics Workstation

Graphics Factory combines the power of a character generator, a paint system, a still store and a 3-D animation system into a single, integrated unit. Its modular design lets you customize to fit your own specific needs. And as your needs change, Graphics Factory changes with you, with easy hardware and software upgrades.

Designed to produce the highest quality results in the least amount of time, Graphics Factory thrives in a production environment. Its anti-aliased text and graphics exceed the most exacting post-production standards. Yet it is rugged and reliable enough to be at home in a remote truck. It's easy to use, flexible and fast.

Graphics Factory plays back full-color animation in real time, eliminating hours of costly single-frame tape recording. A built-in sequencer and macro programming language make special effects and live presentations a breeze.

Graphics Factory features 2 4:2:2 digital, component frame buffers. With 8M bytes of memory per plane, full-color, pixel-by-pixel images can be displayed. On-board memory holds up to several seconds of fairly complicated animation. Dual Iomega disk drives accept 20M byte cartridges for storing up to 20,000 text pages per disk. 2 keyboards, 2 GVG CV-25N NTSC encoders and a CV-95N sync generator are standard.

There is ample room for plug-in circuit boards to expand memory, enhance speed, or upgrade functions as needs or technology change. Each model builds on the 1 before.

GF-30

A dual channel, true dual user character generator. Each operator controls a single channel, keyboard and status monitor for advanced text functions, typing over full-color backgrounds, and playing back sequences and animations. All functions are available to each user at the same time. And, Dubner's well-known effects and on-line help screens are only keystrokes away. Plus, "K" programming language provides a convenient shortcut for creating and reproducing animated effects. With "K", any sequence of keystrokes can be used immediately or recorded for use later on. GF-30 is the first step toward the most sophisticated graphics tool you'll ever need.

GF-40

A dual channel, full-color video paint system. Each independent display plane has a linear key output. Additional hardware includes painting tablet with pressure sensitive stylus and 4-field, NTSC frame grabber. With workstations for character generation and paint, GF-40 includes the text and animation functions of GF-30, plus color correction, color crawl inhibit, motion elimination and advanced painting system software. All brushes and graphics are anti-aliased. Functions and effects are accessed via the keyboard for on-air use or from on-screen menus using the tablet. Integrating the best features of Dubner's stand-alone paint systems, GF-40's user-friendly design combines the power of paint and text manipulation in a single unit.

GF-50

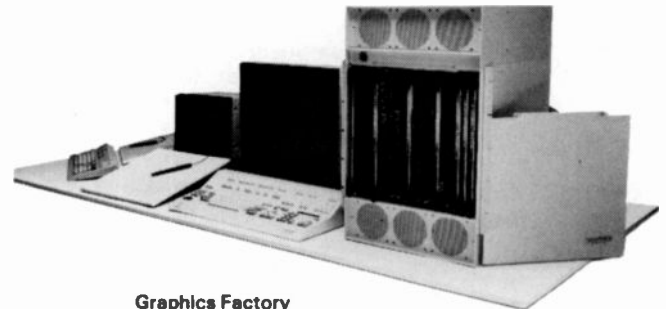
For 3-D modeling, rendering and animation. A deluxe keyboard with dedicated keys for single stroke access to commands, plus a 300M byte drive are included. Objects are built in 3-D and assigned surface characteristics such as textures, colors or shading. Models and animations can be previewed in wire frame or low resolution, before rendering with multiple color light sources and moving cameras.

GF-60 AXcel

GF-50 configuration plus expanded 32M byte display memory per channel for a total of 64M bytes and a graphic accelerator board to speed production.

GF-35/45/55

Library/Still Store option to turn Graphics Factory into an image archiving and retrieval system, and on-line, 2-channel still store. Hardware includes a 300M byte fixed disk, callup panel and full-color frame grabber as required.



Graphics Factory

Specifications

Interface		
Connections:	Serial I/O	DE-9, RS-422 (12)
	SCSI I/O	50 pin disk Interface (2)
	GPiB in	DB-25
	GPiB out	DB-25
	CPU-1 Term	DB-25
	CPU-2 Term	DB-25
	I, O Proc	DB-25
	Spare Ports	DB-25 (3)
Video Inputs:		
	Genlock	1.0V p-p comp.
	Sync	4.0V p-p
	Blanking	4.0V p-p
	Subcarrier	2.0V p-p
Video Outputs		
Channel A:		
	Status Monitor	1.0V p-p mono, comp.
	Red	0.7V p-p non-comp (2)
	Gm	0.7V p-p non-comp (2)
	Blue	0.7V p-p non-comp (2)
	Red w/Cursor	0.7V p-p non-comp
	Gm w/Cursor	0.7V p-p non-comp
	Blue w/Cursor	0.7V p-p non-comp
	Sync	4.0V p-p (3)
	Linear Key	1.0V p-p comp
	Hard Key	1.0V p-p comp
	NTSC	1.0V p-p comp
Channel B:		
	Status Monitor	1.0V p-p mono, comp.
	Red	0.7V p-p non-comp (2)
	Gm	0.7V p-p non-comp (2)
	Blue	0.7V p-p non-comp (2)
	Red w/Cursor	0.7V p-p non-comp
	Gm w/Cursor	0.7V p-p non-comp
	Blue w/Cursor	0.7V p-p non-comp
	Sync	4.0V p-p (3)
	Linear Key	1.0V p-p comp
	Hard Key	1.0V p-p comp
	NTSC	1.0V p-p comp
	CCIR-601 Output (opt)	
	PAL Output (opt)	
	D2 Output (opt)	

GF-30N*	Dual channel, dual user character generator . . . \$	60,000.00
GF-35N	GF-30 plus digital still store and library	75,000.00
GF-40N	GF-30 plus full color painting with NTSC capture . . .	80,000.00
GF-45N	GF-40 plus digital still store and library	90,000.00
GF-50N	GF-40 plus 3-D with animation	100,000.00
GF-55N	GF-50 plus digital still store and library	105,000.00
GF-60N	AXcel model	125,000.00

*N denotes NTSC

CHARACTER GENERATORS



30-K Dual Channel Character Generator

• Dual channel 30-K character generator • Designed for the broadcast environment

Mainframe

• 1 compact unit houses the basic electronics • 30-K consists of a 68020 32-bit microcomputer, 2 independent display planes each with a built-in encoder and downstream linear keyer, a sync regenerator and 2 20M byte disk drives for removable, dependable storage • Standard configuration also includes a full-function "K Series" keyboard

Display Characteristics

• Each display plane has 4M bytes of memory for full anti-aliased text composition over complex backgrounds • Each display plane has a full linear key signal for creating dissolves, fades and other translucent effects • Resolution is 40ns with the apparent resolution of anti-aliased images better than 10ns • Outputs are RGB analog and NTSC/PAL composite

Single and Dual Operation

• In single operator mode, the operator controls the preview and program channels from a single keyboard • Both channels have a foreground and background image and both display 1024 colors selected from a palette of 16 million • In dual operator mode, each channel is assigned to a different keyboard and operator • 1 can be used to create graphics while the other is used for display or both can be on-air

Disk Storage

• Each twin 20M byte removable cartridge holds up to 20,000 text pages • With dual disk drives, the 30-K keeps hundreds of fonts and pictures on-line • Quick loading lomega disks are durable, portable and easy to backup with average recall time of 1/3 second

Hardware/Software Compatibility

• 30-K's 20M byte drives read lomega disks from any Dubner graphic system • Fonts, messages, backgrounds and animations are transferred via disk to the 30-K for playback or titling • When there are differences in resolution between systems, a unique combination of 30-K software and hardware makes the adjustment • Through a software process known as "quantizing," full color images created on Dubner Paint Systems, Graphics Factory or CBG/TEXTA systems can be displayed on the 30-K • Quantized images then can be used as full screen backgrounds and titled by the 30-K or assigned to individual font characters

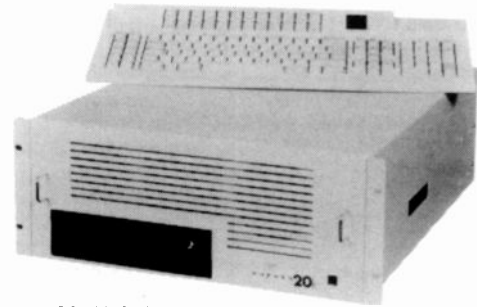
30-K Animator

• Expanded 60M byte display memory per channel for a total of 32M bytes • Internal 40M byte hard drive • Tablet with paint software

20-K/10-K Character Generators

• 20-K and 10-K character generators are identical systems, except for the disk drive • 20-K system includes a 10M byte lomega cartridge disk drive, while the 10-K features a 1M byte 5 1/4" floppy disk drive • With more storage, the larger disk capacity of the 20-K permits full compatibility with other Dubner systems • You can choose from a wide choice of standard and high resolution anti-aliased fonts, colors, edges and backgrounds that can be manipulated and displayed with ease • K-Series character generators have the power and advanced features that make them the systems of choice for today's video professional • They are menu-driven and provide a separate monochrome output for menu displays • Operator prompts let even beginning operators choose the right button for every situation • Systems feature a Help key, along with a "help screen display" for every operational key on the keyboard

10-KN*	Character generator with floppy disk drive	\$17,000.00
20-KN	Character generator with 10M byte disk drive	20,000.00
20-K20N	Character generator with 20M byte disk drive	21,000.00



20-K/10-K

20-KEL**	20-K including election system with terminal (NTSC)	\$29,500.00
20-KWN†	20-K20 including weather system with paint (NTSC)	35,000.00
30-KN	Dual channel character generator with 20M byte disk drives, NTSC SEK	36,000.00
30-KNA	Animator	45,000.00

*N denotes NTSC
** Available in NTSC only
† To upgrade existing 20/30-Ks to weather systems, add K-WCL, K-EX, K-PNT, K-K as required

30-K/20-K OPTIONS

K-PG Presentation Graphics Software

• Combines versatile text composition and high resolution fonts with multi-faceted graphical displays • 8 basic chart formats, composite and overlapping charts

K-Dig Digitizer

• Hardware/software product for anti-aliased camera capture • 16 level gray scale • Includes font compose software, NTSC or PAL

K-PNT Painting (Standard on 30-K Animator)

• Combines the ease of K-Series text operation with the artistry of K-Paint design • With an artist's tablet and stylus and K-paint software, this hardware/software option offers a separate interface for using font compose software • Choose 256 colors from a palette of 16 million or match screen color directly for fills and brushes

K-CS Color Scanner Option

• To input color graphics for customized backgrounds and fonts

K-B1, 2, 3, 4 Backgrounder Sets

• High-end backgrounder graphics to enhance text displays	
K-B1, 2	Generic backgrounders which cover wide spectrums
K-B3	Full screen digital paint backgrounds
K-B4	Partial screen digital paint backgrounds

5-KN Character Generator

• Full resolution font character generator • Included as standard are: floppy disk storage of images and text pages, 256 colors on-screen from the full 16,700,000 possible, and 8 regular fonts or 4 anti-aliased fonts on-line for instant access • Gives the operator selection of different colors for the character itself and for its edge and shadow • Sequencing of moves and pages has 9 selectable speeds • Animation playback of up to 40 frames from the Dubner Textra or CBG-2 is possible, plus displaying all backgrounds from Textra and CBG-2 • All the pre-packaged Backgrounder programs will run on the Dubner 5-KN

DPS-1N Video Painting System

- 4, 2, or 1-field NTSC frame buffer • Keyboard and status display
- Tablet • 10M byte iomega drive for storage and recall of up to 8 pictures • Color selection: by hue, saturation, and luminance or from the picture; all legitimate NTSC colors allowed • Millions of colors displayable simultaneously • Cut and paste • Targeted color correction: contrast, brightness, hue • Frame averaging • Fill • Motion suppression • X, Y, Z, tilt, scale and perspective • Pictures in internal memory • Posterize • Mosaic • Magnify
- Compatible with CBG-2 3rd plane • Brushes: Hard and soft solid, airbrush, transparency (window) soft and hard, square, stamp, luminance, wash, calligraphy, multi-color, soft and hard trim, fuzz, smear; all brushes anti-aliased • Soft stencils, reverse stencil • Emboss • Cropping • Draw lines and curves (anti-aliased) • Color ramps: vertical, horizontal, diagonal, 4-way • Tilt and pressure sensitive stylus • Text generation (anti-aliased)

Options

- VTR control • Animation • Larger disk drives

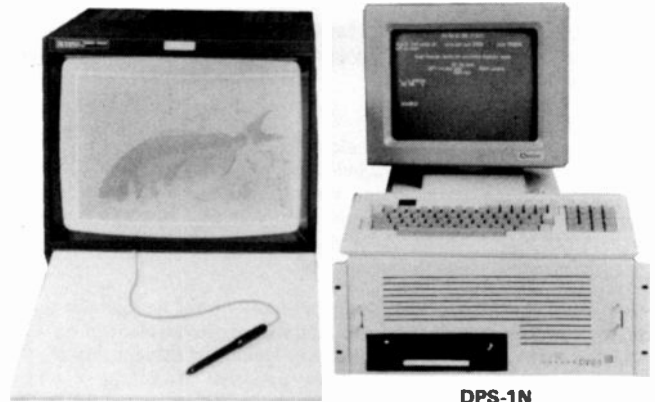
The DPS-1N is a full-color video painting system that grabs images from any NTSC source for storage and modification. For perfect picture quality, the DPS-1N stores and uses all four fields of the NTSC color sequence.

The DPS-1N is based on software innovation that allows the composite NTSC signal to be digitally sampled and manipulated without decoding and re-encoding.

DPS-1N\$25,000.00
DPS-1XN DPS-1N plus 200M byte hard disk30,000.00

TBS-20 Turbo Paint System

- + 20 Meg cartridge disk • Image manipulation along the X, Y, and Z axis • Rotate with roll • Pitch and yaw • Perspective moves
- Both real time and frame by frame effects • Automatic



DPS-1N

assembly onto disk • VTR and still store • Digitizing tablet and Grass Valley Group™ • 9505 sync generator • Animation

Options

- 200M byte disk • Laser disk that stores 650M optical disk • Color scanner input

The Turbo Paint System incorporates leading edge technology to increase process speed and memory making it more powerful than its small brother the DPS-1N Painter.

TBS-20N NTSC turbo paint with SPG, 20M byte, 48 fonts, animation\$42,000.00
TBS-20XN TBS-20N plus 200M byte hard disk47,000.00
TBS-20MN TBS-20MN without SPG, fonts and animation30,000.00
TBS-20XMN TBS-20MN plus 200M byte hard disk35,000.00
TBS-D2 D2 Turbo Paint System48,000.00
TBS-D1 D1 Turbo Paint System48,000.00

DSS-4 Digital Composite Still Store

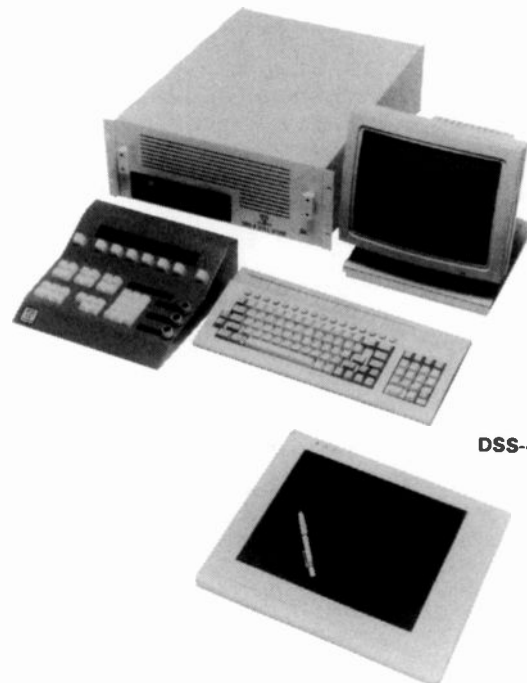
- NTSC four field capture • Dual channel (program-preset) • READ and STORE in either channel • READ-NEXT take to air, load next picture • One button GRAB/STORE • Wipe, dissolve, fade and cut channels • 20M byte removable disk • 200M byte internal hard disk • Additional disk drive options • Control panel and terminal control • Play list sequencer with editor • Change picture size and position • Search with "close" matches • Browse, 25 pictures per screen • Password protect erase enable • Picture correction and enhancement

Options

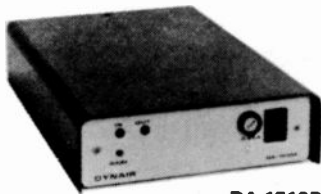
- Full color painting and animation • 650M optical disk • Color scanner input

Digital Composite Still Store with input, save, recall and output in the digital domain without degeneration. The DSS-4 combines Dubner paint basics with mass storage and library software. Dual channel save and recall provide rapid assembly of library material. READ-NEXT puts preset on air while recalling the next picture for fast paced live shows. Edit the PLAY list for sequence of wipes, cuts, dissolves and fades to pictures of any size positioned in three dimensions. Output images over "super-black." Optional painting, animation software, and drawing tablet make your graphics center complete.

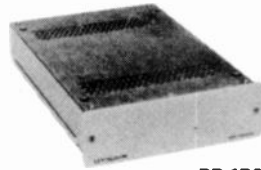
DSS-4N NTSC composite digital still store with 20M byte iomega and 200M byte hard disk\$32,000.00
DSS-4NL Graphic library, DSS-4 with paint40,000.00



DSS-4



DA-1510B



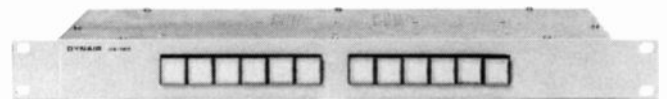
BP-1502B



SW-1540B



FR-1500A



VS-12D

SERIES 1500 VIDEO DISTRIBUTION AMPLIFIERS

• May be used as self-contained, standalone units for desktop or custom mounting • For rackmounting applications, units can be installed in the FR-1500A rackmounting frame which occupies only 1 3/4" of standard 19" rack space • All units are equipped with BNC type signal connectors unless otherwise noted • Mating connectors are not included

DA-1510B Video Distribution Amplifier

• Provides four isolated 75 ohm source terminated outputs from one high impedance looping input • Input: 75 ohm unbalanced, high impedance looping, 1V p-p, BNC connectors • Outputs: 4, 75 ohm source terminated, 1V p-p, BNC connectors • Gain: Adjustable ± 3 dB • Frequency Response (ref. 1MHz): 100kHz-10MHz: ± 0.5 dB; 30MHz: +1, -2dB • Tilt: < 1% line or field • Differential Gain: 0.25% at 5MHz, 10-90% APL, 1V p-p output • Differential Phase: 0.25° at 5MHz, 10-90% APL, 1V p-p output • Hum and Noise: 65dB RMS below 1V p-p, 10MHz bandwidth • Size: Module only, 1 1/16" H x 5 3/4" W x 9" D; mounted in MB-1504A deskmount, 2" H x 6" W x 9 1/4" D • Power: 115-230VAC $\pm 10\%$, 50/60Hz • Net Weight: 2 1/2 lbs. \$300.00

FR-1500A Rackmounting Frame

• Provides mounting for three (3) Series 1500 units in standard equipment racks • Captive screw fastener at the rear of the frame, and guide pin at the front, secures each unit, allowing equipment to be used in mobile applications • Size: 1 3/4" H x 19" W 9 1/4" D • Net Weight: 2 1/2 lbs. \$100.00

BP-1502B Blank Module

• Fills one unused space in FR-1500A Frame • Net Weight: 1 1/4 lbs. \$60.00

MB-1504A Deskmount Kit

• For one Series 1500 unit • Includes rugged aluminum cover, rubber feet and hardware • Net Weight: 13 oz. \$30.00

PULSE DISTRIBUTION AMPLIFIERS

PD-1515B Pulse Distribution Amplifier

• Provides four isolated, source terminated outputs from one high impedance looping input • Regenerative input, linear output • Normal output with up to 1000' Belden 8281 input cable

• Input: 2-4V p-p negative pulses, 75 ohm unbalanced differential, high impedance bridging, BNC connectors • Common Mode Rejection: > 60dB, 50-400Hz, ± 30 V reference chassis ground • Outputs: 2-4V p-p negative pulses, 4 each 75 ohm source terminated, BNC connectors • Output Return Loss: > 35dB at 5MHz • Output Isolation: > 40dB at 5MHz • Output Rise Time: 130ns • Gain: Adjustable to

2-4V p-p • Hum and Noise: 75dB RMS below 4V p-p • Overshoot and Ringing: < 1.0% • Tilt: < 1.0% • Size: 1 1/16" H x 5 3/4" W x 9" D; mounted in MB-1504A deskmount, 2" H x 6" W x 9 1/4" D • Power: 115/230VAC -10%, 50/60Hz • Net Weight: 3 lbs. \$325.00
EQ-1530B 1 x 2 Post Equalizing Amp. Unbal. \$75.00
EQ-1531B 1 x 2 Post Equalizing Amp. Bal. \$700.00
EQ-1532B 1 x 1 Pre-Equalizing Amp. Bal. \$650.00

PASSIVE VIDEO SWITCHERS

• Multiple input to single output locally controlled terminating video switchers • Units have extra contacts for user wiring of audio-follow or external cue lights

VS-6D Video Switcher

• Provides passive switching of from one to six inputs to a single output • Incorporates switch-controlled terminations • Equipped with separate auxiliary switch section for user wiring of unbalanced audio, balanced audio, external cue lights, or other secondary functions • For lighted pushbutton operation, order LK-1541A Lighting Kit shown below • Inputs: Six (all except operating channel terminated in 75 ohms) • Output: One • Connectors: BNC • Size: 1 3/4" H x 19" W x 6 1/2" D • Net Weight: 2 1/2 lbs. \$225.00
VSA-6D 6 x 1 Passive Video Audio Switcher \$375.00

VS-12D Video Switcher

• Same as VS-6D but with 12 inputs • Inputs: 12 (all except operating channel terminated in 75 ohms) • Output: One • Connectors: BNC • Size: 1 3/4" H x 19" W x 6 1/2" D • Net Weight: 2 1/2 lbs. \$300.00
VSA-12D 12 x 1 Passive Video Audio Switcher. \$520.00

LK-1541A Optional Lighting Kit

• For pushbutton lighting • For use with passive switchers • Provides 6VDC at 100mA to power lamps provided with switcher • Calculator style plug-in transformer with 6' cable • Connector: Miniature male, 3.5mm (mates with Switchcraft No. 41 jack provided on rear of switcher) • Primary Power: 115VAC, 60Hz • Net Weight: 6 oz. . . . \$20.00

SW-1540B 6-Input, 1-Output Passive Video Switcher

• Switch controlled 75 ohm inputs • Separate auxiliary contacts included for user wiring of secondary switching functions • Lighted pushbuttons with use of LK-1541A Lighting Kit • Shown with optional MB-1504A • Inputs: 6 (all except input selected, 75 ohm terminated), BNC connectors • Output: 1, BNC connector • Switching: Break-before-make • Size: Module only, 1 1/16" H x 5 3/4" W x 9" D; mounted in MB-1504A deskmount, 2" H x 6" W x 9 1/4" D • Net Weight: 2 1/2 lbs. \$200.00

AFS Audio Follow Switcher

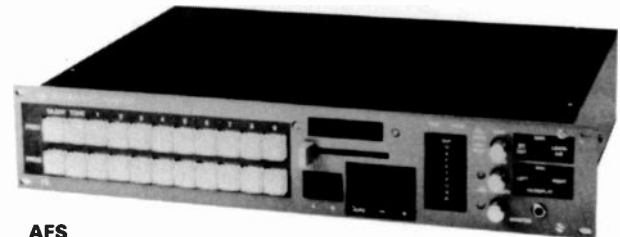
- 9 inputs plus silent and tone, voiceover. Stereo optional
- 600 ohm balanced line, XLR type connectors
- Programmable, computer controlled audio switching and fading
- SMPTE link to DV/5 or edit controllers
- EquiLinear attenuator design for 0.02% distortion

The AFS is a computer-controlled switcher for audio mixing in a video environment. Intended to complement the DV/5 switcher, the AFS can be a stand-alone programmable mixer or it can be controlled by the DV/5. In this mode, the AFS will automatically switch audio to follow video; that is, selecting Program bus video 5 will cause the AFS to switch to Program audio source 5. Up to 4 sources can be designated as audio-only and will not respond to video switching.

11 input sources are selectable, including a low distortion 450Hz tone and silent, and voiceover can be added to the output. Pushing a single button will select its input in the normal fashion, and if 2 or more buttons are pushed simultaneously all buttons will remain lit and all sources will be selected.

Diagnostic software is included which performs self-test and calibration functions on powerup and at predetermined intervals thereafter without operator intervention. Diagnostic LEDs are accessible on cover removal by the technician.

An EquiLinear circuit using LED/dual photoconductor attenuators provides much improved distortion and noise performance compared to the typical voltage controlled amplifier (VCA) specifications.



AFS

Input circuits are transformerless, balanced and with high looping impedance to guarantee noise-free installations.

Displays are 2 20-segment LED VU meters, 1 20-segment Take display, and several red/green LEDs to tally preview or program assignments. Incandescent bulbs indicate the On crosspoints. Autotake rate is shown in a 3-digit, 7-segment display.

AFS-M Mono \$4,500.00
AFS-S Stereo 5,500.00

SE-6 Production Switcher

- Quad splits, re-entrant effects
- ECHOLab's patented Soft Take
- Computer control of all switching and effects
- Front-panel programmable with up to 200 shots or 500 transitions
- Contact closure editing interface (standard) will initiate any pre-programmed event
- Remote fully digitized control panel with 2 wires to chassis
- 12 video inputs total, 10 are looping impedance (47K ohm) or 75 ohm terminated. 2 inputs are internally generated black and background colors. Composite or non-composite sync or non-sync sources may be used
- 6 linear keyers (Key 1-Key 5 and CGEN), 1 RGB or composite chroma keyer. Key 1, Key 3 and CGEN may be used with cut and fill signals

The SE-6 adds convenience and flexibility for fast-paced teleproduction. 2 independent mix-effects systems and direct bus switching handle up to 12 video inputs, including black and background. 2 built-in Z-80A microprocessors handle digitization of front panel controls (no heavy cables) and allow full control by edit controllers as well as user programmability. A front-panel programming system has been developed for enhanced ease of use.

The SE-6 is used in 2 modes: In production mode, the switcher is a normal 5-bus switcher. In program mode, the programming capability is turned on with a keyswitch, and the programming keypad is used to store control sequences for later playback. Any operation which can be done manually can also be programmed.



SE-6

SE-6 \$15,500.00
DSG-6 Drop shadow generator (15 lines) for SE-6 titler 2,250.00
NTSC-6 NTSC encoded chromakey generator for SE-6 1,650.00
RGB-6 RGB chromakey generator for SE-6 1,650.00
SMPTE-6A Echolab protocol serial interface to editors 2,225.00
SMPTE-6B GVG-100 protocol serial interface to editors 2,225.00
SPK-6 Spare parts kit for SE-6 1,000.00
EXT-6 Extender board for SE-6 (basic unit includes 1). 100.00
SVC-6 Service manual for SE-6 (basic unit includes 1). 50.00
OPS-6 Operators manual for SE-6 (basic unit includes 2) 45.00
BAT-6 Battery backup 140.00

PRODUCTION SWITCHERS/ SOFTWARE

ECHOLab, Inc.

DV-5 Production Switcher

• Designed for teleproduction and post-production in small and medium-sized broadcast studios • Automatic calibration • 12 inputs, including black and background • 3 keys • 3 digital color generators • Front-panel programmable with TimeTracker • 2 mix-effects systems for effects and autotake • Switching power supply • Soft Take • Computer control of all switching and effects • Contact-closure editing interface will initiate any pre-programmed event • Remote fully digitized control panel with 2 wires to chassis • 39 wipe patterns • Command will return 28 parameters to factory calibration

The DV-5 video switcher is a compact and powerful tool for advanced teleproduction. Innovative circuit design allows packaging in a compact 2RU chassis and a 12 1/4" remote front control panel. The electronics chassis uses just 2 printed circuit cards.

Built-in computers handle advanced features such as front panel programmability, calibration and fault diagnosis. Self-calibration circuitry sets a new standard for accuracy and reliability in the most demanding applications.

The DV-5 is used in 2 modes: production or programming. In production mode, the switcher allows control of both wipe patterns and digital effects. In programming mode, a keypad is used to store control sequences for later playback. When sequences have been programmed, they may be recalled in production mode for fast, accurate recreation of effects that are difficult or impossible to perform manually.

DV-5\$9995.00

Options

DSG-5	Drop shadow generator (15 lines) for DV-5 titler	.....\$ 2000.00
GLS-5	Genlock sync generator for DV-5	.....1000.00
RWP-5	Rotary wipe package for DV-5	.....650.00
QSP-5	Quad split package for DV-5	.....500.00
MEX-5	Memory expansion for DV-5	.....400.00
BPS-5	Backup power supply for DV-5	.....650.00
NTSC-5	NTSC encoded chromakey generator for DV-5	.....1650.00
RGB-5	RGB chromakey generator for DV-5	.....1650.00
SMPT-5	SMPT-5 serial interface to any editor controller using the GVG100 protocol	.....1500.00
SPK-5	Spare parts kit for DV-5	.....1000.00
EXT-5	Extender board for DV-5	.....300.00
SVC-5	Service manual for DV-5 (basic unit included)	.....50.00
OPS-5	Operators manual for DV-5 (basic units include 1)	.....45.00
RCW-5	Rotary and clock wipes package	.....995.00
EDC-5	External drive card (n/c when ordered with DV-5)	.....650.00
CWP-5	Clock wipe package	.....350.00
DVC	Square package for the DV-5	.....795.00

DVC-IBM/DV-5 Communications Software

• Store DV-5 programs on your IBM PC or clone • Includes a menu-select graphic screen and will run on any IBM computer configuration • Allows you to save DV-5 sequences and setups on your IBM, in IBM file format, on floppy or hard disk • An unlimited number of sequences and setups can be saved and later recalled to the DV-5 at 5 seconds per block • DV-5 is capable of storing a maximum of 99 panel setups and 5 sequences of 1000 steps each; the DVC will save and reload this memory in 5 blocks with 20 setups and 1 sequence per block

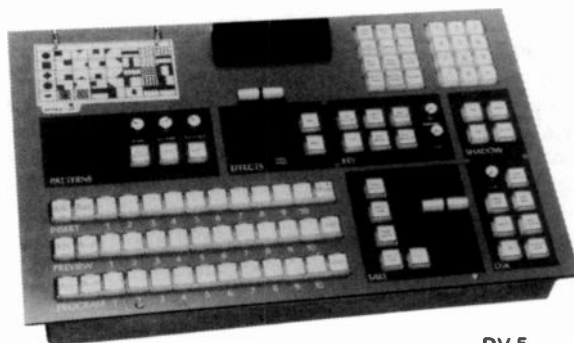
Included: DVC software on 5 1/4" and 3 1/2" low-density disks, 25' cable with 9-pin D-type connectors, manual.

You will need: IBM personal computer, any version, with any graphics setup; 1 RS-232 communications port available; DV-5 switcher with Edit port unused.

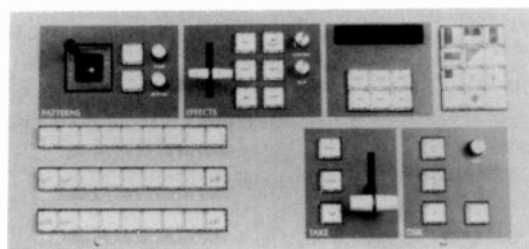
DVC\$795.00

DV-7 Production Switcher

• 8-input, 1 mix-effects • Built on a single PC card • Packaged in a 2RU chassis, with separate 5RU control panel • Control panel is remoteable up to 1000' on a single coax cable • Chassis features automatic computer calibration which obsoletes your resident technician • 16-character alphanumeric display guides the user through operations such as digital color entry and the use of commands which allow seldom-used functions such as key reverse or key softness to be performed • Internal background and black as well as 3 color generators • 3 video buses • 10 wipe patterns including circle • SMPTE link editing facility • 2 linear keyers • Wipe patterns have soft and bordered edges, and the pattern travel is compensated by the computer for low (< 5%) deadband for frame-accurate edits • Take section allows mix or pattern take-to-preview • Downstream key generator provides filled or colorized keys with 2 external key selections as well as a fade-to-black function • RGB chromakey card is optional • NTSC or PAL



DV-5



DV-7

versions are available • Panel lights tally the on-air source with high brightness, and you can write your own source name for bus switches. These names are displayed when the corresponding bus switch is pushed • Audio switching can be handled with a AFS audio switcher, and a SMPTE interface is dedicated to this purpose • Edit control interface is optional

DV-7\$5995.00

Options

RGB-7 Chromakey	.....\$995.00
SMPT-7 Serial interface to most editors	.....995.00
NTSC-7 Encoded chromakey	.....995.00

Bard Graphic Layout Software

• Object-oriented graphic layout package, running on a Mac computer • Includes 50 high quality, scalable, antialiased fonts, using 32 bits per pixel • 8 bits per color plus a key channel • Connects by SCSI link or can operate stand-alone • Fill text with solid color, color wash, live video or any Tempest background disk • Import files from paint programs • Broadcast quality CCIR 4:4:4:4 images • Draw rectangular shapes and custom graphic shapes • RGB input, RGB or YIQ output • Mouse controlled, easy-to-use heads-up display • Kerning, justification, rotation, scaling, drop shadow, transparency

Bard is object oriented rather than pixel oriented like the typical paint program. When you add an object like a character or a rectangular wash effect, it does not write into the frame memory, it overlays it. Many layers of objects can be overlaid to produce complex images, and any object can be repositioned later. Experiment for the best graphics.

Bard accepts .PICT, .TIFF or .ECH file formats. High resolution images can be captured with optional 4M byte RAM; hardware pan and zoom are used to display movable windows.

Bard can be operated stand-alone with disk output or RGB or YIQ genlockable studio output.

It can also be used for other jobs such as generating color presentation slides, and for sequencing and transition of up to 20 images.

Hardware Configuration:

1. Mac II or higher computer with 6.0.5 operating system, 2M bytes RAM
2. NuVista or NuVista+ graphics board
3. RGB/YIQ monitor

Bard\$1995.00



DIGITAL VIDEO EFFECTS SYSTEM

Jazz Digital Video Effects System

- Broadcast quality video—14.3MHz sampling rate • 4:2:2 component internal processing • Composite and S-VHS (Y/C) inputs and outputs • Accepts asynchronous, non-time-base corrected video inputs • Simple, intuitive control panel • Single keystroke operation • Manual or programmable A/B video switching • Key output • Context sensitive—Help key • Key frame link controls: Curvilinear, linear motion; acceleration and deceleration; variable duration; specified flips and tumbles; GPI out • Key sequence controls: Variable duration; play function to run or step through key sequences in forward or reverse; complete edit capabilities; GPI stack can be remotely triggered using GPI in • Key sequence storage: Internal memory and external memory card for sequence storage; complete directory capabilities; complete edit capabilities

Standard Effects

- Rotation: Variable axis, speed and direction • Flips and tumbles: Variable axis, speed and direction; programmable, A/B video switching provides 2-channel effects • Rotational shifts: Variable pulls in both X and Y • Smooth shrink and zoom: Continuous, variable axis • Over expansion: Variable aspect ratio to x3 • Aspect ratio: Continuously variable • Cropping: Proportional and non-proportional • Borders: Proportional and non-proportional; any size and color • Drop shadows: Any size and color • Pan: Any image or effect • Picture splits: Variable control in both X and Y • Mirror images: Horizontal, vertical, quad • Field/frame/freeze: Variable live and freeze rates; variable strobe rate; step frame • Mosaic: Variable tile sizes, aspect ratio • Posterization: Variable levels and false colors • Tinting: Continuous • Background color: Infinitely variable • Fade to black • Transitional effects: Preprogrammed, variable speed; wipes to background video or color

Jazz was developed to exact specifications with the capabilities and expandability to meet future demands. Jazz is the first to eliminate complex entry codes so that creativity isn't limited by time constraints. In S-VHS or any other format there is no more responsive piece of technology.

Jazz System \$10,995.00

Jazz Tempo

- Jazz Tempo picks up the beat of Jazz and includes: • Foreground/Background Dissolve: Gives the user complete control over dissolves between foreground and background video • Software Adjustable Phase Controls: All the controls listed are adjustable from the control panel. Control settings can be stored in memory and reloaded in subsequent sessions • Horizontal Phase Control: This delay is adjustable ± 3 ms • Subcarrier Phase Control: Allows the user to adjust the subcarrier phase of the effects channel with respect to the Background In signal. The phase is adjustable $\pm 180^\circ$ • Key Output Control: Allows the user to adjust the position of the key output signal with respect to the effects channel. This delay is adjustable to cover a range of 0 to +4ms

Jazz Tempo \$12,995.00



Jazz

Jazz Ensemble

- Jazz Ensemble picks up the Tempo and more: • Transparent Drop Shadows: The flexibility of our architecture allows Jazz to offer independently programmable transparent borders and drop shadows • Chromakey: Allows the user to selectively eliminate areas of the manipulated video that match a user specified color and substitute background video for these areas. The keyed image can then be manipulated using any of the standard Jazz effects • Luminance Key: Allows the user to selectively eliminate areas of the manipulated video that have a luminance value less than a user specified value and substitute background video for these areas. The keyed image can then be manipulated using any of the standard Jazz effects • Solarization: Creates the upbeat effect of spot color by isolating any existing color and converting the remaining portion of the image to black and white

Jazz Ensemble \$14,995.00

Note: All systems include control panel, processor unit, line cords and interconnect cabling.

Options

Jazz Harmony Effects

- Jazz is the only effects system offering packages of pre-programmed effects on a regular basis • Several times a year a package of new effects will be available • Collect them to form a library of your favorite special effects and use them to add variety and interest to your video programming \$ 500.00

Jazz Harmony Effects Library

4 issues. 1,500.00

Jazz Ensemble Retrokit

Allows you to upgrade your existing Jazz System to the capabilities of the Jazz Ensemble 4,495.00

Additional Control Panel

Includes cabling, line cord and adaptor unit. 5,995.00

Rackmount Slide Kit 125.00

Blank Memory Cards

Package of 3. 475.00

MICROPHONES



Professional Microphones

635A Dynamic Omnidirectional Microphone

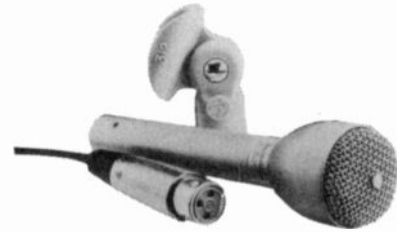
The 635A is a rugged, durable microphone. The moderately high output level (-55dB) is appropriate for a broad range of studio and field applications. Its response has been specially shaped for up-close vocals.

Specifications

• Frequency Response: 80-13,000Hz • Impedance: 150 ohms • Output: -55dB • Diaphragm: Acoustalloy® • Case: Steel • Finish: Fawn beige micomatte • Size: 5¹⁵/₁₆" long; 1¹³/₃₂" dia. • Weight: 6 oz. • Cable: 15' Switchcraft A3F conn. • Included: 312A clamp

635A\$145.00

635A Six Pack, package of six 635A mics less cables and stand clamps739.00



635A

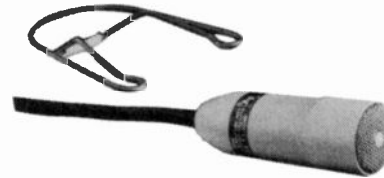
649B Miniature Dynamic Omnidirectional Lavalier Microphone

Created especially for TV, the 649B is our most popular dynamic lavalier. Frequency response is tailored for balanced performance in the lavalier chest position.

Specifications

• Frequency Response: 80-10,000Hz • Impedance: Lo-Z (150 ohms) • Output Level: -61dB (0dB = 1mW/10 dynes/cm²) • Case: High-tensile, lathe-turned aluminum • Finish: Non-reflecting gray • Cable: 30', 2-conductor, shielded, brown synthetic rubber-jacketed cable • Size: .75" diameter; 2.25" long • Net Weight: 1.1 oz., less cable and neck cord assembly

649B\$212.00



649B

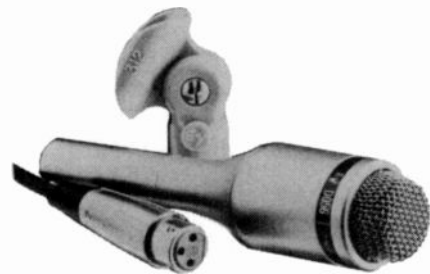
DL42 Cardiline® Dynamic Unidirectional Microphone

The DL42 is state-of-the-art in superdirectional dynamics. "Cardiline" is a patented combination of line and cardioid design. Compared to other "shotguns", the DL42 has more uniform response in the critical mid and high frequencies and much more uniform directivity.

Specifications

• Frequency Response: 50-12,000Hz • Impedance: 150 ohms • Output: -50dB • Diaphragm: Acoustalloy • Case: Aluminum and steel • Finish: Fawn beige micomatte • Size: 16³/₄" long; 3³/₄" max. dia. • Weight: 1 lb., 11 oz. complete; 13 oz. mic only • Cable: Special coil cord to extend from mic to connector (Switchcraft A3M) to shock mount bail for mechanical isolation • Included: Screw-on handle, wind-screen, shock mount and carrying case

DL42\$857.00



DO56

DO54 Dynamic Omnidirectional Microphone

Based on the RE55, the DO54 is a moderately priced microphone with essentially flat response over its rated frequency range of 50-18,000Hz. It is useful in applications where the RE55 would excel but where the 1/3 octave additional response below 50Hz is not required, or where small microphone-to-microphone variation is acceptable.

Specifications

• Frequency Response: 50-18,000Hz • Impedance: 150 ohms • Output: -58dB • Diaphragm: Acoustalloy • Case: Steel • Finish: Fawn beige micomatte • Cable: 15' Switchcraft A3F conn. • Size: 5³/₄" long; 1¹/₈" max. dia.; 3/4" shank dia. • Weight: 6.5 oz. • Included: 310A clamp, metal carrying case

DO54\$212.00

DO56 Shock-Mounted Dynamic Omnidirectional Microphone

The DO56 is a shock-mounted omnidirectional microphone for handheld broadcast and sound reinforcement applications. All handling noises and cord vibration are isolated from the microphone element.

Specifications

• Frequency Response: 80-18,000Hz • Impedance: 150 ohms • Output: -61dB • Diaphragm: Acoustalloy • Case: Steel and aluminum • Finish: Silver tone beige • Cable: 15' Switchcraft A3F conn. • Size: 6¹/₄" long; 1¹⁵/₃₂" max. dia.; 3/4" shank dia. • Weight: 6.5 oz. • Included: 312B stand adaptor, protective vinyl carrying pouch

DO56\$184.00

DO56L Long case200.00

DS35 Single-D Dynamic Cardioid Microphone

Created especially for the professional entertainer, the DS35 has become a connoisseur's microphone. Its Single-D design emphasizes the low frequencies in up-close, handheld applications.

Specifications

• Frequency Response: 60-17,000Hz • Impedance: 150 ohms • Output: -60dB • Diaphragm: Acoustalloy, polystyrene Volumetric Dome • Case: Steel • Finish: Fawn beige micomatte • Cable: 15' Switchcraft A3F conn. • Included: 312A clamp, metal carrying case • Size: 7¹/₄" L x 1⁷/₈" max. dia. x 3/4" shank dia. • Weight: 9.2 oz.

DS35\$229.00

Professional Microphones

RE 10 Variable-D® Dynamic Super-Cardioid Microphone

A moderate cost microphone for sound reinforcement, broadcasting, choir pickup and stage work. The RE 10 is similar in design to the RE 15, but meets requirements where somewhat more unit-to-unit variability is acceptable.

Specifications

• Frequency Response: 90-13,000Hz • Impedance: 150 ohms • Output: -56dB • Diaphragm: Acoustalloy® • Case: Steel • Finish: Fawn beige micomatte • Size: 6³/₄" long; 1³/₈" max. diameter; 3/4" shank diameter • Weight: 6 oz. • Cable: 15' Switchcraft A3F conn. • Included: 310A clamp, metal carrying case

RE 10\$245.00

RE 11 Variable-D Dynamic Super-Cardioid Microphone

An excellent microphone for broadcast and quality sound reinforcement, the RE 11 is a modestly priced unit with many of the features of the RE 16 but where the most precise unit-to-unit matching is not necessary.

Specifications

• Frequency Response: 90-13,000Hz • Impedance: 150 ohms • Output: -56dB • Diaphragm: Acoustalloy • Case: Steel • Finish: Fawn beige micomatte • Size: 7³/₈" long; 1²/₃₂" max. diameter; 3/4" shank diameter • Weight: 8 oz. • Cable: 15' Switchcraft A3F conn. • Included: 310A clamp, metal carrying case

RE 11\$260.00

RE 15 Variable-D Dynamic Super-Cardioid Microphone

The performance and reliability of the RE 15 have made it the workhorse directional microphone for broadcast and high quality sound reinforcement.

Specifications

• Frequency Response: 80-15,000Hz • Impedance: 150 ohms • Output: -56dB • Diaphragm: Acoustalloy • Case: Steel • Finish: Fawn beige micomatte • Size: 6⁹/₁₆" long; 1³/₈" diameter; 3/4" shank diameter • Weight: 6 oz. • Cable: 15' Switchcraft A3F conn. • Included: 310A clamp, metal carrying case

RE 15\$365.00

RE 16 Variable-D Dynamic Super-Cardioid Microphone

The RE 16 is like the RE 15 except it has a different blast filter. An integral part of the RE 16, the blast filter makes possible the closest handheld use without any "P-pops". Its rugged, mechanically "nested" design is highly resistant to damage.

Specifications

• Frequency Response: 80-15,000Hz • Impedance: 150 ohms • Output: -56dB • Hum Pickup Level: -57dBm (re: .001 gauss field) • Diaphragm: Acoustalloy • Case: Steel • Finish: Fawn beige micomatte • Size: 7³/₈" long; 1²/₃₂" max. diameter; 3/4" shank diameter • Weight: 8 oz. • Cable: 15' Switchcraft A3F conn. • Included: 310A clamp, metal carrying case

RE 16\$384.00

RE 18 Shock Mounted Variable-D Dynamic Cardioid Microphone

The RE 18 is a direct descendant of the popular RE 15 and RE 16 microphones. While maintaining the accurate frequency response characteristics and super-cardioid polar pattern of the RE 15, the RE 18 has added an integral shockmount for even better performance.

Specifications

• Frequency Response: 80-15,000Hz • Impedance: 150 ohms • Output: -57dB • Diaphragm: Acoustalloy • Case: Steel • Finish: Silver tone beige • Size: 7" long; 1²/₃₂" max. diameter; 3/4" shank diameter • Weight: 8 oz. • Cable: 15' Switchcraft A3F conn. • Included: 312B stand adaptor, protective vinyl carrying pouch

RE 18\$410.00



RE 11



RE 18



RE 20

RE 20 Variable-D Dynamic Cardioid Microphone

The RE 20 was created especially for critical recording, broadcast and sound reinforcement applications which require response that extends to the frequency extremes. Combined with a subtle elevation of response in the 5000 to 15,000Hz range, the RE 20 provides performance heretofore available only from the most expensive condenser microphones.

Specifications

• Frequency Response: 45-18,000Hz • Impedance: 150 ohms (changeable to 50 or 250 ohms) • Output: -57dB • Diaphragm: Acoustalloy • Case: Steel • Finish: Fawn beige micomatte • Size: 8¹/₃₂" long; 2⁹/₁₆" max. diameter; 1¹/₁₆" body diameter • Weight: 1 lb., 10 oz. • Cable: 15' Switchcraft A3F conn. • Included: Stand adaptor, metal carrying case

RE 20\$552.00

RE 27N/D Variable-D N/DYM® Dynamic Cardioid Microphone

The RE 27N/D is a professional quality dynamic cardioid microphone designed for broadcast production announce and voice-over, high-quality recording and sound reinforcement applications. The RE 27N/D utilizes a revolutionary neodymium alloy magnet and a reinforced diaphragm dome, a combination offering increased sensitivity (up to 6dB more output), undistorted output at high sound pressure levels and an extended high-frequency response.

Specifications

• Frequency Response: 45-20,000Hz • Impedance: 150 ohms balanced • Sensitivity, Open Circuit Voltage: 3.1mV/Pascal at 1000Hz • Power Level: -51dB at 1000Hz (0dB = 1mW/Pascal) • Hum Pickup Level: -130dBm typical at 60Hz in a 1m OE field • Magnetic Circuit: N/DYM magnet in a non-welded circuit • Phasing: Pin 2 is positive referenced to Pin 3 with positive pressure on diaphragm • Case: Steel • Length: 8.53" • Widest Diameter: 2.14" • Body Diameter: 1.94" • Finish: Satin nickel • Weight: 1 lb., 9 oz. without cable • Cable: 15' 2-conductor, shielded, rubber jacketed, brown broadcast type cable, supplied with a Switchcraft A3T type connector on the microphone end • 81715 stand clamp included

RE 27N/D\$625.00

MIXERS



8400/8200 Series High Performance Mixing Consoles

8400/8200 Common Features

- Equal headroom in all stages for optimum noise performance
- Gain-calibrated level controls for visual check of mixer stage gain
- Optimum circuit design to reduce harmonic and intermodulation distortion to inaudible levels
- Transient performance not slew-rate or power-bandwidth limited under any operating conditions, 20-20,000Hz
- Space-saving compact design with optimum tilt

8400 Series

- 6 fluorescent bargraph meters calibrated for $0dB = +4dBm$ at transformer isolated outputs

8200 Series

- 2 illuminated VU meters calibrated for $0VU = +4dBu$ at transformer isolated outputs

8400/8200 Input Section Features

- Separate microphone and line preamps and connectors, switch selectable
- 48V phantom power for microphone inputs
- Circuitry to accommodate input levels from speech with distant microphones to close miking of rock music
- Continuously variable input gain controls with 11 detents for quick, accurate resetting
- Preamplifiers with -129dBu equivalent input noise, high gain and very low distortion
- 3-band EQ with switchable midrange center frequency. Shelving frequencies are 100Hz and 10kHz; midrange center frequencies are 600Hz and 3.5kHz
- 3 auxiliary send controls modifiable at each input for pre- or post-EQ or fader
- Center detents for equalizer and pan controls
- Send and return jacks on each input, for insertion of external signal processing devices
- Pre-fader solo system modifiable to post-fader, with LED indicator and metering

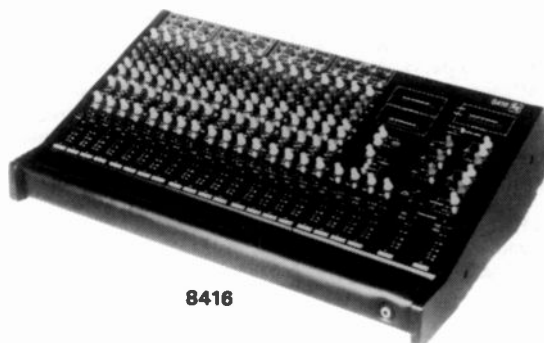
8400 Subgroup Section Features

- Fader, pan control, send/return jacks and solo switch for each subgroup
- Separate tape input with level and balance controls
- Assignable "talkback" input for house or stage communications

8400/8200 Output Section Features

- Independently adjustable mono output, plus stereo
- Stacking input jacks for all buses, to link with other mixers
- Power headphone amp with level control, mono switch and solo interrupt
- 2 effects-return inputs with level, pan and monitor-send controls

The 8400/8200 Series Mixers are high-performance/high-value consoles designed for fixed or portable professional sound reinforcement systems. Features and performance make them appropriate for broadcasting and recording applications. All models have left, right, mono, monitor, auxiliary 1 and auxiliary 2 outputs, all with unbalanced and transformer isolated connections. Transformer isolation reduces hum and noise caused by ground loops.



8416

Specifications

Frequency Response—Mic Input at Maximum Gain or Line Input at Unity Gain to Any Output:	20-20,000Hz $\pm 2dB$ 50-20,000Hz $\pm 1dB$
Any Other Input (Except Talkback) to Any Output:	20-20,000Hz $\pm 0.5dB$
Total Harmonic Distortion, Transformer Isolated Outputs, 600 Ohm Load —	
20-20,000Hz at +4dBu Output:	< 0.1%
50-20,000Hz at +24dBu Output:	< 0.1%
Equivalent Input Noise (150 Ohm Source):	-129dBu typical
Output Noise at Transformer Isolated Left and Right Outputs, All Faders Down Except as Indicated—	
Stereo Masters at Nominal ("0"):	-76dBu maximum
Stereo Masters and Subgroups at Nominal:	-76dBu maximum
1 Input, Stereo Masters and Subgroups at Nominal (64dB gain):	-65dBu typical
Output Noise at Transformer Isolated Monitor or Auxiliary Outputs, Masters at Nominal ("0"), All Other Faders Down:	-80dBu maximum
Maximum Voltage Gain—Mic Input to Channel Send Output:	58dB typical
Line Input to Channel Send Output:	22dB typical
Tape Input (8400 Series Only) and Effects Returns to Transformer Isolated Left and Right Outputs:	38dB typical
Talkback Input to Transformer Isolated Left and Right Outputs (8400 Series Only):	68dB typical
Mic Input to Transformer Isolated Left and Right Outputs, 8200 Series:	88dB typical
Mic Input to Transformer Isolated Left and Right Outputs, 8400 Series:	100dB typical
Slide Fader Reserve Gain:	12dB
Adjacent Channel Crosstalk at 1000Hz, Channel Feedthrough at 1000Hz, Nominal ("0") Control Settings, Channel Unassigned (8400 Series Only):	-68dB
Power Requirements:	95-125V, 60Hz, 90W maximum
Height and Depth:	8.5" H x 18.4" D
Width:	8216: 26.5"; 8416: 31.5"; 8424: 41.5"
Weight:	8216: 45 lbs.; 8416: 52 lbs.; 8424: 67 lbs.

8400 Series	
8416	16 channels, 31.5" W \$5037.00
8424	24 channels, 41.5" W \$6724.00
8200 Series	
8216	16 channels, 26.5" W \$3807.00



Electro-Voice®
a MARK IV company

LOUDSPEAKER SYSTEMS

Sentry® 500/505 Professional Monitor Systems

These systems have been designed for the broadcast/recording studio engineer. The design meets the needs of professionals by combining high efficiency with extended low frequency response, high power capacity across the entire frequency range, uniform frequency response and constant directivity. Each system employs a Super-Dome™ tweeter capable of handling 25W of input power, while reproducing program material with response out to 18kHz.

Specifications

• Frequency Response: 40-18,000Hz • Impedance: 8.0 ohms • Long-Term Average Power Handling Capacity (at 8 ohms): (40-40,000Hz) 100W

Sentry® 500

The Sentry 500 was designed for 1/4- to 1/2-space use. The speaker system should be mounted as close as possible to floor/ceiling and/or wall surfaces. When coupled with the WB23 wall mount kit, the Sentry 500 can be integrated into virtually any environment.

Specifications

• Dimensions: 23³/₄" H x 27" W x 13" D • Weight: 70 lbs.

Sentry 500 \$659.00
WB23 Wall mount kit \$36.00

Sentry 505

The Sentry 505 must be used in quarter-space to achieve specified low frequency performance. Installation of the system on a wall can be accomplished with the mounting brackets included with the system. It is possible to mount the Sentry 505 so that the drivers are angled at 60° or 30° from vertical.

Specifications

• Dimensions, 30° from Vertical: 19.50" H x 25.63" W • Top: 18.75" D • Bottom: 7.50" D • 60° from Vertical: 18.75" H x 25.63" W • Top: 19.50" D • Net Weight: 60 lbs.

Sentry 505 \$659.00

Sentry 100EL Professional Powered Monitor System

The Sentry 100EL powered monitor speaker system combines the advantages of the Sentry 100A monitor with a self-contained, high performance power amplifier. It is designed with the broadcast/recording studio engineer in mind, although it is well suited for a wide variety of professional applications. It offers uniform frequency response and dispersion across a wide range, extended low frequency response.

A Super-Dome tweeter is used to reproduce program material at high levels, with response out to 18kHz and uniform dispersion (120° at 5kHz). The low frequency section is an 8" direct radiator woofer installed in an optimally vented enclosure. The Sentry 100EL is housed in a utility cabinet wrapped in a special scratch-resistant, matte black vinyl. The cabinet size is intentionally designed for rackmounting. When coupled with the SRB-7 rackmount/wall mount kit, the Sentry 100EL can be integrated into virtually any environment that demands conservation of space such as mobile recording studio facilities. The steel reinforced grille is covered with a custom gray cloth.

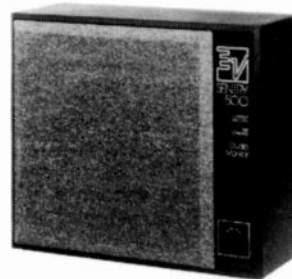
Specifications

• Frequency Response: 40-20,000Hz

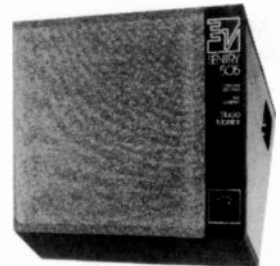
Sentry 100EL \$692.00

Sentry 100A Monitor Speaker System

The Sentry 100A monitor speaker system meets the needs of professionals with high efficiency and extended low frequency response, high power capacity across the entire frequency range, uniform frequency response and dispersion, all in a compact package. The Sentry 100A is housed in a utility cabinet wrapped in a special, scratch-resistant, matte black vinyl. The cabinet size is intentionally designed



Sentry 500



Sentry 505



Sentry 100EL



S-40

for rackmounting. With the SRB-7 rackmount/wall mount kit, the Sentry 100A can be integrated into virtually any environment that demands conservation of space such as mobile recording studio facilities. The steel reinforced grille is covered with a custom gray cloth.

Specifications

• Frequency Response: 45-18,000Hz • Impedance: 6 ohms • Long-Term Average Power-Handling Capacity (above 40Hz): 30W • Dimensions: 17.25" H x 12.00" W x 11.125" D • Net Weight: 28 lbs.

Sentry 100A \$334.00
SRB-7 Rackmount/wall mount brackets for 100A \$33.00

S-40 Compact Monitor System (Preliminary)

The S-40 is a 2-way personal-sized monitor designed to accommodate a variety of monitoring and playback applications.

The S-40 features a 5¹/₄" direct-radiating polypropylene woofer coupled with a 1" ferro-cooled soft-dome tweeter, a combination that produces exceptional bass response and a smooth, extended top end. Its long-term power handling is rated at 160W per EIA standard RS-426A.

The S-40 includes EV's exclusive PRO™ circuit protection, providing independent protection for the woofer and tweeter. In case of accidental overdrive, the circuit limits the power being delivered to the components and automatically resets when the system returns to a safe level.

Weighing only 5 lbs., the S-40 has threaded inserts in combination with optional mounting hardware, providing a flexible mounting system. The optimally vented enclosure is constructed of high-impact polystyrene structural foam and is available in black or white.

S-40B Black pair/\$280.00
S-40W White pair/280.00
S-40MBB Wall/stand mounting bracket kit
for S-40B (black) pair/30.00
S-40MBW Same as above in white pair/30.00

FILM-TO-VIDEO CONVERTERS

ELMO

TRV Film-to-Video Converters

Convert 16mm or 35mm slides to video with a compact, totally self-contained film-to-video converter.

Each TRV converter is a complete tele-cine transfer system with a film transport mechanism. A charge coupled device (CCD) video pickup element is combined with a special flat-field lens to produce a grainless aerial image. Color control, iris control, video and audio output are built-in.

The TRV eliminates the need for separate video cameras, multiplexers or transfer screens; simply connect the TRV video and audio output jacks to any video tape recorder and make your transfer. Or, you may connect the TRV directly to any projection video system or closed circuit video system.

Available in the following formats:

- 16mm sound or silent at 24fps
- 35mm, 2 x 2 mount slide film

Specifications

Optics:	Special flat-field lens built-in 16mm and 35mm slides; 25mm for 16mm film
Iris Adjustment:	Manual with fine adjustment
Focusing:	Manual with fine adjustment
Light Source:	6V-10W halogen lamp (film) 12V, 6W halogen lamp (slides)
Shading:	< 10%
Video:	Pickup Element: 1/2" CCD built-in
	Video Output: 1.0V p-p, 75 ohm
	Resolution: 240 TV lines
	S/N Ratio: > 46dB
	Color Compensation: Red/Blue
	Video System: NTSC
Sound:	Playback System: Optical/magnetic (16mm)
	Audio Output: 400mV, 600 ohm
	Frequency Response: Optical — 50Hz to 7kHz
	Magnetic — 50Hz to 12kHz (16mm)

TRV-16G — 24fps

TRV-16G with genlock circuit 24fps, 5-blade shutter, mag/opt playback. Approx. 300,000 pixels color CCD pick-up. More than 370 TV lines horizontal.

8913\$4290.00

TRV-16G — 15fps

Same as 8913, modified for 15fps, silent speed, 4-blade shutter.

8913-15\$4245.00



TRV-16G



TRV-35G

TRV-35G Genlock Converter

The TRV-35G has genlock capability and resolution of >370 horizontal lines. It will accept 2 or more video inputs and has dissolve and overlapping image capabilities.

The TRV-35G features a built-in zoom lens for close-ups, cropping and special effects. The unit is a 1-piece, self-contained professional heavy-duty slide mechanism in a diecast metal housing. The 1/2" 300,000 pixels color CCD video pickup is built into the machine. The converter uses a standard circular 80-slide tray.

The 6.5-16.25mm f/1.8 zoom lens is manually adjustable or can be power zoomed using an optional remote control. Both focus and iris are manually adjustable. Color tone is preset but can be manually manipulated using a joystick control.

8908\$3215.00

VMX-4 4-Channel Video Mixer

2 to 4 TRV-35Gs with a dissolve controller can be set up for a multi-image system with fade-in, fade-out and dissolve directly controlled by the VMX-4.

8774\$599.00

8598 RC-35G remote control\$39.95

4191-2 T-3 timer, 2-30 second variable cycle. . . \$49.00

TC400D 4-Channel TBC Controller With Memory

- Access up to 4 TBCs/D2 VTRs from a 1 RU panel
- Dedicated controls for video and chroma level, setup and hue
- Auto delegation follows switcher crosspoints
- Expand to multiple units with simple twisted-pair LAN
- Scene-by scene storage with 100 memory registers for each TBC
- Serial interface for memory operations and register storage in EDL
- Direct replacement for most manual remote panels, no new cables to install
- Complete timing adjustments
- Programmable transitions between TBC setups
- Less expensive with more power than manual remotes
- AppleTalk® compatible LAN port for graphic interface and off-line storage on Apple Macintosh® computers

The TC400D provides full, independent control of the proc amp functions of up to 4 VTR time base correctors or D2 VTRs. Access to these functions adds great versatility in post-production. It allows the editor to quickly and easily adjust VTR outputs as needed. Memory registers provide scene-by-scene storage of TBC setups, making subsequent revision and frame-matching easily achieved. GPI and Editor interfaces provide frame-accurate access to transitions between registers. A larger TBC control system can be built using multiple TC400Ds which are connected by a LAN. The CP10, a remote panel, is also available for greater flexibility. Large and capable systems are easily achieved.

TC400D \$3000.00

UPGRADE1 Upgrade kit for TC400 controllers to add D2 capability. Includes new TBC control module and software. Kit is user installable \$750.00

MEM-OPT1 Battery backup option to provide retention of memory registers when power is lost 100.00

ADPT-1 Interface adaptor for Ampex TBCs, connects to remote connector of TBC-6 and TBC-7. Requires 15-conductor, D-type interface cable (wired pin to pin) to connect from TC400D to ADPT-1 125.00

Archival Utility IBM PC interface to the TC400D with storage capability 125.00

CP10 Network Control Panel for TC400D

- Access any 10 machines in the system at 1 time
- Compact size. Half-rack width for mounting with waveform and vectorscopes
- Low profile. Less than 2.5" deep for flush console mounting
- Simple, twisted pair interconnect to TC400Ds
- Serial interface to edit controllers

The CP10 is a control panel for use with the TC400D and shares the same LAN capability of the TC400D. By simply connecting CP10s and TC400Ds along a simple twisted pair, a flexible and comprehensive TBC control system is formed.

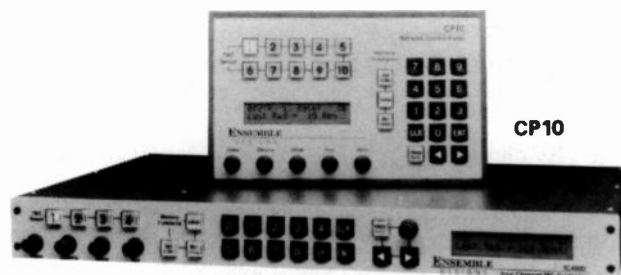
The CP10 control panel is designed to be used in edit suites and tape QC positions. Each of the 10 control positions on the CP10 can be assigned to any TBC, D2 VTR or proc amp under control by a TC400D. At the beginning of a session machines are assigned to the 10 TBC select buttons using the alphanumeric display.

The CP10 features the same easy user interface of the TC400D. Front panel controls provide direct access to the proc amp functions of video and chroma levels, setup and hue of the selected TBC. Continuous rotation type controls make it easy to precisely adjust parameters. Any of the 100 memory registers in each machine can be used to save and restore settings.

Adjustment of timing and control of special functions is performed through a menu-driven display.

A full serial interface allows storage of TBC settings into the EDL of selected edit controllers.

CP10 \$2500.00



TC400D

CP10

Studio Controller for Macintosh/TC400D Television Post Production

- Complete control over TC400D
- Graphic representation of control settings
- Works simultaneously with manual operation
- Off-line storage of TC400D registers to disk
- Numeric entry for precise adjustment
- MultiFinder® compatible

Studio Controller is a Macintosh application providing graphic interface to the functions of the TC400D. Control over video and chroma levels, setup, hue and system timing is directly accessible from a familiar user interface. Studio Controller brings any TC400D or an AppleTalk® LAN as close as your Mac.

Studio Controller \$125.00

Interface Cables

Ensemble Designs can provide interface cable to a wide variety of analog and digital VTRs and TBCs. The TC400D can also be used to control frame synchronizers and proc amps. Among the manufacturers currently supported are: ADDA, Ampex, FOR-A, Fortel, Grass Valley Group, Harris, Hotronic, I.DEN, Microtime, Panasonic, Sony, Tektronix and others. New interfaces are being added on a regular basis.

TBC/D2 Interface Cables

When ordering cables please specify the desired length, manufacturer and model number of the unit you wish to control.

Order Example: 1 15' cable for Sony DVR 10

Custom lengths also available, please consult factory.

TBC/D2-15	15'	..... \$ 60.00
TBC/D2-30	30'	..... 80.00
TBC/D2-75	75'	..... 100.00

GPI Cables

To facilitate GPI interfaces, a cable with bare leads at 1 end, the other end connects to the GPI port of the TC400D or CP10.

Specify TC400D or CP10 when ordering GPI cables.

CAB-GPI-15	15'	..... \$40.00
CAB-GPI-30	30'	..... 60.00
CAB-GPI-75	75'	..... 80.00

TIME CODE READERS/ PROGRAMMERS



Time Code Readers

ES 453 SMPTE Time Code Reader is an eight-digit SMPTE Time Code Reader displaying Hours, Minutes, Seconds and Frames. \$395.00

ES 452 Play Speed SMPTE Time Code Reader/Window Dubber is a microprocessor-based eight digit SMPTE time code video character inserter which displays either the time data or the eight user bit characters. . . \$550.00

ES 455 is a bi-directional, multi-speed, eight-digit SMPTE Code Reader, that can add the information to a video stream for recording time code on the video portion of a tape, or for displaying it on a monitor. Reading speed is 1/30 to 20 times playback speed. \$795.00

ES 456 "Smart" SMPTE Time Code Reader. The ES 456 is a bi-directional multi-speed, eight digit SMPTE Time Code Reader which displays Hours, Minutes, Seconds and Frames on .4" red LED's. The ES 456 incorporates a digital error detection system: When a bad frame of time code is detected, the unit will switch to a frame-counting mode. \$750.00

ES 257 SMPTE Time Code Reader/Comparator is capable of making two comparisons, as established by the two sets of thumbwheels located on the front panel. By specifying option "B" (four-line parallel BCD, 5V CMOS compatible), additional comparisons may be made by connecting one or more ES 258 "expander" units. \$875.00

ES 258 SMPTE Time Code Comparator has been designed as an "expander" for the ES 257. Two sets of eight-digit thumbwheels are on the front panel, to allow comparison of two SMPTE code locations. \$395.00

ES 270 IRIG B Time Code Reader Nine digits of time are shown on bright red LED's .4" character height. An RS232C interface (Hrs., Min., Sec. only) can be supplied as an option. ES 270 comes in a rackmounting enclosure 1 3/4" H x 19" W x 10" D. \$425.00

ES 280 Audio Time Code Generator/Reader is a 10 Digit Audio Time and Code Generator/Reader, capable of laying down a serial BCD time code on audio tape in the Generator Mode, and recovering and displaying it in digital form in the Reader Mode. The code has been designed by ESE. It is not a standard code, such as SMPTE or IRIG. The frequencies used to produce the code have been selected to be compatible with cartridge machines as well as other tape recording and playback equipment. Amplitude adjustment assures the right amount of signal for the particular machine being used. \$578.00

ES 956 is a multispeed bi-directional SMPTE time code reader which displays either the time data (hours, minutes, seconds and frames) or the eight user bit digits. A rear mounted terminal block allows selection of which data is displayed on the 2" orange LED display (seconds are 1" high). The unit receives the standard SMPTE time code through the rear mounted terminal block (EBU time code operation is available as an option). The unit will accept an input level between 100mV and 10V p-p and presents an input impedance of 2K ohm. It will track time code at speeds from 1/30th play speed to 20X play speed, in both forward and reverse. The unit features an on-time frame count, error detection and correction, a drop-frame indicator and a display hold (available on terminal block). . \$945.00

720 Series Programmable Clocks,

Timers and Time Code Readers

10 events occur on 10 isolated output channels, in the form of momentary reed relay contact closures. Latched outputs may be specified at the time of order. When latched, the next event to occur serves to "unlatch" the previous event.

Programming is done through the front panel keyboard, or "on the fly" in the "Run" mode. As the keys are actuated, the data is displayed on bright red .4" LED's. Re-programming is accomplished by "writing" the new data over the old data.

A battery, battery charger and crystal timebase are provided, to prevent malfunction caused by a power interruption.

The 720 Series units have a 3 1/2" H front panel, 19" W, with chassis extending 8" behind the etched and clear anodized panel.

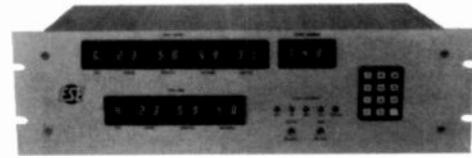
ES 720 Contains its own 24 hour clock for comparison \$887.00

ES 722 Contains its own 24 hour Presettable Up/Down timer for comparison. \$887.00

ES 727 Contains a SMPTE Time Code Reader. Code is received through a rear-mounted female XLR connector. \$1208.00

Programmers

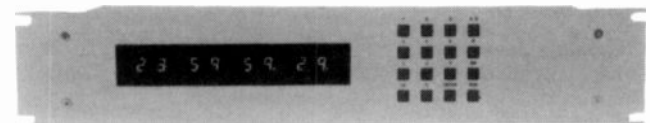
780 Series Ram Time Programmers are the most cost-effective way of programming more than eight events. They are flexible, easy to use, and provide 32 events (expandable to 96). The size of the unit is 5 1/4" H x 19" W x 10" D—Relay Rack construction, totally enclosed, with a screen top. 780 Series units operate from the power line with a backup crystal time base and 72 hour battery/charger as an integral part of the equipment.



ES 790



ES 280



ES 727

Eight Digits of Programming Capability

ES 780 10 Days, 10 Outputs, Hours, Minutes, Seconds. \$1575.00

ES 781 100 Days, Hours, Minutes, Seconds. \$1433.00

ES 782 16 Outputs, Hours, Minutes, Seconds. \$1654.00

Six Digits of Programming Capability

ES 783 Hours, Minutes, Seconds. \$1365.00

ES 784 100 Days, Hours, Minutes. \$1365.00

ES 786 16 Outputs, Hours, Minutes. \$1600.00

ES 787 16 Outputs, Minutes, Seconds. \$1600.00

Four Digits of Programming Capability

ES 788 Hours, Minutes. \$1313.00

ES 789 Minutes, Seconds. \$1313.00

ES 790 Microprocessor-Based Programmable Timer is a 1,000 event, 32 channel, microprocessor-based programmable clock. Events occur as reed relay contact closures (single pole, normally open). These closures may be all momentary, all latching, or 16 of each, at the user's option. A simple modification allows the use of 16 double pole relays, instead of 32 single pole relays.

1,000 time events can be programmed into the memory and they can be entered randomly, as opposed to chronologically.

An internal crystal with battery and battery charger is provided for uninterrupted operation.

The size of the unit is 5 1/4" H x 19" W x 10" D.

ES 790 Totally enclosed in rackmounting chassis w/screen top. \$2400.00

ES 790/1 790 w/1 Sec/Mo accuracy, Master Clock Option. \$3032.00

ES 790/3 790 w/3 Sec/Mo accuracy, Master Clock Option. \$2867.00

750E Series Thumbwheel Programmer Comparators are recommended when programming up to eight time events. Thumbwheel switches are set to compare the time information from an ESE Clock or Timer.

One set of thumbwheels is required for each event. The standard 750 Series units are enclosed in 3 1/2" high relay rack panel and chassis.

ES 750E ES 112 and one 6 Digit Program. \$382.00

ES 751E ES 124 and one 6 Digit Program. \$382.00

ES 753E ES 112 and two 4 Digit Programs (Hrs. & Min.). \$457.00

ES 754E ES 124 and two 4 Digit Programs (Hrs. & Min.). \$457.00

ES 756E ES 510 and one 4 Digit Program (Min. & Sec.). \$376.00

ES 758E ES 510 and two 4 Digit Programs (Min. & Sec.). \$475.00

ES 760E ATS Clock is a six digit, 24 hour, programmable clock designed specifically for Automatic Transmission Systems.

On the front panel are a six digit display of time, in hours, minutes and seconds, and two sets of four thumbwheels. These thumbwheels are used to program mode switching times in hours and minutes. 3 1/2" H x 19" W x 8" D.

Under normal operating conditions, the ES 760E will operate from the 60Hz power line. If, for any reason, normal power is interrupted, ES 760E will automatically switch to its internal battery and crystal time base. A built-in battery charger keeps the battery ready for such emergencies. Battery operation can continue for up to eight hours.

ES 760E \$753.00

Chaser™ 7000 Chase Synchronizer

- Time code based chase synchronizer
- Continually reads edit code from 2 tape machines, a master and a slave
- Maintains a pre-determined time relationship between the 2 by directly controlling the slave's transport functions and capstan motor
- Full speed time code readers allow the slave to chase the master in wind speeds, reducing cueing and lock up times
- Capable of a high degree of synchronization accuracy, so overall system stability is only limited by slave transport mechanics

The master and slave time code numbers are seldom the same, as the audio and video portions of a program are not always recorded at the same time. Even if they were, the same machines are rarely used for both recording and post production. The instantaneous position that the slave is displaced with respect to the master is called the offset. (Slave-Master=Offset). With Chaser, offsets can be entered over the complete 24-hour range, with a resolution of 1/100 of a TV frame.

2 different synchronization modes give Chaser tremendous flexibility. In 'frame-sync' mode, Chaser maintains absolute alignment of the time code numbers, including offset and sub-frame phasing. If tapes with disrupted time code or splices need to be synchronized, the user can select the 'auto lock' mode, to maintain only the relative phase between the 2 tapes without regard for absolute time code numbers. After initial synchronization using time code numbers, 'auto-lock' continues using only the frequency component of the code.

In synchronizer applications clean and symmetric time code is essential in order to sync-lock a tape transport with sub-frame precision, without degrading the wow and flutter specifications of the audio machine. Frequently inadequate time code reader circuits degrade the overall performance in an otherwise excellent piece of equipment. We have applied our extensive time code experience to ensure the best possible reader performance. If code dropouts occur, the slave is maintained at play speed, however it may drift slightly over a period of time. When code resumes, Chaser uses its slow re-sync mode to bring the slave back into synchronization without audible speed changes. The maximum re-sync rate is programmable by the user to suit his particular program content.

Sub-frame synchronization is achieved by monitoring time code phase and adjusting the capstan over a range of $\pm 1\%$ to $\pm 10\%$. The maximum sub-frame synchronization rate is programmable by the user.

It is vital that a synchronizer not corrupt program material due to sloppy transport coupling. Chaser utilizes complex digital filtering techniques and a capstan frequency synthesizer of extremely high resolution, adding less than 0.02% wow and flutter to the system. In audio for video work, a video reference is provided to Chaser and to the master. Slave synchronization is referenced to this video so that mechanical tolerances and code irregularities in the master are not passed on to the slave in the form of unwanted wow and flutter.

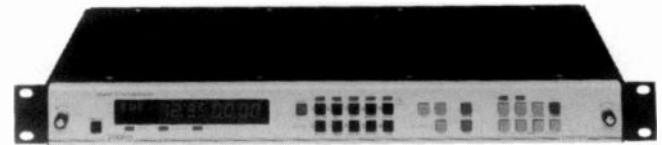
The optional parallel I/O interface provides synchronization and parking tallies as well as remote punch in/out and chase enable on a 9-pin connector. ATRs can now be integrated as slave recorders or sources on many editors that do not have available VTR control ports. (For editors with available ports use evertz Emulator.)

Chaser 7000\$2950.00

7100 Emulator Audio Transport Interface

- Audio transport interface that integrates audio into the video edit suite
- Performs audio insert edits without tying up a VTR to synchronize the audio tape machine
- Simplifies the list management process by integrating the ATR edit points into the edit decision list
- Uses the same transport interface and control electronics as Chaser
- Receives commands from the edit controller, in the specified RS-422 serial VTR protocol format
- Controls all the cueing, pre-roll synchronization, record in/out and other functions necessary in an integrated editing environment

To make use of Emulator, all you need is an edit controller that uses the SMPTE/EBU serial remote control protocol for controlling video tape machines. Emulator interfaces are available for several VTR protocols



Chaser 7000



7100



4015

(BVU, BVH, VPR, etc.). The edit controller must be capable of sync rolling the source VTRs. An extra channel of control is required to communicate with Emulator.

If multiple record machine capability is available on the edit controller, an additional Emulator may be added to control a master record ATR sync rolled with the record VTR. All the ATR functions, edit points, etc., are controlled from the main edit controller keyboard. Separate synchronizer control panels are not required.

7100\$3650.00

ECM-4010 Edit Code Master

- Designed to take full advantage of the multitude of application possibilities for vertical interval time code
- Combination generator and high speed reader for both LTC and VITC
- High resolution character inserter can be used to burn in a window from either the generator or reader data
- Powerful microprocessor software and proprietary reader and generator circuitry combine to offer a time code system that will out-perform any other
- Modular construction using euro-card style EV-BLOC modules in a 1RU high frame
- High resolution character generator/keyer
- Time and user bits presettable from front panel
- Parallel and serial remote control
- RS-232/422 serial port to interface to external computers
- Alphanumeric user bit capability
- Wide speed range in both LTC and VITC readers
- Reads last valid code from either VITC or LTC in auto mode or manual priority selection
- Several Jam-Sync modes with and without user bit transfer
- Adjustable LTC output level to +12dBm
- Keypad lock-out prevents unauthorized tampering

ECM-4010\$2995.00

4015 Film Footage Encoder

- Built-in LTC and VITC generators, can be slaved to telecine bi-phase or operate as a stand alone time code generator
- Film accurate edge number encoding follows telecine 3/2 pull down sequence in 24 fps NTSC transfers. Key numbers may be placed in time or user bits
- Provision for external bar code reader for Keycode numbered film stock
- Menu driven on-screen programming of operational modes
- Full function character inserter for display of time, user bits or edge numbers
- Translates bi-phase to longitudinal code, permitting the integration of ATR chase synchronizers into your system
- Encodes up to 6 digit key numbers with frames or 8 digit frames in standard BCD user bits for compatibility with existing readers
- Encodes full alphanumeric key numbers with frames in several enhanced data formats
- Handles multiple 16 and 35mm numbering systems
- Dual displays for simultaneous display of time and film edge numbers

4015\$POR*

*Price On Request

SIGNAL PROCESSING EQUIPMENT

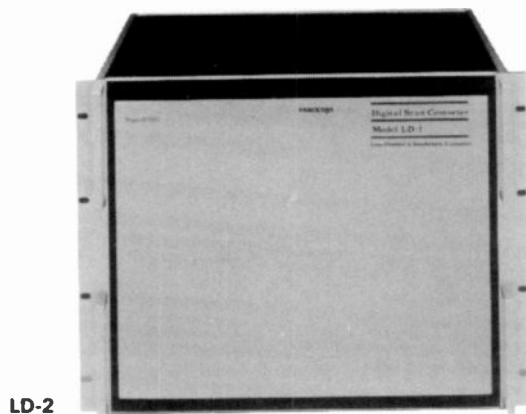
LD-2 Line Doubler and Bandwidth Expander

The LD-2 has 525-line, 2:1 interlaced, 59.94/50Hz video signals which are converted to 1050-line interlaced signals, thus making scanning lines virtually invisible. In addition, the LD-2 contains the most advanced motion detection circuitry available, which allows for full horizontal and vertical resolution display without artifacts.

The absence of visible scanning line structure, edge blurring or motion artifacts at the LD-2 outputs makes it an ideal companion for large screen video displays. Its crystal clear, artifact-free image delivers a "cinema-like" feeling from standard 525-line video sources.

The LD-2 utilizes proprietary bandwidth expansion and vertical detail processing techniques patented by Faroudja Laboratories. The use of these techniques delivers an image whose appearance is closer to an HDTV display than to 525-line displays.

LD-2 \$14,950.00



LD-2

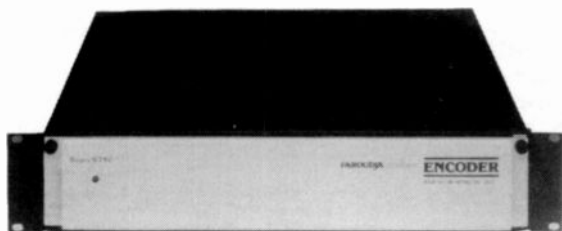
CFD-SN NTSC Precision Decoder

The CFD-SN is a high quality NTSC to RGB comb filter decoder for use in critical applications where high resolution and absence of artifacts are required. Among these applications are large screen projection, precision color monitoring, tape-to-film transfer, computer generated information display, color keying and standards conversion.

The CFD-SN uses an active comb filtering method which leads to a much more effective suppression of color subcarrier dot crawl present with standard comb filter designs. In addition, the resultant image has no visible loss of resolution. The luminance bandwidth extends to 6MHz, making the CFD-SN the closest thing to true RGB possible.

Features of the CFD-SN includes unique chroma enhancement circuitry, which eliminates ringing and apparent loss of chroma bandwidth often associated with NTSC signals. In addition, it has 4-pin multi-DIN Y/C 3.58 input and output connectors to provide NTSC to Y/C 3.58 translation and Y/C 3.58 decoding to component and RGB. The decoding, in that case, does not mix Y and C and is free of crosscolor; chroma enhancement suitable for Y/C 3.58 or Hi8 applications is provided.

CFD-SN \$6,550.00



CFD-SN

CTE-SN NTSC Encoder

The CTE-SN makes use of the process which pre-filters luminance and chrominance information prior to mixing, in order to avoid spectral overlay and artifacts; it is the only analog NTSC encoder on the market today which generates an NTSC signal, free of crosscolor and cross-luminance components. If the signal generated by the CTE-SN is decoded through the CFD-N/CFD-SN, the result is virtually indistinguishable from RGB.

The absence of artifacts and the excellent resolution of the CTE-SN gives a crystal clear, "film like" quality to the NTSC image.

Computer graphics can be recorded, manipulated or displayed under NTSC form without artifacts.

The CTE-SN will accept separate Y and C (S-VHS) signal inputs for encoding to superb NTSC images. It ensures the generation of superior S-VHS masters without any evidence of degradation. The CTE-SN will also provide an advanced blackburst output for timing the RGB/component signal input device.

CTE-SN \$9,900.00

VHP Vertical and Horizontal Detail Processor

The Vertical and Horizontal Detail Processor (VHP), which uses a patented boost principle, improves the visibility of small details whether they are present in the horizontal or vertical direction, without enhancing large outlines. This approach presents numer-

ous advantages over the use of a conventional enhancer. The picture is more natural and acquires a certain film look, and does not show the plastic or "cartoon" effect typical of conventional enhancers or low cost, limited bandwidth cameras and VTRs.

Available in the PAL/SECAM or NTSC standards, VHP is equipped with detail and video level threshold controls which make its operation virtually noise free in noisy and dark picture areas. Horizontal and vertical boost levels are separately controllable.

The main applications for use of the VHP are:

Cameras. Camera enhancers are often not effective for small details. VHP gives an extra "handle" to modify a camera look in a different way.

Videotape Recorders. Cassette recorders often show a poor picture appearance (cartoon look) after 2 or 3 generations. VHP prevents the occurrence of this problem if used in the record mode, or corrects it if used in playback.

1" Videotape Recorders, in Stop and Slow Motion. 1" videotape recorders in stop or slow motion modes suffer from a lack of resolution in both the horizontal and vertical directions. VHP corrects both defects without introducing artifacts and makes a still frame virtually indistinguishable from a normal speed playback picture.

Video Projectors. Television projectors are quite different from TV sets in their usage, as the viewer often has little choice in selecting distance from the screen. VHP makes picture quality acceptable for all viewers; because it does not enhance edges, front row viewers will be satisfied with picture quality, while the H and V boosts will give last row customers an apparently sharp picture. In fact, VHP corrects, to a certain extent, the human eye loss of detail visibility, and an unconscious feeling of better picture quality will result from its use.

VHP-N NTSC standard \$2,400.00

VHP-P PAL/SECAM standard 3,000.00

F-Series Time Code Generator/Reader/Character Inserters

The F-Series is Fast Forward's line of rackmount longitudinal time code generator/reader/character inserters.

The F22 is designed to handle most applications at minimum cost, including the added flexibility of SMPTE to MIDI conversion.

For more specialized environments, the F30 adds features like RS-422 serial computer control, a GPI output, EBU (25 frame) time code format, balanced audio and color framing.

F22 Time Code Generator/Reader/Character Inserter

Generator • Drop or non-drop frame longitudinal time code • Locks to video or syncs to internal crystal • Preset hours, minutes, seconds • Front panel pause button • Continuous jam sync function matches incoming code

Character inserter • Time code is superimposed on video signal for "window dubs" or "burned in" copies • Display on/off, background on/off • Variable sizes • Window dub user bits • Combined display: user bits and time code simultaneously • Contrast adjustable from black on white to white on black

Reader • Forward and reverse, 1/30 to over 10 times play speed • Automatic error bypass • Regenerate function corrects waveform and phase errors • Generator with pause

MIDI Time Code • Converts SMPTE time code to MIDI (Musical Instrument Digital Interface)

User Bits • Preset from front panel

Specifications

• **Video input:** 1.0V p-p, 75 ohm or high impedance. BNC • **Video output:** Characters are keyed onto the input signal. Unity gain amplification. When the F22's power switch is off, the input signal loops through and bypasses termination. BNC • **Time code out:** Adjustable from 0V to 4V p-p into high impedance. When the F22's power switch is off, the input signal loops through to the output. Unbalanced, RCA • **Time code in:** Unbalanced, high impedance. Signal range from 500mV to 8V p-p. RCA • **MIDI time code out:** Industry standard, 5-pin, 180°, circular DIN • **Character inserter:** 4 character sizes. Contrast adjusts for white characters on black background to black characters on white background. Position fully adjustable from front panel. Can display time code only or combination of time code and user bits. Front panel on/off • **Power requirement:** 110-120VAC, 50-60Hz • **Dimensions:** 1.75" H x 19" W x 6.25" L. Standard single unit rack size
F22\$995.00

F30 Time Code Generator/Reader/Character Inserter

SMPTE Longitudinal Time Code • Read: forward and reverse, 1/30 to over 10 times play speed • Generate with pause • Jam sync • Regenerate • Preset hours, minutes, seconds • Drop frame and non-drop frame • Encodes color frame sequence • Balanced XLR and unbalanced RCA connectors

Window Dub • Display on/off, background on/off • Variable sizes • Window dub user bits • Combined display: user bits and time code simultaneously

MIDI Time Code • Converts SMPTE time code to MIDI

User Bits • Preset from front panel • 8-digit or ISO 4-character

RS-422 Serial Control • Control F30 from computer or edit controller

GPI (General Purpose Interface) Output • F30 can issue a GPI "command" at a specified address

EBU (European Broadcast Union) 25-Frame Time Code • Can translate between SMPTE/EBU • Color frames to PAL 8-field sequence

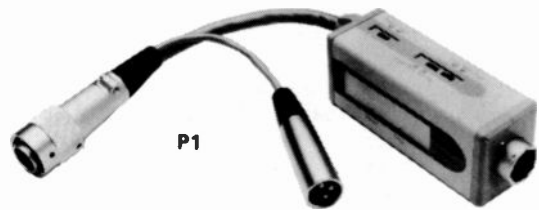
24-Frame Rate • Time code for film work • Synced to line

Specifications

• **Video input:** 1.0V p-p, 75 ohm or high impedance. BNC • **Video output:** Characters are keyed onto the input signal. Unity gain amplification. When the F30's power switch is off, the input signal loops through and bypasses termination. BNC • **Time code out:** Adjustable from 0V to 4V p-p into high impedance. When the F30's power switch is off, the input signal loops through either input to the unbalanced output. Unbalanced, RCA. Balanced, XLR • **Time code in:** High impedance. Signal range from 500mV to 8V p-p. Unbalanced, RCA. Balanced, XLR • **GPI out:** Open collector active low output. F30 can be set through RS-422 port to issue a GPI trigger when any given time code address is read, generated or regenerated • **RS-422:** Industry standard communications protocol, D-subminiature 9-pin connector. All time code functions of the F30 can be controlled. Also, continuous time code output possible • **Field reference input:** 5.0V p-p. BNC • **MIDI time code out:** Industry standard, 5-pin, 180°, circular DIN • **Character inserter:** 16 character sizes. Contrast adjusts for white characters on black back-



F30



P1

ground to black characters on white background. Position fully adjustable from front panel. Can display any combination of time code hours, minutes, seconds, frames and user bits. Front panel on/off • **Power requirement:** 110-120VAC, 50-60Hz or 220-240VAC, 50-60Hz. Configured at factory, specify when ordering • **Dimensions:** 1.75" H x 19" W x 6.25" L. Standard single unit rack size
F30\$1495.00

P2 Time Traveller Portable SMPTE Time Code Generator/Reader/Character Inserter

• Simple, compact • Easy-to-read display • No batteries, draws power from portable VTR

Generator • Generates continuous time code slaved to camera's trigger or free run independently of camera • Time code synced to video • Jam syncs to other SMPTE sources • Hours, minutes, seconds preset • Drop or non-drop frame SMPTE time code

Character inserter • Superimposes time code on video for "window dub" copies

Reader • Reads and displays time code • Bi-directional 1/30 to over 10 times play speed

MIDI Time Code • Converts SMPTE time code to MIDI • Provides all functions you need to lock a MIDI sequencer to a VCR

RS-232 Serial Control • Control P2 Time Traveller from computer • 9-pin D-subminiature connector

Specifications

• **Power requirement:** Less than 50mA on 9-12V line sourced by VTR's battery or AC adaptor • 5 1/2" x 3 1/2" x 1 1/2" • Supplied cable gives BNC and RCA connectors • In-line 14-pin camera cable adaptor available
Time Traveller\$95.00

P1 SMPTE Time Code Generator/Reader

• Fits between a portable VTR and a camera using standard 14-pin camera connectors • Eliminates the many cables required by stand-alone generators or readers • Simple, rugged, compact, easy to use • Recessed controls • No batteries, draws power from portable VTR

Generator • Normal mode generates continuous time code slaved to camera's start and stop trigger • Free run mode generates continuous time code independently of camera starts and stops • Hours, minutes, seconds preset • Drop or non-drop frame SMPTE time code • Non-volatile memory retains time code when VTR power is lost

Reader • Reads and displays input time code • Generator continuously jam syncs to reader

Specifications

• **Connections:** Female and male standard 14-pin camera connectors. Works with both composite or S-VHS • **Time code out:** User selects XLR or RCA connector. Unbalanced, low impedance, factory set to 0dBm • **Time code in:** RCA jack, unbalanced, high impedance • **Liquid crystal display:** 6-position, shows either hours, minutes, seconds or minutes, seconds, frames. Also shows whether time code is drop or non-drop frame • **Enclosure:** High impact plastic. Measures 1.25" H x 1.25" W x 4" L. Weighs 5 oz. • **Power requirement:** Minimal 25mA load on 9-12V line. Sourced by VTR's battery
P1\$795.00

RACK KITS



Rack Kits for JVC Products

Model No.	For JVC Model(s)	Description	# Rack Units Required (1 RU = 1.75")	Rail Depth Required Between Front & Rear Cabinet Rails	Mounts on (F)ront Rail or (R)ear	Price
RKS600 or RK600SHF	BRS600U	Rackslide Kit with Custom Ears/Handles	3	18" - 28 ³ / ₄ "	F & R	\$220.00
		Rackshelf with Custom Face Plate	4	24 ¹ / ₁₆ " - 26 ¹ / ₈ "	F & R	120.00
RK3200U	BP3200U	Custom Rack Kit	2	12"	F	75.00
RK6400U or RKSL64	BP5300U BR6400U	Rackshelf with Custom Face Plate	5	24 ¹ / ₁₆ " - 26 ¹ / ₈ "	F & R	120.00
		Sliding Shelf with Custom Face Plate	6	20" - 30"	F & R	160.00
RKS7030 or RK7030SHF	BR7030U BR7040U BRS777U	Rackslide Kit with Custom Ears/Handles	8	22" - 31 ³ / ₄ "	F & R	245.00
		Rackshelf with Custom Face Plate	9	24 ¹ / ₁₆ " - 26 ¹ / ₈ "	F & R	150.00
RK8600U or RKSL86	BR7000U, BR7700U BR8600U, BR9000U	Rackshelf with Custom Face Plate	5	20 ⁵ / ₈ "		120.00
		Sliding Shelf with Custom Face Plate	6	20" - 30"	F & R	160.00
RKS810U or RK711SHF	BRS810U, BRS811U BRS710U, BRS711U BRS810U, BRS811U	Rackslide Kit with Custom Ears/Handles	4	22" - 31"	F & R	200.00
		Rackshelf with Custom Face Plate	5	20 ¹ / ₈ "	F	120.00
RKSK800	KRM800U, KRM820U	Rackslide Kit with Custom Ears/Handles	6	22" - 28 ¹ / ₄ "	F & R	285.00
RK9UM9 BP9UM9 WF1730	TM9U TM91SU	Dual Rackshelf for 2 TM9U/TM91SU	6	12"	F	125.00
		Blank Panel for RK9UM9	6	—	—	40.00
		Wave Form Adapter for Tektronix 1700 Series	6	17 ¹ / ₂ "	—	90.00
RK9U(A) ADP9U	TMR9U	Dual Rackshelf for 2 TMR9U	6	14 ³ / ₈ "	F	130.00
		Wave Form Adapter for Tektronix 500/Video Tek Tek 600 Series Units	6	17 ¹ / ₂ "	—	110.00
BP9U(A) WF1730		Blank Panel for RK9U(A)	6	—	—	40.00
		Wave Form Adapter for Tektronix 1700 Series	6	17 ¹ / ₂ "	—	110.00
RK13U	TM13U	Rackshelf with Custom Face Plate	9	10 ¹ / ₂ "	F	90.00
RK14U	TMR14U, VMR140U	Custom Rackshelf	7	15 ¹ / ₄ "	F	110.00
RK150ESU	TM1400SU	Rackshelf with Custom Face Plate	8	16 ³ / ₈ " - 28 ¹ / ₂ "	F & R	125.00
RK190U	VMR190U	Rackshelf with Custom Face Plate	11	19 ⁷ / ₈ " - 24 ¹ / ₄ "	F & R	150.00

Rack Kits for Panasonic Products

Model No.	For Panasonic Model(s)	Description	# Rack Units Required (1 RU = 1.75")	Rail Depth Required Between Front & Rear Cabinet Rails	Mounts on (F)ront Rail or (R)ear	Price
RK-P68SHF or RKS-P68	AG6100, AG6200 AG6300, AG6650 AG6651, AG6810 AG6820	Rackshelf with Custom Face Plate	4	17 ³ / ₈ "	F	\$120.00
		Custom Rackslide Kit	4	18" - 27 ³ / ₄ "	F & R	190.00
RKS-P6575	AG6500	Rackslide Kit (Use with Panasonic Ears, which come with VTR)	4	18" - 27 ³ / ₄ "	F & R	115.00
RK-P73SHF or RKS-P73	AG7100, AG7110, AG7300	Rackshelf with Custom Face Plate	4	17 ³ / ₈ "	F	120.00
		Custom Rackslide Kit	4	18" - 27 ³ / ₄ "	F & R	190.00
RKS-P6575	AG7500, AG7500A AG7510, AG7750	Rackslide Kit (Use with Panasonic Ears, which come with VTR)	4	18" - 27 ³ / ₄ "	F & R	115.00
RK-P78SHF or RKS-P78	AG7800	Rackshelf with Custom Face Plate	4	17 ³ / ₈ "	F	120.00
		Custom Rackslide Kit	4	18" - 27 ³ / ₄ "	F & R	190.00

Rack Kits for Sharp VCRs

Model No.	For Sharp Model(s)	Description	# Rack Units Required (1 RU = 1.75")	Rail Depth Required Between Front & Rear Cabinet Rails	Mounts on (F)ront Rail or (R)ear	Price
RK-RP305	XA300, XA305, XA310	Custom Rack Kit	2	12 ⁷ / ₈ "	F	\$75.00

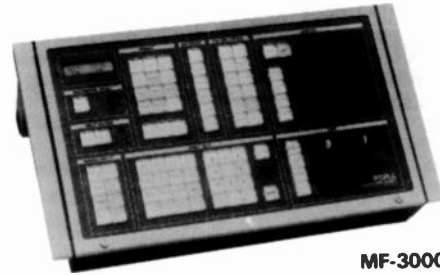
SIGNAL PROCESSORS



MF-3000 Multiflex 3-D Digital Effects

Generator/Time Base Corrector

- Provides both composite and Y/C input and output interfaces for use with U-Matic, S-VHS and other 3/4" and 1/2" systems • A complete array of 3-D effects includes Z-axis spin, rotation and perspective plus curve and twist effects • Over 100 X-Y-Z effects can be generated • "Coin flip" effects can be programmed to show the same input on both sides • All popular 2-D effects are provided including zoom up to 8X, paint, mosaic, posterization, freeze, strobe and negative plus a variety of wipes and up to 16 different movement patterns • 3 independently selectable sources—background video, foreground video A and foreground B—provide operational flexibility and an impressive array of effects • 4:2:2 component processing • Built-in infinite range TBC with 5.0MHz response and an adaptive comb filter for composite video inputs • Full-frame memory of the TBC automatically phases sources to video system timing, even with non-synchronous VTRs • The memory also provides storage for freeze-frame and freeze-field displays • The Operator Control Console is easy to program and operate since all functions use color-coded panel switches that individually light up before the next operation, prompting the operator in selecting the next step • Touch-key operation and the 3-axis joystick facilitate smooth performance with a minimum of button pushing • Up to 20 sequences of as many as 40 effects can be programmed and stored in memory for instant operator recall. Effects sequences can be programmed either by key frames or as continuous effects routines \$22,900.00



MF-3000



MVP-2200



CT-110

MF-1000 Multiflex Digital Image Processor and Time Base Corrector With Integral TBC

- Built-in S-VHS compatible time base corrector • 5.0MHz bandwidth • Incremental cropping • Dual input selection with automatic or manual operation • Adjustable mosaic and posterization • Variable border generation for hue and luminance as well as horizontal and vertical sizes • Internal anti-aliasing keyer for "ripple free" motion • Expandable for dual channel operation • Sequential event memory with easy "key point" identification • Removable nonvolatile memory card \$14,500.00

Dual Channel Units

MF-1000D 2-D + 2-D \$24,900.00
 MF-1000D3 2-D + 3-D* 32,500.00

Field Upgrades

MF-1000U3 From MF-1000 to MF-3000 \$14,700.00
 MF-1000UD From MF-1000 to MF-3000D (2-D + 2-D) 11,000.00
 MF-1000UD3 From MF-1000 to MF-3000D3 (2-D + 3-D)* . . 18,800.00
 * 2 control panels required

Accessories

EXT-2 Extender board \$835.00
 SM-4 Service manual (specify product) 150.00

MVP-2100 EGA/RS-170A Video Converter

- Converts non-interlaced RGB signals to composite NTSC as well as component RGB video signals • Memory capacity: 1024(H) x 1024(V) pixels, 6 bits, 2 for each R, G and B signal • Selectable flicker elimination function • Built-in color encoder • Composite or S-VHS Y/C 358 background video • Built-in background color generator with palette function selectable by either front panel or RS-232C control • Built-in sync generator • Picture freeze function • 2-page memory selectable by either front panel or RS-232C control • Super on/off control • Accepts 64 colors \$5,500.00

MVP-2200 Computer to RS-170A Converter

- Converts non-interlaced RGB video signals from personal computers or other digital image processing devices into NTSC composite video signals • A built-in mixing circuit allows the PC-generated graphics and characters to be superimposed onto a standard video background • Supports all standard VGA, EGA and CGA modes as well as Macintosh 640 x 480 displays • Flicker reduction circuitry produces unusually high quality and stable images by eliminating the flicker generally associated with conversion from non-interlaced scanned images • Frame memory permits synchronizing signals at H-line scan rates

from 15kHz to 37kHz at the input to the unit • With 24-bit processing of the RGB signals, the MVP-2200 permits a total of 16 million colors to be displayed at the output on a standard NTSC color monitor or to be recorded on standard NTSC VTR equipment • Background color generator plus built-in sync generator • Background color selection, super and freeze functions controlled by a PC computer through the unit's RS-232 port • Operation is menu-driven using standard NTSC color monitor for mode selection and settings • All controls and displays conveniently front-panel located on standard 19" rackmount configuration \$8,975.00

CT-100 Y/R-Y/B-Y to Y/C 358 Transcoder

- For interfacing Beta (component) signals with Y/C 358/S-VHS signals • Transcodes Y, P_n, P_n to Y/C 358 or Y/C 433 signals • Generates clear Y/C 358/S-VHS compatible signals \$950.00

CT-110 Y/C 358 to YP_nP_n or RGB Transcoder

- Permits Betacam and MII VTRs to be easily integrated into S-VHS systems • Provides a single Y/C 358 input and 1 switchable YP_nP_n or RGB output • Generates a full bandwidth 5.0MHz video signal • Housed in 1-unit high standard 19" rack frame chassis . . \$1,890.00

CT-120 RGB to YP_nP_n Bi-Directional Transcoder

- Converts either RGB component video signals to YP_nP_n or YP_nP_n video signals to RGB video signals • Allows RGB signals from a camera or computer-based systems to be directly recorded onto a component VTR • Permits video signals from a component VTR to be directly input to either an RGB monitor or a personal computer • 3 modes of transcoding the YP_nP_n signal are provided: Mode 1—4-line system, GBR and sync; Mode 2—3-line system, each GBR signal with sync; Mode 3—3-line system, green only with sync • Non-standard signals (i.e., from a PC) can also be transcoded for mode 1 or mode 2 operation by setting a jumper inside the unit. In this case, an external sync signal is used instead of the internal sync signal so that blanking is not performed \$2,350.00

CT-600 Component Transcoder

- Simultaneous component output signals • Full matrix transcoding capability • Built-in encoder for monitoring use • Monitor output for real time signal evaluation • Easy input and mode selection \$3,650.00

DEC-110 RGB Decoder

• High performance color decoder for demodulating composite video signals into separate R, G and B outputs • Sync signal can also be provided, either as a separate output, or combined with the green output • Designed for use in component video systems • Front panel controls include individual level adjustments for video, chroma, R, G and B, plus chroma phase and set up adjustments • "Adaptive" comb filter circuitry. \$3000.00



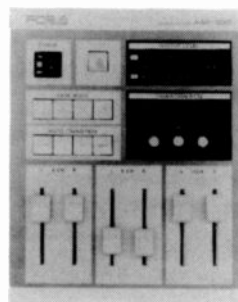
DEC-110

DEC-100 RGB Decoder

• Converts standard NTSC video signals to RGB components, primarily used to provide Chroma Key inputs on switchers or to mix with RGB Graphic Systems • Converts composite video inputs from cameras and VTRs, etc., and provides RGB component signals as well as sync outputs . . . \$2000.00

ENC-110 NTSC Encoder

• Specially designed to incorporate with the FVW-910, in conjunction with the CC-910, CS-710 and VTW-800 in conjunction with the CU-600, resulting in effective performance • Encodes analog or digital RGB signals input • Special mixing is performed providing certain and distinct superimposition • Both NTSC and PAL standards are available \$2450.00



AM-100

ENC-200 Color Encoder

• Designed to encode analog RGB or Y/PR/PB signals into signals for composite video • Comb filter technology ensures minimum reduction in vertical resolution • Black stretch and enhancement functions that automatically adjust to the input signal level • Internal full field color bar generator \$5950.00



EVM-1000

AM-100 Audio Mixer

• 8 1/2" x 11 1/4" • Neat and simple control panel which provides automatic A/B roll audio switching with a selection of 4 crossfade transition modes • Transition rates may be set from 0 to 999 frames • Auxiliary input with separate controls permits a background (i.e., music or sound effects) channel • 3 GPI inputs permit auto transition for normal editor and A/B bus selection for use with the VPS-500 Video Production System and EC-740 Edit Controller • When combined with the EC-740 and the VM-100 Video Mixer, the AM-100 is an important component in a cost-effective A/B roll editing system \$2350.00

CCS-440 Component Color Corrector

• Y/R-Y/B-Y input and output interface with several internal level scaling capabilities • RGB black and white level control • Individual gamma correction for RGB • Overall gamma correction • NTSC (encoded) monitoring output • Serial interface control unit; operates with up to 1000' of remote cable • Color correction function can be inhibited for VITS • Video and chroma gain and set up controls \$7750.00

VM-100 Video Mixer

• Designed to provide smaller production facilities with a versatile and readily affordable video mixer for A/B roll editing • When used in combination with the EC-740 A/B Roll Editing Controller and AM-100, the VM-100 makes a highly cost-effective A/B roll editing system • Provides Y/C 358 or composite inputs and outputs • Includes 7 wipe patterns with softness control as well as superimposable hard- and soft-edge graphics (Border: 13H, ± 0.3µs) • Auto transitions for program and key sources selectable from 0 to 999 frames • AFV (audio follow video) interface permits control of AM-100 from VM-100 operating panel \$4500.00

CCS-4360 Color Corrector

• Improves inferior sync and burst by consistently inserting new signals at the output when input signal disturbances occur • Black stretch function enhances detail in low light level scenes • Vertical blanking can be in 1 H steps within a range of 11 H to 21 H • Independent R, G and B controls for white, black and gamma • All operation modes (bypass, operate, off) have equal delay between input and output to eliminate system timing differences • Differential and balance operation modes • Rackmountable main frame and remote operation panel; can be used with up to 1000' of multi-cable \$6950.00

VDA-106 Video Distribution Amplifier

• Up to 6 video outputs from 1 input • 75 ohm high impedance input loop-through for parallel connection (up to 10 sets) • Can be rackmounted (half rack size) or used as a tabletop unit • Ideal for video security and surveillance or CCTV applications \$350.00
VDA-206S S-VHS, 1 x 8 \$595.00

EVM-4300 Color Corrector

• Allows real time on-air color correction and editing functions • For use with CCS-4360 • Provides automatic color correction at pre-set intervals • Up to 255 event storage • External timing pulse triggering • Entry and display of: current time, elapsed time, data for 10 subsequent events, event number commencement time, color grading data \$4600.00

VA-310 Video/Audio Stereo Distribution Amplifier

• Up to 10 video and stereo audio outputs from 1 input • 75 ohm high impedance input loopthrough for parallel connection (up to 10 sets) • 19" rackmountable • High quality distribution amplifier particularly suitable for post production systems \$ 600.00
VA-310S S-VHS, 1 x 10 \$1100.00

EVM-1000 Event Memory

• Memory system for use in real time and computer-controlled color correction processing • Stores up to 10 events in memory registers, recording the control panel settings as "snapshots" for FOR-A parallel-controlled color correctors CCD-4360 and CCS-4400 • Interfaces with the computer via RS-422A or RS-232C interfaces • Upon command from a personal computer, time code generator or external GPI signal, instantly recalls and introduces the pre-set color correction settings from the memory registers • Memory data transition from 1 register to another provided for editing purposes • Interpolation function allows the creation of a new event between any other 2 settings • Memory backup in the EVM-1000 protects data in the event of power interruption. \$2850.00

TBCs/FRAME SYNCHRONIZER/ DIGITAL EFFECTS



FA-220 Digital Time Base Corrector With Freeze Frame

- Designed for use with 1/2" and 3/4" heterodyne VTRs • Exclusive recursive filter, motion-compensated noise reduction for luminance and chrominance • Auto Chroma Control (ACC) maintains correct chroma levels • Chromacor™ compensation circuitry corrects Y/C delay errors associated with S-VHS productions • Wideband CCD comb filter ensures high resolution and picture quality • Frame synchronizing full-frame memory eliminates correction range limitations and automatic picture freeze when poor quality input video signal is detected or input video is absent . . . \$2950.00

FA-220MX Monochrome extended black and white TBC . . . 3750.00

FA-300 Digital Time Base Corrector With S-VHS

- Component processing with 4:1:1 sampling and 8-bit processed Y and C • Universal compatibility: Y/C 358 as well as composite in and out • Wideband CCD comb filter maintains high resolution and high quality pictures • Frame memory eliminates correction range limitations • Freeze functions: frame/field selectable; auto freeze by detecting absence of input signal; optional remote control allows setting strobe freeze and strobe duration • DOC (dropout compensation) • Digital delay line for luminance signal can adjust luminance-to-chrominance delay with a high degree of accuracy • ACC restores reduced chroma signal level to correct level at playback • Black stretch enhances low level luminance input signals • Chromacor Y/C delay compensation • Optional remote control unit allows adjustment of output signal level and phase; controls freeze and switching between bypass and operate modes • Optional dynamic tracking \$3150.00

PCU-2 Remote control 950.00

FA-310 Digital Time Base Corrector With 3-D Noise Reduction

- To provide optimized performance in processing 1/2" and 3/4" formats, the FA-310 uses an exclusive 3-step motion-compensated noise reduction for luminance and chrominance • Recursive-filter noise reduction increases output signal-to-noise ratio as much as 9dB with none of the resolution loss typically encountered with H and V dimension noise reduction • Working in conjunction with the recursive filter are motion-compensated circuits that automatically eliminate the introduction of motion defects into the picture • Adaptive comb filtering ensures 5.0MHz bandwidth for composite VCR sources; and for Y/C inputs, full-band channel and Rec. 601 4:2:2 processing for the highest possible resolution • 1H Y delay circuit to correct vertical Y/C delay errors in the built-in dropout compensator, eliminating annoying tape dropouts • Automatic chroma level control to compensate for varying or reduced chroma levels resulting from frequency response variations which may occur during record/playback • DT option allows the FA-310 to process dynamic tracking VTRs without a glitch • Composite video, Y/C 358, the input Transcoder option and YP_P,P_S and Y/C Dub sources make the FA-310 a functional decoder, encoder and transcoder • Composite video, Y/C 358 and YP_P,P_S formats simultaneously available at the output to interface with most popular video equipment currently in use • Full-frame memory for infinite window correction, frame or field picture freeze and variable time interval strobe-freeze function • Provides operation from shuttle lock to 40X play speed • More than 20 functions easily controlled from the operator control panel \$3950.00

FA-310T FA-310 with Y/C dub and YP_P,P_S inputs 4450.00
FA-310DT DT™ option for FA-310 (Sony Corp.) 300.00
FA-310RGB FA-310 with RGB outputs 4450.00



FA-220



FA-300

FA-720 Dual Channel Time Base Corrector

- 3-step noise reduction incorporating recursive filtering • Uses motion-compensated noise reduction for luminance and chrominance • Each TBC provides separate Y/C 358 and composite video inputs and Y/C 358, YP_P,P_S and composite outputs to permit the highest quality pictures available in processing S-VHS and U-Matic SP as well as other 1/2" and 3/4" formats • Output signal-to-noise ratio up to 9dB with none of the loss in resolution typically associated with H and V dimension noise reduction • Wideband comb filtering • Highly sensitive ALC circuit to minimize color distortions that might otherwise be introduced into the chroma during record/playback • Each TBC incorporates full color frame memory, automatic picture freeze and digital dropout compensation • Separate power supplies ensure high system reliability • Common genlock for both channels provided in both internal and external modes of operation \$6250.00

FA-425 Digital Time Base Corrector

- Automatic/manual full color frame or field picture freeze plus variable time interval freeze • Corrects errors from 1/2" and 3/4" VTRs or any V-lock or non-V-lock source to produce standard NTSC signal • Permits a full bandwidth TBC processing mode • Fully digital DOC and built-in RS-170A standard sync signal generator with genlock • For use with U-Matic SP* \$5300.00

PCU-2 Remote control 950.00

FA-800 AUTOCOR™ Time Base Corrector/Frame Synchronizer

- Frame memory with automatic level control sets input video to the most suitable level • V blanking line control to designate VITC time code, test, ID and teletext signals • Automatic freeze function freezes the last good video frame when the video input is interrupted • Selectable video freeze or black signal output in automatic freeze mode • Freeze automatically released when video signal input starts again • Selectable frame/field freeze in manual mode • Top and bottom 4-bit data swap • Automatic selection of color or B/W mode • Built-in RS-170A standard sync signal generator with genlock capability • Adjustable SCH of video output in the internal mode • Full processing amp facility and optional remote control unit \$5950.00

RK-1 TBC rack slide kit 110.00
RU-800 Remote control 950.00

Note: All For-A products are available in PAL standard. Call for pricing.
*U-Matic SP is a trademark of Sony Corp.

E-2 Stereo Master Recorder

- Has a third, center channel for SMPTE control • Uses 1/4" tape
- Compatible with professional formats • Built-in 2-position autolocator can be used to set up a loop or repeat • Real time counter with search-to-zero even from the negative domain • Auto stop and auto play from rewind, as well as from fast forward • Servo control of the reels in the Edit mode lets you find cues and spot erase with pinpoint precision • When the pitch control is engaged a flashing warning light is displayed along with the exact percentage of speed deviation • Gapless/seamless punch in and out • Time readout changes to read percentage of tape speed when pitch control is touched • 10 1/2" reel with center track SMPTE, 7.5 and 15 ips standard (15/30 ips extra cost) \$3,750.00
- 5030 -10 to +4 line adaptor (8-channel) \$3,750.00
- XLR and phono \$595.00

G-16S 16-Track Recorder With Integrated Synchronizer Capability and Dolby S Noise Reduction

- Built-in remote control • Transport logic is smooth and quiet • Time and memory display on front/remote panel • Meters programmable to function 3 ways: permanent peak hold, peak reading and temporary peak hold • Pitch control for variable speed adjustments $\pm 12\%$ in both record and play • MIDI controllable with optional 8330 synchronizer card • Front panel control of 8330 card • "Second Page" mode allows multi-function operation of individual command keys • Up to 10 cue points • Preroll • Auto locate • Auto play • Auto return • Zone limiting • Tape reel zone limits • Memory access \$8,500.00

8330 Plug-in Card

- SMPTE time code generator/reader with a full chase synchronizer • MIDI interface with MTC-1 functions • EPROM option for Sony VTR emulation via RS-422 serial port • For use with G-16S/G-24S \$1,000.00

G-24S 1" 24-Track Recorder With Integrated Synchronizer, Sony VTR Emulation and Dolby S Noise Reduction

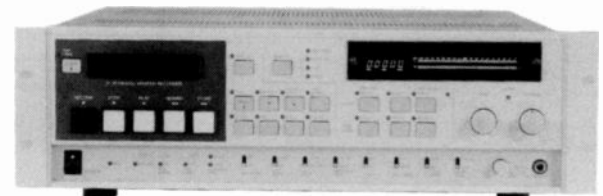
- Built-in SMPTE controllable • MIDI controllable, transport functions can be controlled via MIDI—all MTC-1 functions • Sony VTR emulation: 8VU 950 and BVH 2000/3000 via the RS-422 serial port • Includes 8310 system expansion board which supports not only different emulation modes, but also multiple editor specific modes • Supports editors such as: GVG 141/151, CMX300, Ampex ACE 25/200, etc. • Built-in remote control. The entire front panel is removable, so you can control all functions • Jog shuttle and spot erase • Programmable meters, permanent peak hold, peak reading, and temporary peak hold—user adjustable • Pitch control $\pm 12\%$ —in both record and play modes—with a separate on/off switch • Front panel angle, position at a 30° or a 45° angle for operating ease, and for alignment at 90° • Second page mode, multi-function operation of individual command keys • Remote control foot switches available as options for punching in/out and for automatic locating • Automation features: up to 10-point memory, preroll, auto locate, auto play, auto return, zone limiting, total memory access—verify or change \$14,500.00

D-20 Digital Master Recorder

- SMPTE/EBU time code recording with IEC or Fostex format • Comes complete with 8310 expansion card which includes Sony VTR emulation capabilities, as well as IEC time code format • Performs audio assembly editing controllable from a video editor • No black boxes needed • Optional 8320 system control unit plugs into the D-20 serial port • Refresh time code • Off-the-tape monitoring • Slave capability • Variable speed control • Automatic locate • Switchable LED display of absolute time and SMPTE time code • Readout of program number • Ability to write song start IDs, skip IDs, end IDs and re-number up to 799 (the DAT format unit) • Repeat and auto play can be addressed using A-time or SMPTE time code for locations • Variable



G-16S



D-20

- speed $\pm 10\%$ in 0.1% increments • Programmed play allows unattended playback of audio for duping or A/V purposes • Buffered RS-422 serial port for communicating with other devices • Programmed play up to 99 songs in any order • Built-in battery supplies auto backup for cue points, program play and repeat play • Storage for 10 cue points with position #9 always storing the last "start" point \$8,000.00

8320 System Control Unit

- Provides switchable LED display of absolute time and SMPTE time code, readout of program number, and the ability to write song start IDs, skip IDs, end IDs and re-number up to 799, which is the limit of the DAT format • Other features include complete remote control of all front and rear panel functions, locate that can be addressed via program number, absolute time, or SMPTE time code • Programmed play allows for unattended playback of audio for duping or A/V purposes and also includes repeat play \$800.00

Accessories

- 8440 Cable for 80/20, R8 and E Series \$100.00
- MN-50 Compressor/line mixer (5 x 1) \$70.00
- TT-15 Test tone oscillator \$48.00
- TS-15 FSK tape sync unit for drum mach/sequencer \$53.00
- 8700 SMPTE time code generator \$210.00
- 9007B 7" black metal take up reel \$11.00
- 3011 Normalled patch bay \$100.00
- HD-10 Professional head demagnetizer \$31.50
- CT-5 C-60 cassette, best quality with track chart \$6.00
- WR-1 Wood rack for recorders \$175.00
- 9930 1/4" editing block \$18.00
- 9931 1/2" editing block \$25.00

R8 Multi-track Recorder

- 8 track with Dolby C • Built-in remote • MIDI control with MTC-1, optional • Computer ready to interface with MIDI or SMPTE automation • Entire front panel is removable for control of all functions • Time and memory display on remote panel • Meters are programmable 3 ways: permanent peak hold, peak reading and temporary peak hold • Fine mode reads 1dB increments • Programs up to 10 memory points • Preroll, auto locate, play and return • Zone limiting • Tape reel zone limits • Memory access \$2,800.00
- MTC-1 MIDI to serial adaptor \$350.00

SMPTE TIME CODE EQUIPMENT/ AUTOMATED MEDIA EDITOR



4000 Series SMPTE Time Code Equipment

- Truly contemporary hardware is software based. All 4000 Series products are designed for easy upgrades with socketed EPROMs
- Serial data ports for computer interface

The 4000 Series of products allow you to control and synchronize tape recorders with each other, video with audio, synthesizers to tape recorders, video tape to synthesizers, SMPTE to MIDI or any combination of all the above.

4010 Time Code Generator/Reader

- Multi-format: generates, reads and regenerates all formats of SMPTE/EBU code: 30fps, drop-frame, 29.97 non-drop, 25fps, and 24fps
- Synchronous code
- External Pulse In: accepts virtually any kind of pulse information to generate time code—pilotone, neopilot, synchrotone, 50Hz, 59.94Hz, blackburst (RS-170A), etc.
- Supplies video control track pulses for a video machine when used as a slave to an audio recorder
- Independent generator/reader
- High speed reader accurately reads code from 1/10 to 100 times play speed
- Frame + 1: displays either one frame ahead or the actual current frame
- Electronic event memories
- Generates user bits and hex
- Reads user bits and hex
- True regeneration
- Jam sync/force jam
- Synchronized to color frame
- Includes high speed reader adaptor cable for 4030 synchronizer
- Includes two DIN connectors so you can make up event control cables
- Software upgradeable
- Serial data port \$1295.00

4011 Window Inserter/VITC Interface

- Three input modes for reader: VITC—the reader only reads vertical interval time code, LTC—the reader will only read longitudinal time code, Auto—the reader will automatically search for either code
- Format indicator
- Adjustable window—positions code display on screen for both horizontal and vertical display
- Full display
- Capable of displaying both time code and user bits simultaneously \$1295.00

4020 SMPTE/MIDI Event Controller

- 999 events can be programmed
- Built-in SMPTE time code generator (LTC)
- Built-in SMPTE to MIDI time code converter
- Real time control possible via MIDI instead of using event set-up
- Built-in wide-band reader provides readable SMPTE time code speed range from 1/50 to 100 times play speed in both forward and reverse
- Also accepts MIDI message for control
- Two RS-422 serial ports are included for "chaining" 4020s together. Serial port #1 is normally used for controlling VTRs and ATRs, while #2 is normally used for external control of the 4020. These are DB-9 connectors
- F.A.M.E. support. Software version 1.7 of the audio/video editing program has screen support for the 4020 so that all aspects of your editing process can be controlled from one console
- "Time" information can be supplied to the 4020 by any of the following: SMPTE (with or without tach and direction), MIDI time code, tach and direction, and internal clock \$1495.00

4030 Synchronizer

- Synchronizes up to four machines (one master and three slaves)
- Fast lock-up
- Interfaces to most brands of video and audio tape recorders
- Synchronizes to within 1/100 of a frame
- Easy to update using socketed EPROMs
- Works with 24, 25, 30fps and drop frame
- Immune to static electricity damage
- Serial interface port allows communication with personal computers to help you run edit decision lists (EDLs), or write your own software
- Slave as many transports as you wish, just by adding a



4030/4035

- 4030 for each slave
- SMPTE programmable record in/out
- Master waiting in chase mode
- Slave waiting in chase mode
- Calculation of offsets from the keypad
- Store auto record with offset
- Does not include cables or interfaces. \$1500.00

4035 Controller

- Sophisticated remote controller for the 4030
- 10-position auto-locate
- Selectable pre-roll up to 99 sec.
- Zone limits, or end-of-tape tags so that you can't run off the reel
- Programmable, automatic punch in/out with rehearse function
- Individual transport control of up to one master and three slaves
- Drives video as master or slave with the appropriate interface
- Locks to film editors using bi-phase sync pulses with the addition of the 8710 interface
- 8710 interface contains software to designate each 4030 as slave 1, 2, or 3. \$500.00
- 8710 Synchronizer interface unit [used when adding two or more slaves (4030) controlled by 4035] 500.00

4050 MIDI Synchronizer/Autolocator

- Sync MIDI to SMPTE, the universal timing standard, with built-in SMPTE generator (all formats)
- Automatic punch-in/out with Rehearsal and Take modes
- Complete autolocate for Fostex models 20, 80 and E-Series
- Autolocate to a SMPTE number or to the Bar/Beat
- Up to ten cue points and tie sequences can be stored in the internal memory, which is backed up by battery
- Built-in tempo generator
- Optional serial communication bus allows interface with a personal computer
- Does not include cable (8440 for E-Series) \$1300.00

F.A.M.E. Fostex Automated Media Editor

- Software application for controlling video and/or audio recorders via the 4030 synchronizers from an IBM PC or compatible computer
- Allows audio editing via the EDL on the computer display
- Up to 500 takes and event data for each machine can be stored on the disk (512K)
- By swapping the edit in/out and offset data of 4030, F.A.M.E. can execute the sequence of event takes automatically
- Assign a name or description to each event or take
- Print out the EDL data (list)
- Use up to three slaves (you need one 4030 for each slave and interface) and edit all the list at a glance
- F.A.M.E. For Macintosh SE or better, hard disk system 6.05+ \$500.00
- F.A.M.E. For IBM PCs and clones, requires 640K RAM 400.00

Frezzi 90's

LIGHTING/BATTERIES/CHARGERS

Mini-Fill Lights

• Extremely lightweight—only 12 oz. • Compact size—2" x 4 1/4" • Operates from any 12-14.4 or 30V battery • Utilizes the latest high efficiency multi-mirror lamps (20-100W) • Completely serviceable • Field tested • Field proven • Mounts on camera, pistol grip or lightstand • Dual-lighthead configuration from one power source • Rugged construction—Built by Frezzolini®—the world leader in portable lighting and power

Single Light Configuration (Includes 100W or 75W Bulb)

MF-12P	Mini-Fill w/cigarette lighter plug	.....\$175.00
MF-12C	Mini-Fill w/BP-90 type co-ax plug	.....175.00
MF-12V	Mini-Fill w/Frezzi amp connector	.....175.00
MF-4X	Mini-Fill w/XLR-4 connector	.....175.00
MF-5X	Mini-Fill w/XLR-5 connector	.....175.00
MF-12PT	Mini-Fill w/power tap connector	.....225.00
MF-30	Mini-Fill w/2-pin amphenol connector for 30V operation (includes 80W bulb)	.....180.00

Dual Light Configuration

DMF-12	Twin Mini-Fill interconnected for power from one (1) source. Choice of power connectors: Sony BP-90 In-Line, Frezzi™-Amp, XLR-4/5 or cigarette lighter type	.....\$335.00
DMF-30	Same as DMF12 except wired for 30V operation including 2-pin amphenol connector	.....345.00

Uni-Fill NP-1(A) Powered Mini-Fill Light

• Self-contained • Portable • Up to one hour of operation with single NP-1 battery • Lamp type: 20W • Weight: 12 oz. without NP-1(A); 2 1/4 lbs. with NP-1(A)

MF-NP1	Uni-Fill Lighthead with integral NP-1(A) holder, 3" light post, diffused front glass and BAB (20W) lamp	.....\$225.00
MFDF	Flip-up dichroic filter	.....95.00
FNP-1HC	Replacement 1.8AH battery for Sony NP-1(A)	.....95.00
MFCC	Custom carrying/shipping case	.....165.00

MFK-90 Professional Mini-Fill Kit

• (1) MF12C Mini-Fill Lighthead with in-line BP-90 connector • (2) EXV (100W) or EYC (75W) Lamps • (1) Frezzolini FBP-90 4AH Battery Pack • (1) BC-124S Overnight Charger • (1) MFDF Dichroic Filter • (1) MFCC Custom Fitted Case • (1) Stud of your choice\$795.00
Other Custom-Designed Kits Available Per Your Specific Requirements.

9807 ML Bracket With LS-1 Stud

• Designed for all-purpose mounting clamp • Adjustment knob • Tapered moving jaws • High-density plastic • Easy to clamp to any camera handle\$65.00

Camera Mounted Lite/Mic Holders

LS-1	Lite-Stud, 3" x 1/2", 1/4-20 thread	.....\$27.00
LS-1A	Lite-Stud, 1 1/2" x 1/2", 1/4-20 thread	.....27.00
LS-21	Lite-Stud, 3" shoe type	.....31.00

Frezzi On-Board™ Battery Packs

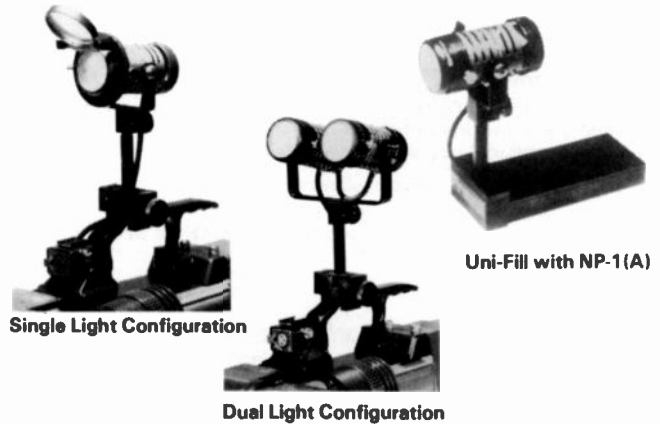
"Superior to Camera Manufacturer-Supplied"

Features: Extended Life With No Memory
• Battery mounts directly to camera manufacturer-supplied Anton/Bauer bracket or optional Frezzolini mounting bracket • No cables or modification required • Full 4-5AH capacity—only premium selected NiCad cells used • Lightweight 2-3AH models available • Custom-designed mounting brackets available • Rugged welded aluminum case • Internal fuse and thermal protection. Spare fuse included for field replacement • Charge compatibility with camera manufacturer-supplied charge systems or Frezzolini fast, overnight or multiple battery chargers

BP-12	4AH, 12V	.....\$495.00	BP-133	3AH, 13.2V	.....\$330.00
BP-122	2AH, 12V	.....285.00	BP-135	5AH, 13.2V	.....565.00
BP-123	3AH, 12V	.....315.00	BP-14	4AH, 14.4V	.....535.00
BP-125	5AH, 12V	.....545.00	BP-142	2AH, 14.4V	.....315.00
BP-13	4AH, 13.2V	.....515.00	BP-143	3AH, 14.4V	.....345.00
BP-132	2AH, 13.2V	.....300.00	BP-145	5AH, 14.4V	.....595.00

FBP-90/FBP-90FC Frezzi Premium-Grade Direct Replacement for Sony BP-90 Battery Packs

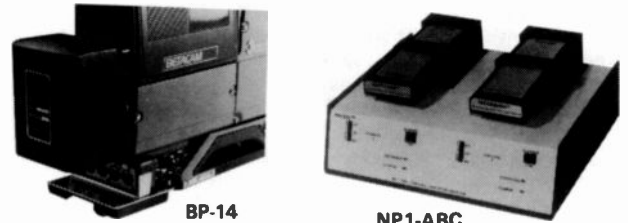
• Full 4-5AH capacity using premium-grade selected NiCad cells • Rugged and serviceable plastic case • Fuse and thermal protection • Internal spare fuse for field replacement • High discharge capability to power 100W lightheads • Weight 3.5 lbs. • Complete charge compatibility with: Sony BC-210 charger; Frezzi BC-124S overnight charger; Frezzi MBC-5 8-battery overnight charger; Frezzi BC-77UB 1 hr. fast charger w/HV fast-charge adaptor cable; plus other Frezzi fast/slow multi-battery charging stations



Single Light Configuration

Dual Light Configuration

Uni-Fill with NP-1(A)



BP-14

NP1-ABC

FBP-90	.....\$300.00
FBP-90FC	.....350.00
FBP-90A 5AH pack	.....350.00

Frezzi NP-1 Type Batteries

Computer verified premium high capacity in-board battery. NP-1A premium battery replacement.

FNP-1HC	12V, 1.8AH	.....\$ 95.00
NPX-1	13.2V, 1.7AH	.....130.00

BP-90 Battery Pack Mounting Brackets

HM-90	BP-90 adaptor for on-board mount	.....\$215.00
HM-90B	Same as HM-90 except for Betacam mount*	.....215.00
HM-90BW	Same as HM-90B except has mount for wireless receiver*	.....265.00

* Requires HMBVV-1 or HMBVV-5 Bracket

Betacam Battery Mounting Bracket

Bracket mounts to the upper rear portion of the recorder and accepts BP-13/BP-132 batteries or BP-90 when used with HM-90. Also accepts RPS-3 and RPS-40 on-board AC supply.

HMBVV-1	For original Betacam	.....\$135.00
HMBVV-5	Same as HMBVV-1 except for Beta SP	.....135.00
HMBVV-5UR	Mounts under Beta SP	.....165.00

Universal NP1 Analyzer/Battery Charger

• Dual channel operation • Accepts NP1-type batteries of any manufacture • Fully automatic logic controlled operation • 10 segment LED voltmeters • LED display elapsed time indicators • Auto-select for 12.0, 13.2 or 14.4V NP1 batteries • 110/220VAC operation • Each channel operates independently so 2 NP1 batteries can be analyzed simultaneously • Analysis consists of a regulated 2A discharge and a 14-hour balancing trickle charge • Automatically selects which type of battery is being analyzed, 12.0, 13.2 or 14.4V NP1 battery, and determines the proper cut-off voltage

NP1-ABC\$895.00
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RPS-3/RPS-40 Frezzi On-Board AC Power Supplies

• Ultra light weight, compact size, mounts directly to ENG/EFP professional TV cameras with on-board battery mounts • Replacing battery with either unit allows for "continuous" operation when 120 or 240VAC, 50 to 60Hz is available • Easy voltage selection slide switch on unit • On/off lighted switch • Advanced switching design with full RFI/EMI suppression • Supplied as OEM and replacement equipment to major manufacturers

RPS-3	.....\$650.00
RPS-40	.....595.00

MICROCOMPUTER CHARGERS



MICROMASTER SERIES

• Fully automatic • Fast charge/balancer • Maintains charge • Auto cutoff—leave batteries on indefinitely

9526 Micromaster

• 100-260VAC, 50-60Hz • 2.5 lbs. • Fast charge capability of NP-1(A): 1 in 20 min.; BP-90: 1 in 60 min.; BP-13/14*, Pro Pac 13/14: 1 in 60 min. • Voltage/amp hour range: Any 6-15V, 1.5-12AH

9526 \$850.00
9529 Same as 9526 except 12VDC input (vehicle) \$850.00

9730 Dual Micromaster

• Dual channel • 100-260VAC, 50-60Hz • 4 Lbs. • Fast charge capability of NP-1(A): 2 in 20 min.; BP-90: 2 in 60 min.; BP-13/14*, Pro Pac 13/14: 2 in 60 min. • Voltage/amp hour range: Any 2 6-15V, 1.5-12AH

9730 \$1400.00

MC2 QUADMASTER SERIES

• Selectable • Fully automatic • Fast charge (sequentially) • Computer-controlled • Any mix of packs/belts* 100-260VAC, 50-60Hz

9720 MC2

• 7 lbs. • Fast/slow charge capability of NP-1(A): 1 in 20 min./4 in 80 min. (total sequentially) • BP-90: 1 in 60 min./4 in 240 min.; BP-13/14*, Pro Pac 13/14: 4 in 240 min. • Voltage amp/hour range: Any 4 6-15V, 1.5-12AH

9720 \$1695.00
9724 Same as 9720 except 12VDC input (vehicle) \$1695.00
9722 Same as 9720 with hard-mounted NP-1 bracket \$1695.00
9722DC 12VDC input (vehicle) version \$1695.00

SC2 Battery Management System

• 8-channel/revitalization • Fully automatic • Fast/slow revitalize • 2 at a time • 2 independent modes • 100-260VAC, 50-60Hz • 12.1 lbs. • Fast charge capability: NP-1(A): 2 in 20 min./8 in 80 min.; BP-90: 2 in 60 min./8 in 240 min.; BP-13/14*, Pro Pac 13/14: 2 in 60 min./8 in 240 min. • Voltage/amp hour range: Any 8 6-15V, 1.5-12AH 2 at a time

9704 \$2200.00

SF1 4-Channel Multi-Function Charger

• 3 charge modes: super-fast, fast or slow • Automatically sequences to next battery • 100-260VAC, 50-60Hz • 3 lbs. • Fast charge capability: NP-1(A): any 12-14.4V NP1 type battery, 1 in 25 min./2 in 50 min./4 in 100 min.

9754 \$930.00

SPEEDCHARGE 6000 SERIES

• Widest range • Fully automatic • Fast/slow/revitalize • Any mix of packs/belts • Computer-controlled • 100-260VAC, 50-60Hz

6000SM Speedcharger

• 11.4 lbs. • Fast charge capability of NP-1 (A): 1 in 20 min.; BP-90: 1 in 60 min.; BP-13/14*, Pro Pac 13/14: 1 in 60 min./8 in 480 min. • Voltage/amp hour range: any 6-30V, 1.5-12AH

9537 \$1675.00

6000 Sequencer

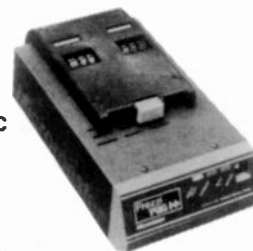
• 8-channel • 22 lbs. • Fast charge capability of NP-1 (A): 8 in 160 min. (total sequentially); BP-90: 8 in 480 min. (total sequentially); BP-13/14*, Pro Pac 13/14: total sequentially • Voltage/amp hour range: any 8 6-30V, 1.5-12AH sequentially

9418 \$1075.00

All models equipped with BP-90 sockets and any combination of brackets: Paglok, Snap-On or NP-1 (A).

*Specify Snap-On brackets in place

9526AC/9529DC



9730

MC2 QUADMASTER SERIES

• Selectable • Fully automatic • Fast charge (sequentially) • Computer-controlled • Any mix of packs/belts* 100-260VAC, 50-60Hz

9720 MC2

• 7 lbs. • Fast/slow charge capability of NP-1(A): 1 in 20 min./4 in 80 min. (total sequentially) • BP-90: 1 in 60 min./4 in 240 min.; BP-13/14*, Pro Pac 13/14: 4 in 240 min. • Voltage amp/hour range: Any 4 6-15V, 1.5-12AH

9720 \$1695.00
9724 Same as 9720 except 12VDC input (vehicle) \$1695.00
9722 Same as 9720 with hard-mounted NP-1 bracket \$1695.00
9722DC 12VDC input (vehicle) version \$1695.00

SC2 Battery Management System

• 8-channel/revitalization • Fully automatic • Fast/slow revitalize • 2 at a time • 2 independent modes • 100-260VAC, 50-60Hz • 12.1 lbs. • Fast charge capability: NP-1(A): 2 in 20 min./8 in 80 min.; BP-90: 2 in 60 min./8 in 240 min.; BP-13/14*, Pro Pac 13/14: 2 in 60 min./8 in 240 min. • Voltage/amp hour range: Any 8 6-15V, 1.5-12AH 2 at a time

9704 \$2200.00

SF1 4-Channel Multi-Function Charger

• 3 charge modes: super-fast, fast or slow • Automatically sequences to next battery • 100-260VAC, 50-60Hz • 3 lbs. • Fast charge capability: NP-1(A): any 12-14.4V NP1 type battery, 1 in 25 min./2 in 50 min./4 in 100 min.

9754 \$930.00

SPEEDCHARGE 6000 SERIES

• Widest range • Fully automatic • Fast/slow/revitalize • Any mix of packs/belts • Computer-controlled • 100-260VAC, 50-60Hz

6000SM Speedcharger

• 11.4 lbs. • Fast charge capability of NP-1 (A): 1 in 20 min.; BP-90: 1 in 60 min.; BP-13/14*, Pro Pac 13/14: 1 in 60 min./8 in 480 min. • Voltage/amp hour range: any 6-30V, 1.5-12AH

9537 \$1675.00

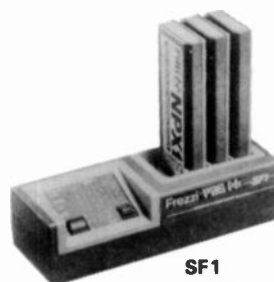
6000 Sequencer

• 8-channel • 22 lbs. • Fast charge capability of NP-1 (A): 8 in 160 min. (total sequentially); BP-90: 8 in 480 min. (total sequentially); BP-13/14*, Pro Pac 13/14: total sequentially • Voltage/amp hour range: any 8 6-30V, 1.5-12AH sequentially

9418 \$1075.00

All models equipped with BP-90 sockets and any combination of brackets: Paglok, Snap-On or NP-1 (A).

*Specify Snap-On brackets in place



SF1
9754



MC2
9720AC/9724DC



SC2
9704

Accessories

9501/1	Micromaster shipping case	..... \$175.00
9501/3	Dual Micromaster shipping case	..... 175.00
9501/2	MC2 shipping case	..... 225.00
9501/4	SC2 shipping case	..... 225.00
9501/5	SF1 shipping case	..... 175.00
9455F	BP-90 to XLR-4(M) charge adaptor	..... 38.00
9455/(5)F	BP-90 to XLR-5(M) charge adaptor	..... 38.00
9458	BP-90 to "Snap-On" clip charger adaptor	..... 48.00
9468F	BP-90 to Steadicam plug	..... 60.00
9514	BP-90 to Paglok charge adaptor	..... 48.00
9578F	BP-90 to Panasonic AG BP-212 battery adaptor	..... 59.00
8576F	BP-90 to NP-1(A) charge adaptor	..... 48.00
9517	Converts Paglok charger/camera end to accept A/B batteries	..... 95.00
9518	Converts A/B camera end to accept Paglok batteries	..... 95.00
9516F	Paglok NP-1 (A) holder	..... 105.00
9469	Speedcharge 6000/sequencer stacking bracket	..... 30.00
9599	Speedcharge 6000/BP-90 to 2-pin AMP, amphenol connector (for 30V belt)	..... 50.00



A8.5x5.5ERM



A14x8.5ERM/ERD



A16x9.5ERM

2/3" ENG/EFP CCD Lenses

Model No.	Focal Length	Zoom Ratio	Extender	Maximum Aperture Ratio	M.O.D.	Object Dimensions At M.O.D.	Angular Field Of View	Macro	Size	Weight (w/o Lens Hood)
A4x7.5RH/MD	7.5 ~ 30mm	4x	—	f/2.8	0.45m	7.5mm 572.3 x 429.3mm 30mm 143.1 x 107.3mm	7.5mm 60°48' x 47°30' 30mm 16°41' x 12°33'	—	119mm	0.75kg
A8x12RH/MD	12 ~ 96mm	8x	—	f/2.8	1m	12mm 698.4 x 523.8mm 96mm 87.3 x 65.5mm	12mm 40°16' x 30°45' 96mm 5°15' x 3°58'	—	103mm	0.7kg
A8.5x5.5RM/RD	5.5 ~ 47mm	8.5x	—	f/1.7 f/1.9	0.3m	5.5mm 492 x 369 47mm 57.9 x 43.4	5.5mm 77°19' x 61°55' 47mm 10°41' x 8°02'	—	216.5mm	1.82kg
A8.5x5.5ERM/ERD	(1x) 5.5 ~ 47mm (1.7x) 9.4 ~ 80mm	8.5x	1.7x	f/1.7 f/1.9	0.3m	5.5mm 492x369mm 47mm 57.9x43.4mm	5.5mm 77°19'x61°55' 47mm 10°41'x8°02'	with Macro	235mm	1.92kg
A16x9.5RM	9.5 ~ 152mm	16x	—	f/1.8 f/2.3	0.95m	9.5mm 817 x 613mm 152mm 51 x 38mm	9.5mm 49°42' x 38°19' 152mm 3°19' x 2°29'	with Macro	160mm	1.36kg
A16x9.5ERM	(1x) 9.5 ~ 152mm (2x) 19 ~ 304mm	16x	2x	f/1.8 f/2.3	0.95m	9.5mm 817 x 613mm 152mm 51 x 38mm	9.5mm 49°42' x 38°19' 152mm 3°19' x 2°29'	with Macro	178.5mm	1.43kg
A14x8ERM	(1x) 8 ~ 112mm (2x) 16 ~ 224mm	14x	2x	f/1.7 f/2.1	0.7m	8mm 885x864mm 112mm 63x47mm	8mm 57°37'x44°50' 112mm 4°30'x3°23'	with Macro	237mm	2.37kg
A14x8.5ERM/ERD	(1x) 8.5 ~ 119mm (2x) 17 ~ 238mm	14x	2x	f/1.7 f/2.0	0.8m	8.5mm 777 x 583mm 119mm 55 x 42mm	8.5mm 54°44' x 42°26' 119mm 4°14' x 3°10'	with Macro	186mm	1.35kg
A18x8.5ERM/ERD	(1) 8.5 ~ 153mm (2) 17 ~ 306mm	18x	2x	f/1.7 f/2.3	0.9m	8.5mm 876 x 657mm 153mm 49 x 37	8.5mm 54°44' x 42°26' 153mm 3°17' x 2°28'	with Macro	200.5mm	1.57kg
A24x11.5ERD	(1x) 11.5 ~ 276mm (2x) 23 ~ 552mm	24x	2x	f/2.0 f/2.7	1.8m	11.5mm 1296 x 972mm 276mm 54 x 40.5mm	11.5mm 41°52' x 32°01' 276mm 1°49' x 1°22'	with Macro	261mm	2.9kg
A24x16.5ERD	(1x) 16.5 ~ 400mm (2x) 33 ~ 800mm	24x	2x	f/2.8 f/3.9	1.8m	16.5mm 903.3 x 677.5mm 400mm 37.3 x 27.9mm	16.5mm 29°51' x 22°37' 400mm 1°15' x 0°56'	with Macro	270mm	2.9kg

1/2" ENG/EFP CCD Lenses

Model No.	Focal Length	Zoom Ratio	Extender	Maximum Aperture Ratio	M.O.D.	Object Dimensions At M.O.D.	Angular Field Of View	Macro	Size	Weight (w/o Lens Hood)
S4x5.5RH/MD	5.5 ~ 22mm	4x	—	f/2.0	0.45m	5.5mm 572.3x429.3mm 22mm 143.1x107.3mm	5.5mm 61°37'x48°11' 22mm 16°57'x12°45'	—	124mm	0.75kg
S8x8.8RH/MD	8.8 ~ 70mm	8x	—	f/2.0	1m	8.8mm 692.7x519.5mm 70mm 87.1x65.3mm	8.8mm 39°58'x30°30' 70mm 5°14'x3°56'	—	108mm	0.7kg
S8.5x4.2RM/RD	4.2 ~ 36mm	8.5x	—	f/1.4 f/1.5	0.3m	4.2mm 469x351mm 36mm 55.1x41.3mm	4.2mm 74°36'x59°29' 36mm 10°09'x7°37'	—	219mm	1.79kg
S8.5x4.2ERM/ERD	(1x) 4.2 ~ 36mm (1.7x) 7.1 ~ 60mm	8.5x	1.7x	f/1.4 f/1.5	0.3m	4.2mm 469x351mm 36mm 55.1x41.3mm	4.2mm 74°36'x59°29' 36mm 10°09'x7°37'	with Macro	239.5mm	1.97kg
S14x6.2ERM/ERD	(1x) 6.2 ~ 87mm (2x) 12.4 ~ 174mm	14x	2x	f/1.4 f/1.6	0.7m	6.2mm 830x623mm 87mm 59x44mm	6.2mm 54°38'x42°19' 87mm 4°13'x3°10'	with Macro	241.5mm	2.37kg
S14x6.4ERM/ERD	(1x) 6.4 ~ 90mm (2x) 12.8 ~ 180mm	14x	2x	f/1.4 f/1.5	0.8m	6.4mm 751x563mm 90mm 54x40mm	6.4mm 53°08'x41°07' 90mm 4°04'x3°03'	with Macro	190.5mm	1.28kg
S16x7RM	7 ~ 112mm	16x	—	f/1.4 f/1.7	0.95m	7mm 812x609mm 112mm 51x38mm	7mm 49°08'x37°57' 112mm 3°16'x2°27'	with Macro	160mm	1.36kg
S16x7ERM	(1x) 7 ~ 112mm (2x) 14 ~ 224mm	16x	2x	f/1.4 f/1.6	0.95m	7mm 806 x 605mm 112mm 51 x 38mm	7mm 49°08'x37°51' 112mm 3°16'x2°27'	with Macro	183.5mm	1.45kg
S18x6.4ERM/ERD	(1x) 6.4 ~ 115mm (2x) 12.8 ~ 230mm	18x	2x	f/1.4 f/1.7	0.9m	6.2mm 876x657mm 112mm 47x35mm	6.2mm 53°08'x41°07' 112mm 3°11'x2°23'	with Macro	205mm	1.57kg
S24x8.8ERD	(1x) 8.8 ~ 211mm (2x) 17.6 ~ 422mm	24x	2x	f/1.5 f/2.1	1.8m	8.8mm 1231.8x923.9mm 211mm 51.4x38.5mm	8.8mm 39°58'x30°30' 211mm 10°44'x1°18'	with Macro	263mm	2.9kg

CCD LENSES



A55x9.5ESM



A20x7ESM

2/3" EFP CCD Lenses

Model No.	Focal Length	Zoom Ratio	Extender	Maximum Aperture Ratio	M.O.D.	Object Dimensions At M.O.D.	Angular Field Of View	Macro	Size (mm)	Weight (w/o Lens Hood)
A15x8ESM	(1) 8 ~ 120mm (2) 16 ~ 240mm	15x	2x	f/1.5 f/1.6	0.58m	8mm 818x613mm 120mm 55x41mm	8mm 57°37'x44°50' 120mm 4°12'x3°09'	Avail.	228x238x436	13kg
A18x8ESM	(1) 8 ~ 144mm (2) 16 ~ 288mm	18x	2x	f/1.5 f/1.9	0.58m	8mm 818x613mm 144mm 45x34mm	8mm 57°37'x44°50' 144mm 3°30'x2°37'	Avail.	228x238x436	13kg
A20x7ESM	(1x) 7 ~ 140mm (2x) 14 ~ 280mm	20x	2x	f/1.4 f/1.6	0.5m	7mm 850x637mm 140mm 42x32mm	7mm 64°18'x50°29' 140mm 3°36'x2°42'	Avail.	228x238x480	15.9kg
A34x10ESM	(1) 10 ~ 340mm (2) 20 ~ 680mm	34x	2x	f/1.6 f/2.4	1.8m	10mm 1446x1085 340mm 43x32	10mm 47°30'x36°32' 340mm 1°29'x1°07'	Avail.	228x238x436	13kg
A34x20.5ESM	(1) 20.5 ~ 700mm (2) 41 ~ 1400mm	34x	2x	f/2.4 f/3.5	3m	20.5mm 2000x1500 700mm 59x44	20.5mm 24°14'x18°17' 700mm 0°43'x0°32'	Avail.	263x256x657	19kg
A44x9.5ESM	(1x) 9.5 ~ 420mm (2x) 19 ~ 840mm	44x	2x	f/1.4 f/2.5	2.2m	9.5mm 1863x1397 420mm 42x32mm	9.5mm 49°42'x38°19' 420mm 1°12'x0°54'	Avail.	228x238x492	14.5kg
A55x9.5ESM	(1x) 9.5 ~ 525mm (2x) 9.5 ~ 1050mm	55x	2x	f/1.4 f/2.9	2.4m 0.3m*	9.5mm 2028x1521mm 525mm 37x28mm	9.5mm 49°42'x39°19' 525mm 0°58'x0°43'	Avail.	240x240x561	16.4kg

*With Macro

1/2" CCD Studio and Field Lenses

Model No.	Focal Length	Zoom Ratio	Extender	Maximum Aperture Ratio	M.O.D.	Object Dimensions At M.O.D.	Angular Field Of View	With Extender	Size (mm)	Weight (w/o Lens Hood)
S15x8ESM	(1x) 8 ~ 90mm (2x) 12 ~ 180mm	15x	2x	f/1.4	0.58m	8mm 793x595mm 90mm 53x40mm	8mm 56°08'x43°36' 90mm 4°04'x3°03'	12mm 29°51'x22°37' 180mm 2°02'x1°32'	228x228x469	13.3kg
S18x8ESM	(1x) 8 ~ 108mm (2x) 12 ~ 216mm	18x	2x	f/1.4	0.58m	8mm 793x595mm 108mm 44x31mm	8mm 56°08'x43°36' 108mm 3°23'x2°33'	12mm 29°51'x22°37' 216mm 1°42'x1°16'	228x228x469	13.3kg
S20x5.4ESM	(1x) 5.4 ~ 108mm (2x) 10.8 ~ 216mm	20x	2x	f/1.4	0.5m	5.4mm 799x598mm 108mm 39x30mm	5.4mm 61°18'x47°56' 108mm 3°23'x2°33'	10.8mm 33°01'x25°04' 216mm 1°42'x1°16'	228x228x513	16.8kg
S34x8ESM	(1x) 8 ~ 272mm (2x) 16 ~ 544mm	34x	2x	f/1.4	1.8m	8mm 1314x986mm 272mm 39x29mm	8mm 43°36'x33°24' 272mm 1°21'x1°01'	16mm 22°37'x17°04' 544mm 0°40'x0°30'	228x228x469	13kg
S44x7.3ESM	(1x) 7.3 ~ 322mm (2x) 14.6 ~ 644mm	44x	2x	f/1.4 f/1.9	2.2m	7.3mm 1763x1322mm 322mm 40x30mm	7.3mm 47°20'x36°24' 322mm 1°08'x0°51'	14.6mm 24°43'x18°40' 644mm 0°34'x0°26'	228x228x525	15kg
S55x7.3ESM	(1x) 7.3 ~ 405mm (2x) 14.6 ~ 810mm	55x	2x	f/1.4 f/2.2	2.4m 0.3m*	7.3mm 1919x1439mm 405mm 35x26mm	7.3mm 47°21'x36°24' 405mm 0°54'x0°41'	14.6mm 24°43'x18°40' 810mm 0°27'x0°20'	240x240x594	17.5kg

*With Macro

2/3" Format Teleconferencing Lenses

Model No.	Focal Length	Zoom Ratio	Maximum Aperture	M.O.D.*	Iris Range**	Iris Control	Field Angle -Horizontal -Vertical	Front Thread	Weight (w/o Lens Hood)
A10x10MD	10mm ~ 100mm	10x	f/1.6	1m	f/1.6-16	Auto, Remote/ Servo Manual	47°30'-5°03' 36°32'-3°47'	72mm/P=0.75	1.3kg
A13x10MD	10mm ~ 130mm	13x	f/1.7	1.0m	-		47°30'-36°32' 3°53'-2°54'	-	1.3kg
A16x9.5MD	9.5mm ~ 152mm	16x	f/1.8	0.95m	f/1.8-16		49°42'-3°19' 38°19'-2°29'	77mm/P=0.75	1.5kg

1/2" Format Teleconferencing Lenses

Model No.	Focal Length	Zoom Ratio	Maximum Aperture	M.O.D.*	Iris Range**	Iris Control	Field Angle -Horizontal -Vertical	Front Thread	Weight (w/o Lens Hood)
S12x7.5MD	7.5mm ~ 90mm	12x	f/1.4	1.1m	f/1.4-16	Auto, Servo or Manual	42°12'-4°04' 35°29'-3°03'	72mm/P=0.75	1.25kg
S16x7MD	7mm ~ 112mm	16x	f/1.4	0.95m	f/1.4-16		49°30'-3°16' 36°32'-2°27'	77mm/P=0.75	1.5kg

*0.07m or less with macro operation. **Plus fully closed.

D/ESAM™ 800 16-Channel Digital Edit Suite Audio Mixer

• Digital and analog mixing • Can electronically assign any audio input as a source to any fader and any output channel—instantly—on an edit-to-edit basis • 56-input capability—Up to seven 8-channel input modules can be installed • 16-channel mixing—Mixes 16 channels to 4 outputs. Output buses provide 4 digital and 4 analog output channels for recording along with 4 monitor channels • 4-channel monitoring provided through internal preview switcher, controlled by an edit system or manually • DEMEM memory system holds up to 20 registers for instant recall; optional RAM expansion holds several hundred, including dynamic events. DEMEM registers may be stored externally on the edit system disk or with optional external disk drive • Optional multi-band parametric equalization along with memory/recall capabilities • Includes: 16 digital inputs; control panel; electronics frame ; LED VU meters; editor interface; 25' control cable; 2 module extenders; 5' pre-wired audio cable harnesses \$26,000.00

Options

- Audio Input Modules**
 8-channel digital input module \$ 900.00
 8-channel analog input module 2,400.00
Assignment panel 1,000.00
16-channel parametric equalization system 5,400.00
Analog meters VU or PPM instead of LED 1,000.00
Output connector panel XLR analog/AES digital 450.00
Input connector panel XLR analog 650.00
Output connector panel XLR analog/DATS digital 550.00
Input connector panel DATS to AES converters (16 BNC) 750.00

Stand Alone Equipment

- LED VU meters** \$1,500.00
Analog meters VU or PPM 1,850.00

Digital Audio Transmission Systems

- Model 10 AES to DATS source converter** \$50.00
Model 20 DATS to AES destination converter 50.00

608/612/616 Edit Suite Audio Mixers

• Designed specifically for television editing • Dual channel • Editor control of source selection, preview monitoring, transition starts and transition duration • Interfaces for most popular editing systems • Direct interface available for additional GPI control • Switcher AFV interface • Timed transitions from front panel or editor • May be operated manually as an audio mixer • Built-in preview switcher with editor control • Separate control panel and electronics for flexible mounting with minimal space requirements • Available with either PPM or VU meters • Out-of-phase warning system for program channels • Optional programmable equalization system with memory and editor control • System tone input • Monitor mute control

608 8-input edit suite audio mixer, includes 1 parallel or serial editor interface, 25' control cable, VU meters, out of phase warning system, tone input \$6,750.00

612 12-input edit suite audio mixer, includes serial editor interface, enhanced support software, 50' control cable, PPM or VU meters, out of phase warning system, tone input, module extender . . \$15,070.00

616 16-input edit suite audio mixer, includes serial editor interface, enhanced support software, 50' control cables, PPM or VU meters, out of phase warning system, tone input, module extender . . \$19,490.00

Options

- Peak program meters For 608** \$230.00
GPI transition interface For all models 270.00
Module extender set For 608 270.00
Additional module extender For 612, 616 40.00

1241 6-Input Video Keying System

• Independent selection, self or external keying • 1 background signal • 15 lines wide colored borders • Soft borders, shadows and glow effects • Border fill • Full shadow positioning • Outlining including embossing • Variable density borders • Clip and gain controls • Full



608



1236

linear keying • Several preview modes • Masking • Matte generator • Auto transitions and cuts may be started from control panel or through remote control interfaces • Non-sync indicators • Black and blanking • Built-in adjustable delays \$7,900.00

1235/1236 Single-Input Downstream Keyers

Common Features:

• Internal matte generator, adjustable in hue, chroma saturation and luminance, may be used to change the color of a key video signal or to clean up a poor quality signal • Wide range key gain control sets the amount of original shading to be displayed, allowing sources with soft edges to be preserved • Key invert function allows keying black on white sources by inverting the key control signals • Built-in adjustable delay lines are factory set for stand alone operation. They may be adjusted to meet other system requirements. Blanking intervals at the output of the keyer may be derived from the program input or from the color black input • Optional analog border generator has border, drop shadow and outline capabilities, but allows only black or white borders

1235 Includes common features plus: • Single preview output. The preview input may be a program signal or an external preview signal. A pre-block output signal displays the picture that will appear when the keyer is faded up from black • Manual key transition by moving the key mix control at the desired rate • Key cuts • Manual fade to black • Control panel is designed to be console mounted and will also fit into the accessory slot of many popular switchers \$3,900.00
Analog key bordering 1,700.00

1236 Includes common features plus: • Auto key mix and fade to black with 10 different rates for each function • The single key input may be self keying or keyed externally • Control panel is designed to be rack-mounted in a 1 rack unit space • Keyer electronics are packaged separately in a 1 rack unit frame \$3,250.00
Analog key bordering 1,700.00

1238 Insert Keying System

• Self keying or external keying selectable using an internal jumper • Internal matte generator, available as an option, may be used to colorize a monochrome source. It also allows the output blanking interval to be delivered from the program input or the black input • Adjustments for clip level, gain, hue, saturation and luminance located on a card edge accessible from the front panel opening. These adjustments may also be made remotely, though no control panel is provided • External interface allows transitions to be controlled manually or from any other device that can provide voltage ramps • Custom timing option available to accommodate a variety of applications without use of external delay. A standard keyer is factory set with all inputs in color time • Control, if not done with internal controls, may be provided by customer. Keyer electronics are packaged in a single rack unit frame \$2,100.00

DIGITAL EFFECTS SYSTEMS

DPM-700 Digital Effects System

• Full range of 3-D effects • Sophisticated motion control • Multiple motion paths • Advanced signal processing • Internal 4:2:2 digital component processing • Analog component, D1, analog composite or D2 models • Fully programmable using E-MEM (effects memory system) • Effects can be created and stored within effects memory registers • Each effects register can hold up to 100 keyframes with a system maximum of 500 keyframes • Keyframes can be added, deleted, moved and changed in any way • New sequence of keyframes may be created while recalling any pre-programmed effects • Extensive serial, peripheral and GPI interfaces for control of external input selectors, routers, edit controllers, Model 100 production switcher and incoming/outgoing GPIs • Reference timing from 3 separate internal sync generators for upstream or downstream transformations • Optional second effects channel with digital combiner • Priority dissolves and shadow mode • Second channel can be used as a key channel for transforming video with key

Composite Systems—Single Channel

DPM-700NA	Analog NTSC	\$26,895.00
DPM-700ND	Digital (D2) NTSC	26,895.00

Composite Options

DPM-702NA	Second channel—composite analog NTSC	\$15,895.00
DPM-702ND	Second channel—composite digital (D2) NTSC	15,895.00
DPM-720-100K	Control cable fab kit	.500.00
DPM-731	Recursive memory	7,895.00
DPM-733	Composite input selector for DPM-700 channel, 120V	1,395.00
DPM-733-2	Composite input selector for DPM-700 channel, 240V	1,395.00
DPM-752	Disk remote kit	.200.00
DPM-753	Control panel rackmount adaptor	.300.00
DPM-758	Data terminal with cable	.725.00

Conversion Kits

DPM-127N1	DPM-100 to DPM-700 conversion kit, 1 channel NTSC	\$ 8,995.00
DPM-127N2	DPM-100 to DPM-700 conversion kit, 2 channels NTSC	13,995.00
DPM-127INST	Factory installation for conversion kit	.500.00

Component Systems—Single Channel

DPM-700CV525A	Analog 525	\$26,895.00
DPM-700CV525D	Digital (D1) 525	26,895.00

Component Options

DPM-702CV525A	Second channel—component analog 525	\$15,895.00
DPM-702CV525D	Second channel—component digital (D1) 525	15,895.00
DPM-720CV-100K	Control cable fab kit	.500.00
DPM-731CV	Recursive memory for 525 systems	7,895.00
DPM-734CV	Component input selector for DPM-700 channel, 120V	3,095.00
DPM-734CV-2	Component input selector for DPM-700 channel, 240V	3,095.00
DPM-752CV	Disk remote kit	.200.00
DPM-753CV	Control panel rackmount adaptor	.300.00
DPM-758CV	Data terminal with cable	.725.00

DPM-100 Digital Effects System

• Includes same features as DPM-700 except 2-D effects only

Composite Systems—Single Channel

DPM-100NA	Analog NTSC	\$18,895.00
DPM-100ND	Digital (D2) NTSC	18,895.00

Composite Options

DPM-102NA	Second channel—composite analog NTSC	\$11,895.00
DPM-102ND	Second channel—composite digital (D2) NTSC	11,895.00



DPM-700

DPM-102NA-E	Second channel for existing system—analog NTSC	\$11,895.00
DPM-102ND-E	Second channel for existing system—digital (D2) NTSC	11,895.00
DPM-120-100K	Control cable fab kit	.500.00
DPM-131	Recursive memory for NTSC systems	7,895.00
DPM-131E	Recursive memory for existing NTSC system	7,895.00
DPM-133	Composite input selector for DPM-100 channel, 120V	1,395.00
DPM-133-2	Composite input selector for DPM-100 channel, 240V	1,395.00
DPM-152	Disk remote kit	.200.00
DPM-153	Control panel rackmount adaptor	.300.00
DPM-158	Data terminal with cable	.725.00

Conversion Kits

DPM-127N1	DPM-100 to DPM-700 conversion kit, 1 channel NTSC	\$ 8,995.00
DPM-127N2	DPM-100 to DPM-700 conversion kit, 2 channels NTSC	13,995.00
DPM-127INST	Factory installation for conversion kit	.500.00

Component Systems—Single Channel

DPM-100CV525A	Analog 525	\$18,895.00
DPM-100CV525D	Digital (D1) 525	18,895.00

Component Options

DPM-102CV525A	Second channel—component analog 525	\$11,895.00
DPM-102CV525D	Second channel—component digital (D1) 525	11,895.00
DPM-120CV-100K	Control cable fab kit	.500.00
DPM-131CV	Recursive memory for 525 systems	7,895.00
DPM-134CV	Component input selector for DPM-100 channel, 120V	3,095.00
DPM-134CV-2	Component input selector for DPM-100 channel, 240V	3,095.00
DPM-152CV	Disk remote kit	.200.00
DPM-153CV	Control panel rackmount adaptor	.300.00
DPM-158CV	Data terminal with cable	.725.00

Conversion Kits

DPM-127CV525-1	DPM-100 to DPM-700 conversion kit, 1 channel 525	\$ 8,995.00
DPM-127CV525-2	DPM-100 to DPM-700 conversion kit, 2 channels 525	13,995.00
DPM-127INST	Factory installation for conversion kit	.500.00

Model 110 Production Switcher

The Industry Standard for small studios, mobile applications, and post production, the Model 110 is part of a family of products that includes the AMX-170 Audio Mixer and DPM-100/700 Digital Picture Manipulators, audio-follow-video mixers and effects memory systems.

Unique 3-Bus Multi-Level Mix/Effects System

• 8 looping video inputs, plus black and color background • DSK Preview overrides look-ahead preview system • Cut or mix key transitions with independent frame rate auto transition

Master Fade-to-Black and Pulse Processor

• 10 E-MEM® registers available from the control panel • Clean Feed video output • Linear BORDERLINE® Generator option for title borders, solid and transparent drop shadows and matte filled outline • Independent frame rate auto transition for Fade-to-Black • Preview system that shows program output when Fade-to-Black is engaged • Pulse Processor re-inserts blanking from blackburst on program output for stable output and recordings • Standard contact closure editor interface (GPI) to each of the 3 auto transitions or a fourth "select" line which allows selection of any 1 • Program and Preset buses for background transitions • Video key bus for linear keying, luminance keying, chroma keying and pattern inserts over the background transition • Look-ahead preview system that shows the next effect; wipe transition preview • Auto transition, adjustable 0-999 frames, lever arm transition or cut button • 10 wipe patterns with modifiers: hard or soft edges, hard or soft bordered edges, pattern reverse, pattern aspect, rate controlled positioner, preset pattern size • Independent matte generator for key fill and pattern borders • PAL and NTSC versions available

Video Keyer

• KeyLink™ for external manipulation of the effects key signal by the DPM-100 or DPM-700 Digital Picture Manipulators • Video or matte fill • External key input • Optional RGB chroma keyer • Key invert • Key mask using pattern generator • Preset pattern insert filled from key bus

Standard Downstream Keyer

• Linear and luminance keying • Key input from the video key bus or an external key input • Key fill from an external video source or the independent DSK matte generator • BORDERLINE Generator option for title borders, solid and transparent drop shadows or matte filled outline • Key invert • Key mask using pattern generator • Optional serial interface (RS-232/422) for external computer control • Optional pulse regenerator for system timing

Mechanical Specifications

• Control panel can sit on desktop (17"W x 14"D), or with rackmount adaptor can be placed in modular rack enclosures (requires 8 rack units) • Electronics frame requires 3 rack units and 20" depth • Single 15-conductor control cable (10m length standard) • Full tally system • Selectable power ranges from 100 to 240V, 50 or 60Hz

110N NTSC Production Switcher \$10,995.00

Options

- 110-19 Model 110/AMX-170 panel rackmount adaptor . . . \$ 100.00
- 110-30S 30m control cable 300.00
- 110-33 RGB chroma keyer 850.00
- 110-34 Chroma key bypass board 54.00
- 110-40 NTSC linear borderline generator 1,500.00
- 110-41 NTSC pulse regenerator 1,000.00
- 110-50 Serial interface adaptor 1,500.00

110CV Component Video Production Switcher

The 110CV is a compact, flexible, economical component switching system with the traditional family characteristics of its older brother: quality, performance, economy and a comfortable drive. Designed for professional component video production, the 110CV has all the qualities expected by the most sophisticated user.

The 110CV features non-looping video inputs, 8 in all, and 3 sets of BNC connectors for every input. Utilizing the same control panel as the 110 Production Switchers, the 110CV Component Video Production Switcher has updated electronics that incorporate as standard equipment many of the features offered as options on the 110.

The electronics frame of the 110CV requires 6 rack units and 20" depth.

- 110CV-525C 110CV basic system for all formats \$18,950.00
- 110CV-3-525C 525 System—frame and maintenance manual only 15,950.00
- 110CV-40 525 System—linear borderline generator 1,500.00



Model 110

Model 110/110CV Family Options

- CV-21 Y, R-Y, B-Y to RGB translator (for use in CV-20 tray) \$ 995.00
- CV-22 RGB to Y, R-Y, B-Y translator (for use in CV-20 tray) 995.00
- CV-23 Color bar generator (for use in CV-20 tray) 1,295.00
- CV-24N NTSC decoder (for use in CV-20 tray) 1,695.00
- CV-25N NTSC encoder (for use in CV-20 tray) 1,495.00
- CV-95N NTSC sync pulse generator module (for use in CV-20 tray) 1,395.00
- CV-20T CV-20 Series 2RU tray with power supply 895.00
- CV-20PS Backup power supply for CV-20T 265.00
- CV-20EXT Module extender 110.00

Model 100 or 100CV to Model 110 or 110CV Upgrade Conversions

The Model 100 or 100CV switchers can be fully or partially upgraded to equal the performance of the Model 110 or 110CV. Features added in the upgrade include linear keying in both the mix/effects and downstream keyer, E-MEM Effects Memory from the control panel, Clean Feed video output and KeyLink.

The following upgrade kits are available:

- 110-71 Model 100 to 110 full upgrade kit. \$3,500.00
- 110-73 Model 100 to 110, no Clean Feed or KeyLink. . . 2,850.00
- 110-75 Model 100 to 110 backpanel replacement, must have 110-73 installed 800.00
- 110CV-71 Model 100CV to 110CV full upgrade kit 4,700.00
- 110CV-73 Model 100CV to 110CV, no Clean Feed or KeyLink 3,500.00
- 110CV-75 Model 100CV to 110CV backpanel upgrade, must have 110CV-73 installed. 1,300.00
- 110-76* Factory installation of 110-71, 73, 75 500.00
- 110CV-76* Factory installation of 110-71, 73, 75 500.00

*Requires customer service to be contacted for scheduling and return authorization.

PRODUCTION SWITCHERS

Model 200 Series Production Switchers

• Cut and auto transitions in the ME, downstream keyer and fade-to-black system • 1 matte generator for each keyer, 1 for each wipe system and 2 standard background generators in addition to the color-black generator • Background generators provide background wash feature • Program effects in any of 30 standard registers and quickly recall effects setups on any or all switcher levels • Dual series interface adaptor lets you communicate with peripherals and provides serial control • Safe title generator with cross and SMPTE pattern gives you proper title positioning • 4 auxiliary buses with local and remote panels provide input switching for technical monitoring, digital effects or graphics devices • Routing switcher multi-destination displays can be mounted • Streamline™ Effects Controller lets you reprogram the switcher's current personality from the control panel, and then save it to a disk • Linear and luminance keying for smooth integration with the latest graphics and digital effects systems • Chroma key from RGB or color difference sources • Preset wipe mix or wipe to a pre-set position and size • "Over" function switch keyer priority in each mix effect • Auto select mode automatically selects the pre-assigned key source when the fill source is selected • Accumulative latch for fill and key signals extends the capability of each keyer by combining 5 key sources in a single keyer • 6 assignable external key source inputs assign key signals from character generators or digital effects systems to follow desired switcher video fill inputs • 4 external key fills dedicated key fill inputs provide quick access to the most important key fill sources for fast-paced operation and quick accumulation • Standard key masking. You can create realistic key effects with the dedicated shutter (box) mask, external key mask or either ME wipe output in any keyer—including the downstream keyer. To optimize key appearance, the mask system also features invert and forced foreground modes • Key memory. Key selection recalls clip, hue and gain for each source • Silhouette™ Key Edger provides a number of features including movable transparent shadows and split shadows, asymmetrical border and outline, drop shadow left and right, and dynamic key edging effects when used with Streamline Effects Controller • Multi-format chroma keyers for up to 8 sources • 200-2N has 20 primary inputs and 2 mix effects (ME), giving you freedom of 5 full function keyers, 2 in each ME and 1 in downstream. Use either ME as a background for downstream keyer, which also includes fade-to-black and an output blanking processor • 200-1N has 1 ME version, 3 keyers: 2 in ME and 1 downstream

The 200 standard E-MEM® effects memory system gives you the freedom to program effects with standard registers and quickly recall them on any switcher level.

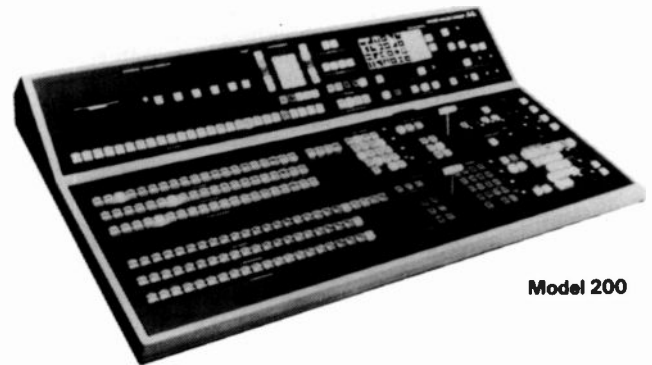
When you need to move fast, you'll appreciate the 200's easy-to-use features, including look-ahead preview, preset black mix and auto delegation. Plus display windows for mounting Horizon multi-destination routing displays.

Model 200-1N Production switching system, NTSC . . . \$27,995.00
 Model 200-2N Production switching system, NTSC . . . \$46,995.00

Options

200-401	System control cable fab kit	\$ 200.00
200-402	Bulk system control cable/per meter	4.00
200-410	System control cable—10m	250.00
200-425	System control cable—25m	375.00
200-450	System control cable—50m	500.00
200-499	System control cable—100m	750.00
200-505	Component chroma key	3,350.00
200-506*	Silhouette key edger	3,125.00
200-507*	Silhouette key edger package of 3	7,500.00
200-508*	Silhouette key edger package 5	12,500.00
200-510	Enhanced analog wipe generator (200-2N)	5,250.00
200-511	Enhanced analog wipe generator 200 (200-1N)	2,750.00

*Not for Retrofit



Model 200

Options (cont'd)

200-515	Matrix wipe generator	\$4,200.00
200-517	Mask pattern generator basic (analog wipe generator 200-1N)	2,750.00
200-518	Mask pattern generator enhanced (enhanced wipe generator 200-1N)	2,750.00
200-520	Dual serial adaptor (DSA)	2,250.00
200-530	Safe title generator	600.00
200-540	Streamline effects controller and disk storage system	5,995.00
200-550	Auxiliary bus output module	3,295.00
200-551	Local auxiliary bus control panel with delegation (200-2N)	2,295.00
200-552	Satellite auxiliary bus control panel	1,495.00
200-553	Satellite tally module	650.00
200-554	Satellite auxiliary bus panel kit	750.00
200-555	Local auxiliary bus control panel with delegation (200-1N)	1,995.00
200-601	Satellite auxiliary bus control cable connector kit	200.00
200-602	Bulk Satellite auxiliary bus control cable/per meter	3.50
200-610	Satellite auxiliary bus control cable 10m	200.00
200-625	Satellite auxiliary bus control cable 25m	300.00
200-650	Satellite auxiliary bus control cable 50m	400.00
200-699	Satellite auxiliary bus control cable 100m	600.00
200-700	Redundant power supply option (panel and frame)	4,200.00
200-705	Control panel power supply fan 110V (1 assembly)	250.00
200-706	Control panel power supply fan 220V	250.00
200-710	Second diagnostic pod with manual (200-2N)	395.00
200-711	Second diagnostic pod with manual (200-1N)	395.00
200-720	Recommended spare component kit	2,950.00
200-725	Recommended spare modules (200-2N)	19,995.00
200-726	Recommended spare modules (200-1N)	19,995.00
200-765	Model 200 spare operator's tape (NTSC) (VHS only)	26.00
200-949	NTSC switcher output processor	5,990.00

200-2CV Production Switching System

The basic system comprises 20 primary inputs, two cascaded Mix/Effects (M/E), a Downstream Keyer (DSK), and Fade-to-Black. Each M/E has two full function keyers. Auto transition and cut are standard in the DSK, Fade-to-Black, and both M/Es. Separate matte generators provide color matte fill for each of the five keyers and each M/E's wipe border. Two color background generators and a black generator can be connected as desired to any primary input. Each color background generator has the Background Wash mode and Background Generator 1 can be combined with Background Generator 2's color to create a full screen color wash. Standard pulse regenerator and output processor simplify system installation.

Each M/E provides a Preset Black Mix and a Transition Preview mode, as well as look-ahead preview and Program monitor outputs. Each of the two full function keyers in each M/E is capable of linear, luminance, preset pattern, and chroma key from any primary or external key fill source. The M/E keyers can use any of the primary inputs, four external key fill inputs, or six external key source inputs as a luminance or linear key source. Each primary and external fill video can have one of the six external key sources associated with it or act as a self key. Each keyer has a dedicated shutter mask or can use either M/E's wipe pattern as a mask. In addition, the standard chroma keyer provides high quality keys with background color suppression.

A Silhouette™ Key Edger can be added to any of the 5 key edgers in the 200-2CV, providing powerful key edging effects. Effects possible include movable transparent shadows and split shadows, asymmetrical border and outline, drop shadow left and right and dynamic edging effects when used with the Streamline™ Effects Controller.

The wipe system's extensive set of modifiers includes border symmetry (Halo), edge softness, border width, aspect, rate-controlled positioner, vertical and horizontal multipliers. The vertical and horizontal multipliers repeat patterns up to four times. Additional options to the basic wipe system include the Matrix Wipe Generator which provides 32 patterns, in addition to the powerful pattern mix function. Also, the Enhanced Analog Wipe generator provides four additional patterns and modifiers for rotation, modulation and pattern split.

Standard E-MEM® Effects Memory System provides storage for 30 complete switcher setups. Learns and recalls of switcher effects setups can be initiated on a combination of levels (M/E 1, M/E 2, DSK, or User). Basic operation can be enhanced with Streamline™ Effects Controller and Disk Storage option.

Rack electronics consists of two frames, each 11 rack units (RU) high total 22 RU (38.5"). One electronics frame processes the Y (luminance) component of the 200-2CV system. The Y frame also generates the control signals and timing pulses needed to control the second frame. The second C Frame handles the R-Y and B-Y (chrominance) component channels. The two electronics chassis are interconnected by five ribbon cables. This requires that the two chassis be mounted directly above one another.

The Switcher operates in any one of 12 color difference (Y, R-Y, B-Y) formats. Switcher inputs must be externally transcoded to match the internal format. Switcher outputs may also need to be transcoded to match external destinations. The CV-20 Series input and output translator systems are available as options.

The Dual Serial Adaptor option provides a dedicated RS-232/422 editor interface and a second port for controlling peripheral devices. Frames and control panel are each powered separately. The frames (primary and secondary) power supplies mount in the main electronics chassis. The panel supply mounts in a separate rackmount chassis interconnected to the panel with a standard 8-meter cable (included). One set of manuals, an extender, and an Installation/Diagnostic Pod are supplied with each system. The control panel is connected to the electronics frame using a single 15-conductor serial cable. System Control Cable is not included and must be ordered separately.

200-2CV-525/60 \$79,995.00

200-2CV-525/60 Basic System Options

- 200CV-506* Silhouette key edger \$ 3,125.00
- 200CV-508* Silhouette key edger package of 5 12,500.00
- 200CV-510 Enhanced analog wipe generator 5,250.00
- 200CV-515 Matrix wipe generator 4,200.00
- 200CV-520 Dual serial adaptor (DSA) 2,250.00
- 200CV-530 Safe title generator 600.00
- 200CV-540 Streamline effects controller and disk storage system 5,995.00

*Not for Retrofit

Auxiliary Bus Options

The 200-2CV has provisions for four internal auxiliary buses. Each bus accesses 20 primaries, both M/Es, Program output and two direct inputs. The two direct inputs appear only on the auxiliary buses. The Auxiliary Output Modules also provide a Clean Feed (program bus direct) output.

It can accommodate a maximum of four Satellite Auxiliary Control Panels (or Satellite Auxiliary Bus Panel Kits) and one local control panel. Each Satellite Auxiliary panel communicates with it using serial RS-422 ports while the local panel uses the main control panel serial port. Both the local and satellite control panels have delegate facilities allowing any panel to control any combination up to four auxiliary buses. Installation programming allows the user to define which bus or buses each control panel may access. The Satellite Auxiliary Control Panels provide chop mode for test and maintenance operations, GPI inputs, and On-Air indicator. The GPI input when activated causes the associated bus to switch from its current state to assigned input (defined by personality). This switch can be momentary or latched. Control of the auxiliary buses is also available through the Dual Serial interface.

The primary sources of Auxiliary Bus 1 can be used as key fill and/or key source on the DSK. A DSK external key source can be associated with Auxiliary Bus 1 through Personality assignment.

- 200CV-551 Local auxiliary bus control panel \$1,750.00
- 200CV-552 Satellite auxiliary bus control panel with delegation 1,250.00
- 200CV-553 Satellite tally module panel 595.00
- 200CV-554 Satellite auxiliary bus control panel kit 750.00
- 200CV-556 Auxiliary bus output modules 7,950.00
- 200CV-601 Satellite auxiliary bus control cable fab kit 200.00
- 200CV-602 Bulk control cable for satellite auxiliary bus control panels/meter 3.50
- 200CV-610 Satellite auxiliary bus cable 10 meter 200.00
- 200CV-625 Satellite auxiliary bus cable 25 meter 300.00
- 200CV-650 Satellite auxiliary bus cable 50 meter 400.00
- 200CV-699 Satellite auxiliary bus cable 100 meter 600.00

Other Available Options and Accessories

- 200CV-701 Redundant Power Supply Option 200-2CV. One control panel and two electronics frame power supplies are included \$ 6,250.00
- 200CV-705 Control Panel Power Supply Fan Assembly 110V Operation. Used with control panel power supply when two rack units of recommended cooling space cannot be provided. Voltage dependent select for proper voltage operation 250.00
- 200CV-706 Control Panel Power Supply Fan Assembly 220V Operation. Used with control panel power supply when two rack units of recommended cooling space cannot be provided. Voltage dependent select for proper voltage operation 250.00
- 200CV-712 Second Diagnostic Pod Model with Manual for 200-2CV. Used for installation, maintenance diagnostics and personality programming 395.00
- 200CV-720 Recommended Spare Component Kit 200-2CV. Kit includes components for both control panels, frame electronics, and options except OEM power supplies and major assemblies such as the disk drive and display used in the Streamline Effects Controller option 2,950.00
- 200CV-727 Recommended spare module set for 200-2CV 24,450.00
- 200CV-928 CV-20 Series Translator Output System. Option includes two CV-21, Y, R-Y, B-Y to RGB translator modules, module extender, and 2 RU CV-20 tray with power supply. CV-20 tray has two additional slots for other CV-20 module options. Six interconnect coaxial cables included 2,995.00
- 200CV-929 CV-20 Series Translator Input System. Option includes three CV-22 RGB to Y, R-Y, B-Y translator modules and a 2 RU CV-20 tray with power supply. CV-20 tray has one additional slot for an additional CV-20 Series module. Nine interconnect coaxial cables are included 3,895.00

VPE-131, VPE-141 and VPE-241

Video Production Editors

These are a family of full-featured edit controllers, starting at a very affordable price. All 3 models are based on the same compact electronics frame, which includes a computer system optimized for real time control of multiple serial services. Battery backed-up CMOS memory is used for storage of operating software and EDLs, which means the system is up and ready to run almost instantly, and it also ensures that a power failure can't cause the loss of an EDL. They use the latest version of Super Edit (V6.0) software.

These editor models are selected with 1 of 2 keyboard choices, the "K2" traditional Qwerty-style with Jogger located on the right, or the "K3" dedicated-style with a simple grouped layout of similar function keys and Jogger located in the center. Both keyboards feature a touch-sensitive knob with Jog, Variable and Shuttle modes always active.

For convenience, each of these models may be ordered with or without on-site training included. The "training included" models cover 1-day on-site training at the customer facility, including all travel and lodging expenses for the trainer. Other training arrangements are available, including classes at the GVG training center, or on-site training chargeable at a daily rate plus expenses.

The standard Preview mode with each model is "E-E," which uses the E-E switch in the record VTR to simulate an edit. An optional preview switcher is available for applications which require it (such as when record devices are used which don't have E-E capability). The GVG 8466 preview switcher supports composite and component video and 4 audio channels.

VPE-131 Video Production Editor

This entry level model controls up to 4 VTRs plus switcher, audio mixer, character generator and TBC controller. The EDL capacity is 999 lines.

Base Models

131-01	NTSC system with K2 keyboard	\$13,500.00
131-02	NTSC system with K2 keyboard and training	15,300.00
131-03	NTSC system with K3 keyboard	13,500.00
131-04	NTSC system with K3 keyboard and training	15,300.00
131-05	PAL system with K2 keyboard	13,500.00
131-06	PAL system with K2 keyboard and training	15,300.00
131-07	PAL system with K3 keyboard	13,500.00
131-08	PAL system with K3 keyboard and training	15,300.00

VPE-141 Video Production Editor

All the capabilities of the VPE-131, plus: 3 additional VTR ports for a total of 7, double the EDL capacity (2001 lines).

Base Models

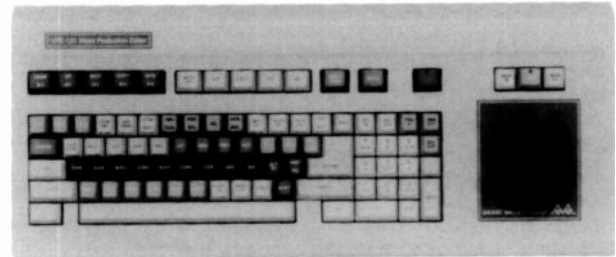
141-01	NTSC system with K2 keyboard	\$20,000.00
141-02	NTSC system with K2 keyboard and training	21,800.00
141-03	NTSC system with K3 keyboard	20,000.00
141-04	NTSC system with K3 keyboard and training	21,800.00
141-05	PAL system with K2 keyboard	20,000.00
141-06	PAL system with K2 keyboard and training	21,800.00
141-07	PAL system with K3 keyboard	20,000.00
141-08	PAL system with K3 keyboard and training	21,800.00

VPE-241 Video Production Editor

All the capabilities of the VPE-141, plus: extended memory capacity, BINS and SWAP. The additional memory allows all utility programs to reside in memory, allowing instant execution of utility functions and return to Super Edit. BINS uses additional memory to store 4 EDLs simultaneously, 2001 lines each for total of 8004 lines. SWAP allows single key change of record VTR with any source VTR, including port and crosspoint assignments. Preview Preselect allows use of TEN-XL (optional) to change preview path when SWAP is used. The VPE-241 includes several items which are optional on VPE-131 and VPE-141, including: second disk drive, DMDP, 409 and TRACE, edit reel IDs, film mode and source color framing.

Base Models

241-01	NTSC system with K2 keyboard	\$29,000.00
241-02	NTSC system with K2 keyboard and training	30,800.00
241-03	NTSC system with K3 keyboard	29,000.00
241-04	NTSC system with K3 keyboard and training	30,800.00
241-05	PAL system with K2 keyboard	29,000.00
241-06	PAL system with K2 keyboard and training	30,800.00
241-07	PAL system with K3 keyboard	29,000.00
241-08	PAL system with K3 keyboard and training	30,800.00



VPE-131

VPE-131, VPE-141 and VPE-241 Options

Machine control protocols. Specific protocols are listed below.

SV-XXX	Up to 5 ordered with system . . . . .	.NC
SV-XXX	More than 5, or ordered after system is delivered	\$525.00

Hardware Options

DISK-2 ¹	Second disk drive	\$ 550.00
PTR-80	Line printer, 8.5", 120V only	650.00
VPE-141TXT	Text keyboard, for use with K3 keyboard	300.00
8466	Preview switcher (NTSC)	4,500.00
8466P	Preview switcher (PAL)	4,500.00
DM-12	Display monitor, 12" TTL/analog RGB	1,000.00
DMDP ^{1,2}	Display monitor distribution panel	1,200.00

Software Options

SW-005 ¹	Film mode	\$1,050.00
SW-008 ¹	Source color framing	1,050.00
SW-011 ¹	Edit reel ID	275.00
SW-052 ¹	409 and TRACE	2,500.00

GVG Video Switcher Protocols

SS10XL-VPE	Model Ten-XL/Performer serial control . . . . .	.NC
SS100-VPE	Model 100/110 serial control . . . . .	.NC
SS100CV-VPE	Model 100CV/110CV serial control . . . . .	.NC
SS200-VPE	Model 200-2 serial control . . . . .	.NC
SS200-1-VPE	Model 200-1 serial control . . . . .	.NC
SS200CV-VPE	Model 200CV serial control . . . . .	.NC
SS300-VPE	Model 300 serial control . . . . .	.NC

Audio Mixer Protocols

SSA-AMX100	AMX-100 serial control . . . . .	.NC
SSA-AMX170	AMX-170 serial control . . . . .	.NC
SSA-GV300	GVG 300 audio serial control . . . . .	.NC
SSA-ESAM1	Edit suite audio mixer protocol 1	\$1,000.00
SSA-ESAM2	Edit suite audio mixer protocol 2	1,000.00
PSA-UNIV	Universal parallel interface	400.00

Dubner Character Generator Protocols

SW-006B	Dubner CBG/Texta control and cable	\$125.00
SW-006C	Dubner K-series control and cable	125.00
SW-006D	Dubner Graphics Factory control and cable	125.00

VPE-131 and VPE-141 Upgrade Kits

131-141 ¹	VPE-131 to VPE-141L	\$ 7,000.00
131S-241 ¹	VPE-131 with 1 drive to VPE-241L	16,500.00
131D-241 ¹	VPE-131 with 2 drives to VPE-241L	16,000.00
141S-241	VPE-141 with 1 drive to VPE-241	9,500.00
141D-241	VPE-141 with 2 drives to VPE-241	9,000.00
141LS-241 ¹	VPE-141L with 1 drive to VPE-241L	9,500.00
141LD-241 ¹	VPE-141L with 2 drives to VPE-241L	9,000.00

Footnotes

- ¹ Standard on VPE-241.
- ² DMDP is used for certain video monitoring requirements, such as RGB monitors with BNC connectors for RGB, or when multiple EDL monitors are used.
- ³ VPE-141L and VPE-241L are functionally equivalent to VPE-141 and VPE-241; the frame style is different.

IPS-110 Integrated Production System

• Full capability post production system • Single chassis design • Will control most RS-422 machines including 3/4", Beta and M-II 1/2" formats, and type "C"
 • Unit includes a Model 110 video switcher, editor and edit keyboard with JogKnob, AMX-170 audio mixer, a powerful edit controller with full list management capabilities, sync and pulse distribution with test signals, and an optional character generator (NTSC systems only) • Shock mounted transport cases and quick connect cable assemblies optional

The compact unit can handle the post production needs of a small facility or efficiently add an economical suite to a larger production facility. Because of its single chassis construction it is also ideal for mobile applications.

IPS-110/IPS-110P PAL\$62,800.00

IPS-110B/

IPS-110BP As above — excludes AMX-170 and Model 110 switcher control panel. System is capable of video and audio cuts, transitions and limited video wipes\$53,800.00

Keyboard Selections

Note: System orders must include at least 1 of the following:

IPS-110K2 Keyboard, JogKnob version for IPS-100/IPS-110\$1,500.00
 IPS-110K3 Keyboard, dedicated version for IPS-100/IPS-1101,500.00

Machine Control Protocols

See Table for Specific Protocols

SV-XXX Up to 5 ordered with systemNC
 SV-XXX More than 5, or ordered after system is delivered\$525.00

Software Options

SW-005 Film mode\$1,050.00
 SW-008 Source color framing (APL) (standard on PAL)1,050.00
 SW-011 Edit reel ID275.00

Hardware Options

IPS-CC1 Chassis carrying case\$2,500.00
 IPS-AC1 Accessory carrying case2,500.00
 IPS-CG Character generator kit (NTSC only)9,000.00
 IPS-QC8 Quick connect cable set, 4m2,000.00
 PTR-80 80-column line printer650.00
 110-19 Model 110 control panel rackmount adaptor100.00
 110-33 Model 110 RGB chroma keyer850.00
 110-34 Model 110 chroma key bypass board54.00
 8466 Preview switcher, component/composite and 4-channel audio (NTSC)4,500.00
 8466P Preview switcher, component/composite and 4-channel audio (PAL)4,500.00
 110-40 Model 110 NTSC linear borderline (R)1,500.00
 110-60 Model 110 PAL linear borderline (R)1,500.00
 IPS-110TXT Text entry keyboard for use with IPS-110K3 keyboard300.00

Internal Character Generator Options (NTSC)

Note: Please state software ID (SIN) number of character generator.

IPS-AF Anti-aliased font in 4 sizes\$220.00
 IPS-B1 Backgrounder #1850.00
 IPS-B2 Backgrounder #2850.00
 IPS-F1 Non anti-aliased fonts, 4 styles, 4 sizes (English only)600.00
 5K-KEY "K" style keyboard with 20' cable600.00
 IPS-UPD Character generator software update600.00

Editor Display Monitor

DM-12 12" TTL color monitor (120V only)\$1,000.00
 DMDP Display monitor distribution panel TTL to TTL/RGB1,200.00

Note: The IPS-100/IPS-110 are designed for use with either a composite video monochrome monitor or a color (computer-type) TTL/analog monitor. Connecting a composite monochrome monitor requires a customer supplied video cable with BNC connector. A TTL/analog monitor (CGA resolution) may be connected to the 9-pin "D" connector on the IPS-110 frame with the cable supplied (by most manufacturers) with the color monitor. The DM-12 includes this cable. If you are placing the color monitor more than 1.5 meters from the IPS-110 frame, it is recommended that the DMDP be used, to convert the digital TTL RGB signal to analog RGB. The DMDP includes a 1.5 meter cable to connect the DMDP to the IPS-110 frame, and a 16 meter cable to connect the DMDP to the monitor's supplied cable. The DMDP also provides 3 BNC connectors for connecting standard RGB television monitors, using customer supplied cables.



Editing System Source Protocols

GVG Model Number	Sony VTR/Device
SV-DVR10	DVR-10
SV-DVR18	DVR-18
SV-DVR1000	DVR-1000
SV-BVH2000	BVH-2000
SV-BVH2500	BVH-2500 ¹
SV-BVH2800	BVH-2800
SV-BVH3000	BVH-3000
SV-BVH3100	BVH-3100
SV-BETA	BVW-10, BVW-15, BVW-40
SV-BETASP	BVW-60, BVW-65, BVW-70, BVW-75
SV-BVU8	BVU-800, BVU-820
SV-BVU8SP	BVU-850, BVU-870
SV-BVU9SP	BVU-900, BVU-920, BVU-950, BVU-970
SV-VO98	VO-9800, VO-9850
SV-EVO9800	EVO-9800
SV-APR5003	APR-5003V

GVG Model Number	Ampex VTR/Device
SV-VPR3	VPR-3
SV-VPR300	VPR-200, VPR-250, VPR-300
SV-VPR6	VPR-6
SV-VPR80	VPR-80

GVG Model Number	Panasonic VTR/Device
SV-AU550	AU-550
SV-AU650	AU-650
SV-AU650B	AU-650B
SV-AU660	AU-660, AU-62, AU-63, AU-65, AU-665
SV-AU750	AU-750
SV-AJD350	AJ-D350

GVG Model Number	Hitachi VTR/Device
SV-VLD500	VL-D500

GVG Model Number	BTS VTR/Device
SV-DCR100	DCR-100

GVG Model Number	Abekas VTR/Device
SV-A53	A53(D)
AV-A6	A60, A62 ² , A64

GVG Model Number	Other VTR/Device
SV-LEX	Lexicon 1200/2400
SV-LYNX	TimeLine "LYNX"
SV-MCP1	Machine Protocol 1
SV-MCP2	Machine Protocol 2
SV-ESP1 ³	Peripheral Protocol 1
SV-KSCOPE ⁴	GVG Kaleidoscope
SV-DPM100 ⁴	GVG DPM-100

¹No Delta T control

²When used with E-E preview, monitoring for both recorder and program switcher is recommended.

³Only available with Grass Valley Group models 100, 200, 300 or Kadenza switchers.

⁴No charge, not counted toward 5 protocols that are free with system purchase.



AMX-170S Automated Audio Mixer

The AMX-170S is a powerful automated audio mixer with features typical of larger, higher priced mixing consoles.

Computerized Editing Integration

The mixer provides unparalleled performance in the video production environment by integrating fully with your computerized editor. Crosspoint selection, including input sources and output routing, as well as transition sequences may be controlled from the edit system. Equalization, trims, and fader level may be assigned to any of the input sources and are recalled when the input is selected from the edit controller.

The ability to recall complex effects from the edit list through E-MEM™ registers speeds up post production by minimizing the need to manually re-set the mixer for each edit pass.

Input Routing

Up to eight VCA (voltage controlled amplifier) inputs may be simultaneously routed to any four program channels, permitting full utilization of new generation tape machines with four-channel audio record and playback.

Equalization and Trim

Features four-band equalization and level trim for each of the eight mixing inputs. Control of equalization, trim and filters may be delegated to any of the mixing inputs.

A trim control adjusts incoming levels within a gain range of -6dB to 30dB. Greater flexibility is available by pre-setting the input amplifiers to accommodate other levels.

Tone Generator

The mixer includes a 1kHz/400Hz tone generator for system alignment or for adding tone to tape leaders.

Audio Effects Memory E-MEM

The mixer's E-MEM register capability makes the AMX-170S a truly automated post production audio mixer, with the ability to store and recall control panel settings. Each E-MEM register stores a particular panel set-up including input levels, equalization and trim values. Any of 20 E-MEM registers may be recalled either manually or through the edit controller during an edit event.

Transition Control

Crossfades between mixer set-ups may be easily accomplished manually, or they can be triggered by an edit computer. Complex effects can be further simplified by setting up automatic transitions between the mixer's E-MEM registers.

Monitoring Capabilities

An amplified headphone output and monitor outputs are available.

Monitoring selections are available for Program or R-VTR, allowing independent selection of sources for headsets or monitors. Level and balance controls are provided, and a 20dB attenuator may be toggled in or out for instant reduction of monitor level. A convenient mono/stereo button is provided to identify phase differences and stereo image.

Specifications

Audio Inputs:	8 primary, 8 alternate
Record Device Inputs:	4
VCA Faders:	8PGM A, 8PGM B
Filters:	High/low cut (10kHz and 75Hz)
Equalization:	4 band ± 12dB; low shelving (100Hz); low-mid peak dip (500Hz); high-med peak dip (2.5k); high shelving (8k); bargraph display indicators
Outputs:	2 stereo, (A) L/R, (B) L/R
Monitor Controls:	Levels, balance, dim, 5W/ch headphone amplifier
Sources Monitored:	PGM A, PGM B, Record VTR A and B
Video Editor Control:	RS-422/38.4k baud (9-Pin D); GVG serial communications protocol

AMX-170S \$19,500.00

Control Panel Cables

170CBL-10 10m	\$150.00
170CBL-16 16m	200.00
170CBL-30 30m	250.00

8500 Series Audio/Video Distribution Amplifiers

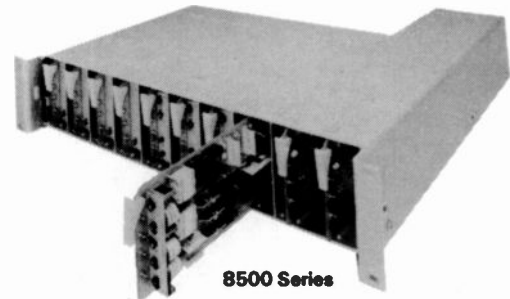
All 8500 Series models feature differential inputs with 6 outputs. Circuit building blocks such as input amplifiers, output amplifiers and voltage regulators have been reduced to individual hybrid integrated circuits which provide improved performance, better unit-to-unit consistency and ease of maintenance over conventional discrete designs.

Video DA's include the 8501, a basic non-equalizing DA; the 8502, an equalizing DA with dual range (0'-500' and 500'-1000') variable equalizer; the 8503, an equalizing DA with precision stepped equalization (0', 100', 200', ...1000') plus vernier trim (0'-125'); the 8504, a delay DA capable of up to 300ns delay (up to 1.1 μsec. with optional plug-ins); and the 8505, a field DA which combines long cable EQ (up to 3000' of 8281) and a 2-speed clamp. The line also includes the 8520, a pulse DA.

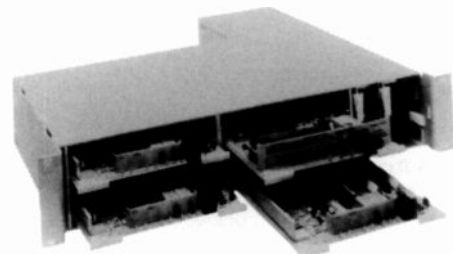
The 8551 is a high performance voltage-mode audio DA. It has an active, balanced Hi-Z input (input Z > 40K ohms) and 6 active, balanced Lo-Z outputs (output Z > 50 ohms). The 8551 will accommodate signal levels to +24dBu; SNR is > 110dB.

The 8560 Stereo Audio Distribution System is a series of audio distribution amplifiers. Each amplifier handles 2 channels of audio, manipulated by a single gain control and a balance trim.

A 2-rack unit frame of the 8560 Series houses up to 4 DAs, a meter board and power supplies. The meter board, with PPM and VU ballistics, allows monitoring of all DA inputs and outputs.



8500 Series



8560 Series

8500 Series

Model	Description	Price
8500	Utility VDA (no equalization)	\$ 120.00
8501	VDA	175.00
8502	VDA with variable cable EQ (for 8281-type cables)	295.00
8502-59B	VDA with variable cable EQ (for "RG-59B/U" cable)	295.00
8502-59	VDA with variable cable EQ (for "RG-59/U" cable)	295.00
8502-SPL	VDA with variable cable EQ (for special cable types: 8500-EQ network required)	295.00
8503	VDA with step/vernier EQ (for 8281-type cables)	425.00
8503-59B	VDA with step/vernier EQ (for "RG-59B/U" cable)	425.00
8503-59	VDA with step/vernier EQ (for "RG-59/U" cable)	425.00
8504	Delay DA (with cable EQ for 8281-type cables)	495.00
8504-59B	Delay DA (with cable EQ for "RG-59B/U" cable)	495.00
8504-59	Delay DA (with cable EQ for "RG-59/U" cable)	495.00
8504-D300	300ns Delay submodule	200.00
8504-D500	500ns Delay submodule	250.00
8504-D800	800ns Delay submodule	275.00
8505	Field VDA (with cable EQ for 8281-type cables)	565.00
8505-59	Field VDA (with cable EQ for "RG-59/U" cable)	565.00
8506	Clamp VDA (with cable EQ for 8281-type cables)	435.00
8506-59B	Clamp VDA (with cable EQ for "RG-59B/U" cable)	435.00
8506-59	Clamp VDA (for cable EQ for "RG-59/U" cable)	435.00
8506-SPL	Clamp VDA (for special cable types: 8500 EQ network req.)	435.00
8510R	Remotely-controlled VDA (with cable EQ for 8281-type cable)	595.00
8510R-59B	Remotely-controlled VDA (with cable EQ for "RG-59B/U" cable)	595.00
8510R-59	Remotely-controlled VDA (with cable EQ for "RG-59/U" cable)	595.00
8511	Wideband (100MHz) VDA	465.00
8520	Pulse DA	295.00
8520-8281	Pulse DA with 8281 EQ	375.00
8520-59B	Pulse DA with "RG-59B/U" EQ	375.00
8520-R	Pulse DA with regenerator	365.00
8520-EQ1	8281 EQ submodule only	125.00
8520-EQ2	"RG-59B/U" EQ submodule only	125.00
8520-RGEN	Pulse regen. submodule only	100.00
8500T1-120	1 RU video tray with 120V PS (holds 4 DAs)	650.00
8500T1-240	1 RU video tray with 240V PS (holds 4 DAs)	650.00
8500T2-120	2 RU video tray with 120V PS (holds 8 DAs)	795.00
8500T2-240	2 RU video tray with 240V PS (holds 8 DAs)	795.00

NOTE: Loss characteristics vary considerably among cables with "RG-xx" designations. EQ networks on 8500 Series VDA's are optimized for the following specific cables:
 "RG-59B/U": Belden 8263
 "RG-59U": Belden 9259
 "RG-11/U": Belden 8238
 Exact loss curves are available upon request.

Model	Description	Price
8500T2R-120	2 RU video tray with 120V PS (holds 8 standard or remotely-controlled DAs)	\$ 895.00
8500T2R-240	2 RU video tray with 240V PS (holds 8 standard or remotely-controlled DAs)	895.00
8500PS-120	Backup PS for 8500T2-120 or 8500T2R-120	275.00
8500PS-240	Backup PS for 8500T2-240 or 8500T2R-240	275.00
8500T2-DC48	2 RU video tray with 48VDC PS	1300.00
8500PS-DC48	Backup 48VDC power supply	750.00
8500EX	Extender card	75.00

AUDIO DISTRIBUTION EQUIPMENT

8551	Audio DA	\$ 265.00
8552R	Remotely-controlled Audio DA	395.00
8553	Audio tone generator	295.00
8550T1-120	1 RU audio tray with 120V PS (holds 4 DAs)	725.00
8550T1-240	1 RU audio tray with 240V PS (holds 4 DAs)	725.00
8550T2-120	2 RU audio tray with 120V PS (holds 8 DAs)	895.00
8550T2-240	2 RU audio tray with 240V PS (holds 8 DAs)	895.00
8550T2T-120	2 RU audio tray with taper pin connectors and 120V PS (holds 8 DAs)	1475.00
8550T2T-240	2 RU audio tray with taper pin connectors and 240V PS (holds 8 DAs)	1475.00
8550PS-120	Backup PS for 8550T2-120 or 8550T2T-120	385.00
8550PS-240	Backup PS for 8550T2-240 or 8550T2T-240	385.00

STEREO AUDIO DISTRIBUTION EQUIPMENT

8561	Stereo audio distribution amp	\$ 495.00
8561-MFS	8561 with multi-function submodule installed	845.00
8561-PCS	Stereo ADA with phase adjustable channel switch	695.00
8561SM-MFS	Multi-function submodule	350.00
8561SM-PCS	Phase adjustable, channel switch submodule	200.00
8561-RCK	Remote control kit for multi-function submodule equipped 8561s	95.00
8562	Stereo audio metering module	785.00
8560T2-120	2 RU (4 cell) tray with 120V PS	995.00
8560T2-240	2 RU (4 cell) tray with 240V PS	995.00
8550PS-120	Backup PS for 8550T2-120 or 8550T2T-120	385.00
8550PS-240	Backup PS for 8550T2-240 or 8550T2T-240	385.00
8560EX	Module extender	125.00

SYNCHRONIZATION GENERATORS

9500 SERIES

NTSC SYNCHRONIZING GENERATORS

The 9500 Series Synchronizing Generators represent moderately priced sync generator systems. The SPG Gate Array IC, designed exclusively for the 9500 Series, has made accuracy, stability and reliability available in an affordable system.

With over 2100 logic gates in a 44-pin package, the SPG Gate Array contains all critical circuitry for exact SC/H phase, regardless of external conditions.

Hybrid integrated circuits allow improved performance, manufacturability and reliability. Servicing can be kept to a minimum, since troubleshooting is done at the functional block level.

9505A Color Black Locking Source Sync Generator

The 9505A is a single-module system available for either encoded subcarrier or color black reference. SC/H phase is always correct. No adjustment is necessary.

1RU frame, color black slave SPG module with standard oscillator, power supply, instruction manual, accessory pack and line cord. Color black outputs with 7.5 IRE setup.

Input Power: 100-125VAC or 210-250VAC, 50/60Hz

Power Consumption: 15W maximum

9505A	.....	\$2295.00
9505-TCXO	Temperature Compensated Crystal Oscillator (TCXO)	200.00
9505-TSG	Test Signal Generator Module .....	.895.00
9505-SID	Source Identification Submodule for TSG .....	.295.00

9510A Reference Synchronizing Generator

The 9510A is designed for use when space requirements allow only a single rack unit, or a deluxe source sync generator is required, providing genlock to video or encoded subcarrier. Two color black and encoded subcarrier reference outputs are standard.

Input Power: 100-125VAC or 210-250VAC, 50/60Hz

Power Consumption: 20W maximum

9510A	NTSC Reference Synchronizing Generator	\$2695.00
9510-TSG	Test Signal Generator Module .....	.895.00
9510-SID	Source Identification Submodule for TSG .....	.295.00
9510-PPC	Phase Preset Control Module .....	.395.00
Dual 9510A	Dual 9510A NTSC Sync Generator System	7295.00

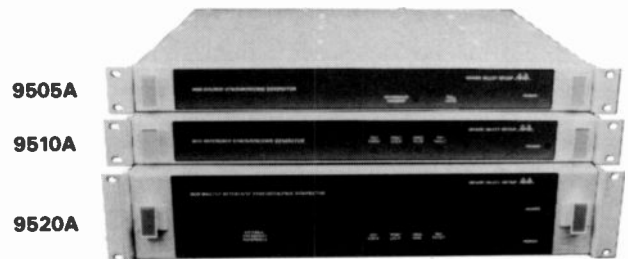
9520A Master Reference Synchronizing Generator

The heart of the 9500A Series, this two rack unit master provides two outputs each of pulse and subcarrier. Two color black and two encoded reference outputs are standard. The 9520A will genlock to video or encoded subcarrier signals.

Input Power: 105-125VAC or 210-250VAC, 50/60Hz

Power Consumption: 30W maximum

9520A	NTSC Master Reference Synchronizing Generator	\$3295.00
9520A-HS	9520 with Ovenized Crystal Oscillator	3795.00



9520-EFR	External Frequency Reference Module	\$ 550.00
9520-TSG	Test Signal Generator Module .....	.895.00
9520-SID	Source Identification Submodule for TSG .....	.295.00
9520-OXO	Ovenized Crystal Oscillator for 9520 ..	.550.00
Dual 9520A	Dual 9520A NTSC Sync Generator System .....	.8495.00
Dual 9520A-HS	Dual 9520A-HS NTSC Sync Generator System .....	.9495.00

9550A Sync Pulse Generator Changeover Switch

The 9550A will monitor both the on-line and backup generators with visual and audible alarms in the case of failure, and has an LED status display to assist in identifying the faulty signal. The 9550A is mounted in a one rack unit tray with removable modules for easy servicing. It has automatic and manual switching, ten signal channel capability, and crosstalk suppression greater than 65dB.

9550A	NTSC/PAL Automatic Changeover Switch	\$1995.00
9550-RCK	9550A Remote Connector Kit .....	.35.00
9500-EXT	9500 Module Extender .....	.125.00
9500A-PSM	9500A Power Supply Module .....	.335.00
9500-RCK	Remote Connector Kit .....	.35.00
CV-95N	NTSC Sync Pulse Generator Module (use in CV-20 tray) .....	.1395.00
STM-85N	NTSC Source Timing Module (fits in 8500 VDA Tray) .....	.850.00
SCB-100N	NTSC Sync/Color Bar Generator .....	.1295.00
SCB-200N	NTSC Genlocking Sync Color Bar Generator .....	.1995.00

3240-25 Video Processing Amplifier

- SC/H phasing • Full regeneration of sync and burst • Adjustable blanking width • Soft and hard clippers • Cable equalization • Selectable line deletions: 10-21 • Sin² pulse edges • Color black output • Optional accessories

The 3240-25 Video Processing Amplifier is a high performance sync and blanking regenerative amplifier designed for signal processing in studio, master control, remote, and transmitter locations.

The basic 3240-25 system is a fully functional processing amplifier, available in 2RU (RU = 1.75") height. Controls are available on the card edge or at a remote control point.

The expandable 3240-25 system in the 2RU frame contains four additional cells for accessories. The accessories are plug-in modules that complement the basic processor. The frame has been prewired to accept the accessories, and power is supplied from the 3200A Power Supply.

The compact and rugged construction, coupled with low power consumption and wide supply voltage range, make it ideal for remote van applications. All active components are accessible from the front of the rack.

Conservative ratings, and a sealed air design that keeps contamination out, will assure years of trouble-free service.

- 3240-25** NTSC Video Processor, includes external reference module \$5990.00
- 3240-20** NTSC Video Processing Amplifier (without external reference module) 4995.00
- 3240-103** Remote Control Panel (rack mtg.) 525.00
- 3240-002** Additional 26-Pin Cable for 3240-103, per meter. 20.00
- 3240-203** Video A.G.C. Module 995.00
- 3240-204** NTSC VIR A.G.C. Module 995.00
- 3240-206** Relay Bypass Module 295.00
- 3240-207** NTSC External Reference Module. 995.00
- 3200-PS1** Backup Power Supply Module 265.00

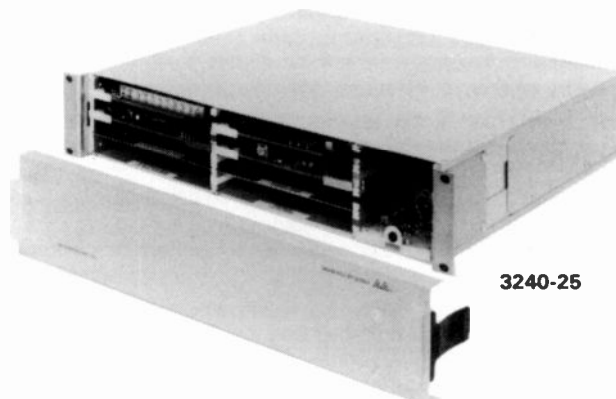
7510N NTSC Video Processing Amplifier

The 7510N is a single-module video processing amplifier for NTSC applications. There are one input and four outputs per module. One output is connected to an automatic bypass relay which will route the input directly to the output in the event of power failure to that module. Two frame sizes are available: 1RU holding two processing amps; 2RU holding up to four processing amps.

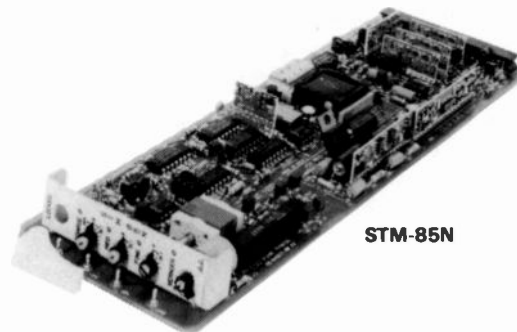
- 7510N** NTSC Video Processor Module \$1975.00
- 7510T1-115** 1RU Tray with 115V Power Supply 895.00
- 7510T2-115** 2RU Tray with 115V Power Supply 1095.00
- 7500-PSM** 7500 Power Supply Module (115/230V) 335.00
- 7500-EXT** Module Extender 125.00
- 7500-RCK** Remote Connector Kit 35.00
- 7500-CPK** Remote Control Panel Kit for 7510N 135.00

STM-85N NTSC Source Timing Module

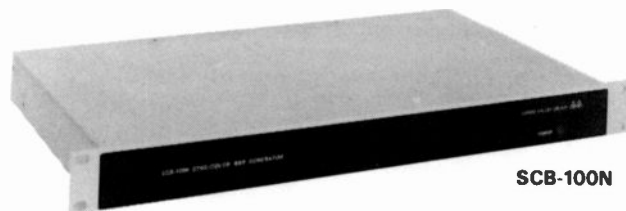
• Decodes the encoded subcarrier signal output of SPG generators, producing discrete sync, blanking and subcarrier, V1 and color black • Output phase relative to that of the driving



3240-25



STM-85N



SCB-100N

SPG is adjustable over the range of +27/35μs, using front mounted controls • Further adjustment of 2H advance and 1H delay is possible with internal dipswitch settings • When phase is adjusted, subcarrier and H sync move together, ensuring accurate SC/H phase at all settings

- STM-85N** \$850.00

SCB-100N NTSC Sync/SMPTE Color Bar/Audio Tone Generator

• One rack unit • Fully SC/H phased • Sync generator provides four color black outputs, two outputs each of sync, blanking and subcarrier, and one each of V1 and encoded subcarrier, two outputs of SMPTE color bars and one balanced Lo-Z output for audio tone

- SCB-100N** \$1295.00
- SCB-200N** Genlocking version of SCB-100N. 1995.00

ROUTING SWITCHERS

TEN-XL 10 x 1 Routing Switcher

• Breakaway stereo audio comes with every unit • Both local and remote control panels are available • Binary control system • Differential inputs for both video and audio • Video inputs are DC restored and switching is done in the vertical interval line (line 10) • Built-in expansion capability lets the TEN-XL be a 19 x 1, 28 x 1 or more • 12-hour minimum crosspoint memory in case of power failure

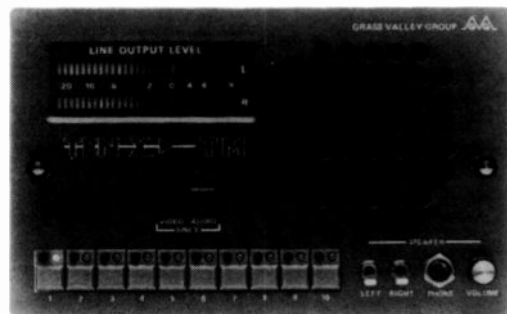
The TEN-XL encompasses video, stereo audio, optional RS422/232 serial interface module, and relay module, all in a one rack unit frame.



TEN-XL

TEN-XTM Routing Switcher

• Designed to reside in a half-rack frame next to waveform and vector displays • Incorporates all the features of the TEN-XL plus providing audio VU/Peak metering along with a built-in audio monitor/speaker combination • Stereo audio monitoring is available via a front panel headphone jack • Audio metering can be set to provide VU, Peak power, or both



TEN-XTM

All TEN-XL options can be used including serial interface, tally relay matrix, dual power supplies and the widest variety of useful remote control panels.

TEN-XL and TEN-XTM Routing Switchers Complete Units

TEN-XL	10 x 1 video/stereo audio switcher with local control panel	\$1595.00
TEN-XLV	10 x 1 video only switcher with local control panel	1395.00
TEN-XLVA1	10 x 1 video/single audio switcher with local control panel	1445.00
TEN-XLRC	10 x 1 video/stereo audio switcher for remote control use (does not include remote control panel)	1560.00
TEN-XLRCV	10 x 1 video only switcher for remote control use (does not include remote control panel)	1360.00
TEN-XLRC A1	10 x 1 video/single audio switcher for remote control use (does not include remote control panel)	1410.00
TEN-XLA	10 x 1 stereo audio switcher with local control panel	1425.00
TEN-XLA1	10 x 1 single audio switcher with local control panel	1220.00
TEN-XLARC	10 x 1 stereo audio switcher for remote control use (does not include remote control panel)	1390.00
TEN-XLA1RC	10 x 1 single audio switcher for remote control use (does not include remote control panel)	1185.00
TEN-XLCV	10 x 1 component video/stereo audio switcher with local control panel, 120V.	3375.00
TEN-XLCV-V	10 x 1 component video only switcher with local control panel	3095.00
TEN-XLCVA1	10 x 1 component video/single audio switcher with local control panel	3235.00
TEN-XTM	10 x 1 video/stereo audio switcher for half rackmount with VU/peak meters and audio monitor	2250.00
TEN-XLCVRC	10 x 1 component video/stereo audio switcher for remote control	3340.00
TEN-XLCVA1RC	10 x 1 component video/single audio switcher for remote control	3200.00
TEN-XLCV-D	10 x 1 component video/stereo audio switcher with local control panel, DC coupled	3375.00
TEN-XLCV-VD	10 x 1 component video only switcher with local control panel, DC coupled	3095.00
TEN-XLCVA1D	10 x 1 component video/single audio switcher with local control panel, DC coupled	3235.00
TEN-XLCV-RCD	10 x 1 component video/stereo audio switcher for remote control, DC coupled	3340.00
TEN-XLCV-VRCD	10 x 1 component video only switcher for remote control, DC coupled	3065.00
TEN-XLCVA1RCD	10 x 1 component video/single audio switcher for remote control, DC coupled (For 220/240V operation add -2 to model number)	3200.00

Control Panel Options

TNX-RCP	Standard breakaway remote control panel	\$ 200.00
TNX-CPL	Standard breakaway local control panel	200.00
TNX-SMP	3" x 4" AFV escutcheon mount control panel	525.00
TNX-AFV	AFV remote control panel with relegendable buttons	525.00
TNX-2AFV	AFV dual remote control panel	1050.00
TNX-AFV19	19 x 1 AFV remote control panel	1050.00
TNX-TCP	Remote control panel, 3 RU half-rack	750.00
TNX-SCP	Serial breakaway control panel	1200.00
TNX-WPC	TEN-XL wire per crosspoint control panel kit	125.00

Connector Kits/Cables

TNX-RCC	Remote control cable with connectors	\$3.00/m*
TNX-CON	Remote control connector kit	35.00
TNX-ICC	Interconnect cable to Model 100	3.00/m*
TNX-ICS	Interconnect cable to Model 300	3.00/m*
TNX-IRS	RS-232 computer/terminal interface cable	3.00/m*
TNX-IEC	19 x 1 expansion cable	3.00/m*
TNX-CCB	RGB interconnect cable (18" long)	135.00
TNX-RYC	Remote control "Y" cable (8" long)	135.00
TNX-MIC	RS-232 modem I/F cable to TEN-XL	3.00/m*
TNX-CPS	Serial control panel interface cable (specify number of TEN-XLs and length)	3.00/m*
TNX-CTM	RS-232 computer to modem cable	3.00/m*
TNX-AAD	Audio connector adaptor	150.00
TNX-AIC	Audio interconnect cable (For TNX-AAD) (1m long)	60.00

*Plus \$50.00 preparation charge

PERFORMER 10x1 Routing Switcher

• 30MHz video bandwidth for graphics and future technology • Built-in RS-422/232 interface • Removable screw type audio terminal connectors • 3-level switching with an LED display that shows the current status of the switcher at a glance • A 'Protect' feature locks out the input selection to avoid accidental operation. The status display indicates that this feature has been selected by displaying "PROT" alternately with the input selection

PERFORMER, with its wideband video matrix and dual audio matrices, has been designed for a broad range of facility applications including those common to broadcast TV stations, professional video facilities, cable TV systems, graphics operations, security systems, telephone companies, medical institutions and many others.

The router can use the popular GVG TEN-XL™ and TEN-20/20-TEN™ series control panels. In addition, an optional 3-level serial remote control panel and a tally relay with joystick override module is available.

PFR	PERFORMER 10 x 1 video, dual audio switcher with serial interface, 120V	\$1285.00
PFR-2	PERFORMER 10 x 1 video, dual audio switcher with serial interface, 240V	1285.00

Options

PTJO	PERFORMER tally, joystick override module	\$185.00
PRMK	PERFORMER rear support rackmount kit	20.00
PLCK	PERFORMER loophrough cable kit	25.00
PSCP	PERFORMER serial control panel	575.00
PMAN	PERFORMER maintenance manual	35.00

TEN-20™/20-TEN™ Compact Routing Switcher Systems

- TEN-20 switcher 10 input-by-20 output
- 20-TEN switcher 20 input-by-10 output
- 4-level control, with numerous matrices per level
- Control via twisted shielded pair cables, for simple and cost-effective installation
- PC boards remove from the front for easy access
- "Protect" and locked panel features, standard on all control panels, guard your destinations against unauthorized intervention
- All systems available in component as well as composite versions
- Battery protected RAM saves your data for as long as 30 days

Choose from these versatile panel configurations:

- 20 input buttons per source—controls any combination of 4 levels
- 10 input buttons per source—controls any combination of 4 levels
- 4-level X-Y—controls all inputs and destinations
- Multi-bus control panel—controls 4 outputs

Each switcher is contained in a single rack unit frame, with both video and audio matrices available. Either may be configured video only, audio only or video plus multiple audio. A component video version is also available.

TEN-20 and 20-TEN video and audio routers feature high density, multi-layer boards with excellent bandwidth and signal-to-noise ratio.

These single crosspoint modules give you increased reliability and full functionality.

Options include the flexibility of an RS-232/RS-422 serial interface and the extra reliability of backup power supplies.

Video Performance Specifications

Differential Gain:	0.1% at 1V p-p output, 10-90% APL
Differential Phase:	0.2° at 1V p-p output, 10-90% APL
Frequency Response:	± 0.1dB, 100kHz-5.5MHz ± 0.5dB, 5.5MHz-10MHz
Total Delay (Typical):	20ns
Crosstalk (worst case; all inputs and outputs driven):	-60dB at 5.0MHz -50dB at 10.0MHz
Signal-to-Noise Ratio:	75dB, 5.0MHz low pass

Audio Performance Specifications

Crosstalk:	80dB, 20Hz-20kHz
Frequency Response:	± 0.1dB, 20Hz-20kHz
Total Harmonic Distortion:	0.05% at + 24dBu, 20Hz-20kHz
Signal-to-Noise Ratio (ref. + 24dBu):	120dB, 20Hz-20kHz
TEN-20-V	10x20 Video Switching System \$ 5,500.00
TEN-20-A	10x20 Audio Switching System 4,300.00
TEN-20-SA	10x20 Stereo Audio Switching System 8,500.00
TEN-20-CV	10x20 Component Video Switching System 16,350.00
TEN-20-CVS	10x20 Component Video and Sync Switching System 21,700.00
20-TEN-V	20x10 Video Switching System 5,500.00
20-TEN-A	20x10 Audio Switching System 4,300.00
20-TEN-SA	20x10 Stereo Audio Switching System 8,500.00



Multi-bus Control Panel



XY Control Panel



20 Button-Per-Source Control Panel



10 Button-Per-Source Control Panel

20-TEN-CV	20x10 Component Video Switching System \$16,350.00
20-TEN-CVS	20x10 Component Video and Sync Switching System 21,700.00
20-TEN-R	20x10 Relay Matrix Switcher 4,300.00
20X20-V	Two, 20x10 video switching systems with output expansion kit 11,850.00
20-TEN-CV-D	DC coupled version of 20-TEN-CV 16,350.00
20-TEN-CVS-D	DC coupled version of 20-TEN-CVS 21,700.00
20-TEN-V-D	DC coupled version of 20-TEN-V 5,500.00
TEN-20-CV-D	DC coupled version of TEN-20-CV 16,350.00
TEN-20-CVS-D	DC coupled version of TEN-20-CVS 21,700.00
TEN-20-V-D	DC coupled version of TEN-20-V 5,500.00

Control Panels and Options

JSL	Joystick Override Control logic, 120V \$ 600.00
MBCP	Multibus Control Panel, 120V 700.00
XYCP	X-Y Control Panel, 120V 700.00
10BPS	10 Button Per Source Control Panel 675.00
20BPS	20 Button Per Source Control Panel, 120V 700.00
SERIM	Serial Interface Module and Frame 795.00
FLSD	Four Level Status Display, 120V 850.00
RPSF	Redundant Power Supply Frame 595.00
VPS	Video Power Supply for RPSF 550.00
APS	Audio Power Supply for RPSF 550.00
RPS	Relay Power Supply 550.00
OPEXP	Video Output Expansion Kit 1,000.00

(For 220/240V Operation add -2 to model number)

Spares/Replacement Modules

TEN-20VXP	10x20 Video Crosspoint Module \$4,500.00
20-TENVXP	20x10 Video Crosspoint Module 4,500.00
TEN-20AXP	10x20 Audio Crosspoint Module 3,300.00
20-TENAXP	20x10 Audio Crosspoint Module 3,300.00
20-TENRXP	20x10 Relay Module 3,300.00
CPSS	Control Panel Power Supply 60.00
VPSCT	Video Power Supply and Controller 695.00
APSCT	Audio Power Supply and Controller 695.00
RPSCT	Relay Power Supply and Controller 695.00
EXT	Video/Audio and Controller Module Extender 550.00
EMM	Extra Maintenance Manual (One supplied with each system purchased) 50.00
SPK	20-TEN/TEN-20 Spare Parts Kit 300.00

ROUTING SWITCHERS/ DATA MATRICES

GRASS VALLEY GROUP 

HORIZON™ Routing Systems

HORIZON is designed as a high-performance audio/video distribution routing switcher suitable for a wide variety of applications including composite and component video, HDTV, stereo or even multiple audio, plus time code.

HORIZON is offered in a variety of frame sizes and configurations from 128 x 128 multi-level systems through 16 x 16 frames and all are intermixable. 64 x 64, 48 x 32 and 32 x 16 sizes provide intermediate steps; each size available with the number of modules to meet your needs. Plug-in modules transfer from frame to frame without causing downtime or system interruption.

HX-16/HX-32

- Most compact routing systems in the HORIZON family • Flexibility in control level selection makes them the ideal solution to component routing and stereo audio applications • Their frames may be used as part of larger HORIZON systems, so you can configure exactly the system you need • Available in video and audio mixtures to suit your needs

HX-48

- 48 input by 32 output video and audio capability are available in 18 rack units—including power supplies • Space for optional dual power supplies and system controllers is part of this package • For multiple audio or component video applications, simple interlevel cable allows the HX-48 to drive 1 or more smaller systems • The same cable also allows you to use the HX-48 as part of a larger system • Start with as few as 16 inputs by 16 outputs and build to frame capacity in 8-input/16-output steps • Available in video/video, video/audio and audio/audio frame capability

Options

- 35 standard control panels • Dual power options • Dual controller option without adding frames • On-line programmability and real time system diagnostics • Unlimited RS-232/422 control capability with HX-GPI • Interface option, including output exclusion • E-MEM™ interface, with full 4-level breakaway capability for GVG production switchers • Full-time, real time video status display • Source tally for production/master control • Status displays for in-panel readout of HORIZON sources selected to GVG production or master control systems • Integrated machine control • RS-422 matrix

Specifications

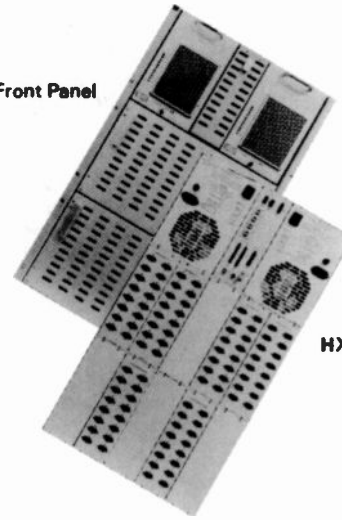
VIDEO

Diff. Gain:	<0.1% at 1V p-p out, 10%-90% APL
Diff. Phase:	<0.1° at 1V p-p out, 10%-90% APL
Frequency Response:	±0.15dB, 100kHz to 5.0MHz, +0.15, -0.5dB to 8MHz
2T Pulse/Bar	
Response:	Pulse 0.25%; Bar 0.25%, Pulse/Bar 0.25%
Tilt:	<0.5%
X-Talk:	-80dB at 5MHz (all inputs hostile and synchronous)
SNR:	>75dB
Output DC (DC Rest. System):	Blanking at 0V, ±50mV
Timing Scatter:	±1° (NTSC or PAL) max., input to input on any 1 bus
Electrical Length:	(HX-16, 32, 48, 64), typical: Outputs 0-15: 43.6ns; Outputs 16-31: 44.4ns; Outputs 32-47: 45.0ns; Outputs 48-63: 45.8ns
Electrical Length:	(HX-128), typical: Outputs 0-15 and 64-79: 48.1ns; Outputs 16-31 and 80-95: 49.7ns; Outputs 32-47 and 96-111: 51.4ns; Outputs 48-63 and 112-127: 53.0ns
Input Char.:	All inputs 75 ohms internal term., return loss >40dB to 5MHz
Output Char.:	275 ohm term. outputs per bus; ret. loss 40dB to 5MHz; output/output isolation 38dB to 5MHz
Signal Level:	1V p-p nom., 2V p-p max.
Gain:	Unity adj. ±1.0dB

AUDIO

Frequency Response:	±0.1dB, 20Hz to 20kHz
Harmonic Distortion:	<.05% at +24dBu, 20Hz to 20kHz
SNR:	>100dB, ref. +24dBu, 20Hz to 20kHz
X-Talk:	>-80dB, 20Hz to 20kHz, all inputs hostile
Input Char.:	Bal. Z = >12.5K ohms; CMRR >65dB
Output Char.:	One bal. output per bus, Z <30 ohms
Recommended Load:	600 ohms or greater; 150 ohm available
System Level:	±24dBu (12.28VRMS) max.
Stereo Phase Acc.:	<0.72° L to R diff. at 20kHz
Gain:	Unity, adj. ±1.0dB

HX-RS Front Panel



HX-RS Rear Panel

HORIZON Data Matrices

HX-RS Data Matrices eliminate the complexity of data patching encountered when using sophisticated editing systems, graphics devices and VTRs.

Systems may be configured in sizes from 16 inputs x 16 outputs up to 64 x 64 and from 2-wire to 8-wire capability. The 64 x 32 4-wire size takes just 18 rack units of space and has the capacity to double in size with the addition of a simple 12 rack unit frame.

Reliable, low current relays switch bi-directional paths. Additional software allows the system to function traditionally or as an "exclusive" system, which allows any source to be taken to only 1 destination at a time.

HX-RS matrices may be used as stand-alone systems, or as 1 level in a larger HORIZON system. More than 1 HX-RS may also be used to simplify complicated intercom systems.

Specifications

4-pole bi-directional switching	
9-pin "D" connectors for data paths, pin #9 at chassis ground	
Max. End-to-End	
Resistance:	2 ohms
Max. Voltage	
Between Relay	
Poles:	100V
Max. Contact Current:	1A
Operate Time:	<20ms
Release Time:	<10ms

HORIZON Production Interfaces

Start with any Model 300 with optional serial interface adaptor or with a Model 200 with optional dual serial adaptor and the streamline option. Add a HORIZON production interface to your HORIZON Routing System. 300 Series systems may store as many as 7 preset source selections per internal E-MEM register. Model 200 systems will direct the HX-GP200 to store source information in its resident memory.

A single HX-GPEM interface serves up to 14 Model 300 inputs or up to 7 inputs of each of 2 300s. 1 HX-GP200 interface is fully equipped to work with up to 24 Model 200 inputs.

HORIZON production interfaces are simple C-Bus options. Where several Model 300s or Model 200s are in operation, multiple units may be used to take full advantage of HORIZON routing power.

For instant feedback to camera locations, the programmable HX-ST source tally option module plugs directly into HORIZON production interface frames. An economical 16-relay/16-optoisolator configuration, it performs the tasks of larger source tally systems at a fraction of the cost and space normally required. Source tally growth beyond 16 x 16 capability is simple and economical with expansion frames and additional HX-ST modules.

CV-20 Series Component Video Terminal Equipment

The CV-20 Series is a family of products providing component video system designers with signal generation and format conversion capability. Whether the need is conversion between various component formats or conversion between the composite and component world, the CV-20 Series is an economical solution.

CV-11/85 Translator

The CV-11/85 Translator is a simplified version of the CV-21. It may be used in any application where "straight through" conversion from Y, R-Y, B-Y to RGB is required, such as displaying the component output of a Betacam* system on an RGB monitor. The CV-11/85 is designed to mount in a standard 8500 Series video DA tray, and may be used in conjunction with 8500 Series amplifiers to provide multiple RGB feeds. Mounts in 8500 Series DA tray.

Specifications

• **Inputs:** Y, R-Y, B-Y (75 ohms terminating); Y= 1V p-p including sync; R-Y, B-Y = ± 350mV (75% saturation) • **Outputs:** RGB (one each) • **Frequency Response:** ± 0.2dB to 6MHz • **Gain Adjust:** Unity ± 1dB
CV-11/85\$395.00

CV-21 Translator

The CV-21 converts Betacam MII, SMPTE or EBU-N10 standard Y, R-Y, B-Y signals to RGB. The CV-21 features full blanking processing which enables the user to delete sync on the RGB outputs, if desired, and to compensate for setup on the Y input signal. Mounts in CV-20T tray.

Specifications

• **Inputs:** Y, R-Y, B-Y (75 ohms terminating); Y= 1V p-p including sync; R-Y, B-Y = ± 350mV (75% saturation) • **Outputs:** RGB (two each); Y • **Frequency Response:** ± 0.2dB to 6MHz • **Gain Adjust:** Unity ± 1dB • **Setup Adjust:** ± 15 IRE
CV-21\$995.00

CV-22 Translator

The CV-22 converts RGB signals to Betacam MII, SMPTE or EBU-N10 standard Y, R-Y, B-Y. Full blanking processing and sync add/delete capability is provided to accommodate the large degree of variability which exists in RGB environments. Mounts in CV-20T tray.

Specifications

• **Inputs:** RGB (75 ohms terminating) 700mV video with or without sync. Sync/color black (looping) required if input video is non-composite • **Outputs:** Y (three); R-Y, B-Y (two each); Y= 1V p-p including sync; R-Y, B-Y = ± 350mV (75% saturation) • **Frequency Response:** ± 0.2dB to 6MHz • **Gain Adjust:** Unity ± 2.5dB • **Setup Adjust:** 0 to + 10 IRE
CV-22\$995.00

CV-23 Color Bar Generator

The CV-23 is a component color bar generator which generates full-field color bars in both RGB and Y, R-Y, B-Y formats. It requires comp sync or color black as a timing reference and is capable of operating in either 525/60 or 625/50 systems. Mounts in CV-20T tray.

Specifications

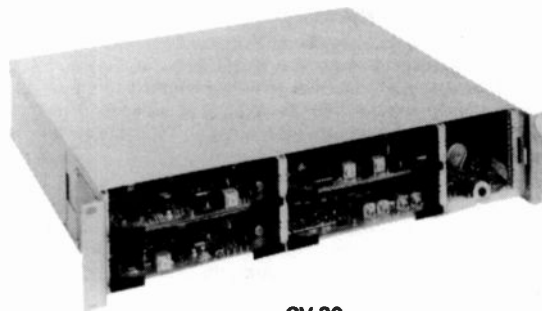
• **Output Signal:** Full field color bars switch selectable to 75% or 100% saturation • **Outputs:** One set each RGB and Y, R-Y, B-Y • **Reference Input:** Composite sync or color black • **Timing Adjust:** Output timing may be adjusted to ± 2µs with respect to the input timing reference
CV-23\$1295.00

CV-24N NTSC Decoder

The CV-24N is a variable-Q notch filter design. Front panel controls are provided for input level, setup adjust, chroma phase and chroma gain. The output matrix may be strapped to provide RGB, Betacam MII, SMPTE or YIQ outputs. Mounts in CV-20T tray.

Specifications

• **Input:** NTSC video (75 ohms terminating), 1V p-p nominal, adjustable ± 3dB • **Outputs:** Two sets, strappable to any one of the following: RGB (700mV video/300mV sync); SMPTE-standard Y, R-Y, B-Y; Betacam; or YIQ • **Luminance Bandwidth:** DC to 6MHz ± 0.2dB with 3.58MHz notched out to approximately -30dB • **S/N Ratio:** > 60dB (6MHz bandwidth) • **Propagation Delay:** Approximately 850ns
CV-24N\$1695.00



CV-20

CV-25N NTSC Encoder

The CV-25N produces high quality NTSC video (2 outputs) from composite or non-composite RGB. The CV-25N has a unique, onboard pulse regenerator which derives blanking from input sync, eliminating the need for separate blanking input, sync timing on the output may also be adjusted. An alignment test generator is also included. Mounts in CV-20T tray.

Specifications

• **Inputs:** Number and Type: One each R, G, B video (internally terminated), sync, subcarrier (looping) • **Levels:** 700mV RGB video with or without sync, with ± 1dB gain trim; 4V p-p sync ± 6dB; 2V p-p SC, ± 6dB; 2V p-p SC, ± 6dB CMRR (RGB inputs); > 40dB at 60Hz • **Outputs:** (75 ohm source terminated) Number and Type: Two each NTSC composite video; Level: 1V p-p nominal (714mV video, 286mV sync and burst) • **Frequency Response:** ± 0.2dB to 5MHz (luminance) • **Black/White Balance:** < 0.5 IRE residual subcarrier • **I/Q Quadrature:** > 0.5° of subcarrier • **Electrical Length:** 810ns ± 40ns (RGB in NTSC out) • **Adjustments:** (Card Edge) H Phase, Fine Chroma Phase, Test Mode Enable, Green Tie Enable, I Black Balance, Q Black Balance, Setup • **Mounting:** Fits in CV-20T tray • **Power:** Provided by CV-20PS power supply
CV-25N\$1495.00

CV-95N Sync Pulse Generator

The CV-95N has been designed to provide a source of reference timing pulses for analog component islands. Designed on a module that fits into the CV-20T tray, it genlocks to color black. Used in conjunction with CV products, it provides a cost-effective method of system integration.

Specifications

• **Inputs:** Composite color black high-impedance loopthrough • **Outputs:** Two composite sync, two composite blanking, two color black, two subcarrier (selectable for either GVG encoded subcarrier or standard 2V p-p subcarrier), two common pulse outputs—select either CFID (VI), VD, HD, CS, or BF • **Controls (Front Panel):** Coarse phase, medium phase, fine phase, vernier phase • **Controls (On Board):** Vertical phase: 2H advance, 1H delay; Vertical blanking width: 16.5-21 lines; Horizontal blanking width: 10.3µs to 11.3µs; Selectable pulse output: GVG encoded subcarrier or standard subcarrier indicators for reference present and color lock • **Performance When Locked to Master SPG:** Sync time base error: < 2ns; Subcarrier filter: < 0.25° of 3.58MHz; SC phase stability: < 2° of 3.58MHz; Electrical length: 810ns, ± 40ns
CV-95N\$1395.00

CV-20T Tray

The CV-20T tray is a 2RU tray which will accept up to four CV-20 Series modules in any mix. It comes with one power supply; a second (backup) supply and module extender are available as options.

- CV-20T**\$895.00
- CV-20PS** Backup power supply for CV-20T tray\$265.00
- CV-20EXT** Module extender for CV-20T series modules\$110.00

*Betacam is a trademark of Sony Corporation.

DIGITAL DISTRIBUTION AMPLIFIER/TRANSLATORS

DDA-101 Digital Distribution Amplifier

- Fully RP125 and EBU 3246-E compatible digital amplifier
- Available in a 2 rack unit frame
- Modular design allows up to 4 DAs per 2 rack unit frame
- Standard features include 1 input by 4 output, full 10-bit data path and automatic cable equalization for up to 500'
- LED indicator for video input signal
- Independent driver per output for maximum reliability and ease of maintenance
- High efficiency power supply for cool operation
- Data reclocking for greater noise immunity

DDA-101 digital distribution amplifier features 1 input x 4 outputs with 8- or 10-bit data paths and automatic cable equalization for up to 500'. The digital DA comes with data reclocking, an independent driver for each output and a high efficiency power supply. The DDA-101 is available in a 2 rack unit frame that can hold up to 4 DAs with an optional backup power supply.

DDA-101	.....	\$ 770.00
DDAT2-115	2RU tray with 115VAC power supply	.....1065.00
DDAT2-230	2RU tray with 230VAC power supply	.....1065.00
DDA-PSM	Backup power supply (115/230VAC)	..350.00
DDA-EXT	Digital DA extender	.....130.00

DDA-202N Composite Digital Distribution Amplifier

- NTSC
- Supports a full 10-bit data path
- Has 1 input and 4 outputs on the module
- Each of the outputs has a separate, independent chip driver
- Standard automatic input cable equalization to 150 meters, crucial to maintaining a robust parallel data transmission

DDA-202N	\$770.00
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DAC-110 Digital to Component Analog Video Translator

- RP-125/EBU 3246-E component digital to CAV translating
- 8/10-bit resolution per channel, switch selectable
- Automatic selection of 625/525, 50/60 line/field rate
- Digital video presence indicator LED
- Input cable EQ for up to 500'
- 1RU frame
- 3 sets of CAV outputs, 1 output is Y, B-Y, R-Y, the other outputs may be either RGB or Y, B-Y, R-Y (switch selectable)
- Sync add/delete on all outputs
- 1 composite sync output in time with CAV outputs
- 1 terminating digital video input
- Internal test signal generator



DDA-101

DAC-110 digital to CAV translator handles CCIR 601 digital video to component analog video. Selectable 8- or 10-bit conversion, automatic selection of line/field rate (525/625), input cable equalization, adjustable horizontal blanking and internal test signals are some of the significant features available with the DAC-110. The system is available in a 1 rack unit frame with selectable 115/230VAC power supply with 1 digital input and 3 component outputs. The outputs can be selected for RGB, Beta or MII by a front panel switch.

DAC-110	\$5750.00
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ADC-120 Component Analog to Digital Translator

- 2 sets of CAV inputs
- Inputs may independently be either RGB or color-difference
- External reference—color black/composite sync timing reference adjustment: $\pm 2\mu\text{sec}$
- Local and remote selection and indication of inputs
- 2 RP-125/EBU 3246-E digital video outputs
- Color-difference monitor output of selected channel
- Automatic 525/60 or 625/50 line/field rate selection
- Force black mode
- Chroma off mode
- Compact 1RU mode
- 115/230VAC selectable

ADC-120 analog to digital translator accepts 2 analog component signals of any format and produces CCIR 601 digital output. The input may be selected locally or remotely and LEDs will indicate which input is active. Timing may be taken from sync on the Y or green channel or an external reference may be utilized. Line/field rates of 525/60 or 625/60 will be automatically detected and selected. An output of the component input is available for monitoring purposes. The ADC-120 comes in a 1 rack unit frame.

ADC-120	\$6995.00
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MAX-900 Series Analog Distribution Products

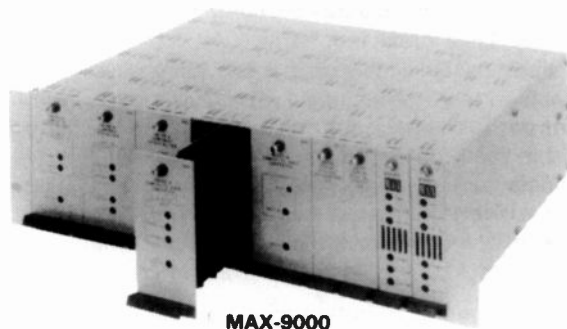
The MAX-900 Series is a 3RU modular system supporting an impressive array of Component Analog Video (CAV) terminal equipment. The MAX modules are compact to save valuable rack space and can be easily configured for specific user needs. The modular frame accommodates 12 single or 6 double width modules and a standard power supply. The frame accommodates an optional backup power supply which can be installed without sacrificing 1 of the 12 cell locations.

- 3 channels, each 1 x 6 • Looping differential inputs • Full 30MHz bandwidth • DC coupled amplifier stages • Multiple format capability (GBR/Y, B-Y, R-Y) • Single tracking master gain adjustment • Selectable 6dB gain boost (for external delay) • Internal individual channel trims for gain and DC • HDTV compatibility

MAX-900-120 3RU modular frame with 120V P/S	.845.00
MAX-900-240 3RU modular frame with 240V P/S	.845.00
M931 CAV DA	.595.00
M932 Clamping CAV DA	.745.00
M933-59 Clamping equalizing DA for use with RG-59U (Belden 9259).	.795.00
M933-8281 For use with Belden 8281.	.795.00
M934-59 Clamping/sync add/EQ DA for use with RG-59B/U (Belden 9259).	.875.00
M934-8281 For use with 8281 Belden.	.875.00
M930SM-DL1 Delay submodule with delay lines	.625.00
M930SM-DL2 Delay submodule without delay lines.	.85.00
M910 5 x 1 CAV selector	.745.00
M911 CAV format translator Y, R-Y, B-Y to GBR	.595.00
M912 CAV format translator GBR to Y, R-Y, B-Y	.595.00
MAX-EXT Module extender	.125.00
MAX-SWB Single-width blank cover	.13.50
MAX-DWB Double-width blank cover.	.16.50
M900PS-120 120V backup P/S module	.345.00
M900PS-240 240V backup P/S module.	.345.00

MAX-9000 Series Serial/Digital Products

The MAX-9000 series is a family of modular terminal equipment designed expressly for digital and hybrid digital/analog environments. The platform for this series is the same 3RU



MAX-9000

frame and power system used for the MAX-900 series of analog equipment. This frame accepts up to 12 single-width or 6 double-width modules. The MAX-9000 series supports both composite digital and component digital standards.

M9102 Component digital serializer. Features: • Up to 6 modules in 3RU • 4 serial digital BNC outputs • Front panel LEDs • True 75 ohm BNCs • 10-bit • Data reclocked before being serialized	.800.00
M9202-N Composite digital serializer (NTSC standard). Features: • Up to 6 modules in 3RU • 4 serial digital BNC outputs • Front panel LEDs • True 75 ohm BNCs • 10-bit • Clock regeneration	.1700.00
M9103 Component digital deserializer. Features: • Up to 6 modules in 3RU • 25-pin D connector parallel output • Input uses true 75 ohm BNCs • 10-bit • Clock regeneration	.1050.00
M9203-N Composite digital deserializer (NTSC standard). Features: • Up to 6 modules in 3RU • 25-pin D connector parallel output • Input uses true 75 ohm BNCs • 10-bit • Data reclocking	.1050.00
M9131 Component/composite serial digital fanout DA. Features: • Economical 1-in, 6-out serial digital distribution • Up to 12 modules in 3RU • Automatic cable equalization • True 75 ohm BNCs	.350.00
M9132 Component/composite serial digital reclocking DA. Features: • 6 outputs • Reclocked • Up to 12 modules in 3RU • Automatic cable equalization • True 75 ohm BNCs • D1, D2 NTSC, D2 PAL selectable	.900.00
M9201-N Composite digital to analog converter (NTSC standard). Features: • Up to 6 modules in 3RU • True 75 ohm BNC serial input • 25-pin D connector parallel input • 4 analog outputs • 10-bit D to A conversion • Selection of parallel or serial inputs	.1700.00
M9221-N Analog to composite digital converter (NTSC standard). Features: • Up to 6 modules in 3RU • Looping video input • 25-pin D connector parallel output • 4 serial digital BNC outputs • Front panel video monitor test point • True 75 ohm BNCs • 10-bit A to D conversion	.2000.00

VIDEO CODEC/ DIGITAL MULTIPLEXER

Grass Valley Group
—Telecom Systems—

EXCALIBUR

D I G I T A L

Excalibur™ DS3 Video Codec and Digital Multiplexer

- Meets or exceeds RS-250C short haul specifications
- Standard 4-channel, 16-bit CD-quality digital audio
- 10-bit A/D video processing • Optional T1 auxiliary channels (up to 8, which are dynamically bandwidth allocated with the video) • Forward error correction allows full performance operation at up to 10^{-2} error rate • Extensive local/remote control and diagnostics • NEBS compliant • FCC part 15

The Excalibur DS3 lets you show your TV broadcast customers the clear advantages of digital transmission over unlimited distances.

Because it's fully compatible with all standard interfaces, you can use it with existing digital networks provided by local exchange and inter-exchange carriers.

The Excalibur system carries full motion video with up to 8 T1 auxiliary channels that are dynamically bandwidth allocated. Another advanced feature lets you monitor video and data performance on-line. Each codec can also, by local or remote command, be reconfigured into its complimentary function, i.e., an encoder can become a decoder or vice versa.

The Excalibur Video Codec gives 4-channel, 16-bit "CD-quality" digital audio, plus the added performance of 10-bit A/D video processing and greater than or equal to 67dB S/N ratio for exceptional picture quality.

The Excalibur frame will hold up to 10 codec modules. This allows 10 video and 40 CD quality audio channels per frame.

Each codec module can be set up as either an encoder or decoder.

Specifications

Video Performance (NTSC)

Amplitude Response

vs. Frequency:	(50 IRE unit sine wave)
	0.5MHz: +0.7 to -0.7 IRE units
	1.0MHz: +0.9 to -0.9 IRE units
	2.0MHz: +1.0 to -1.0 IRE units
	3.0MHz: +1.2 to -1.1 IRE units
	3.58MHz: +0.6 to -0.6 IRE units
	4.2MHz: +1.2 to -1.1 IRE units

Chrominance-to-Luminance Gain Inequality:

+2 to -2 IRE units

Chrominance-to-Luminance Delay Inequality:

+20 to -20ns

Field-Time Waveform Distortion:

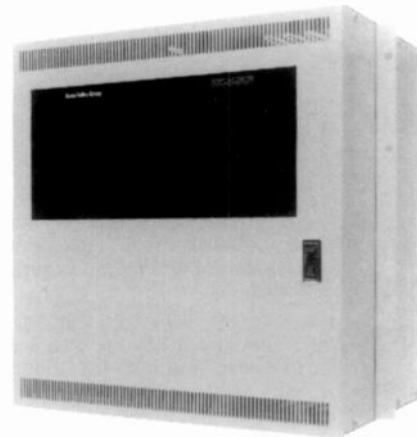
≤3 IRE units p-p

Line-Time Waveform Distortion:

≤0.5 IRE units p-p

Short-Time Waveform Distortion:

≤2%



Excalibur DS3

Long-Time Waveform Distortion:

≤8 IRE units peak,
3 sec. settling time

Insertion Gain:

+5.9 to -5.5 IRE units

Insertion Gain Variation:

Hourly: +1.7 to -1.7 IRE units;
Over 1 second: +1.2 to -1.2 IRE units

Luminance Nonlinearity:

≤2 IRE units

Differential Gain:

≤2 IRE units or ≤2%

Differential Phase:

≤1.3°

Signal to Weighted Noise Ratio:

(10kHz to 4.2MHz): ≥67dB

Signal to Low Frequency Noise Ratio:

(0 to 10kHz): ≥53dB

Signal to Periodic Noise Ratio:

(300Hz to 4.2MHz): ≥67dB

Audio Performance

Frequency Range

Amplitude Response

Limits:

20 to 200Hz: +0.2dB to -0.8dB

201 to 15,000Hz: +0.2dB to -0.2dB

15,001 to 20,000Hz: +0.2dB to -0.8dB

-0.8dB

0.5%

Total Distortion:

Band-Limited Signal-to-Idle-Channel-Noise Ratio:

84dB

DS3 Line Interface

General:

Meets DSX-3 requirements as described in AT&T Compatibility Bulletin CB119 (formerly Technical Advisory TA34)

Data Rate:

44,736Mb/s ±20 ppm, asynchronous

Line Code:

B3ZS, bipolar

Frame Format:

M13 or C-bit parity

Line Impedance:

75 ohms, unbalanced coax

N-EXC-CDC-01 Excalibur Codec (2-card set)POR*

N-EXC-TR-02 Excalibur DC tray with 2 power suppliesPOR*

N-EXC-MAN-01 Excalibur manualPOR*

*Price On Request

EZ-LINK

Series 87 FM Fiber Optic Systems

Modular design permits several video applications in 1 EZ-Link tray assembly. For example, you can combine security monitoring or surveillance with instructional video distribution within a building, academic campus, financial institution or airport. All of these applications can be supported with the same EZ-Link modules. As your needs change, the modules can be rearranged to support different video and audio requirements.

EZ-Link with optional audio is also ideal for video conferencing on university and corporate campuses. EZ-Link offers you both LED and laser transmitters for video and audio distribution over distances up to 30km.

An FM square wave carrier eliminates video distortion due to optical system nonlinearities and delivers video S/N performance of greater than 60dB.

EZ-Link gives you 10MHz frequency response for compatibility with standard NTSC or PAL baseband video (5.5MHz with audio option, NTSC only). In addition, a switchable AGC can reduce variations in audio levels, which are conveniently displayed by a front panel LED bar graph.

For even more flexibility, both AC and DC power supplies are available. You can choose from the standard 8-module rackmount tray or the 2-module wall mount version with convenient hinges that give you easy access for rear panel connections. The 2-module EZ-Link is ideal for installations with space limitations.

Flexible Fiber Choices

Modules in the EZ-Link family work with multimode fibers in common sizes of 50/125 and 62.5/125 as well as single mode fiber in 8.7/125.

Flexible combinations of optical power level, operating wavelength and connector type allow EZ-Link video modules to interface with optical fiber networks originally planned for data communications or telephone applications.

Specifications

Video Performance

Frequency Response: 30Hz to 5MHz ± 0.5dB, 10Hz to 8MHz ± 1dB, 8MHz to 10MHz + 1dB, -5dB

2T Pulse to Bar: ± 3%
Field Tilt: < 2%
Line Tilt: < 3%

Relative Chrominance to Luminance Delay: < 15ns (NTSC or PAL)

S/N Ratio, CCIR Weighted 10kHz to 5MHz: ≥ 60dB at -25dBm received power through attenuator

Differential Gain: < 5%
Differential Phase: < 5°

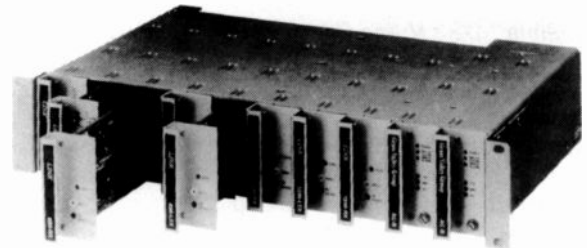
Video Performance, With Audio

Frequency Response: 10kHz to 5MHz ± 1dB
2T Pulse to Bar: ± 3%
Field Tilt or Line Tilt: < 3%

Relative Chrominance to Luminance Delay: < 30ns (NTSC)

S/N Ratio, CCIR Weighted 10kHz to 5MHz: ≥ 57dB at -25dBm received power through attenuator

Differential Gain: < 5%
Differential Phase: < 5°



Series 87

Audio Performance

Frequency Response: 50Hz to 15kHz ± 3dB
Distortion: 3% at 400Hz, 100% modulation

S/N Ratio (-25dBm Received Optical Power): 50dB, NTSC multiburst on video, compression off

Alarms

Video Transmitter: Loss of video input
Video Receiver: Loss of carrier
Audio Receiver: Loss of subcarrier
Alarms: Loss of input indicated by front panel LED and signals a major alarm, minor alarm or no alarm (jumper selectable)

EZ-Link Video, Audio, Transmitters and Receivers

87V-830-TX-ST	Video 830nm LED transmitter, ST . . . \$	580.00
87V-830-TX-S	Video 830nm LED transmitter, SMA . . .	580.00
87V-830-RX-ST	Video 830nm receiver, ST	580.00
87V-830-RX-S	Video 830nm receiver, SMA	580.00
87V-830-LTX-ST	Video 830nm multimode laser transmitter, ST	1550.00
87V-1300-LTX-ST	Video 1300nm singlemode laser transmitter, ST	2590.00
87V-13HP-LTX-ST	Video 1300nm high power single-mode laser transmitter, ST	3750.00
87V-1300-RX-ST	Video 1300nm receiver, ST	1050.00
87A1-MV	Single channel audio modulator	395.00
87A1-DV	Single channel audio demodulator	395.00

EZ-Link Trays

87TR8-AC-B	Tray, 2RU, 8 module with AC-B power supply	\$890.00
87TR2-WAC	Tray, wall mount, 2 module with 87AC-W power supply	450.00
87TR3-WAC-B	Tray, wall mount, 3 module with AC-B power supply	750.00
87TR8-DC	Tray, 2RU, 8 module with 48V DCPS	890.00

EZ-Link Options

87EXT	Extender, EZ-Link	\$105.00
87BP	Blank front/rear module panel for module slots	35.00
87BP-PS-B	Blank panel for 87AC-B power supply slot	35.00
87AC-B	AC power supply	365.00
87AC-W	Wall mount AC power supply	235.00
87DC-48	48VDC power supply	365.00
87TR-23	23" mounting brackets for 2RU tray	45.00

ANALOG FIBER OPTIC SYSTEMS

Grass Valley Group
—Telecom Systems—

WAVELINK 3291

Wavelink Series 3291 Analog Fiber Optic Systems

Wavelink Series 3291 Systems give you high quality analog fiber optic transmission of video, audio and data. You can specify systems with a variety of options, including: LED or high/low power laser optical sources, operating wavelengths, optical connectors, cable equalizers, power sources, audio modules, data modules and alarm modules. Systems are available in a choice of rackmount or portable designs.

Model WDM Wavelength Division Multiplexer

This compact system lets multiple optical sources share a single fiber, effectively doubling the capacity of fiber optic cables. The WDM can be used for bi-directional or unidirectional multiplexing.

CS-43 Carrier Selectable Audio Multiplexer Option

This Wavelink option supports 2 to 4 channels of high quality audio transmission. Audio subcarriers are user programmable between 5.8MHz and 8.3MHz. The CS-43 offers 70dB S/N performance at less than 0.25% total harmonic distortion.

3291 20MHz Wideband

This video-only configuration is the ideal solution for high resolution applications such as HDTV, computer graphics, high resolution component video, wideband RGB and multiplexed analog video transmission.

Auto Changeover System

The Audio/Video Auto Changeover System protects program channel information from being interrupted by failure of the optical path or the video transmission equipment. It protects by controlling which of 2 paths carrying the same information (a preferred path and a backup path) will serve as the final system output. If either video or the optical carrier of the preferred path disappears, the system changes over to the backup path.

Wavelink-MC Multi-Channel System

The Wavelink-MC is a highly economical analog transmission system providing up to 4 video channels over a single fiber optic link.

Wavelink-MC gives you the added flexibility of multiple audio channels with each channel of video. Like all Wavelink family products, the Wavelink-MC shares a high commonality of modules for ease of expansion and simplified maintenance.

Modular construction meets your needs whether you're transmitting video only or a combination of video, audio and data. The Wavelink-MC meets RS-250C short haul video standards with 4 video channels and 16 audio channels all in 1 fiber.

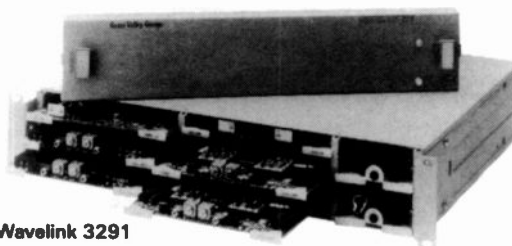
Wavelink 3291 Specifications

Singlemode: Single Channel

Laser Launch Power Into 9µm Fiber Core (Singlemode, Including Repeaters):	1300nm, ELED: > -17dBm; 1300nm, LP laser: > -12dBm; 1300nm, laser: > 0dBm; 1550nm, laser: > 0dBm
Received Power for 67dB S/N Ratio (Weighted, 10kHz to 5MHz):	1300/1500nm: -25dBm; CS43 4sc: -22dBm
Optical Connector Options:	Biconic, "ST" or "FC"; 9/125µm cable

Singlemode: Multi-Channel

Laser Launch Power into 9µm Fiber Core (Singlemode, Including Repeaters):	1300nm, laser: > 0dBm
Received Power for 67dB S/N Ratio (Weighted, 10kHz to 5MHz):	1300nm: > -15dBm
Optical Connector Options:	FC



Wavelink 3291

Multimode

LED Launch Power (Into 50µm Fiber Core):	830nm: > -16dBm; 1300nm: > -15dBm
Laser Launch Power (Into 50µm Fiber Core):	830nm: > 0dBm
LED Launch Power (Into 62.5µm Fiber Core):	830nm: > -14.1dBm, typical; 1300nm: > -13.1dBm, typical
Laser Launch Power (Into 62.5µm Fiber Core):	830nm: > 1.9dBm, typical
Received Power for 67dB S/N Ratio (Weighted, 10kHz to 5MHz):	830nm: -28dBm; CS43 4sc: -25dBm; 1300nm: -25dBm; CS43 4sc: -22dBm
Optical Connector Option:	Biconic, "ST" or SMA (85/125 and 100/140µm cable is not supported)

Video Performance

System Performance at Minimum Received Power:	Video only: 1Hz to 5MHz: ± 0.1dB;
Frequency Response:	5MHz to 8MHz (ref. 100kHz): +0.2, -0.75dB; 8MHz to 10MHz: +0, -2.5dB

Audio Performance (Single and Dual Channel)

Frequency Response:	(ref. 1kHz) 20Hz to 20kHz: ± 0.5dB
THD:	Audio only: 0.25%; audio with data: 0.5%; 1kHz at +20dBm
S/N Ratio:	(ref. to +20dBm) measured per RS-250C short-haul specifications: > 70dB, RMS to 20kHz

Channel-to-Channel Crosstalk:	< -70dB
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Audio Performance CS-43 (2 to 4 Channels)

Harris/Farion Compatible Frequency Response:	(ref. 1kHz) 50Hz to 15kHz: ± 0.5dB
THD:	< 0.25%, 1kHz at +18dBm
S/N Ratio:	(ref. to +18dBm): > 70dB
Channel-to-Channel Crosstalk:	< -60dB subcarrier frequencies selectable between 5.8MHz and 8.3MHz

Wavelink 3291

3291-TX-112	Transmitter 830 LED 5.8 filter	\$ 1450.00
3291-RX-112	Receiver 830 APD 5.8 filter	1950.00
3291-TX-312	Transmitter 1300 LED 5.8 filter	2480.00
3291-RX-212	Receiver 1300/1550 APD 5.8 filter	2270.00
3291-TX-412	Laser TX 1300 5.8 filter.	7210.00
C3291-OP-11	Dual channel audio modulator	780.00
C3291-OP-12	Dual channel audio demodulator	780.00
C3291-OP-17	Carrier select audio modulator	1350.00
C3291-OP-18	Carrier select audio demodulator	1650.00
3291-OP-22	Video/audio changeover	2000.00
3291-TR-2221	Tray, laser, 2RU, ACPs, unbalanced.	1130.00
3291-TR-2221	Tray, video/audio/data 2RU AC.	1030.00
3291-TR-6221	Tray, video/audio changeover	1340.00

Wavelink MC

N-WLMC-MOD	Modulator, multi-channel Wavelink	POR*
N-WLMC-DEM	Demodulator, multi-channel Wavelink	POR*
N-WLMC-TX	FDM laser TX, multi-channel Wavelink	POR*
N-WLMC-RX	FDM receiver, multi-channel Wavelink	POR*
N-WLMC-TR	4RU tray, multi-channel Wavelink	POR*

* Price On Request

HD-16X Series Expandable Routing Systems

Control of the HD-16X system is achieved by means of a high speed serial link implemented with twisted pair cable. This allows frame-to-frame intercommunication and remote panel control for audio, video, data or HEDCO's CCIR 601 and D2 digital routing systems.

All switchers in this series are designed to work as stand-alone or in combination with any of the 16X panels. The variety of panels allows you to tailor the 16X system to your specific installation—no compromise. Pushbutton, alphanumeric, thumbwheel and status panels are available. Attributes include salvo operations, breakaway, user programmable labels, 8 level breakaway switching, single level switching, programmable input and output restrictions and simple operation.

The optional SCE-101 interface board provides RS-232 serial control. Remote control by modem and telephone line or microwave subcarrier, breakaway functions, status viewing, real time switching and up to 38 separate salvo operations are possible uses. This board can be installed in any unit, allowing you computer control for the entire system.

The various 16X control panels, in any combination, can be integrated into your system. Multiple panel choices offer flexibility today and expand in the future without obsoleting existing equipment.

Video Routing

The HD-16X 16V router operates as a stand-alone or companion frame in a multi-frame system. For larger system requirements, additional units provide expansion up to 8 breakaway levels of 32 x 32 or larger. For systems requiring less than 16 x 16 routing, units are available in 16 x 8 and 16 x 4 configurations.

RGB can be configured as 3 separate levels or as a master unit and 2 slave units on the same level.

External sync provides vertical interval switching.

In order to maintain compatibility and uniformity in this series, the basic circuitry in the various video models is identical. This design allows extreme flexibility in your applications.

Audio Routing

The HD-16X 16 audio router was designed with the user in mind. Stereo, dual or mono configurations are available.

Each frame can be installed as a stand-alone unit by adding only a local control panel. Should expansion be required in the future, simply add expansion modules and additional routers.

From these configuration choices, stereo 8 x 8 is available in a 1RU frame or 4 levels of 8 x 8 audio in 2 rack units. Up to 8 breakaway levels are possible. A variety of configurations can be assembled using HEDCO's 16X routers and control options.

The 16 x 16 audio frame can be used in systems of 32 x 32 or larger in any combination with 16X video, data and digital routers.

The high impedance, balanced input circuits reduce loading effects and noise on the incoming signals. Quiet 16 x 1 crosspoint circuits result in high quality switching. Low impedance drivers provide +30dBu signal outputs. 25-pin subminiature "D" connectors are used for input and output connections. A 25-pin "D" plug-in adaptor to barrier strip connection is available as an option.

Data Routing

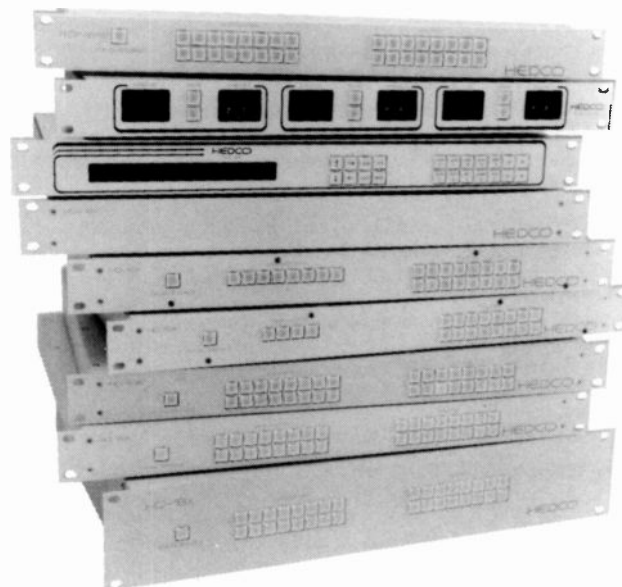
Reconfigure your studio at the touch of a button. The HD-16X 16D data router simplifies the installation of any system which requires machine control.

The HD-16X data router is a true 4-wire operationally transparent regenerative digital routing system that provides 16 x 16 2-way digital paths for the routing of RS-422 and RS-232 signals. Single or multiple units in combination with 16X series video, audio and digital video routers can be used to build a complete system up through 8 levels.

The control standard is RS-485 compatible, common to all 16X series routers.

RS-232 serial control is optional.

Signal connections are made via 9-pin subminiature "D" connectors using television digital control interface standard ANSI/SMPTE 207M-1984.



HD-16X16V	16x16 video router	\$4700.00
HD-16X16AM	16x16 monaural audio router	3200.00
HD-16X16AS	16x16 stereo audio router	5500.00
HD-16X16D	16x16 data router	5500.00
HD-16X4V	16x4 video router	2300.00
HD-16X4AM	16x4 monaural audio router	1800.00
HD-16X4AS	16x4 stereo audio router	2700.00
HD-16X8V	16x8 video router	3000.00
HD-16X8AM	16x8 monaural audio router	2100.00
HD-16X8AS	16x8 stereo audio router	3500.00
HD-16VOX	Video output expansion unit	1500.00
HD-16AOX	Audio output expansion unit	2200.00
DTB-25	Audio barrier strip-to-25-pin "D" adaptor	70.00
HD-4X	4x1 D1/D2 digital video router	2000.00
HD-8X	8x1 D1/D2 digital video router	2500.00
RCP-16X16	16x16 remote control panel	700.00
LCP-16X16	16x16 local control panel	450.00
LCP-16X16D	16x16 local control panel for HD16X16D	450.00
RCP-16X8	16x8 remote control panel	680.00
LCP-16X8	16x8 local control panel	370.00
RCP-16X4	16x4 remote control panel	640.00
LCP-16X4	16x4 local control panel	340.00
RCP-16X1	16x1 single bus remote panel	500.00
RCP-16X1-2	Dual bus 16x1 remote panel	700.00
RCP-16X1BA	Single bus breakaway remote panel	700.00
RCP-AN	Alphanumeric control panel (4-level remote)	1500.00
TWP-1	Thumbwheel control panel (single bus)	495.00
TWP-2	Thumbwheel control panel (dual bus)	790.00
TWP-3	Thumbwheel control panel (triple bus)	1085.00
SCE-101	RS-232 control option	550.00

SWITCHERS/DISTRIBUTION AMPLIFIERS

HEDCO

100MHz 16Xplus Video Bandwidth Router

For general purpose routing, or when high bandwidth routing of computer graphics or HDTV is required, use the 16Xplus 100MHz video bandwidth router. Both the 16 x 1 video board and the 16 x 1 dual audio board plug into rear slots on the 16Xplus.

Its modular concept permits: • 100MHz of video and stereo audio in a 1RU frame • 100MHz of RGB video and stereo audio in a 2RU frame • Optionally available in an RF switching version

With 30MHz bandwidth (jumper selected) and the addition of an expansion module to the video board, inputs can be increased to 32 x 1 in 1RU, or 64 x 1 in 2RU. Adding an expansion module to the audio board allows input expansion up to 64 x 1 stereo in 2RU. Secondary switching permits both audio and video to be expanded up to 256 x 1.

These routers can use existing 16X system control panels, or the 3-in-1 Numeric X-Y Panel, the RCP-NXY.

RCP-NXY Numeric X-Y Display and Control Panel

The multi-purpose RCP-NXY employs DIP switch settings to define its use within 16X systems.

The same keypad allows you to: • Control the inputs on 4 outputs (a multi-bus, single-level panel) • Breakaway control the inputs on 1 output of 4 router matrices (a single-bus, multi-level panel) • Breakaway control all inputs on all outputs of 3 router matrices (an X-Y or multi-bus, multi-level panel)

When the largest matrix is a 16 x 16 or less, a keystroke-saving feature allows a jumper to redefine the keypad from a 10-key numeric entry mode to a 16-key input/output selection mode.

HD-8 x 8V/HD-8 x 8AS

The HD-8 x 8V 8 x 8 Video Router/HD-8 x 8AS 8 x 8 Stereo Audio Router are available in 1RU, and constructed with the same high performance specifications and control systems as the rest of the 16X Series. The 8 x 8s can be optionally controlled with the serial control add-on board, SCE-101, or the remote serial control unit, RSCE-101.

RSCE-101 Remote Serial Control Unit

The RSCE-101 is a stand-alone 1RU unit with its own power supply and performs the same functions as an SCE-101 board that is mounted internally in a 16X Series routing frame, providing RS-232 serial communications. The RSCE-101 is used to monitor the status of the system crosspoint connections, to make crosspoint connections or disconnections, to preset crosspoint programs, and to perform certain system operations such as the programming of RCP-AN series alphanumeric remote control panels. If the HD-16X system has several routing frames, more than 1 SCE-101 module or RSCE-101 may be installed in the system, thus providing multiple independent serial ports to the network.

SAA-320 Hedline 8-Output Audio Distribution Amplifier

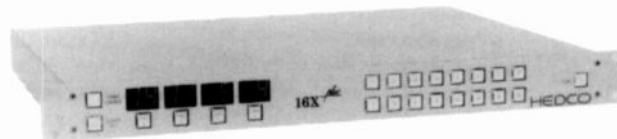
SAA-330 Hedline 8-Output Audio Remote

Gain Amplifier

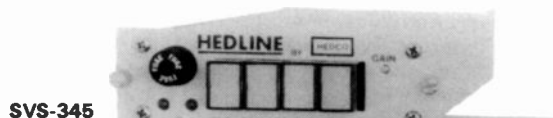
• Balanced, differential inputs providing exceptional common mode rejection • Outputs are balanced • Mini-phono monitoring jack is located on the front panel • Wide dynamic range • Low THD • Flat frequency response • Self-contained including on-board power supply • SAA-330 can be controlled via a 2-wire single potentiometer • Standard gain range of either ± 9 dB or $+8$ to -60 dB is factory set. Other ranges available by special order • Available as stand-alone units or rackmounted with 3 or 10 to a frame

Specifications

Input Impedance: > 10K, differential, balanced or unbalanced
Level: +18dBm max.
Common Mode Rejection: > 60dB at 60Hz
Output Impedance: 600 ohm or 150 ohm, source terminated
Output Level: +21dBm at 600 ohms +24dBm at 150 ohms +27dBm voltage



16Xplus



SVS-345



SAS-345

Response: ± 0.1 dB 20Hz to 20kHz
Distortion: < 0.1% 20Hz to 20kHz at +18dBm
Signal-to-Noise Ratio: > 95dB
Power: 115 or 230VAC, 50/60Hz, 10W max.
Weight: 2.4 lbs.
Size: 1.66" H x 5.23" W x 11" D

SAA-320 Audio DA, 8 outputs \$375.00
SAA-330 Audio remote gain DA, 8 outputs \$435.00

SVS-345/SAS-345 Hedline 4 x 1 Switchers

• Self-contained including on-board power supply • SVS-345 is a vertical interval switcher with full broadcast specifications, 30MHz bandwidth, 2 balanced outputs plus a monitoring phone jack on the front panel • Available as stand-alone units or can be rackmounted with 3 or 10 to a frame • Both feature looping inputs for output expansion up to 4 x 4 • Local and remote control panels have illuminated, relegendable momentary pushbuttons • Front panel features a gain adjustment control, LED indication ± 12 V and the fuse

Specifications (SVS-345)

Impedance: High impedance, 75 ohm bridging
Input Return Loss: > 45dB to 5MHz
Output Impedance: 75 ohm ± 0.1 %, source terminated
Output Return Loss: > 35dB to 5MHz
Differential Gain: < 0.1% 10 to 90 APL at 3.58MHz
Differential Phase: < 0.1° 10 to 90 APL at 3.58MHz
H or V Tilt: < 0.5%
Crosstalk: > 60dB to 5MHz
Input/Output Connector: BNC

Specifications (SAS-345)

Impedance: > 10K differential, balanced or unbalanced
Level: +18dBm max.
Common Mode Rejection: > 60dB at 60Hz
Output Impedance: 600 ohm source terminated
Output Level: +18dBm at 600 ohms +24dBm voltage mode
Distortion: < 0.1% at 20Hz to 20kHz at +18dBm
Crosstalk: > 80dB at 20kHz
Signal-to-Noise Ratio: > 100dB
Input/Output Connector: Barrier strips

SVS-345 4 x 1 video routing switcher with local panel . . . \$540.00
SAS-345 4 x 1 audio routing switcher with local panel . . . \$400.00



Hitachi Denshi America, Ltd.

CCD CAMERAS

FP-C1/FP-C2 3-Chip CCD Color Cameras

Features Common to Both Models

- Since the high sensitivity and low lag $\frac{2}{3}$ " CCD 3-chip is used, the sensitivity is 1 f/stop higher than that of a 3-plumbicon camera, making the FP-C1/FP-C2 ideally suited to use in low light conditions
- Auto knee and flare correction functions
- Subtle color differences among cameras can be controlled by the preset masking circuit
- Computer-controlled auto functions and self diagnostics improve operational flexibility
- High resistance to shock and vibration
- Immune to magnetic field interference
- Adoption of the image sensor and highly stable design provides high reliability
- Bayonet mount
- Auto white balance
- Auto black balance
- Auto iris
- Auto knee
- Auto black set
- Auto black level
- Self-diagnosis display

FP-C1

- Over 280,000 picture elements offers a superb picture quality of 660 lines horizontal resolution
- Sensitivity: 2000 lux, f/6.7 (89.9% reflection factor)
- Auto white balance (2 memories)—2 kinds of memories for 2 different white balance data are available for the first time in a camera of this class
- Computer-controlled auto iris—The computer-controlled auto iris function offers a clear and natural picture. The auto iris operating point is adjustable for about ± 1 f/stop
- Masking (with preset on/off switch)
- Test pulses
- Warning indicator
- Status display
- Character display function
- Min. Illumination: 20 lux, f/1.7 (+18dB)
- Signal-to-Noise Ratio: 60dB (NTSC), 57dB (PAL)
- Sync System: Internal (conforming to RS-170A) or genlock

Since various accessories are available, the FP-C1 is usable as an EFP/studio camera in conjunction with a remote operation panel.

FP-C1 Without lens and AC adaptor \$6,449.00
 FP-C1UG With 12:1 lens 7,701.00
 FP-C1UH With 15:1 lens 8,090.00

FP-C2U

- Professional ENG camera is dockable to a Betacam VTR
- 660 lines horizontal resolution
- High sensitivity 2000 lux with f/5.6
- Since there is no need for registration adjustment, the FP-C2U is ideal for ENG camera use
- Besides the ENG combo application, the FP-C2U can be used as a self-contained EFP studio camera with an optional camera adaptor
- Minimum illumination 16 lux with f/1.4 (+18dB)
- Signal-to-Noise Ratio: NTSC 60dB typ.; PAL 57dB typ.
- Sync system: Internal (conforming to RS-170A) or genlock (operation with composite video signal or blackburst signal)

FP-C2U Without lens and AC adaptor \$8,430.00
 FP-C2UG With 12:1 lens 9,540.00
 FP-C2UH With 15:1 lens 9,860.00

CK-2B 3-Chip CCD Camera

- Same as FP-C2
- 660 lines resolution
- High sensitivity
- Signal-to-noise 60dB
- Built-in 6-speed electronic shutter, up to $\frac{1}{2000}$ sec.
- Compact and lightweight
- Dockable with a variety of $\frac{1}{2}$ " VTRs

CK-2BUF Without lens and AC adaptor \$ 9,645.00
 CK-2BUH With 15:1 lens 10,860.00



FP-C1



Z-ONEA

Z-ONEA 3-Chip CCD Color Camera

- Improved vertical smear
- Docks directly to Betacam
- 400,000 pixels
- Horizontal resolution: 750 TVL
- Real time auto white balance function
- 6-speed, variable electronic function
- 600 lines 1.5" viewfinder
- Contrast function for improving black suppression in shooting a scene against light
- Auto knee function for improving white suppression at high-lights
- Auto iris function for providing the picture with a sense of nature
- 6-memory auto white balance corresponding to the optical filters
- ID display function in the color bar mode
- Memory backup by E²ROM (battery unnecessary)
- Masking circuit enables subtle color adjustment
- Clear pictures even in high light
- Used in ENG and dockable $\frac{1}{2}$ " broadcast VTR applications and in EFP/studio applications
- Signal-to-Noise Ratio: 60dB
- Minimum sensitivity 25 lux
- Adjustable shoulder mount maintains a comfortable balance with large lenses and dockable recorder
- Viewfinder displays the camera's operating status and diagnostics on the screen
- Flip-up eyepiece for easy viewing at any angle

Z-ONEA-UF Without lens and AC adaptor \$ 9,900.00
 Z-ONEA-UL With Fujinon 16:1 lens 11,500.00
 Z-ONEA-UH With Canon 15:1 lens 11,500.00

CCD CAMERAS



SK-F1/SK-F2/SK-F3 Portable CCD Dockable Color Cameras

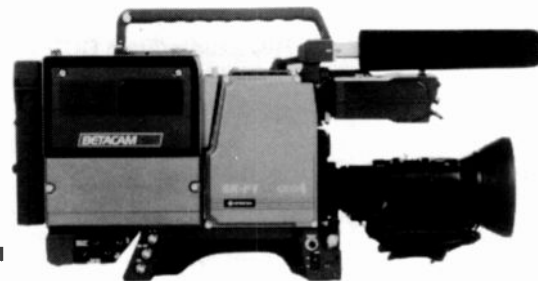
- By employing the CCD, sensitivity, sticking characteristics, resistance to vibration and shocks, registration, etc., have been improved, and further, compactness, light weight and low power consumption have been realized • Horizontal resolution of 650 TV lines (SK-F1) and 700 TV lines (SK-F2/F3) • Built-in electronic shutter enables the operator to obtain a sharp, clear picture with little blur even when shooting a rapidly moving object • Shutter speed can be selected from six speed modes including maximum 1/2000 seconds by the camera head • Color reproductivity matching color of Plumbicon® tube • Auto set up functions for white balance, black balance and pulse cancel are incorporated • Auto knee, knee aperture and contrast functions • RGB and gamma can be remote-controlled from the Base Station Unit (BSU) • AUX input connector is provided on the camera head • GL input and VBS output provided on the camera head allow diversified operations • Color bars conforming to the SMPTE standard are employed • Recording camera operation • Viewfinder display • 1.5" high resolution, quick start viewfinder • Lens extender correction function is provided to correct deterioration of picture quality caused by shading simultaneously with lens extender switching • Auto iris is controlled by a micro-processor • SK-F3 and SK-F3A are also available with micro lens array CCDs

The SK-F1 and the SK-F3 are broadcast ENG/EFP color cameras featuring high performance and high picture quality. The cameras employ a Frame Interline Transfer (FIT) type CCD as an imaging device, which remarkably improves smear, fixed pattern noise, etc. The SK-F1 employs a FIT CCD with 300,000 pixels, 650 lines, 60dB; the SK-F2 employs a newly developed 400,000 pixel IT CCD, 700 lines, 62dB; and the SK-F3 employs a FIT CCD with 400,000 pixels, 700 lines, 62dB. These cameras provide the same function, performance, operability, appearance, etc., except resolution and S/N. Since the cameras are compact, light weight and of low power consumption, they are suitable for operation as recording cameras.

The cameras also allow stand-alone operation using the camera adaptor, and further, allow full-scale EFP operation in conjunction with the base station unit providing various kinds of remote control. Besides, the SK-F1, SK-F2 and SK-F3 have compatibility with the SK-97D, SK-970D, SK-970DH, SK-120D, SK-110D, etc., in system operation including triaxial operation. All cameras dock directly to Beta.

Specifications

Camera Head	
Optical System:	f/1.4 prism system
Shutter Speed:	1/100, 1/125, 1/250, 1/500, 1/1000, and 1/2000 sec.
Lens Mount:	Bayonet
Encode System:	IQ/UV
Sync System:	Internal (conforming to RS170A)/PAL B external genlock
Input Signal:	Genlock: blackburst or VBS RET input signal: VBS Microphone input (usable with various microphones by switching) 1— 75dBm (MC-30A or equivalent) 2— 45dBm (MU-416 or equivalent) 3— Microphone with built-in battery
Output Signal:	Monitor out: VS (RGB, R-G and B-G) or VBS 1.0V p-p
Sensitivity:	2000 lux f/5.6 (3200K, 89.9% reflectance grayscale chart)
Min. Illumination:	15 lux approx. (f/1.4 + 18dB)
S/N:	60dB (NTSC), 57dB (PAL) (SK-F1) typical 62dB (NTSC), 59dB (PAL) (SK-F2/F3) typical 100KHz to 4.2MHz SC trap on, BL gate on, Gamma off, DTL off



SK-F1



SK-F3

Registration:	0.05% for all zones (excluding lens)
Geometric Distortion:	< the limit of measurable values for all zones (excluding lens)
Gain Selection:	0. +9. +18dB
Power Requirement:	Rated 12V (10.5-17V)
Dimensions:	9.6" H x 3.9" W x 5.8" D (245 x 100 x 148mm)
Weight:	7.5 lbs. (3.4kg) approx. (including 1.5" viewfinder, excluding lens)
Operating Temperature:	-4°F to +113°F (-20°C to +45°C)
SK-F1 Without lens	.....\$25,300.00
SK-F1A Includes remote filter wheel control	.....28,500.00
SK-F3 Without lens	.....29,410.00
SK-F3A Includes remote filter wheel control	.....33,050.00
SK-F2	.....24,000.00
SK-F3S With micro lens array CCD	.....38,000.00
SK-F3AS With micro lens array CCD and remote filter wheel control	.....41,900.00
Accessory	
DU-F1A RGB triax system	.....\$12,000.00

CU-F300 Camera Control Unit

• The CCU, the power supply, the triax unit and the control panel are integrated, which realizes the compact, lightweight CCU of half-rack size and weighing only 20kg • The triax uses the wideband RGB transmission system of 7MHz for the G channel and 6MHz for the R/B channels, so that the high resolution and high S/N can be ensured • Since the CP-F300 Control Panel (optional) can be easily detached from the CCU and used from a remote place, the camera system can be remote-controlled from a VE console, etc. The maximum distance between the CP-F300 and CCU is 100m

CU-F300\$9,000.00
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Hitachi Denshi America, Ltd.

CCD CAMERAS

SK-F700/F710/F750/F760 Studio/Field CCD Cameras

• SK-F700/F750 are the wideband, triax RGB versions and SK-F710/F760 are the multicore cable or VBS triax versions • FIT CCD • 62dB at 2000 lux, f/5.6 • SK-F700/F710 ensure 700 lines resolution with 400,000 pixels • SK-F750/F760 ensure 800 lines resolution with 450,000 pixels • Easy replacement of CCD black • Thermoelectric cooling by the peltier effect • Color reproductivity matching color of standard Photube camera dynamic contrast • 3DTL system • Aperture circuit for RGB channels • Various types of studio lenses ranging from 15X to 50X are available • The availability of these various versions will meet requirements for diversified applications • SK-F700/F710, SK-F750/F760 can be used with SK-F2/F3 ENG/EFP CCD cameras

Compact and Lightweight System

The camera is compact and weighs only 66 lbs. including the viewfinder. The half-rack size Base Station Unit (BSU) and the compact remote control unit (RCU) of the SK-F760 allow not only control necessary for normal operation, but also write of auto setup commands, manual data, etc. The SK-F750 has a CCU.

Microprocessor-Controlled Auto Iris

Response of the lens iris is greatly improved. Lens iris is automatically controlled through a NAM (Non-Additive Mixing) circuit by detecting the highest video level among the R, G and B channels. This feature provides proper control even under monochromatic illumination.

Filter Disk Consists of 2 Disks

The filter disk consists of 2 disks, 1 for ND filters and the other for color (CC) filters. The disks can be selected independently of each other. In addition, since servo control is available, the ND and CC filters can be controlled from the RCU through the BSU.

7" High Performance Viewfinder

A 7" high brightness, high resolution (800 TV lines) viewfinder is tilt-able $\pm 45^\circ$ to the horizontal and rotatable $\pm 135^\circ$ with the center of gravity as a revolving center.

Viewfinder Display

The following indications and alarms are displayed on the viewfinder screen with characters for 5 seconds after each setup.

- High-gain information • ND filter information • CC filter information
- Name of data file used (A,B,C or D) • Selected lens extender (1X or 2X) • Camera control at the camera head (CTL head) • Video level
- Camera No. (DIP switch on camera head) • Simultaneous indication of control for the RGB channels (only in manual control mode) • Auto setup mode • Results of auto setup • On/Off control • Control channel, control mode and control amount of analog control items • Fault diagnosis • Shutter speed • Graticule (picture frame, size and position variable) • Zoom indicator

High-gain Switch

When the RCU and the SCU are used, a selection of up to 18dB is available in 3dB steps.

Rear Control Panel

All controls necessary for camera operation including auto setup are provided on the rear control panel of the camera. In camera head stand-alone operation, the same control items as the items in the CCU operation are available.

2-wire/4-wire Intercom System

Either 2-wire (RTS) or 4-wire intercom system can be selected at the BSU or CCU.

Automatic Cable Compensation

Loss of video signal characteristics is automatically compensated for.

Wideband RGB Triaxial System

The video and audio signals are modulated by the FM system to provide frequency multiplex. Transmission of a high quality picture with high S/N is ensured.



SK-F700/710

The SK-F710/F760 also allow conjunction with the triaxial system of the composite video transmission system, which is transmissible up to 2400m.

Revolutionary Total Camera System

The SK-F700/F710 have compatibility with SK-F2/F3 ENG/EFP cameras and can be operated in our CCD family camera system, so that efficient operation with excellent operability and versatility can be performed.

Electronic Shutter

A sharp, clear picture with little blur can be obtained even when shooting a rapidly moving object.

The shutter speed can be selected among 6 modes of $1/100$, $1/125$, $1/250$, $1/500$, $1/1000$ and $1/2000$ sec.

Linear Matrix Masking

A built-in linear matrix masking amplifier ensures high-fidelity color reproductivity. 2 modes of operation: 2 stages of Fix (Hitachi standard), Manual; and On/Off control are provided.

Auto Setup

The auto setup function of the color balance system is built into the camera head. Since auto setup operates on the CCU side in the SK-F700/F750 operation, system reliability is remarkably improved. The Setup End message is displayed for about 5 seconds after completion of setup.

Auto Setup by External Chart

Auto setup by external chart is possible. The items of ADJ Lighting and ADJ Pattern are displayed with characters as a condition check function.

Data Files

Auto setup data is stored automatically in the auto data file after auto setup has been completed.

Manual setup data from the RCU can be stored in the file by the Memory switch or erased by the Clear switch. Auto data file: 1; Normal data files: 4; Scene files: 32 (when SCU is used).

Fault Diagnosis

The built-in fault diagnosis function detects camera failures both in real time and auto setup time, and provides a character display of results on the viewfinder screen.

- On-line real time diagnosis: (a) Power line voltage; (b) Results of self-diagnosis of CPU section • Auto setup diagnosis: judges whether or not control values overflow for all auto setup parameters

SK-F700 Without lens with RGB triax cable system . . . \$63,890.00

SK-F710 Use with multicore camera cable or composite triax cable systems 63,890.00

SK-F750 Without lens with RGB triax cable 70,300.00

SK-F760 Use with multicore camera cable or composite triax cable systems 70,300.00

S-VHS/D-2 RECORDER/PLAYERS



VL-S100 Professional/Industrial S-VHS VCR

- 14-pin terminal allows connection to a professional camera for high-resolution pictures without dot interference or cross-color problems
- S-terminal for separate Y/C signals and a video line input terminal are also available for a wide selection of video sources
- Equipped with a rotating head especially devoted to real time monitoring
- Sound is recorded with 2-channel VHS Hi-Fi recording and 2-channel linear recording with Dolby Noise Reduction*
- Equipped with input and output terminals for the SMPTE time code so recording and reproduction of the time code is possible using an external time code generator
- Highly dependable wired remote control unit
- Built-in digital TBC with video memory and LSI controller offers stable picture reproduction without jitter
- External sync function easily and transparently mixes images from another VCR or a camera with images from the VL-S100
- Framing servo circuitry
- RS-422 serial port
- Using a dial on the editing controller, "jog" for close observation of individual frames and "shuttle" for quick access to the destination are possible
- When connected with S-VHS compatible TV monitors, provides a picture with 400 lines of horizontal resolution without dot interference
- Built-in chroma noise reducer circuitry cuts down on chroma noise for a clear image with natural color
- Starting and ending points of the repeat play operation can be easily set for repeated observation of the scene of interest
- Front loading

VL-S100 \$3990.00



VL-S100

Accessories

VL-EC10 Editing control unit. Editing point and total time display, preview editing and review, editing point search, jog/shuttle dial \$2000.00

VL-AC10 AC adaptor/battery charger. Charging time 1 hour for each battery 440.00

VL-BP12 Battery for VL-S100, 1.5 lbs. 80.00

VL-RM10 Remote control unit for VL-S100. 48.00

*Dolby and Double-D Mark symbol are trademarks of Dolby Laboratories Licensing Corporation.

VL-D500 D-2 Compositing Digital VTR

- Smallest full-featured S/M/L D-2 recorder
- Streamlined menu system
- Built-in digital test generator
- Shuttle speed of ± 60 times
- Variable speed playback
- Programmable time compression and expansion
- Simultaneous monitoring
- Comprehensive editing functions
- On-screen display
- Independent level meters
- Operator-friendly panel
- Multi-cue function for extensive editing
- Error correction and interpolation
- Diagnostic troubleshooting capability
- Multi-dimensional tape loading mechanism
- Various remote functions
- Built-in SMPTE time code generator/reader
- Occupies seven rack units in a standard 19" rack
- Plays all three cassette sizes (S-M-L) automatically for a recording time of 208 minutes
- Control panel adjustable in seven steps up to a 70° angle

Specifications

Recording Time: 208 minutes (L-size), 94 minutes (M-size), 32 minutes (S-size)

Tape: Maxell DL-208 MDV/DM-94 MDV/DS-32 MDV or metal (1500 Oe) with equal specifications

Servo Lock Time: < 1 second from Standby On

Loading/Unloading Time: < 5 seconds

Shuttle Speed: Maximum ± 60 times normal speed

Variable Slow: From -1 to +3 times normal speed

Variable Play Speed: $\pm 20\%$

Editing Accuracy: 0 frame (when used with time code)

Fast Forward/Rewind Time: < 34 seconds (with S-size cassette)
< 96 seconds (with M-size cassette)
< 214 seconds (with L-size cassette)



VL-D500

Power Supply

Voltage: 90-135VAC

Frequency: 50/60Hz

Power Consumption: 480W (max.)

Outer Cabinet

Dimensions: 12.6" H x 17.2" W x 26.5" D

Weight: 108 lbs.

VL-D500 \$79,000.00



WIRELESS MICROPHONE SYSTEMS

System 50 Body-Pac Wireless Microphone System

- VHF Hi-band RF link with switching diversity receiver • NRX-II™ Noise Reduction System designed for wireless mics, > 115dB dynamic range • Dual frequency selection

The TX550 body-pac transmitter operates on two switch-selectable frequencies in either the 160-174MHz (TX550) or 174-216MHz (TX550TV) frequency band. The input is compatible with dynamic or condenser microphones, via a 4-pin locking mini "Q-G" type connector. There is 6VDC power available at the connector for electret elements. There's a mute switch and a low battery indicator. It delivers the maximum allowable 50mW RF output power with a maximum deviation of 15kHz. Its frequency multiplication and additional RF filtering minimize spurious and harmonic transmissions, enhancing its use in multiple system operations.

System 55 Handheld Wireless Microphone System

- VHF-Hi band RF link with switching diversity receiver • NRX-II noise reduction system, > 115dB dynamic range • Choice of 4 mic elements: HME HM58 dynamic (standard); optional Shure SM58 dynamic; or Shure SM85 or SM87 condenser cartridges • Ideal for multiple system operation—up to six in simultaneous operation

The TX555 handheld transmitter has an auto lock on the power switch which makes certain that power won't accidentally be turned off. There's a mute switch and a low battery indicator. It delivers the maximum allowable 50mW RF output power with a maximum deviation of 15kHz. Its frequency multiplication and additional RF filtering minimize spurious and harmonic transmission, enhancing its use in multiple system operations.



System 50



System 515

- C10220 System 50 Wireless Body Pac System includes TX550, RX520, TA4F connector, AC adaptor, belt clip and antennas (lavalier mic, optional) \$1186.25
- C10215 System 55 Wireless Handheld System includes TX555 with HME HM58 mic element, RX520, AC adaptor, MC15 mic clamp and antennas . . . 1202.50
- System 55 with Optional Microphone Elements
- C10217 With Shure SM58 mic element 1265.00
- C10218 With Shure SM85 mic element 1478.75
- C10219 With Shure SM87 mic element 1478.75

Transmitters and Receivers

- C10221 RX520 Switching Diversity Receiver Dual Frequency includes AC adaptor and antennas \$666.25
- C10222 TX550 Body Pac Transmitter, Dual Frequency includes TA4F connector, belt clip and antenna 535.00
- TX555 Handheld Transmitters include MC15 mic clamp and vinyl bag
- C10223 With HME HM58 mic element 608.00
- C10225 With Shure SM58 mic element 670.00
- C10226 With Shure SM85 mic element 828.00
- C10227 With Shure SM87 mic element 812.00
- C10107 TX822 Body Pac transmitter. 441.75

RX522 Wireless Microphone Receiver

This rackmountable receiver was designed for either portable or fixed installations where size and weight are major concerns. It is ideal for live entertainment, churches and conferences where cost and high quality sound reproduction are essential. This receiver can be used with both the TX550 Body Pac Transmitter and the TX555 Handheld Transmitter.

- C10289 RX522 Wireless Microphone Receiver includes whip antenna, AC wall adaptor with locking clip \$327.00
- C10285 AC10D 115VAC power adaptor. 25.00

515 Body-Pac/525 Handheld Wireless Systems

- Pocket-sized receiver • Low cost • Lightweight • NRX II™ noise reduction circuitry • AC or DC powerable receiver • Optional rack-mount kit • Mic-mute switch in transmitter • Low battery LED indicator



System 525

The System 515 Body-Pac and System 525 Handheld are wireless microphone systems intended for cost-effective professional applications. They were designed for either portable or fixed installations where cost, size and weight are major concerns. Up to three receivers are rackmountable for fixed installations. These systems were designed for live entertainment, churches, and presentations where low-cost, high quality sound reproduction is essential.

The System 515 consists of the RX522 Receiver and the TX550 Body-Pac Transmitter. The System 525 consists of the RX522 Receiver and the TX555 Handheld Wireless Microphone Transmitter.

- C10314 System 515 Body-Pac Wireless Microphone includes RX522 Receiver, TX550 Body-Pac Transmitter, reversible belt clip, AC adaptor with locking clip, antennas (lavalier mic, optional) \$850.00
- C10316 System 525 Handheld Wireless Microphone includes RX522 Receiver, TX555 Handheld Transmitter with HM58 Capsule, AC adaptor with locking clip, antennas, mic clamp, vinyl bag. \$970.00

SIGNAL PROCESSING EQUIPMENT



IEC-750 Video Distribution Amplifier

- 1 input, 8 outputs • Select dual 1 x 4 • Differential input • Mount 3 in 1RU frame • Low power consumption • Portable

The input is high impedance loopthrough in the 1 x 8 mode of operation. In the dual 1 x 4 mode, the input is terminated internally. The dual mode of operation provides 4 outputs of each of the 2 inputs.

A switch on the rear panel allows the unit to operate as a dual DA with 2 terminated inputs with 4 outputs each. 2 gain controls on the front panel adjust the video level to $\pm 3\text{dB}$ for each set of 4 outputs.

The IEC-750 has a video bandwidth of 20MHz, making it a very useful device for any application. A fuse on the front panel provides easy replacement. The IEC-750 is a self-contained video DA with an on-board power supply that draws only 4W. 3 units can be mounted in a 1RU frame \$375.00

IEC-843 Encoder

- RGB to composite video • 360° subcarrier phase • Internal RS-170A sync generator • Y and C outputs • PC lock

The IEC-843 is an RGB to NTSC encoder with RS-170A sync generator. The system is a self-contained unit measuring only 1 3/4" high and 8" deep. It can be mounted in a standard 19" equipment rack.

The required signal input is RGB with or without sync on the green channel. An external composite video or blackburst input is available to genlock to an external source. The internal sync generator provides blanking and burst to the encoder section.

The IEC-843 provides all sync generator pulse outputs that conform to the RS-170A specification. The propagation delay of the encoded signal is 250ns. An internal set of jumpers provide Y and C outputs for recording on S-VHS tape recorders.

Front panel controls are AC on/off, normal lock, internal lock, PC lock, internal frequency, SC phase and horizontal phase. The unit operates on 115VAC and draws approximately 15W \$1995.00

PCD-873 NTSC Decoder

- RGB output • Comb filter • Video gain • Chroma gain • Hue control • NTSC and YC input • Y, R-Y, B-Y output

The PCD-873 Decoder will input either NTSC composite video or S-VHS (YC) component video. Input is determined by a front panel switch. The PCD-873 then outputs 2 each of the decoded red, green, blue and sync signals. The PCD-873 is internally selectable to provide Beta Y, R-Y, B-Y outputs. The green output, or Y output in Beta format, may be composite on non-composite via an internal adjustment. The sync output is jumper selected for either 4.0V p-p or 3.0V p-p amplitude, depending on customer requirements.

The PCD-873 Decoder features front panel selection of either 2-line comb filter or notch filter operation for NTSC video processing. In the S-VHS video mode the input is processed full bandwidth with no input filtering. Front panel controls provide for video gain, chroma gain, hue and input selection \$1995.00

PSG-412 Master Sync Generator

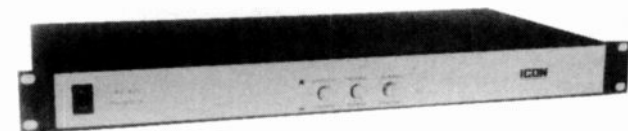
- RS-170A • Genlock • SC/H phased • CRS output • Blackburst output • Vertical blanking line select • Field 1, Line 10 ID pulse

The PSG-412 is a self-contained RS-170A master sync generator with genlock. The unit is designed with the engineer in mind. The PSG-412 allows the adjustment of all pulse widths except horizontal drive, vertical drive and field ID. All pulses have both amplitude and DC off set controls. Another unique feature of the PSG-412 is the vertical blanking width control. A DIP switch allows the selection of vertical blanking width from 17 through 21 lines. This permits the selection of vertical blanking with absolute accuracy and without adjustment tools.

The PSG-412 incorporates an ultra stable ovenized crystal oscillator as its master internal time bases. The internal ovenized oscillator operates at 14.31818MHz with a stability of 1 part per million per year. This oscillator is the master clock from which all pulses, including subcar-



PSG-412



IEC-835

rier, are derived. An LED indicator on the front panel is used to show proper operating temperature of the ovenized crystal oven. The bi-state LED will be red during the first few minutes of warmup and then turn green when the crystal has reached normal operating temperature.

1 of the many features of the PSG-412 is horizontal sync, SC/H, phase relationship. A rigid SC/H phase is maintained. In the insert bypass mode of operation the unit will insert new RS-170A sync and burst on the incoming video signal. In the genlock mode there is a 5µs timing range. There are 11 plug-in modules that make servicing an easy task \$2995.00

IEC-835 System Timing and SC Phase Instrument

The IEC-835 Phaselcon measures the subcarrier to horizontal condition of any composite NTSC video signal and displays the results on any standard monitor. This measurement system also greatly decreases the time involved in extremely precise system timing. The information shown on the video monitor is horizontal timing and subcarrier phase. The visual display of the Phaselcon is keyed over the selected input. The Phaselcon displays the graphics for SC/H in the lower half of the video display.

In the certify mode of operation, a sine wave is displayed that represents 1 cycle of subcarrier. A vertical line represents the leading edge of sync relative to subcarrier phase. In the compare mode of operation, the certify and compare signals are displayed. An additional vertical mark is displayed on the left side of the display that shows relative differences in horizontal timing between the 2 composite signals. An additional vertical line display appears on the right to aid in extremely accurate horizontal timing.

Although the primary function of the Phaselcon is SC/H certification, it checks system timing and burst amplitude as well. Timing of 2 video sources are accomplished by adjusting the source timing until the 2 vertical lines on the left side of the display are superimposed. As the source timing approaches 200ns, the vertical line is moved to the right side of the display to increase the accuracy of the measurement. SC/H is accomplished by adjusting the source subcarrier for a match of the 2 sine waves. Each source to be matched should be switched into the compare input of the Phaselcon and calibrated until all sources in the system are timed and phased.

The shadow mode of operation reduces the video level behind the sine wave graphics. This area is calibrated to represent 40 IRE units for accurate burst level adjustment. The single sine wave signal should just touch the top and bottom area of the shadow signal. By comparing all video sources in the system, a perfect burst match can be obtained \$2475.00

HL-57 CCD Digital Processing Camera (Preliminary)

• High performance $\frac{2}{3}$ " FIT CCDs • With approximately 90% digital video processing circuitry, RGB signals are uniform, and phase and frequency response remain highly stable regardless of changes in temperature and time • Digital processing circuitry allows precise parameter settings not achieved by conventional analog cameras: Gamma, Matrix, H.DTL, V.DTL, Slim DTL, Diagonal DTL, Comb Filter, Skin DTL, Aperture Correction • Parameter settings can be easily and precisely adjusted according to your shooting conditions, since these settings are numerically controlled • Setting values can be stored in a ROM, and since these settings do not change with temperature and time, etc., readjustment is unnecessary to maintain camera performance • Compatible with all HL-55/55A accessories

Specifications

Sensitivity:	2000 lux at f/6.2												
Gain Switchable:	6/12/18/30dB (selectable by internal switches)												
S/N Ratio:	62dB (typical)												
Resolution:	750TVL												
Video Output													
Signal:	VBS 1V p-p, 75 ohm, 1 output; component output 1 channel; RGB output 1 channel												
Monitor Output													
Signal:	R, G, B, R-G, B-G, R+G+B, ENC												
Shutter Speeds:	$\frac{1}{80}$ (off), $\frac{1}{100}$, $\frac{1}{120}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$, $\frac{1}{2000}$ seconds												
DTL Correction:	Digital (H/V/Slim/Diagonal)												
Pickup Device:	Frame interline transfer $\frac{2}{3}$ " CCD image sensor with 400,000 pixels												
Digital Processing													
Sampling													
Frequency:	14.3MHz/28.6MHz												
Quantizing:	10-bit												
Dimensions:	9"H x 3.7"W x 6.1"D												
Weight:	5.7 lbs. without 1.5" viewfinder												
Lens Mount:	Bayonet (compatible with HL-95/79/55)												
Optical Filter:	<table border="0" style="margin-left: 20px;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>3200°K</td> <td>5800°K</td> <td>5600°K</td> <td>5600°K</td> </tr> <tr> <td></td> <td></td> <td>+$\frac{1}{4}$ND</td> <td>+$\frac{1}{16}$ND</td> </tr> </table>	1	2	3	4	3200°K	5800°K	5600°K	5600°K			+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND
1	2	3	4										
3200°K	5800°K	5600°K	5600°K										
		+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND										
HL-57	\$39,000.00												

HL-55 FIT ENG Color CCD Camera

• Increased video gain of +24dB • Minimum illumination of 10 lux. Gain can be selected between 0 and +24dB in 6dB steps • White shading correction controls for red, green and blue • Horizontal DTL • Auto highlight compression/knee aperture correction • Optical system with high sensitivity prism • Low pass filter • Auto black balance • Audio level controller • VF indicators • VF markers • Remote control • VCR interface • Beta type optional • Color bars • Genlock circuit • Audio monitor speaker • Auto iris switch

Specifications

Lens Mount:	Bayonet (compatible with HL-95/79E)												
Optical Filter:	<table border="0" style="margin-left: 20px;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>3000°K</td> <td>5800°K</td> <td>5600°K</td> <td>5600°K</td> </tr> <tr> <td></td> <td></td> <td>+$\frac{1}{4}$ND</td> <td>+$\frac{1}{16}$ND</td> </tr> </table>	1	2	3	4	3000°K	5800°K	5600°K	5600°K			+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND
1	2	3	4										
3000°K	5800°K	5600°K	5600°K										
		+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND										
Sensitivity:	2000 lux at f/5.6												
Gain Switchable:	0, +9, +18dB (STD); 0, +12, +24dB; 0, +6, +12dB; 0, +6, +18dB (selectable by internal links)												
S/N Ratio:	62dB												
Resolution:	H: 700TVL; V: 400TVL												
Video Output													
Signal:	VBS 1V p-p, 75 ohm, 1 output; component output 1 channel; RGB output 1 channel												
VF Video:	R+G+B (normal) or monitor output signal selected by the monitor switch												
Monitor Output													
Signal:	R, G, B, R-G, B-G, R+G+B, ENC												
Shutter Speeds:	$\frac{1}{100}$, $\frac{1}{120}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$, $\frac{1}{2000}$ seconds												
Dimensions:	9"H x 3.7"W x 6.1"D												
Weight:	6.8 lbs. with 1.5" viewfinder												
HL-55 Basic camera	\$32,144.00												



HL-57

HL-55 ENG configuration, includes: basic HL-55 camera configuration, CA-95C camera adaptor with battery bracket, module extender card for CA-95C and rain cover\$35,094.00

HL-55A

• Same as the HL-55 but high-performance camera designed for ENG/EPF use • Can be configured with on-board $\frac{1}{2}$ " broadcast VCRs like the HL-55, but also with Betacam and MII types
HL-55A Basic camera\$36,500.00
HL-55A ENG configuration, includes: basic HL-55A camera configuration, CA-95C camera adaptor with battery bracket, module extender card for CA-95C and raincover\$39,570.00

Accessories

TA-55A Triax cable adaptor system for HL-55 and HL-55A ..\$ 19,300.00
PTR-1 Compact microwave automatic tracking system for HL-55/55A/53105,000.00

HL-53 ENG Color CCD Camera

• Interline Transfer (IT) CCD image sensor • Optical system with high sensitivity prism • Low pass filter • Electronic shutter • Genlock function • White shading correction • Dynamic DTL • Mix DTL • Auto black balance • SMPTE color bar generator • Docking with a VCR • Highlight compression • Audio monitor speaker • Audio level controller • Iris offset • VF indicators • VF markers • Remote control

Specifications

Lens Mount:	Bayonet (interchangeable with HL-95/79E)												
Optical Filter:	<table border="0" style="margin-left: 20px;"> <tr> <td>1</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>3000°K</td> <td>5800°K</td> <td>5600°K</td> <td>5600°K</td> </tr> <tr> <td></td> <td></td> <td>+$\frac{1}{4}$ND</td> <td>+$\frac{1}{16}$ND</td> </tr> </table>	1	2	3	4	3000°K	5800°K	5600°K	5600°K			+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND
1	2	3	4										
3000°K	5800°K	5600°K	5600°K										
		+ $\frac{1}{4}$ ND	+ $\frac{1}{16}$ ND										
Sensitivity:	2000 lux at 5.6												
Gain Switchable:	0, +9, +18dB (STD); 0, +6, +12dB; 0, +12, +18dB; 0, +6, +18dB (selectable by internal switches)												
S/N Ratio:	62dB (typical)												
Resolution:	H: 700TVL; V: 400TVL												
Video Output													
Signal:	VBS 1V p-p, 75 ohm, 1 output; Component output 1 channel; RGB output 1 channel												
VF Video:	R+G+B (normal) or monitor output signal selected by the monitor switch												
Monitor Output													
Signal:	R, G, B, R-G, B-G, R+G+B, ENC												
Shutter Speeds:	$\frac{1}{100}$, $\frac{1}{120}$, $\frac{1}{250}$, $\frac{1}{500}$, $\frac{1}{1000}$, $\frac{1}{2000}$ seconds												
Weight:	6.8 lbs. with 1.5" viewfinder												
HL-53 Basic configuration camera head (less lens)	\$22,500.00												
HL-53 ENG configuration, includes: HL-53 basic camera configuration, CA-53 camera adaptor with battery bracket	\$25,450.00												

CCD CAMERAS



HL-V57 Digital 1-Piece Camera/Recorder (Preliminary)

Camera Features

- High performance $2/3"$ FIT CCDs • With approximately 90% of the video processing circuitry digital, RGB signals are uniform, and phase and frequency response remain highly stable regardless of changes in temperature and time • Digital processing circuitry allows precise parameter settings not obtainable with conventional analog cameras: Gamma, Matrix, H.DTL, V.DTL, Slim DTL, Diagonal DTL, Comb Filter, Skin DTL, Aperture Correction • Setting values can be stored in a ROM, and since these settings do not change with temperature and time, etc., readjustment is unnecessary to maintain camera performance

VTR Features

- A full 50 minutes of digital pictures and clean PCM audio onto a compact $1/2"$ cassette. (A 64 min. tape will be available mid 1991.) • 8-14 modulation channel coding and powerful error correction provide high picture quality and reliability at a high recording density • 4fsc, 8-bit video sampling, 54dB video S/N ratio and 6MHz video bandwidth • 48kHz 16-bit sampling onto 4 PCM audio channels, with frequency response from 20Hz to 20kHz (± 0.5 dB) and dynamic range of 100dB • Backspace edit facility (to allow smooth transition to next sequence) • Audio monitor speaker • 48V phantom power for microphone

Specifications

Camera Section

Image Sensor:	3-chip $2/3"$ FIT CCD			
Picture Element:	400,000 pixels			
Sensitivity:	2000 lux (3200°K) with f/6.2, 0dB video gain, 89.9% reflectance, knee off			
S/N Ratio:	62dB (typical)			
Resolution:	750 TVL			
Optical Filter:	1	2	3	4
	3200°K	5600°K	5600°K + $1/4$ ND	5600°K + $1/16$ ND

DTL Correction: Digital (H/V/Slim/Diagonal)
Shutter Speeds: $1/50$ (off), $1/100$, $1/120$, $1/250$, $1/500$, $1/1000$, $1/2000$ seconds

Gain Selection: 6dB/12dB/18dB/30dB
Registration: $< +0.03\%$ of picture height (without lens)
Viewfinder: 1.5" quick start type, 550 TVL resolution at center
Microphone: Unidirectional, phantom powering

VTR Section (Video Performance)

Sampling Frequency: 4fsc 14.3MHz
Quantization: 8 bits



HL-V57

Channel Coding:	B-14
Bandwidth:	25Hz ~ 5.5MHz ± 0.5 dB
S/N Ratio:	54dB
Differential Gain:	$< 2\%$
Differential Phase:	$< 1\%$
Moire:	0
K Factor:	$< 2\%$ (2T pulse)
Y/C Delay:	< 15 ns
Tilt (Horizontal and Vertical):	$< 1\%$
Low Frequency Linearity:	$< 2\%$ (including quantization noise)
Audio Performance	
Sampling Frequency:	48kHz (synchronized to video)
Quantization:	16 bits/sample
Frequency Response:	20Hz to 20kHz ± 0.5 dB
Distortion:	$< 0.05\%$ (at 1kHz emphasis Off operating level)
Wow and Flutter:	Below measurable limit
Dynamic Range:	> 90 dB (at 1kHz, A weighted)
Crosstalk:	< -60 dB (at 1kHz, between 2 channels)
Headroom:	20dB
Operating Level:	0/-60dB
Emphasis:	$T_1 = 50\mu$ sec. $T_2 = 15\mu$ sec. (on/off selectable)
HL-V57	\$60,000.00

HL-V55 1-Piece Betacam SP® Camcorder

- FIT (Frame Interline Transfer) CCD with 420,000 pixels • Optical system provides the spectral characteristics of HL-95 and HL-55 • Low-pass filter dramatically reduces moire noise patterns • Compact and lightweight (15.2 lbs. or less including lens, viewfinder and battery) • Built-in Betacam SP VCR • Registration $\pm 0.03\%$ • Highlight compression • Variable electronic shutter • White shading correction • Dynamic DTL (compensates for loss in lens peripheral resolution) • Auto black balance (including BLK Set) • SMPTE color bar generator • Genlock function (full color-lock) • Audio monitor speaker • Audio level controller (can adjust the level of camera microphone) • VF indicator (LED, characters) • VF marker (center marker, safe area marker) • High resolution, quick start VF • Movable shoulder pad • Playback signal can be provided by using a playback adaptor • System connector incorporated provides component video output via a 26-pin VCR connector (The 26-pin VCR connector is an option.) • Compatible with Betacam format • Recording review function (can play back the last scene) • Backspace edit function (to ensure sequential recording without picture break-up at transitions) • Built-in time code generator/reader • Diagnostic system • 48V phantom power provided for microphone. Additionally, 12V AB power is also possible (back connectors: 48V phantom power only) • Built-in time code generator/reader • Audio signal recording of FM and longitudinal tracks can be recorded simultaneously (when metal tape is used) • CTDM (Compressed Time Division Multiplex) signals can be monitored so that chroma signal can be checked • LCD multiple display (VCR status can be clearly displayed)

The HL-V55 is a compact, lightweight, low-power consumption, 1-piece VTR-in-camera unit with an advanced FIT CCD (420,000 pixels) for EFP and ENG applications.

Combining a high performance camera with a Betacam SP VTR in a single compact unit, the HL-V55 is easy to operate, offers greatly improved resolu-



HL-V55

tion of 700 TV lines and a high S/N ratio of 62dB, while dramatically reducing vertical smear and Fixed Pattern Noise (FPN).

A high sensitivity of f/6.2 (at 2000 lux) has been achieved. Furthermore, super high sensitivity comparable to that of a low-light camera with image intensifier can be achieved with the Hyper Gain switch.

Due to the miniaturized VTR and high density circuit boards, the HL-V55 weighs only 15.2 lbs. including the lens, viewfinder and battery. Power consumption is only 24W.

A variety of functions makes the HL-V55 more flexible and able to meet the demands of high-quality field production.

HL-V55 \$50,000.00

CCD CAMERAS



HC-200 3-CCD Compact ENG Color Camera

- Horizontal resolution is 530 lines or better
- Electronic shutter
- Used in illumination as low as 20 lux at f/1.4 with + 18dB gain
- Auto knee
- Comprehensive design for combined use
- Allowance for various VCRs
- Microcomputer control
- 1.5" viewfinder
- Remote control
- Compatible with computer graphics systems
- 4-channel scene filing function
- Lens compatibility

Specifications

Optical System: RGB prism beamsplitter, f/1.4
Lens Mount: 1/2" bayonet
Optical Filter: 3000°K/5600°K + ND (12.5%)/5600°K/EFFECT
Image Device: 1L, 1/2" 3-chip CCD
Effective Number of Pixels: Approx. 250,000 pixels (510H x 492V) — NTSC
 Approx. 290,000 pixels (500H x 582V) — PAL
Shutter Speed: 1/100, 1/500, 1/1000 NTSC; 1/120, 1/500, 1/1000 PAL
Horiz. Res.: 530 lines or better (at center) in Y channel
S/N Ratio: 58dB — NTSC
 56dB — PAL
 (p-p/rms, Detail and Gamma off, encoded out, measured by Rohde and Shwarz noise meter)
Weight: 6.6 lbs. (excluding VF, lens and battery)

HC-200 Camera head includes: 1.5" viewfinder, camera adaptor, zoom lens, Canon 12X, mic, mic holder, carrying case, test extender, tripod mount plate, operation manual \$6,470.00
HC-200-NL Standard configuration without lens 5,390.00
HC-200-T Teleconferencing. Head only 4,251.00

HC-230 3-CCD Portable Color Camera

- Compact and lightweight design
- Dust-proof construction
- Compatible with S-VHS format, a component type VCR, on-board VCR and RGB signals
- Aluminum diecast camera body
- Digital remote control box permits R.B. Gain, R.B.M-PED, Iris, DTL level, total gain, bars on/off and shutter to be controlled from an external computer
- Electronic shutter operates at speeds 1/250, 1/500 and 1/1000 sec.
- Auto knee
- Auto setup
- 12X zoom lens is standard
- Equipped with a filter for cross and softer effects
- Equipped with a 4-point star filter
- Directional condenser microphone
- Optional remote control

Specifications

Pickup Device: 3-chip 1/2" CCD
Effective Number of Pixels: NTSC: 485(V) x 670(H)
Sensitivity: 2000 lux f/4.5
S/N Ratio: NTSC: 60dB typical
Horiz. Res.: 600 TVL typical (PAL-B and NTSC)
Lens Mount: 1/2" bayonet



HC-230

Optical Filter:

1	2	3	4
3000°K	5600°K	5600°K	Effect
+ 1/8ND			

Shutter Speeds: 1/250, 1/500, 1/1000 sec.
Weight: Camera head 8.37 lbs. (3.8kg) (with lens, VF, mic); camera adaptor .88 lbs. (0.4kg)

HC-230 Basic camera configuration \$7,070.00
HC-230-NL Standard configuration without lens 5,990.00
HC-230-T Teleconferencing. Head only 4,797.00

HC-240 3 CCD Portable Color Camera

- Compact and lightweight
- Dust-proof construction
- Rugged
- High resolution and high signal-to-noise ratio
- Multi-speed electronic shutter
- Auto knee
- Auto setup
- Microphone
- Optional component amplifier, RGB amplifier and genlock module
- Compatible with computer graphics systems (RS-232C)
- Remote control
- Counter light

Specifications

Pickup Device: 3-chip 1/2" FIT CCD
Effective Number of Pixels: NTSC: 772H x 492V
Sensitivity: 2000 lux f/5.0 or more
S/N Ratio: NTSC: 60dB typical
Horiz. Res.: 700 TVL (NTSC)
Lens Mount: 1/2" bayonet
Optical Filter:

1	2	3	4
3000°K	5600°K	5600°K	Effect
+ 1/8ND			

Shutter Speeds: 1/100, 1/120, 1/250, 1/500, 1/1000, 1/2000 sec.
Power Consumption: 14.0W or less (with 1.5" VF)
Detail Correction: 2H system (with comb filtering)
HC-240 Camera head, 1.5" viewfinder, zoom lens, Canon 12X, MC-230 mic, mic holder, carrying case, test extender, operation manual \$10,620.00
HC-240-NL Standard configuration without lens 9,540.00
HC-240-T Teleconferencing. Head only 8,190.00

HK-355 CCD Studio/Field Camera

- Well-balanced camera head, made of aluminum, provides proper balance and increased portability
- Using a $\frac{2}{3}$ " FIT CCD with 450,000 pixels, it has a horizontal resolution of 800 TV lines (Y ch), a vertical resolution of 400 TV lines and a high S/N ratio of -62dB
- Saves camera adjustment and maintenance time by eliminating the need for registration, geometry and other time-consuming adjustments. The camera head also incorporates plug-in modular motherboard construction
- High-sensitivity prism is employed. A 6-directional optical LPF is incorporated to suppress false signals inherent in the CCD, with resolution that rivals 30mm tube cameras
- 3-channel detail correction is incorporated and made for color objects lacking the green component. A complete MIX DTL is also provided to suppress the DTL-induced moire
- Optical axis adjustment gives full correction of optical axis, especially when a lens with high magnification is used
- Electronic shutter can be adjusted for shooting various scenes under special conditions
- Highlight compression ensures a wide contrast range in image reproduction
- Video matrix and auto level setup
- 6-vector color correction
- Linear matrix circuit
- Color corrector
- Auto color corrector
- 7" viewfinder
- Camera head can be used alone as a self-contained unit
- Camera cables—triax, multicore and fiber optic—can be changed simply by plug-in module
- Various control panels, such as OCP, CCP and MCP, can be connected to the base station to perform versatile operations for each particular application
- Adaptation of various cables

Specifications

Rating

Input Signals

Genlock: VBS (BBS), 1V p-p (0.45V p-p), 75 ohms non-looping

Mic: -70 to -50dB, 600 ohms, 2 channels

Incom: 0dB, 600 ohms, 2 channels, 4W RTS

Tally Cont.: R,G, 2 channels, contact/power

Output Signals

Line: VBS or VB, 1V p-p, 75 ohms, positive, 1 channel

QTV Video: VBS, 1V p-p, 75 ohms, 1 channel

Monitor Video: VF select signal, 75 ohms, 1 channel

Aux. Power: 220/240V—0.5A; 100VA (117V—1A)

Overall Performance

Frequency Response (at Base Station Out)

NTSC

Below 60Hz Falling

60Hz-4.5MHz Within ± 0.5 dB

4.5MHz-6MHz Within ± 1 dB

Over 6MHz Falling

(With reference to 100kHz)

S/N Ratio (Typical Figures)

HK-355 62dB (typical)

HK-355P 62dB (typical)

(with Gamma, Aperture, DTL, Matrix all off.)

Bandwidth: 4.2MHz NTSC)

Pedestal Variable Range

RGB More than $\pm 5\%$

Master More than $\pm 10\%$

(with Gamma off)



HK-355

Gain Control

HK-355

(master)

HK-355P

-3dB, 0dB, +3dB, +6dB, +12dB

0dB, +6dB, +12dB

Resolution

HK-355

H: 800 TVL; V: 400 TVL

(with super-V on: V: 450TVL)

HK-355P

H: 700 TVL; V: 400 TVL

Registration

HK-355

0.02% or less (lens less, all areas)

HK-355BT Triax version with wideband head Triax adaptor \$96,450.00

HK-355P Handheld version of HK-355 40,000.00

HK-355BM Multicore version with head multicore adaptor includes: camera head, head test extender, blind plate for head lens mount, adjustment tool, spare lamp and fuse, service manual \$96,450.00

HK-355-OP-1-2 VFC 7-3 7" Color Viewfinder

- Incorporates ICs and chips in its compact design, and is as easy to operate as a conventional black and white viewfinder
- Sharpness provided by a fine-pitch, high-resolution CRT, a color-mono selector switch for specific purposes and images and a degauss switch

HK-355-OP-1-2 \$10,020.00

HK-353 CCD Studio/Field Camera

- Same features as the HK-355
 - $\frac{2}{3}$ " IT CCD with 400,000 pixels
 - Horizontal resolution of 700 TV lines (Ych) and a high S/N ratio of 62dB (typical)
- HK-353BT Triax version \$69,300.00

HK-353BM Multicore version with head multicore adaptor, includes: camera head, head rest extender, blind plate for head lens mount, adjustment tool, spare lamp and fuse, service manual \$69,300.00

COLOR MONITORS



15-Series Color Monitors

- Fine dot pitch shadow mask for high resolution
- In-line self converging electron gun assures convergence stability
- Controlled phosphors (to American broadcast standards) provide consistent colorimetry
- Black matrix surrounding phosphor dots assures high contrast under bright ambient lighting
- To simplify monitor set-up, 15-Series uses a Digital Control System (DCS)
- Preset level modifications
- 3 operator memories
- To ensure long-term black level stability, 15-Series monitor incorporates Beam Feedback System (BFS), which detects CRT current deviation and eliminates brightness changes due to changes in CRT emission

By providing an optional auto set-up probe, the 15-Series is menu driven, user friendly, with all instructions shown on the screen. An optional Remocon Box provides for remote control operation.

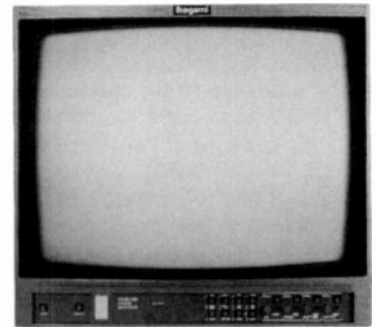
15-Series high resolution color monitors are available in 13V and 19V configurations.

TM14-15RH units are available in cabinet or rack configurations, occupying 10 1/2" height. The TM20-15RH configurations are available in cabinet or rack configuration occupying 15 3/4" height.

TM14-15RH	14" auto set-up color monitor	\$5831.00
TM20-15RH	20" auto set-up color monitor	6810.00
ASP-15	Auto set-up probe	1695.00
RCT-15N	Wireless remote control box	154.00



TM14-15RH



TM20-16R

16-Series Color Monitors — In-Line Gun Type

Cathode Ray Tube:

- 500 lines resolution
- In-line self converging electron gun assures convergence stability
- Black matrix surrounding CRT face assures high contrast under bright ambient illumination

Circuitry:

- Comb filter provides wide band luminance, switchable to notch filter at front panel
- Feedback clamp provides excellent black level stability with varying APL
- Pre-set operating controls (hue, chroma, brightness, contrast)
- Sweep failure protection circuits prevent phosphor burns

System Conveniences:

- 3 video inputs (A/B/RGB), front panel switchable
- 13V can be rack-mounted in 10.5" height
- 19V can be rackmounted in 15.25" height
- Horizontal time constant can be selected either 0.5ms or 2ms

Test Facilities provided:

- Underscan switch to permit observation of picture corners
- Pulse-cross switch for sync signal verification

16-Series are high performance, low cost monitors. Units are designed for production or broadcast applications and produce high-fidelity video reproduction with easy operation by utilizing in-line gun CRT technology. Comb filter and A/B/RGB video inputs.

TM20-16R	20" NTSC with case	\$2350.00
TM14-16R	14" NTSC with case	2030.00

TM10-16R 10" Broadcast Color Monitor

- In-line self converging electron gun assures convergence stability
- Black matrix surrounding CRT face assures high contrast under bright ambient illumination
- Flat square CRT assures easy-to-observe picture
- Comb filter provides wide band luminance, switchable to notch filter at front panel
- Feedback clamp provides excellent black level stability with varying APL
- Pre-set operating controls: chroma, brightness, contrast
- Sweep failure protection circuits prevent phosphor burns
- The TM10-16R can be supplied for use with either AC power (standard) or from DC power (option) by replacing power unit. When the optional bracket is used in conjunction with the DC power unit, the TM10-16R can be operated by battery (option)
- Blue Only function. A front panel switch allows the blue signal to be applied simultaneously to R, G and B channels. This makes for easy hue and color level checking using a color bar signal feed to the monitor

TM10-16R	\$1515.00
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TM20-19RH

19-Series High Resolution Color Monitors TM20-19RH and TM14-19RH Color Monitors

The 19-Series monitors have the same cathode ray tube, system convenience and optional RGB or component input features as the 9-Series models TM20-9RH and TM 14-9RH

Circuitry

- Beam feedback system assures long-term stability by detecting CRT cathode current
- Wide band R-Y, B-Y precision demodulation provides faithful reproduction of input signal colorimetry
- Color filter preserves input signal resolution, switchable to notch filter
- Keyed back porch clamp prevents black level fluctuation, over 0-100% range of APL
- Automatic frequency phase control assures accurate color locking
- Color killer automatically activated at burst levels below 5 IRE (front panel switchable)
- Pre-set operating controls (hue, chroma, brightness, contrast) standardize operation
- Variable aperture correction increases displayed picture sharpness
- Regulated high voltage holds raster size constant within 0.5% over 0-100% APL range

Test Facilities Provided

- Rotation control, adjusts purity when monitor position is rotated
- R-Y/B-Y outputs available for use of X-Y display as vectorscope
- Pulse delay for examination of horizontal and vertical blanking interval (with automatic delayed pulse brightness increase)
- Residual subcarrier test circuit evaluates input signal condition
- Underscan switch to permit observation of picture corners
- Set-up switch to disable vertical deflection for adjustment of low light white balance
- Individual switches to disable R-G-B beams
- On-demand degauss circuit demagnetize shadow mask

TM20-19RH	20" color monitor with case	\$6292.00
TM14-19RH	14" color monitor with case	5531.00
TM10-19RH	10" color monitor with case	2335.00

20 Series Color Monitors

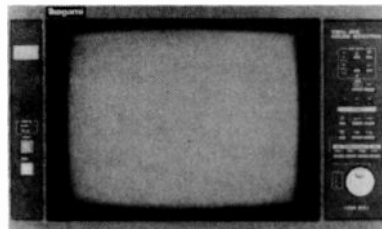
Preliminary

- Fine dot pitch shadow mask results in high resolution (700TVL). Dot trio pitch 0.31mm for TM14-20RH and 0.43mm for TM20-20RH
- In-line self converging electron gun assures convergence stability
- Controlled phosphors (to American broadcast standards) provide consistent and known colorimetry
- Black matrix surrounding phosphor dots assures high contrast under bright ambient lighting
- 13V and 19V units available
- Digital control system (DCS)
- Auto setup system with probe
- Remote control operation
- Infrared serial interface
- Beam feedback system
- Comb filter decoder (optional) under license from Faroudja Laboratories

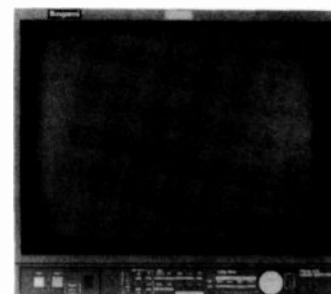
Input capabilities include:

- 3 composite video inputs and an RGB or a component (Y, R-Y, B-Y) input as standard
- Optional plug-in decoder boards are available for digital (D1 or D2), PAL-B, SECAM, PAL-M TV standard systems
- Modular construction for ease of repair and adjustment
- Plug-in boards, many can be removed while monitor is mounted in rack

TM14-20RH 14"	\$5831.00
TM20-20RH 20" .....	.6810.00



TM14-20RH



TM20-20RH

30 Series Color Monitor

20" High Resolution Color Monitor

Preliminary

- High-end color monitor
- 900 TVL with super fine dot pitch shadow mask
- Accepts different TV standards (NTSC, PAL-B, SECAM, PAL-M, D1, D2) with optional plug-in boards
- Optional auto setup probe
- Menu driven and user friendly
- Adaptive comb decoder (optional) under license from Faroudja Laboratories
- Safe title generator (100, 95, 90, 85, 75%, 100+90+80% selectable) reference and variable horizontal position
- Infrared remote control (with optional remote box)
- Remote control with serial interface (optional)
- Test signal
- Video A/B split (reference and variable vertical position)
- Color/mono split (reference and variable vertical position)
- Beam feedback system
- Menu assist

TM20-30RH 20"	\$8631.00
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TM20-30RH

TRIPODS



ITE-T6 Elevation Tripod

• Camera/Head Load Capacity: 50 lbs. • Min. Height: 29" • Max. Height: 65"
 • Elevation Adjustment: 18" • Min. Folded Length: 33" • Min. Folded Width: 8.5" • Max. Leg Angle: 33.5° • Weight: 18 lbs. • Finish: Anodized aluminum and black wrinkle

ITE-T6 \$1100.00

ITE-T10 Elevation Tripod

• Camera/Head Load Capacity: 140 lbs. • Min. Height: 28" • Max. Height: 59"
 • Elevation Adjustment: 18" • Min. Folded Length: 35" • Min. Folded Width: 9" • Max. Leg Angle: 33.5° • Weight: 26 lbs. • Finish: Anodized aluminum and black wrinkle • Optional Accessory: ITE-H25T Mitchell Adaptor

ITE-T10 \$1600.00

ITE-T12 ENG/EFP Tripod With Spreader

• Camera/Head Load Capacity: 50 lbs. • Min. Height: 24" (at max. leg spread) • Max. Height: 65" • Min. Folded Length: 36" • Min. Folded Width: 7" • Leg Angle: Up to 80° • Weight: 12 lbs. • Ball Levelling Bowl: 100mm • Finish: Anodized aluminum and black wrinkle • Optional Accessories: ITE-CB3 Claw Ball

ITE-T12 \$895.00
 Includes removable, adjustable spreader (tyrod) assembly, rubber foot pads and spikes.

ITE-T30 Tripod Elevation Column

Features 3-section legs with radial locks for extension and contraction. An adjustable, lockable spider provides structural stability. The ITE-T30 is equipped with a spirit level and combination rubber leg tips and metal spikes.

• Camera/Head Load Capacity: 15 lbs. • Min. Height: 24" • Max. Height at 40° Included Angle: 69" • Leg Angle (adjustable): 40° included (max.) • Elevator Column Adjustment: 14" • Min. Folded Length: 27" • Min. Folded Width: 4.5" • Weight: 6.5 lbs. • Finish: Anodized aluminum and black wrinkle

ITE-T30 \$295.00

ITE-T40 Tripod "A" Frame

Lightweight, heavy-duty system that features 2-section, positive cam locked legs that are indexed for easy length adjustment.

An adjustable, lockable spider for structural stability, the elevator column adjusts to 18". Spirit level and rubber-tipped legs are provided.

• Camera/Head Load Capacity: 40 lbs. • Min. Height: 20.5" • Max. Height at 40° Included Angle: 68" • Leg Angle (adjustable): 100° included (max.) • Min. Folded Length: 32" • Min. Folded Width: 7" • Weight: 10 lbs. • Finish: Anodized aluminum and black wrinkle

ITE-T40 \$495.00

ITE-T45 Pneumatic Tripod "A" Frame

• Camera/Head Load Capacity: 28 lbs. • Min. Height: 24.5" • Max. Height at 40° Included Angle: 78" • Leg Angle (adjustable): 90° included (max.) • Elevator Column Adjustment: 12" • Min. Folded Length: 32" • Min. Folded Width: 7" • Weight: 11.5 lbs. • Finish: Black wrinkle

ITE-T45 \$695.00

ITE-T48 Tripod

• Camera/Head Load Capacity: 30 lbs. • Min. Height with Spreader: 29" • Min. Height without Spreader: 12" • Max. Height with Spreader: 58" • Min. Folded Length: 32" • Min. Folded Width: 5" • Weight: 6 lbs. • Bowl (for Claw Ball): 1.5" radius • Finish: Black • Accessories: Carrying case

ITE-T48 \$550.00

ITE-T20/60 Tripod

• Load Capacity: 60 lbs. • Min. Height: 28.5" • Max. Height: 62" • Min. Folded Length: 36" • Width: 7" • Weight with Spreader: 10.5 lbs. • Bowl: 100/110mm • Finish: Black sand textured

ITE-T20/60 \$1295.00

ITE-SP670 Tripod Spreader

• Load Capacity: 100 lbs. • Folded Length: 32" • Min. Spread (diameter): 33" • Max. Spread (diameter): 53" • Folded Width: 2.75" • Height: 2.5" • Weight: 3.5 lbs. • Construction and Finish: Aluminum/black anodized • Method of Tripod Attachment: Rubber clamps

ITE-SP670 Tripod spreader for T70 (aluminum) \$395.00

ITE-T300 Tripod

• Load Capacity: 12 lbs. • Min. Height: 19" • Max. Height: 54" • Min. Folded Height: 29" • Width: 4.5" • Weight: 3.5 lbs. • Finish: Black texture

ITE-T300 Tripod \$260.00



ITE-T6



ITE-T12



ITE-T40



ITE-MT1

ITE-T500 Tripod

• Load Capacity: 40 lbs. • Min. Height with Spreader: 28" • Max. Height with Spreader: 60" • Min. Folded Length: 35" • Width: 5" • Weight: 6 lbs. • Bowl: 75mm • Finish: Sand texture

ITE-T500 \$750.00

ITE-T553 Tripod

• Load Capacity: 45 lbs. • Min. Height: 6.5" • Max. Height: 64" • Min. Folded Length: 30" • Width: 7.5" • Weight: 8 lbs. • Leg Sections: 3 • Bowl: 110mm • Finish: Anodized aluminum and black wrinkle • Optional Accessories: Reducer bushings 110mm to 100mm; 100mm to 75mm

ITE-T553 \$795.00

ITE-T554 Tripod

• Load Capacity: 60 lbs. • Min. Height: 6.5" • Max. Height: 61" • Min. Folded Length: 23.5" • Width: 7.5" • Weight: 8.5 lbs. • Leg Sections: 4 • Bowl: 110mm, adjustable to 75 and 100mm • Finish: Anodized aluminum and black wrinkle

ITE-T554 \$875.00
 Includes rubber foot pads and spikes

ITE-T600 Tripod

• Load Capacity: 50 lbs. • Min. Height with Spreader: 28" • Max. Height with Spreader: 60" • Min. Folded Length: 35" • Width: 6" • Weight: 7 lbs. • Bowl: 100mm • Finish: Sand texture

ITE-T600 \$950.00

ITE-T650 Tripod

• Load Capacity: 45 lbs. • Min. Height with Spreader: 18" • Max. Height with Spreader: 63" • Min. Folded Length: 27" • Width: 6" • Weight: 7.25 lbs. • Bowl: 100mm • Finish: Sand texture

ITE-T650 \$1100.00

ITE-MT1/MT2 Tripods for Camera and Microwave Applications

• Camera/Head Load Capacity: 250 lbs. • Min. Height: 25" • Max. Height: 43" • MT1, 53" MT2 • Min. Folded Length: 34" • Min. Folded Width: 9.5" • Max. Leg Angle: 38° • Weight: 33 lbs. • Finish: Aluminum and black wrinkle

ITE-MT1 \$1800.00

Includes spreader; foot pad/spike/spherical ball set; Mitchell base

ITE-MT2 \$2100.00



ITE-H6 Hydrocam Head

• Camera Load Capacity: 130 lbs. • Tilt Angle: Up to 50° • Pan Rotation: 360°
 • Height: 8" • Width: 9" • Length: 9.5" • Weight: 23 lbs. • Base: Mitchell type
 ITE-H6\$3700.00
 Includes dual handles and wedge adaptor and wedge plate



ITE-H6

ITE-H8 Microwave Pan/Tilt Head

• Camera Load Capacity: 250 lbs. • Tilt Angle: ± 45° • Pan Rotation: 360°
 • Height: 7" • Width: 8" • Length: 9" • Weight: 19 lbs. • Base: Mitchell type
 • Optional Accessory: Control handle
 ITE-H8\$1650.00
 Mounting plate designed for standard L-bracket attachment

ITE-H30 Fluid Head – Counterbalanced

• Capacity: 10 lbs.; counterbalanced for 2" vertical C.G. • Tilt Angle: +90°, -75° • Pan Rotation: 360° • Pan and Tilt Drag: High viscosity system • Pan and Tilt Lock: Independent of drag system; positive lock design • Height: 4" • Width: 5" • Length: 4" • Weight: 2 lbs. • Base: Flat • Camera Mounting Plate/Quick Release: 2" x 2", with positive lock 1/4-20 screw and anti-rotation pin • Handle: 1 with adjustable angle • Level: Spirit • Finish: Black wrinkle • Optional Accessory: Extra handle
 ITE-H30\$260.00
 ITE-RH30 Right hand zoom handle\$55.00



ITE-H30

ITE-H40 Fluid Head – Counterbalanced

• Capacity: 30 lbs. • Tilt Angle: ± 80° • Pan Rotation: 360° • Pan and Tilt Drag: High viscosity system • Pan and Tilt Lock: Independent drag system; positive lock design • Height: 6.5" • Width: 7.5" • Length: 6.5" • Weight: 7 lbs. (without handle) • Base: Flat • Camera Mounting Quick Release Platform: 3.75" W x 5.75" L, with positive lock and sliding 1/4-20 and 3/8-16 camera screws • Handle: 1 with adjustable angle • Level: Spirit • Finish: Black wrinkle • Optional Accessory: Claw ball leveling, extra control handle
 ITE-H40\$636.00
 ITE-RH40 Right hand zoom handle\$70.00



ITE-H40

ITE-H48 Fluid Head

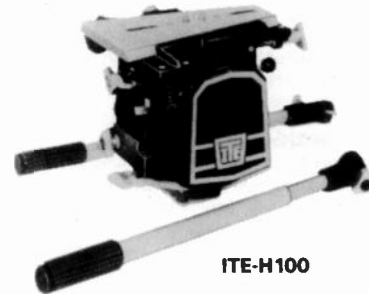
• Camera Load Capacity (at 4" center of gravity): 22 lbs. • Tilt Angle: ± 90° • Pan Rotation: 360° • Height (including Claw Ball Base—less Lock Knob): 6.3" • Height (installed on T48 Tripod): 5" • Width (less Control Handle): 4.5" • Length (less Control Handle): 4.7" • Weight: 4 lbs. • Base (Claw Ball Type): 75mm (1.5 radius) • Camera Attachment: 1/4-20 and 3/8-16 camera screws • Quick Release Slide Plate Adjustment: 3" • Control Handle—Tilt & Telescopic with Angle-In/Angle-out: min. 13.2"; max. 19.5" • Finish: Black
 ITE-H48\$1100.00
 ITE-RH48 Right hand zoom handle\$115.00



ITE-H48

ITE-H50E Fluid Head – Adjustable Counterbalance

• Camera Load Capacity: 40 lbs. • Tilt Angle: 90° • Pan Rotation: 360° • Height: 6.75" • Width: 6.25" • Length: 5.25" • Weight: 6.5 lbs. • Level: Spirit • Handle: Telescopic • Base: 100mm claw ball • Camera Mounting Plate/Quick Release: 2.5" x 3.5" with .375" slot • Finish: Black wrinkle • Optional Accessories: ITE RH50E, extra telescopic control handle; ITE-H50CA, flat base adaptor
 ITE-H50E\$1400.00
 ITE-RH50E Right hand zoom handle\$115.00



ITE-H50E

ITE-H60 Fluid Head

• Camera Load Capacity: 30 lbs. • Tilt Angle: ± 90° • Pan Rotation: 360° • Height (incl. ball base): 8" • Width (incl. handle brackets): 6.5" • Length (incl. handle brackets): 6.75" • Weight: 9.2 lbs. • Base: 110mm claw ball • Camera Attachment: 1/4-20 and 3/8-16 camera screws • Finish: Black wrinkle
 ITE-H60\$4300.00

ITE-H70 Fluid Head – Adjustable Counterbalance

• Camera Load Capacity: 65 lbs. • Tilt Angle: ± 90° • Pan Rotation: 360° • Height (incl. ball base): 9" • Width (incl. handle brackets): 8.5" • Length (incl. handle brackets): 7.75" • Weight: 19 lbs. • Base: 150mm claw ball • Camera Attachment: 1/4-20 and 3/8-16 camera screws • Finish: Black wrinkle • Includes dual control handles
 ITE-H70\$6700.00

ITE-H100 Fluid Drag Head

• Camera Load Capacity: 250 lbs. • Tilt Angle: ± 53° • Pan Rotation: 360° • Height: 8.5" • Width (less handles): 12" • Length (less handles): 14" • Weight: 31 lbs. • Base: Mitchell type
 ITE-H100\$4400.00

ITE-H300 Fluid Head

• Camera Load Capacity: 10 lbs. • Tilt Angle: ± 90° • Pan and Tilt Drag: Preset high viscosity clutch • Pan Rotation: 360° • Height: 4" • Width: 4" • Base—Ball: 50mm • Weight: 1.5 lbs. • Level: Spirit-bubble type • Handle: Preset • Finish: Black matte texture
 ITE-H300\$230.00

ITE-H500 Horizon Series Fluid Head

• Camera Load Capacity (C.G. at 5"): 18 lbs. • Tilt Angle: +90°, -60° • Pan Rotation: 360° • Pan and Tilt Drag: Infinitely variable viscosity system • Height (incl. ball base): 6.5" • Width (excl. handle): 5" • Base—Claw Ball Type: 74mm • Weight: 4.25 lbs. • Level: Tilt and telescopic with rubber grip. Min/max lengths 1 1/2"/22" • Finish: Sand textured
 ITE-H500\$1700.00

ITE-H600 Horizon Series Fluid Head

• Camera Load Capacity (C.G. at 5"): 25 lbs. • Tilt Angle: +90°, -60° • Pan Rotation: 360° • Pan and Tilt Drag: Infinitely variable viscosity system • Height (incl. ball base): 7.5" • Width (excl. handle): 6" • Base—Claw Ball Type: 100mm • Weight: 6 lbs. • Level: Tilt and telescopic with rubber grip. Min/max lengths 1 1/2"/22" • Finish: Sand textured
 ITE-H600\$2800.00

LIMITERS/EQUALIZERS



1178 Dual Peak Limiter

• Two independent peak limiters with perfect tracking when used in stereo mode • Attack time front panel adjustable from 20-800ms independent of peak duration or frequency • Release time front panel adjustable from 50ms to 1.1 sec • Pushbutton selection of four compression ratios, to satisfy various program requirements • High impedance, balanced, bridging inputs • Balanced, transformer outputs • Low noise, low distortion • Switchable meter ballistics (VU, peak)

1178	Dual peak limiter	.....\$1290.00
SC2	Security cover for 1178	.....50.00
301	XLR/QG adaptor	.....40.00

1176LN Peak Limiter

• Pushbutton selection of four compression ratios, to satisfy various program requirements • Attack time front panel adjustable from 20-800ms independent of the degree of limiting • High impedance, balanced, bridging input • Balanced, transformer output • Stereo coupling, with accessory 1176SA

1176LN	Peak limiter	.....\$790.00
SC2	Security cover for 1176LN	.....50.00
1176SA	Stereo adaptor	.....70.00
301	XLR/QG adaptor	.....40.00

LA-4 Compressor/Limiter

• Long-life LED optical attenuator • Smooth, natural sounding RMS action • Selectable compression ratios • True standard volume indicator (VU) • Input overload indicator • Simple stereo coupling • 2:1 compression with 20:1 limiting

LA-4	Compressor/limiter	.....\$690.00
DR-1	Double rackmount for two LA-4s	.....40.00
SR-1	Single rackmount for one LA-4	.....40.00
301	XLR/QG adaptor	.....40.00

7110 Limiter Compressor

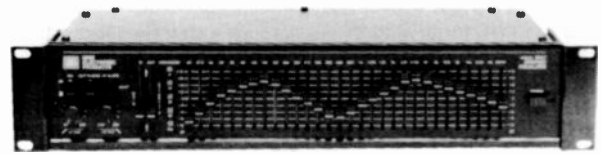
• Smart-Slope compression ratios adjustable from 1.5:1 thru infinity: 1 and permits independent settings for limiting threshold, attack and release times, and output level • Both peak and/or average gain reduction • User control of threshold, peak/average blend, attack and release times and compression ratio • Simple set-up with Automatic Preset pushbutton • Bright, easy to read displays • Space saving single rack space size • Active balanced input with enough threshold range to provide full limiting action with input signals down to -20dBm • Output display's zero reference is adjustable from -10dBm to +8dBm • Unbalanced output is capable of +22dBm into 600 ohms • Automatically bypasses itself, connecting the input directly to the output, when power is off

7110	Limiter Compressor	.....\$495.00
SC-6	Security cover	.....50.00

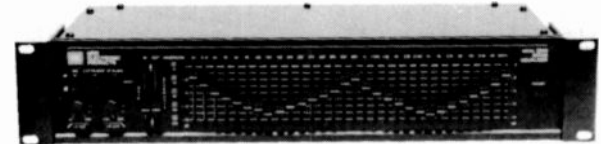
537 1/3-Octave Graphic Equalizer

• 27 adjustable equalizers on ISO 1/3-octave center frequencies • 12dB boost or 12dB attenuation at each center frequency • Stepless, noiseless controls, precision calibrated • State-of-the-art active L-C filter circuitry • Low distortion, lowest noise, minimum phase shift • Zero insertion loss, up to 20dB gain • Standard rackmounting, only 3 1/2" high • Optional front panel security cover • Competitively priced

537	1/3-octave graphic equalizer	.....\$1390.00
SC1	Security cover	.....50.00
301	XLR/QG adaptor	.....40.00



5547A



5549A

535 Dual Graphic Equalizer

• Two channels in one compact package • 10 adjustable equalizers in ISO 1-octave center frequencies for each channel • 12dB boost or 12dB attenuation at each center frequency • Stepless, noiseless, calibrated controls • Gain variable from -10 to +20dB • State-of-the-art synthesized LC filter circuitry • Low distortion, lowest noise, minimum phase shift • Standard rackmounting, only 3 1/2" H

535	Dual graphic equalizer	.....\$790.00
SC1	Security cover	.....50.00
301	XLR/QG adaptor	.....40.00

533 Octave Graphic Equalizer

• Synthesized LC filter circuitry with smooth combining characteristic • Gain variable from -10 to +20dB, wide dynamic range • Low distortion, low noise, minimum phase shift • 10 adjustable equalizers on ISO 1-octave center frequencies • 12dB boost or 12dB attenuation • S/N better than 106dB at maximum output • Input of +20dB • Output +24dBm

533	Octave graphic equalizer (mono)	.....\$590.00
DR-1	Double rackmount	.....40.00
SR-1	Single rackmount	.....40.00

5547A Graphic Equalizer/5549A Room Equalizer

• 1/3-octave filters on ISO centers 25Hz to 20kHz • ± 12dB range at center frequency (5547A) 0 to -15dB range at center frequency (5549A) • Fully active-custom hybrid amplifiers in filter circuits • Unique gain structure controls optimize headroom and signal-to-noise ratio for different signal level environments • High and low frequency tunable end cut filters • Active and passive bypass modes • XL, phone jack and barrier strip connectors • Rugged, reliable, roadable

Inputs and Outputs

Both input and output may be wired for balanced or unbalanced operation to match the needs of the system. Input and output connections may be made through 3-pin XL-style, 3-conductor 1/4" phone jacks, or to barrier strip with bare wire or lug connection. All standard. Choose the connector type that suits your needs. The connectors are wired in parallel allowing "loopthrough" connections.

Tunable End Cut Filters

Continuously variable filters at each end of the frequency spectrum control the available bandwidth of the system with a 12dB per octave slope. The high frequency slope is switchable to 6dB per octave to aid in contouring, and a bypass switch removes them from the circuit completely.

5547A	.....\$1095.00
5549A	.....1195.00

SR Series Power Amplifiers

• Ideally suited for broadcast applications • Low feedback • Low distortion • Conveniently wrapped in a small, roadworthy, forced air-cooled two rackspace package • Satisfies specific demands of the audio professional by offering extreme efficiency, high reliability and impressive sonic quality • Filtered cooling air is drawn in from the rear and exhausted at the front of the case • Protective circuit breakers are fitted for overload/short circuit protection and are fast and easy to reset • Meet requirements of U.S. and international safety agencies (UL, CSA, VDE)

- SR 6615 150W per channel\$ 645.00
- SR 6630 300W per channel895.00
- SR 6650 500W per channel1195.00

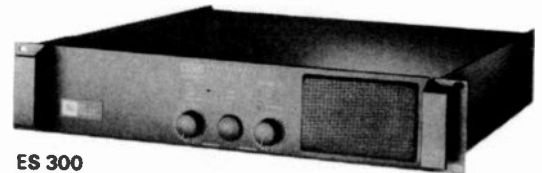


SR 6615

ES Series Power Amplifiers

• Precision calibrated digital input attenuators with a lock-out function • Plug-in input ports • Variable speed fans • Frequency response: ± 1dB, 20Hz-20kHz at any level up to rated power

- ES 150 75W per channel at 4 ohms\$ 645.00
- ES 300 150W per channel at 4 ohms755.00
- ES 600 300W per channel at 4 ohms995.00
- ES 900 450W per channel at 4 ohms1295.00
- ES 1200 600W per channel at 4 ohms1595.00



ES 300

6210/6211 Energizer Amplifiers

• Fit conveniently on back of speaker enclosure • Symmetrical mounting pattern allows units to be mounted vertically • 40W output into 8 ohms • Complementary output stages with minimum negative feedback for low Transient Intermodulation Distortion (TIM) • 3-pin XLR and 1/4" phone jack input connectors wired in parallel and active balanced inputs which will accept balanced or unbalanced line level sources • 6211 is fitted with a switch-activated preamplifier for low impedance mic inputs and a user selectable high pass filter for reducing mic proximity effects and wind pops • Optional 19" rackmount kit

- 6210\$325.00
- 6211365.00

6215 Power Amplifiers

• Space saving single rack space • Output power 35W per channel into 8 ohms, 45W per channel into 4 ohms, 90W mono bridged into 8 ohms • Rear panel switch for stereo, dual mono or mono bridge operation • Fully complementary output • Low negative feedback—Low T.I.M • Individual stepped gain controls • Active balanced input • Input connectors—XLR, phone jack and barrier strip

The 6215 is a professional power amplifier that has been engineered to meet rigorous demands of musicians, sound reinforcement companies, broadcasters and touring groups. It is equally at home in fixed installations and studios where precise reproduction of complex waveforms must be accomplished.

- 6215\$725.00

6230, 6260 Power Amplifiers

• Active balanced bridging input circuitry • Full complementary driver and output circuitry • Low transient intermodulation distortion (TIM) • Rugged, road worthy construction • Individual stepped gain controls • XL-type, phone jack, and barrier strip input connectors • Heavy-duty 5 way output binding posts • Rear panel switch for bridged, dual mono, or stereo operation • Front panel/heat sinks are made of heavy aluminum; chassis of heavy gauge steel

Specifications

Output Power	6230		6260	
	Rated Power 20Hz - 20kHz	Midband Power 1kHz	Rated Power 20Hz - 20kHz	Midband Power 1kHz
8 ohm stereo (per channel)	75W	110W	150W	190W
4 ohm stereo (per channel)	150W	175W	300W	315W
16 ohm bridge	150W	220W	300W	380W
8 ohm bridge	300W	350W	600W	630W
Dimensions:	5 1/4" x 19" (133 x 483mm)		7" x 19" (178 x 483mm)	
Depth:	10 1/2" (267mm)		10 1/2" (267mm)	
Net Weight:	23 lbs/ (10.4kg)		42 lbs. (19kg)	
6230	.....\$ 795.00			
6260	.....1095.00			

6290 Dual Monophonic High Power Amplifier

• High output power — 600W per channel into 4 ohms, 1200W into 8 ohms mono bridge mode • Fully independent audio channels and power supplies • Fully complementary output • Low negative feedback, low TIM • Active balanced inputs with XLR, phone plug, and barrier strip • Rugged, proven design

The 6290 features two independent high power amplifiers in one heavy gauge steel chassis. Both channels, with the exception of the mains power cord, are individually powered and protected. There are several benefits to this type of design. Should a channel failure occur in the stereo or dual mono mode, the other channel will not be affected and will continue to operate in the normal manner at full power capability. If the amplifier is being operated in the mono bridge mode, the loss of one channel will not inhibit the other channel, but allows continued operation with a 3dB power reduction.

Other design aspects of the 6290 include low intermodulation distortion (TIM). TIM is one of the more definitive methods for measuring displeasing (audible) distortion mechanisms, and is kept to a minimum by using local feedback in predriver stages. Only a small amount of negative feedback is used to establish the operating point and set the gain. Another factor that contributes to the sonic integrity of the amplifier is the use of fully complementary devices in all predriver, driver, and output stages.

Input terminations can be made to the 6290 by using any standard 1/4" TRS, XL-type connector, or barrier strip. Output terminations are accomplished with five way binding posts, and AC fuses are accessible from the rear of the unit.

- 6290\$1650.00

SPEAKERS



4406 Studio Monitor

• Frequency Range: (-6dB): 45Hz-27kHz • Frequency Response (± 2 dB): 55Hz-20kHz • Sensitivity: 87dB SPL, 1W (2.83V), 1m • Power Rating: 75W, pink noise • Transducer complement: 6.5" (165mm) LF, filled polypropylene cone; 1" (25mm) HF, pure titanium dome

The 4406 is the most compact of JBL's studio monitors and is intended for use where space is restricted. Its close driver spacing produces a coherent sound source, making it ideal as a direct-field monitor for console placement.

Optimum enclosure porting and careful network design ensure smooth response, which extends lower in frequency than is usual for an enclosure of such modest size. Response to 27kHz ensures that the upper musical octave (10kHz to 20kHz) will be reproduced with complete accuracy, making the Professional Series Studio monitors ideal for monitoring critical digital and advanced analog recordings.

4406\$250.00



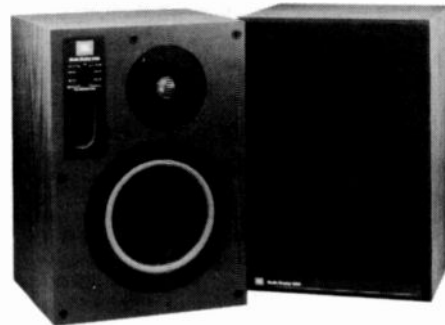
4406

4408 Studio Monitor

• Frequency Range (-6dB): 40Hz-27kHz • Frequency Response (± 2 dB): 50Hz-20kHz • Sensitivity: 89dB SPL, 1W (2.83V), 1m • Power Rating: 100W, pink noise • Transducer Complement: 8" (200mm) LF, felted cone; 1" (25mm) HF, pure titanium dome

The 4408 compact monitor is intended for use where space is restricted. Its close driver spacing produces a coherent sound source, making it ideal as a direct-field monitor for close-in broadcast applications.

4408\$325.00



4408

4410 Studio Monitor

• Frequency Range (-6dB): 35Hz-27kHz • Frequency Response (± 2 dB): 45Hz-20kHz • Sensitivity: 91dB SPL, 1W (2.83V), 1m • Power Rating: 125W, pink noise • Transducer Complement: 10" (250mm) LF, Aquaplas laminate cone; 5" (125mm) midrange cone; 1" (25mm) HF, pure titanium dome

The 4410 studio monitor consists of a three-way vertical array of transducers. The system is provided in mirror imaged pairs in order to ensure absolute accuracy of stereophonic imaging. The 4410 is the logical choice for critical digital recording applications where wide bandwidth, linear response, and accurate imaging are essential.

4410 L,R\$495.00



4410

4412 Studio Monitor

• Frequency Range (-6dB): 35Hz-27kHz • Frequency Response (± 2 dB): 45Hz-20kHz • Sensitivity: 90dB SPL, 1W (2.83V), 1m • Power Rating: 150W, pink noise • Transducer Complement: 12" (300mm) LF, Aquaplas laminate cone; 5" (125mm) midrange felted paper cone; 1" (25mm) HF, pure titanium dome

The 4412 is a three-way monitor system designed for demanding recording and broadcast applications. It is oriented horizontally so that it can be easily integrated into control room architecture, or mounted on the console itself. It is provided in mirror-imaged pairs for accurate stereophonic imaging. The 4412 is capable of remarkably high acoustical output, attaining in many applications those levels normally associated with compression driver monitor systems.

4412 L,R\$750.00



4412



4425 Bi-Radial® Studio Monitor

• Smooth, accurate response from 40Hz to 16kHz • Sensitivity: 91dB-SPL, 1W/1m • Flat power response Bi-Radial horn • 200W continuous program power capacity • High-frequency transducer: a pure titanium diaphragm compression driver with edge-wound aluminum ribbon voice coil, copper-plated pole piece, and diamond pattern diaphragm suspension • Low-frequency transducer: 12" (300mm) driver with 3" (76mm) edge-wound copper ribbon voice coil

The 4425 maintains a 100°x100° coverage pattern from its crossover frequency (1200Hz) up to 16kHz. Smooth power response is ensured from the lowest frequencies up to 1200Hz, and flat power response is maintained above that frequency. At the same time, axial response is remarkably smooth, and the combination of controlled power and axial response ensures the reflected sound field in the control room will be free of coloration.

4425 L,R \$1095.00

4430/4435 Bi-Radial Studio Monitors

• Frequency Response: 4430-(±3dB) 35Hz-16kHz; 4435-(±3dB) 30Hz-16kHz • Power Capacity: 4430-300W; 4435-375W • Sensitivity: 4430-93dB SPL; 4435-96dB SPL

Developed to meet the challenge of digital and advanced analog recording technology, the 4430 and 4435 represent a significant approach to 2-way studio monitor design. The incorporation of the Bi-Radial horn in a monitor loudspeaker provides constant vertical and horizontal polar coverage, control of the reverberant field, flat power response, image stability and coherent sound. The 2 models also feature improvements in compression driver, low frequency transducer and dividing network technology. Both systems exhibit wide bandwidth, smooth frequency response, high efficiency, wide dynamic range and exceptional reliability.

The 2 models differ chiefly in their frequency capabilities. The dual 15" (380mm) low frequency drivers of the 4435 provide greater bass output than is provided by the single 15" bass driver of the 4430.

4430 L,R \$1695.00
4435 L,R 2395.00

4312A Control Monitor

• 12" (300mm) long excursion low frequency transducer • 5" (130mm) midrange transducer • 1" (25mm) titanium dome high frequency transducer • Suitable for vertical or horizontal placement • Mirror-imaged for accurate stereo imaging

The 4312A extends the high frequency bandwidth of its predecessors through the use of the O35Ti driver. This high frequency transducer uses a 1" (25mm) pure titanium dome, which maintains flat on-axis response to 27kHz.

4312A L,R \$575.00

Control I™ Personal Sized Monitor Loudspeaker

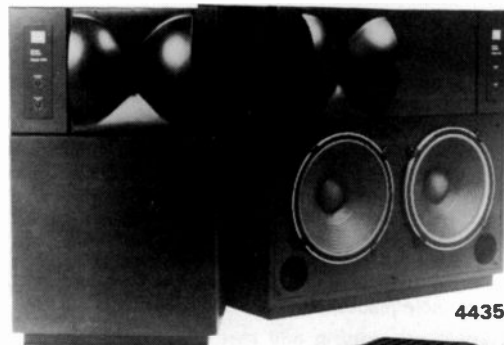
• Frequency Response: (±3dB) 120Hz to 20kHz • Power Capacity: 150W • Sensitivity: 90dB SPL, 2.83V, 3.3' (1m) • Nominal Impedance: 4 ohms • Crossover Frequency: 6kHz • Finish: black • Dimensions: 9 1/4" x 6 1/4" x 5 5/8" D • Net Weight (each): 4 lbs. • Vented enclosure is molded from dense, nonresonant polypropylene structural foam • Transducers are magnetically shielded • High power handling with integral protection circuit network • 5 1/4" low frequency loudspeaker, 3/4" polycarbonate dome tweeter • Unique series of mounting adaptors • Compact and durable, it performs equally well in recording studios, mobile audio video control rooms and broadcast studios

Control I per pair/\$250.00

Control I Plus™ Personal Sized Monitor Loudspeaker

• 5 1/2" woofer • Titanium diaphragm tweeter to provide smooth, accurate high frequency reproduction • Frequency range (-10dB): 60Hz to 20kHz • Power capacity: 160W • Sensitivity: 91dB • Nominal impedance: 4 ohms • Crossover frequency: 6kHz • Enclosure material: structural foam • 9.25" H x 6.25" W x 5.625" D • 5.5 lbs.

Control I Plus per pair/\$295.00



4435

4430



Control I



Control 5™ Compact Control Monitor Loudspeaker

• Same features as Control I except: • Frequency Response: (±3dB) 75Hz to 20kHz • Power Capacity: 175W • Sensitivity: 92dB SPL, 2.83V, 3.3' (1m) • Crossover Frequency: 3kHz • Finish: Black or gray • Dimensions: 15 1/4" x 9 7/8" x 9" D • Net Weight (each): 10 lbs. • Sonic advantages afforded by a larger enclosure • 6 1/2" low frequency loudspeaker and a 1" titanium dome tweeter

Control 5 per pair/\$395.00

Control 10™ Monitor Loudspeaker

• Frequency Response: 35Hz to 27kHz • Power Capacity: 300W • Sensitivity: 94dB SPL • Nominal Impedance: 8 ohms • Crossover Frequency: 1.1kHz, 4.6kHz • Enclosure Material: High impact polystyrene • Finish: Black • Dimensions: 24" H x 17" W x 12" D • Net Weight: 32 lbs. • 3-way design • Magnetically shielded transducers • Durable • Portable • Built-in carrying handle • 1" titanium dome tweeter • 12" driver • Adjustment of mid range and high frequency level possible

Control 10 \$575.00

Control 12SR™ Sound Reinforcement Loudspeaker

• Same features as Control 10 except: • Frequency Response (= 4dB): 55Hz to 16.5kHz • Power Capacity: 200W • Sensitivity: 97dB SPL, 2.83V, 1m (3.3') • Nominal Impedance: 8 ohms • Crossover Frequency: 2kHz • General: Enclosure Material: Polystyrene structural foam • Finish: Black • Dimensions: 24" H x 17" W x 12" D • Net Weight: 44 lbs. • High power handling (200W) • 1 3/4" titanium diaphragm high frequency driver • 12" low frequency driver

Control 12SR \$795.00

SB-1 Control Series Sub-Bass System

• Designed to receive 2-channel stereo input and provide properly filtered signal to full range satellite systems • Extends bass response • Extends low frequency bandwidth • Low distortion • Features Triple Chamber Bandpass (TCB™) sub-bass technology • 3-chamber, 4-woofer configuration • 4 low frequency transducers are mounted as pairs • Transducers are wired in opposing polarities to create a "push/pull" system • Operates at very high acoustic pressures with little distortion • Compact design • Enclosures finished in matte black vinyl

SB-1 Designed to mate with a pair of Control I loudspeakers. . . \$295.00

SB-5 Same as SB-1 except can be teamed with either a single pair of Control 5 or 4 Control I loudspeakers 375.00

CCD CAMERAS



KY-25U 2/3" 3-CCD Color Camera

• 700 lines horizontal resolution • 60dB S/N ratio • Designed to dock with BR-S411U with optional adaptors for MII and Betacam recorders • Multi-format output signals: S-VHS, component and RGB • RS-170A sync signal generator • Zebra pattern video level indicator • 2H vertical contour correction circuit • Self-diagnostic system with character display • High speed electronic shutter • Stereo audio circuit • Auto setup function • 2 white balance memories • 4-position filter turret • Negative/positive image reversal • Color matrix circuit • False correction circuit • Microprocessor controlled auto iris circuit • Genlock circuit • Solid-state imaging system • Intercom headset terminal with output level control • Earphone jack • VTR trigger select switch • Auxiliary video switch • f/1.4 RGB prism system • 380,000 total picture elements • Internal/external synchronizing system • Closed optical filter, 3200°K, 5600°K + 1/8ND • 2/3" bayonet lens mount • f/5.6 at 2000 lux (186fc) sensitivity • Minimum illumination: 23 lux (2.2fc) at f/1.7 with + 18dB switch on

Standard accessories: KA-20U camera adaptor, CB-P410U carrying case, VF-P10U 1.5" viewfinder, KA-220U shoulder pad, KA-500XU tripod base, KA-231U carrying handle, KA-232U docking handle, KA-111U chest rest
 KY-25U Stand-alone \$7,640.00

KY-R25U 3-CCD camera less lens (for camcorder). ENG version without the KA-20U adaptor. For use in camcorder applications only. Standard accessories: KA-232U camcorder carrying handle, VF-P10U 1.5" viewfinder, KA-220U shoulder pad, KA-500XU tripod base, KA-111U chest rest \$6,860.00

KY-H25U 3-CCD camera less lens (head only). Standard accessories: KA-20U adaptor, KA-231U handle \$6,565.00

Docking Camera Packages

ENG-51 Includes: KY-R25U 3-CCD color camera, HZ-513U 13:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger \$11,779.00

ENG-61 Includes: KY-R25U 3-CCD color camera, HZ-516BU 16:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger \$12,089.00

Studio Camera Packages

STU-51 Includes: KY-H25U 3-CCD color camera, HZ-513U 13:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate \$9,660.00

STU-61 Includes: KY-H25U 3-CCD color camera, HZ-516BU 16:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate \$10,120.00

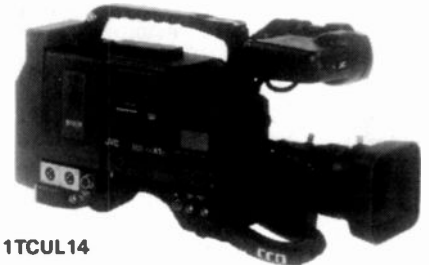
Note: Use the RM-P200U remote control unit and VC-P11xU cables with the above packages.

Accessories

A10X10BMDD9 10:1 teleconference lens	\$1,975.00
A14X9BERM 14:1 servo zoom lens w/2X extender	6,650.00
A16X9.5BMDD9 16:1 teleconference lens	2,470.00
HZ-513U 13:1 servo zoom lens	1,490.00
HZ-516BU 16:1 servo zoom lens	1,950.00
J15X95BKRS2U 15:1 zoom lens	2,050.00
J15X95BIRSU 15:1 zoom lens w/2X extender	3,950.00
AA-G10U AC adaptor/charger for BR-S411U/NB-G1U	420.00
AA-P200U AC adaptor (snap-on)	495.00
AA-P250U AC adaptor/charger	285.00
BH-P20U Battery holder (NB-G1U)	145.00
CB-P410U Carrying case	240.00
DC-C11U 2.2AH battery pack	120.00
KA-111U Adjustable chest rest	85.00
KA-20U Camera adaptor	770.00
KA-220U Shoulder pad	110.00
KA-231U Carrying handle	47.00
KA-232U Carrying handle (BRS411/KY25)	60.00
KA-280U Bulk connector for VC-P110 camera cable	230.00
KA-500XU Tripod mounting plate for KY cameras	145.00
KA-B20U Betacam adaptor	990.00
KA-M20U M-II VTR adaptor	1,050.00
MV-P612U Hot-shoe stereo microphone	570.00



KY-25U With BR-S411U



GY-X1TCUL14

NB-G1U Rechargeable battery (2.2AH)	\$ 165.00
Q410 Anton/Bauer battery bracket (camcorder)	180.00
RM-P200U Remote control unit	1,210.00
VC-582BU 33' camera extension cable 10p-p	215.00
VC-P110U Camera/remote cable (5m) for RM-P200U	345.00
VC-P112U Camera/remote cable (20m) for RM-P200U	695.00
VC-P113U Camera/remote cable (50m) for RM-P200U	1,260.00
VC-P114U Camera/remote cable (100m) for RM-P200U	2,360.00
VC-P454BU 26-pin component VTR cable for KR-M460U	285.00
VC-P482U VTR cable for VHS VTR (26p-10p, 2m)	160.00
VC-P474U VTR cable for 3/4" VTR (26p-14p, 4m)	215.00
VC-P482U VTR cable for S-VHS VCR (26p-14p, 2m)	185.00
VC-P630U Extension S-VHS VCR cable (14p-p, 10m)	310.00
VF-P10U 1.5" viewfinder	570.00
VF-P400U 4" studio viewfinder	645.00
KA-300U Intercom headset	270.00

GY-X1TCUL14 3-CCD S-VHS-C Camcorder

• 11 lbs. • 330,000 pixels • 58dB S/N ratio • Over 600 lines resolution • 4 memories for storage of gamma levels, master black control, contour level, flare level, iris setting, gain selection and other parameters • Values in 3 of the memories are preset for studio, outdoor and indoor shooting, including 1 that is user-adjustable • Optional circuit board makes each of the 4 memories user-adjustable • Microprocessor-controlled iris system • Full head drum • Internal VITC time code • Instant record button • Hi-Fi audio recorded through unit's balanced XLR connectors • With adaptor, C-cassettes can be edited and played on any full size S-VHS system • Voice warning system • 14X zoom lens with rectangular hood and mechanical inner focus system • 2 auto-white memories with filter positions indicated in viewfinder • ALC with manual override • Audio level indicator in finder • Genlock • Optional remote control

Standard accessories: HZ-714U 14:1 mechanical inner-focus lens, VF-P115U 1 1/2" viewfinder, BH-P10U battery holder for NB-G1 and NP-1, KA-500XU tripod base, SA-CP11U cassette adaptor, KA-A10U microphone holder

GY-X1TCUL14	\$7,995.00
NB-G1U Rechargeable battery (2.2AH)	165.00
AA-G10U AC adaptor/charger for NB-G1U. Charges up to 4 NB-G1U batteries. Can also be used to power GY-X1TCU, BY-10U, KY-17U, KY-25U and portable VCR	420.00
AA-P250U AC adaptor/charger for NB-G1U	285.00
BH-P10U Battery holder for NB-G1U	140.00
Q-1 Anton/Bauer battery bracket	180.00
RM-LP80U Small remote control unit, max. distance 328' from camera. Includes 16' cable	670.00
MV-P612U Stereo microphone	570.00
KA-A10U Microphone holder for most barrel mics	95.00
KA-1000U IC card for GY-X1TCU AMS system, allows user to store 4 AMS settings for camera setup	70.00
CB-X1U Molded shipping case	340.00
HZ-MC73U Lens adaptor for 2/3" bayonet lenses	360.00

BY-10U Series 2/3" 1-Chip Color Camera

• 360,000 pixel CCD produces more than 450 lines of horizontal resolution • S-VHS camcorder capability with the BR-S411U (no adaptor required) • 2 lens versions, 11X and 16X zoom lenses, are available • Versatile applications—studio, ENG/EFP and teleconferencing • 3-speed shutter function of 1/250, 1/500 and 1/1000 • Built-in character generator for self-diagnostic warnings • Preset plus 2 auto balance white memories • Special lens mount as well as a C-mount. Most C-mount lenses can be used for teleconferencing applications • Multi-output signals; composite, S-VHS (Y/C 358) • Separate S-VHS (Y/C 358) signal output • External sync input for genlock

Standard Accessories: KA-10U camera adaptor, KA-221U simple shoulder pad, VF-P10U 1.5" viewfinder, CB-P410U carrying case.

BY-10U	1-chip color camera less lens	.....\$2,865.00
BY-H10U	1-chip color camera without lens and VF-P10 for medical and teleconference applications	.....2,150.00
BY-R10U	1-chip color camera less lens, dockable version	.....2,670.00
HZ-811U	11:1 servo zoom lens, f/1.8, 10mm-110mm	.....1,130.00
HZ-816U	16:1 servo zoom lens, f/1.8 to f/2.3, 9.5mm-152mm	.....1,950.00
HZ-FM13U	Manual focus control for HZ-811U/HZ-816U	.....450.00
HZ-ZS13U	Servo zoom control for HZ-811U/HZ-816U	.....510.00
KA-10U	Camera adaptor	.....300.00
Q410	Anton/Bauer battery bracket for camcorder version of BY-10U with BR-S411U (Pro-Pac 13 [13.2V] is only usable with this system)	.....180.00

KY-17U 1/2" 3-CCD Color Camera

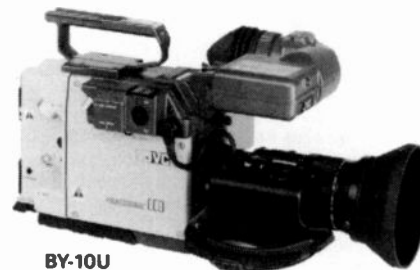
• 640 lines (Y-channel) and 500 lines (RGB) horizontal resolution • 59dB signal-to-noise ratio • Designed to dock with BR-S411U and optional adaptors for M-II and Betacam • Multifunction output signals • Microprocessor-controlled auto setup function • 2 white balance memories • 4-position filter turret • Zebra pattern video level indicator • 2H vertical contour correction circuit • Color matrix circuit • Flare correction circuit • Wideband R-Y/B-Y encoder • Negative/positive image reversal • Microprocessor controlled auto-iris circuit • High speed electronic shutter; 1/250, 1/500, 1/1000 selectable • Stereo audio circuit • Self-diagnostic system with character display • RS-170A sync signal generator • External sync • 3 1/2" interline transfer CCDs • Auxiliary video select switch • VTR trigger select switch • Terminal for intercom headset, with output level control • Audio output level select switch • Earphone jack • f/1.4 RGB prism system • 330,000 picture elements (effective), total picture elements 360,000 • Closed optical filter, 3200°K, 5600°K, 5600°K + 25% ND • 1/2" bayonet lens mount • f/4.0 at 2000 lux (188fc) sensitivity • 32 lux (3fc) at f/1.4 with +18dB switch on minimum illumination

Standard Accessories: KA-20U camera adaptor, VF-P10U 1.5" viewfinder, KA-220U shoulder pad, KA-500XU tripod base, KA-231U and KA-232U carrying handles, CB-P410U carrying case, KA-111 chest rest.

KY-17U	Standalone	.....\$5,570.00
KY-R17U	Dockable	.....4,995.00
KY-H17U	Head only	.....4,700.00
HZ-713MDU	Motorized zoom lens	.....1,450.00
HZ-713U	13:1 zoom lens	.....1,130.00
PH15X7BKRS2U	15:1 servo zoom lens	.....2,050.00
PH15X7BIRSU	15:1 servo zoom lens with extender	.....3,950.00
S12X6.8BERMU	12:1 servo zoom lens with extender	.....3,200.00
S16X7BMD-D9	16:1 teleconference lens	.....2,470.00
S16X7BRMU	16:1 zoom lens	.....1,950.00
HZ-M151U	Nikon microscope adaptor	.....280.00
HZ-M152U	Olympus microscope adaptor	.....665.00
HZ-M153U	Zeiss microscope adaptor	.....280.00
HZ-MC73U	Mounting adaptor for 2/3" lenses	.....360.00
KA-20U	Camera adaptor	.....770.00
KA-820U	Betacam adaptor	.....990.00
KA-M20U	M-II VTR adaptor	.....1,050.00

Docking Camcorder Packages

ENG-31	BY-R10U 1-CCD color camera, HZ-811U 11:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger	.....\$ 7,415.00
ENG-41	BY-R10U 1-CCD color camera, HZ-816U 16:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger	.....8,235.00
ENG-11	KY-R17U 3-CCD color camera, HZ-713U 13:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger	.....9,410.00
ENG-21	KY-R17U 3-CCD color camera, S16x7BRMU 16:1 servo zoom lens, BR-S411U S-VHS portable with battery, AA-G10U AC adaptor/charger	.....10,374.00



BY-10U



KY-17U

Studio Camera Packages

STU-11	KY-H17U 3-CCD color camera, HZ-713U 13:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate	.....\$7,435.00
STU-21	KY-H17U 3-CCD color camera, S16x7BRMU 16:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate	.....8,255.00
STU-31	BY-H10U 1-CCD color camera, HZ-811U 11:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate	.....4,885.00
STU-41	BY-H10U 1-CCD color camera, HZ-816U 16:1 servo zoom lens, VF-P400U 4" studio viewfinder, HZ-ZS13U servo zoom control, HZ-FM13U manual focus control, KA-220U shoulder pad, KA-500XU tripod mounting plate	.....5,705.00

Accessories for BY-10U/KY-17U

AA-P200U	AC adaptor (snap-on)	.....\$ 495.00
AA-P250U	AC adaptor/charger	.....285.00
8H-P20U	Battery holder	.....145.00
CB-P410U	Carrying case	.....240.00
DC-C11U	2.2AH battery pack	.....120.00
KA-111U	Adjustable chest rest	.....85.00
KA-220U	Shoulder pad	.....110.00
KA-231U	Carrying handle (when VCR is not attached)	.....47.00
KA-232U	Carrying handle (when VCR is attached)	.....60.00
KA-280U	Bulk connector for VC-P110 camera cable	.....230.00
KA-300U	Intercom headset	.....270.00
KA-500XU	Tripod mounting plate	.....145.00
KA-M50U	Pistol handgrip	.....360.00
M-K50U	Hot-shoe microphone	.....380.00
NB-G1U	Rechargeable battery (2.2AH)	.....165.00
RM-P200U	Remote control unit	.....1,210.00
VC-582BU	33' camera extension cable 10p-p	.....215.00
VC-P110U	Camera/remote cable (5m) for RM-P200U	.....345.00
VC-P112U	Camera cable, 20m (to RM-P200)	.....695.00
VC-P113U	Camera cable, 50m (to RM-P200)	.....1,260.00
VC-P114U	Camera cable, 100m (to RM-P200)	.....2,360.00
VC-5898U	Extension VTR cable for 3/4" VTR cable (VC-P474), 10m	.....280.00
VC-P462U	VTR cable for VHS VTR (26p-10p, 2m)	.....160.00
VC-P474U	VTR cable for 3/4" VTR (26p-14p, 4m)	.....215.00
VC-P482U	VTR cable for S-VHS VCR (26p-14p, 2m)	.....185.00
VC-P630U	Extension S-VHS VCR cable (14p-p, 10m)	.....310.00
VF-P10U	1.5" viewfinder	.....570.00
VF-P400U	4" studio viewfinder	.....645.00

S-VHS RECORDER/PLAYERS



BR-S411U S-VHS Docking Portable Recorder/Player

- S-VHS recording and playback circuitry • VITC (Vertical Interval Time Code) recording capability via time code generator (SA-R100U) • Hi-Fi VHS stereo sound with a dynamic range of more than 80dB and extended frequency response of 20Hz to 20kHz • XLR balanced audio input/output connectors • Rotary erase heads • AEF Automatic Editing Function • Shuttle search and frame advance • LCD tape counter switchable to lap timer • Long pause mechanism • Flexibility as a camcorder or portable: Can be docked directly with any of the KY-17U/25U 3-CCD cameras or the BY-10U single-CCD camera; also can be used as a separate portable recorder • Can be used as a feeder in a simple editing system • Comprehensive warning system • Video S/N ratio 46dB S-VHS, 45dB VHS • Horizontal resolution 400 lines (S-VHS) \$3429.00



BR-S411U



BR-S420CU

BR-S405U S-VHS Portable Recorder/Player

- High quality S-VHS pictures with built-in chroma noise reduction • 14-pin camera connector • Y/C input and output • Twin impedance rollers in the tape path greatly reduce jitter • Hi-Fi stereo sound and normal 2-track audio • Balanced XLR audio input connectors • High speed shuttle search • Rotary erase heads and AEF function • Large record indicator • Comprehensive warning system • Video S/N ratio 46dB S-VHS, 45dB VHS • Horizontal resolution 240 lines VHS color, 400 lines S-VHS color \$2995.00



BR-S405U

BR-S420CU S-VHS-C Dockable Recorder/Player

- S-VHS and VHS recording and playback using compact C-size cassettes (SP mode only) • Designed for direct docking with KY-17U/25U 3-CCD and BY-10U single-CCD video cameras • 20-minute ENG recording with a single cassette • VITC recording capability with the attachable SA-R100U optional time code generator • Rotary erase head and AEF function for clean assemble edits • Power supply flexibility: NB-G1U battery pack via adaptor, AA-G10U battery charger/AC adaptor • Video S/N ratio 43dB S-VHS (46dB when recorded tape is played back on BR-S811U), 42dB VHS (45dB when recorded tape is played back on BR-S811U) • Horizontal resolution 400 lines (S-VHS) • Standard accessories: NB-G1U rechargeable battery, SA-S10U battery holder and SA-CP11U Professional-VHS cassette adaptor . . . \$2790.00



BR-S605UA

Accessories for BR-S411U/S405U/S420CU

AA-G10U AC adaptor/charger. Charges up to 4 NB-G1U batteries. Also provides power for the recorder . . . \$ 420.00
NB-G1U Rechargeable 2.2AH snap-on battery 165.00
BH-P40U Battery holder (BR-S411U) 145.00
SA-R100U Time code generator (BR-S411U/S420U) . . . 1000.00

BR-S600U S-VHS Recorder/Player

- S-VHS picture with separate Y/C input/output • Hi-Fi stereo sound with a dynamic range of more than 85dB • VHS recording and playback circuitry (SP) • Direct tape access functions: Time Go-To, VHS Index Search with Mark/Erase, Intro Search • Visual search and special effects playback including variable speed search, double-speed playback and shuttle search at 7X normal • Slow motion and still playback: clean and noise-free stills and frame advance at speeds of 1/30, 1/24, 1/18, 1/12 or 1/6 of normal speed • Instant editing function with rotary erase head • Timer playback and full-repeat playback • Wired remote control • Next-function memory • Auto rewind • Real time tape counter • EP tape playback • Video S/N ratio 45dB (SP) • Horizontal resolution 400 lines S-VHS, 230 lines VHS \$1200.00

BR-S601MU S-VHS Recorder/Player

- S-VHS recording and playback • High performance frame memory • Conforms to the medical UL safety standard • Hi-Fi stereo sound with a dynamic range of more than 85dB • Rotary erase head • Multiple search functions including still, frame advance and shuttle search, and VHS Index Search System with Mark/Erase • Remote control • Counter backup • Output flexibility: 2 separate Y/C outputs and a composite output • Video S/N ratio 45dB • Horizontal resolution 400 lines S-VHS, 230 lines VHS . . . \$2490.00

BR-S605UA S-VHS Recorder/Player With Built-in PWB Slots

- 2 external PWBs (Printed Wing Boards) for system customization • RS-232C serial remote controllability with optional 9-pin RS-232C board (SA-K17U) • PWBs optionally available for added flexibility • Separate Y/C input and output • S-VHS picture quality with built-in chroma enhancer • 4-channel audio or 2-channel Hi-Fi audio and 2-channel linear audio with Dolby B NR • Manual audio level controls and meters • Automatic digital tracking • Frame servo • EDP Function Select System for easy setup and trouble-free operation • Mode lock • Variable-speed dial search • External sync input and RF output for DOC • Automatic repeat playback and counter memory • Hour meter on EDP display • 19" EIA rack-mountable • Video S/N ratio 45dB (SP) • Horizontal resolution 400 lines S-VHS, 240 lines VHS \$1995.00

Accessories for BR-S600U/S601MU/S605UA

RM-G61U Wired serial remote control, large shuttle control dial (BR-S600U/S601MU/S605UA) \$ 115.00
SA-F15U Parallel interface unit (15-pin to 45-pin) 140.00
SA-K17U RS-232C interface board for BR-S605UA . . . 350.00
SA-K18U 45-pin interface board for BR-S605UA 350.00
SA-K33U 33-pin interface board for BR-S605UA 520.00



S-VHS/VHS RECORDER/PLAYERS

BR-S611U S-VHS Recorder/Player

BR-S811U S-VHS Editing Recorder/Player

- High picture quality: chroma enhancement, improved crosstalk cancellation circuitry, improved luminance signal frequency response and improved picture stability with TS (Tape Stabilizing) head drum • S-VHS recording and playback circuitry featuring 3-line Logical Comb Filter • Professional quality editing functions (BR-S811U only) • Separate Y/C input/output connectors • Hi-Fi VHS stereo sound with a dynamic range of more than 90dB and extended frequency response of 20Hz to 20kHz • Audio dubbing possible on normal audio channel 2 soundtrack (BR-S611U only) • Professional standard XLR balanced audio connectors: input and output levels selectable from +4dB, 0dB and -6dB • Manual audio/video level meters and controls • SMPTE time code recording and playback • Variable speed dial search and jog control • Large, illuminated function buttons • Easy-to-see LED indicators • Half loading mechanism • Digital time counter • Full repeat and counter memory • Timer recording and playback with external timer (BR-S611U only) • Heavy-duty mechanism • Self-diagnostic warning system • Front panel test points • Automatic head cleaning • Hour meter • 45-pin remote connector • External sync input and RF output for DOC (dropout compensator) • Framing servo on/off switch • Head-phone jack with adjustable output level • 2 Video Line Out connectors and 1 separate Y/C monitor connector • 19" EIA rack-mounting possible • Video S/N ratio 46dB (S-VHS) • Horizontal resolution 400 lines (S-VHS)

BR-S611U S-VHS recorder/player \$ 3,690.00
 BR-S811U S-VHS editing recorder/player 5,000.00
 VES-21 Editing System Package: BR-S811U S-VHS Editing Recorder; BR-S811U S-VHS Editing Recorder; RM-G810U Parallel Editing Controller 10,640.00
 VES-41 Editing System Package: BR-S611U S-VHS Recorder/Player; BR-S811U S-VHS Editing Recorder; RM-G810U Parallel Editing Controller 9,330.00
 VES-21TBC Editing System Package: BR-S811U S-VHS Editing Recorder; BR-S811U S-VHS Editing Recorder; RM-G810U Parallel Editing Controller; SA-T400U Time Base Corrector 13,000.00
 VES-41TBC Editing System Package: BR-S611U S-VHS Recorder/Player; BR-S811U S-VHS Editing Recorder; RM-G810U Parallel Editing Controller; SA-T400U Time Base Corrector 11,690.00

BR-3200U 2/6-Hour VHS Recorder/Player

- Oval cut DA-4 head system • Quick response full loading mechanism • Digital tracking • Full function wireless remote control • 1-month/8-event programmable timer • 3-lead power cord • BNC connectors for video in/out \$465.00

BR-3700U 2/6-Hour VHS Recorder/Player

Includes all the features of BR-3200U plus: • Flexible timer playback • Serial remote in/out • Auto play and eject off • Noiseless stills and slow-motion playback • Microphone mixing input \$570.00

BR-3900U 2/6-Hour VHS Recorder/Player

Includes all the features of BR-3200U/3700U plus: • Double speed playback with intelligible audio • Series recording/playback capability \$669.00

BR-6400U 2-Hour VHS Recorder/Player

- Microprocessor full logic control • Shuttle search at up to 10 times normal speed in either direction • Capstan servo and external sync capability • Remote control and random access options • 2-channel selectable audio dubbing • Interfacing source machine for editing system • Automatic backspace editing control makes edits virtually undetectable • Automatic repeat of entire tape • Direct drive motors • Video S/N ratio more than 280 lines (black and white) . . . \$1,985.00



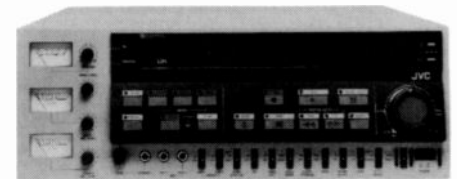
BR-S811U



BR-3700U



BR-7700U



BR-8600U

BR-6400TR Multi-Standard VHS Recorder/Player

Includes all basic features of BR-6400U plus: • Records PAL and SECAM signals • Plays back PAL, SECAM and 4.43MHz NTSC signals \$2,450.00

BR-7700U 2-Hour Hi-Fi VHS Recorder/Player

- Heavy-duty mechanism with direct drive motors • Variable speed dial search from still to 10 times normal in forward and reverse • 45-pin remote control connector • Video AGC on/off switch • External sync capability • Vertical interval switching (AEF) • Warning indicator for any malfunction related to tape transport mechanism or connectors • Video S/N ratio: 45dB (Rohde & Schwarz noise meter) • Horizontal resolution 240 lines color, 300 lines black and white \$2,560.00

BR-8600U VHS Editing Recorder/Player

- Professional quality editing functions • Preroll functions for automatic editing • Heavy-duty mechanism with direct drive motor • Variable speed dial search from still to 10 times normal in forward and reverse • Improved color dubbing quality • 3 video inputs selectable • External sync capability • Warning indicator for any malfunction related to tape transport or moisture condensation • Video S/N ratio 45dB (Rohde & Schwarz noise meter) • Horizontal resolution 240 lines color, 300 lines black and white \$3,440.00

VEP-31 Editing System Package: BR-8600U VHS Editing Recorder; BR-8600U VHS Editing Recorder; RM-G810U Parallel Editing Controller 9,130.00
 VEP-51 Editing System Package: BR-7700U VHS Editing Recorder; BR-8600U VHS Editing Recorder; RM-G810U Parallel Editing Controller 8,250.00

S-VHS ACCESSORIES



RM-G410U Editing Controller

• Simple cut editing control unit designed to work with the BR-S411U and BR-S811U S-VHS editing recorders • LED displays total time, elapsed time of edit and edit-in and edit-out points including total edit duration \$285.00

RM-G810U Remote Control Editing Unit

• An editing remote control for the KR-M800U, BR-S811U, BR-S611U, CR-850U, CR-600U, CR-8250U, CR-6650U, BR-8600U, BR-7700U and JVC VCRs with 45-pin connectors • Built-in jog function • Connected to KR-M800U, BR-S811U or BR-S611U the tape counter display can indicate times (H, MM, SS, Frame) in FF/rew and high speed search mode as well as playback and recording mode by counting CTL pulse • Self-illuminating buttons \$2250.00



RM-G810U

RM-G860U A/B Roll Editing Controller

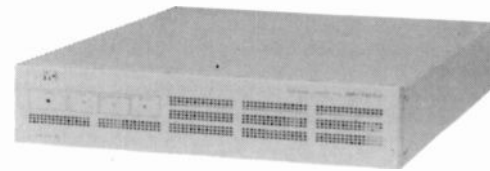
• Dual source editing • Accepts both 9-pin (serial) and 45-pin (parallel) VTRs • Time code referenced editing (with serial VTRs) • Audio split editing • Dual search dials • 3 LED counters • 2 GPI ports • VTR cables (VC-G7050U 45-pin or serial) not included \$3695.00

RM-LP80U Small Remote Control Unit

• For GY-X1TCUL14 camera • Compact unit for controlling camcorder • Functions include bars, VTR trigger, test out select, gain select, white balance, paint, iris level, iris auto/manual, master black, etc. • Maximum distance 328' from camera • Includes 16' cable. \$670.00

SA-D810U Y/C Distribution Amplifier

• Separates and distributes Y and C signals to a maximum of 21 duplicators (with a pair of BNC and 20 7-pin connectors) • Loopthrough input for parallel connection • Convenient front panel test points and level controls • Input signal format: NTSC component Y/C signals • Input signals: Y: 1.0V p-p, unbalanced; C: 0.286V p-p (burst signal) high impedance or 75 ohms switchable • Output signal format: NTSC component Y/C signals • Output signal: Y: 1.0V p-p \pm 1dB, 75 ohms unbalanced; C: 0.286V p-p \pm 1dB, 75 ohms (burst signal) \$3840.00



SA-T411U



SA-D820U Video Distribution Amplifier

• SA-D820U has 2-input/12-output (BNC) video amplifiers and can be used as a Y/C distribution amplifier • Input signal x 2: 1.0V p-p, unbalanced, 75 ohms or high impedance switchable • Output signal: 1.0V p-p \pm 1dB, 75 ohms, unbalanced • Output connectors: BNC connectors for A and B channel x 12 sets • A built-in hum noise canceller provides a clean signal transfer. \$4300.00



SA-F911U

SA-E100U Y/C Separator

• Separates the input NTSC composite signal into Y/C signal components • 2 BNC connectors and a single 7-pin connector are provided for output signals • Loopthrough input for parallel connection • Input signal format: NTSC composite standard, 525 lines • Input signal: 1.0V p-p, unbalanced high impedance or 75 ohms switchable • Output signal format: NTSC component Y/C signals • Output signals: Y: 1.0V p-p, 75 ohms, unbalanced; C: 0.286V p-p (burst signal). \$2730.00

SA-T411U Time Base Corrector/Noise Reducer

• Ideal for enhancing multi-generational dubbing quality in an S-VHS editing system • Separate Y/C digital processing for high-precision operation • Built-in noise reducer to improve chroma S/N in multi-generation dubs • BNC and 7-pin Y/C 358 connectors • Built-in frame memory • Built-in dropout compensator • Y-signal digital delay line • Switchable ACC circuit • Black stretch circuit • Frame and field freeze • Remote control capability \$4800.00

SA-T400U Time Base Corrector

• High picture quality by processing the signal in 4:1:1 component format, with 8-bit quantization of both Y and C components. Resolution is greatly improved through use of new wideband CCD comb filter • BNC and 7-pin Y/C 358 connectors • Built-in frame memory extending over 2 fields • Dropout compensator • A digital delay line is provided to adjust the delay of the Y signal with respect to the C signal; for precise adjustment, the delay can be adjusted in 16 steps of 74ns • Switchable ACC circuit • Black stretch circuit • Frame and field freeze can be performed manually or automatically. When in the automatic mode the SA-T400U will freeze the picture on the last good field of video • Remote control, optional. \$3950.00

SA-F911U Time Code Reader/Generator

• 9-pin serial (RS-422) to JVC 45-pin parallel interface • 25-pin serial (RS-232) to JVC 45-pin parallel interface • Swap editing capability for use with JVC KR-M820U and other serial VTRs with front panel editing controls • VITC reader/generator via Y/C or composite signals • LTC reader/generator via RCA connectors • On-screen display (window generator) for time code • Rackmountable • Powered by 45-pin VTR. \$1360.00

SA-R100U Time Code Generator

• Attaches directly to the rear or bottom of the BR-S411U • Outputs VITC or longitudinal time code (via DIP switch) • Selectable user bits • LCD display for time code or user bits • Start/stop or free run modes • Drop or non-drop frame modes (via DIP switch) \$1000.00

KM-F250U Multi-Format Frame Synchronizer

• Provides full-frame time base correction and allows composite and component video equipment to work together in the same system • Has separate Y/C, composite and component inputs and outputs, and transcodes from any popular video format to any other video format • Provides full-frame time base correction with most VTRs • Optional remote control \$3950.00

EI-511 Interface Unit

• Designed to expand the use of JVC's Professional S equipment in editing suites • Converts codes from the 33-pin output connector of the Sony RM-440 or RM-450 controller to the codes required by the 45-pin connector of JVC recorders • JVC editing VCR can be used as either recorder or player in the Sony editing system • Can be used in JVC models BR-S811U, BR-S810U, BR-S611U (feeder only), BR-S610U (feeder only), KR-M800U and KR-M820U • Power supplied from recorder being controlled \$350.00

BR-7000UA VHS Hi-Fi Duplicator

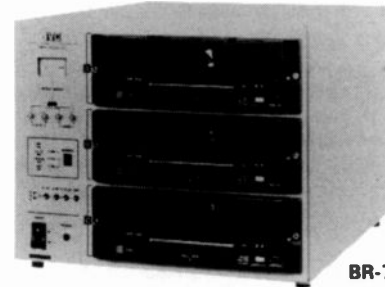
- Large cassette guides for easy loading and unloading • Erasure prevention tab override • Professional Hi-Fi dubbing system • Direct drive motor, heavy-duty chassis • Essential test points located on front panel • Front panel hour meter • Easy tape path maintenance • Standard EIA 19" rackmount capability • Auto head cleaning . . . \$1760.00



BR-7000UA

BR-7030U VHS Hi-Fi Duplicator

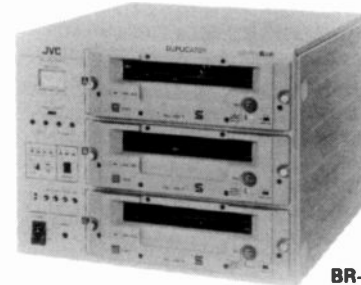
- 3-in-1 cost saving duplicator • Reduced power consumption • Record-only chassis • Single input for 3 recording units • Self-diagnostic warning system • 1 parallel and 2 serial remote control connectors • 3 5000-hour meters • ID address code input connector • Front panel test points • Warning output connector • Independently replaceable recording units • Automatic head cleaning mechanism • Video S/N ratio: 45dB (color) • Horizontal resolution 240 lines . . . \$4440.00



BR-7030U

BR-7040UAL VHS Hi-Fi Auto-Loading Duplicator

- 3-in-1 design for 3-way savings (in space, energy and peripheral equipment costs) • Automatic cassette loading system • Hi-Fi sound with dynamic range of more than 90dB • 8-digit ID code recording capability • Self-diagnostic warning system • 1 34-pin parallel and 2 serial remote control connectors • 3 large record indicators light during recording, blink for warning • 3 tape run indicators • 3 2000-hour meters • Dolby B noise reduction for normal audio • Audio input level meter with 4-position switch (Hi-Fi L, Hi-Fi R, Normal L, Normal R) and independent level control knobs for 4 channels • Front-panel test points with recorder unit can be independently removed and replaced with a new unit (replacement units optionally available) • Automatic head cleaning mechanism • Video S/N ratio 45dB • Horizontal resolution 240 lines . . . \$5100.00



BR-S777U

BR-S747U S-VHS Hi-Fi Autoloading Duplicator

- By combining 3 independent tape transports in a single cabinet, the BR-S747U provides substantial savings in equipment and peripheral cost, and in power consumption • Power consumption per recording unit, even with the automatic loader in operation, is less than that of a single-chassis duplicator • Requires the same number of cables and video/audio distribution amplifiers as a single recording deck • Records S-VHS SP and EP recording as well as VHS SP recording • Automatic cassette loaders are easy to attach and capable of simultaneously accommodating 1 standby cassette and 1 ejected cassette • Continuous operation • Allows 8-digit identification codes, such as the unit's serial number, to be recorded on the tape's control track for fast identification of problem units • In combination with an optional external code generator, 16-digit codes can be recorded that include serial number, date and time • Wired remote control operates the functions of all 3 units, including AGC, noise reduction, audio limiting and record switching • Operation can also be conducted by serial control via duplicator's 34-pin connector • Individual tape-run indicators and 5000-hour meters for each transport • Dolby B noise reduction on linear tracks • Audio level meter • 3 large recording indicators • Diagnostic warning system for each transport with output for remote monitoring • Front panel test points • Automatic head cleaning . . . TBA*

BR-S777U S-VHS Duplicator

- 3-in-1 design • S-VHS picture quality: carrier frequency up to 7MHz • Hi-Fi video sound with dynamic range of more than 90dB • 8-digit ID code recording capability and external ID code inputs • Serial remote control capabilities • Self-diagnostic warning system • Rear panel Check Out connector • 3 tape run indicators • 3 2000-hour meters • Dolby B noise reduction for normal audio • Audio level meter with 4-position switch (Hi-Fi L, Hi-Fi R, Normal L, Normal R) and independent level control knobs for 4 channels • 3 large record indicators light during recording, blink for warning • Front panel test points with recorder unit selectors • Warning output connector for external concentrated control of entire duplicating system • Each recorder unit can be independently removed and replaced with a new unit. Replacement units optionally available • Automatic head cleaning mechanism • Video S/N ratio 45dB (VHS) • Horizontal resolution 240 lines VHS, 400 lines S-VHS . . . \$4895.00

Duplicator Accessories

RM-703U Simple Remote Control Unit (Serial) for BR-7030U

- Small handheld remote control unit with cable that plugs into RCA serial jack on duplicator . . . \$45.00

RM-G77U Serial Remote Control Unit for Duplicator

- Controls 4 banks of 50 VCRs for total of 200 units (600 for BR-7030U) • Full transport control • Hi-Fi on/off switch • Serial loop-through connection to VCR (RCA connectors) • Rackmountable (1 space) • Use with BR-7000UA, BR-7030U/7040UAL, BR-S777U . . . \$1350.00

SA-D810U Y/C Distribution Amplifier

- Distributes Y/C signals to as many as 21 duplicators • Has BNC and 20 7-pin connectors • Can be used in parallel with other SA-D810Us . . . \$3840.00

SA-K14U ID Code Generator Board for BR-7030U, BR-7040UAL

- Records an 8-digit code onto the control track • Use 1 for each of the 3 recording units in the BR-7030U • Installation by qualified technician only . . . \$57.00

SA-KT7030U Test Jlg

- For BR-7030U/BR-7040UAL . . . \$1670.00

SA-K15U ID Code Reader Board for BR-7030U, BR-7040UAL

- Connects to the SA-K14U (required) • LED readout displays 8-digit code recorded on tape • May be used with BR-7700U, BR-7000UA, BR-7030U, etc. • Installation by qualified technician only . . . \$165.00

SA-K7030U Replacement Tape Transport Tray for BR-7030U

- Self-contained recording deck designed to completely replace 1 of the recording units in the BR-7030U . . . \$990.00

SA-K7040U Replacement Tape Transport Tray for BR-7040UAL

- Self-contained recording deck designed to completely replace 1 of the recording units in the BR-7040U . . . \$990.00

SA-L10U Automatic Cassette Loader for BR-7000UA

- Automatically loads and unloads cassettes • Holds up to 3 cassettes in standby and 2 additional in catcher tray • 4-mode operation . . . \$550.00

SA-L30U Automatic Cassette Loader for BR-7040UAL

- Adds productivity and convenience of VHS duplication systems • Power requirement: 12VDC (supplied from VTR) . . . TBA*

*To Be Announced

MONITORS/MONITOR/RECEIVERS



COLOR MONITORS

TM-22U 5" Portable Color Monitor

• In-line black stripe picture tube capable of accurate, well-defined color reproduction • Flexible AC/DC power supply—household AC or built-in exclusive rechargeable NB-P1 NiCad battery pack—enabling both indoor or outdoor use • Built-in speaker enables simultaneous audio and video monitoring • Dual circuits provided for audio and video signals • 5" diagonal AC battery powered color monitor includes hood, power cord, earphone \$565.00
NB-P1 Rechargeable battery for TM-22U \$95.00



TM-22U



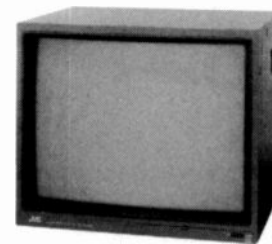
TM-9U

TM-63U 5" Portable Color Monitor

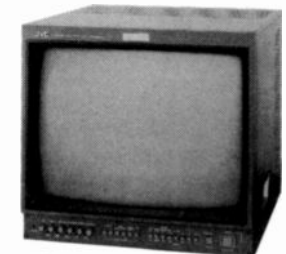
• Compact size—ideal for sales presentations, promotions, etc. • Hidden control panel • Loophrough video/audio input • Built-in audio with speaker • 12VDC power requirement \$493.00
AA-63B AC adaptor \$62.00

TM-900SU 9" Color Monitor

• Horizontal resolution of more than 310 lines • 9" V CRT with vertical stripe phosphor of 0.47mm • Y/C 358 video signals: bridged out, 7-pin • Various functions for professional use: 1) underscan, 2) pulse cross, 3) color on/off, 4) blue check, 5) int/ext sync • AC/DC selectable (12VDC, XLR 4-pin) • 2 video inputs (A/B) • 2 units can be mounted side-by-side in an EIA rack with use of the optional RK-9UM9 rackmount adaptor • Audio capability with built-in speaker • Power requirement: 120VAC, 60Hz; 12VDC. TBA*



TM-200SU



VM-R190SU

TM-R9U 9" Color Monitor

• Compact, high quality monitor • More than 310 lines of horizontal resolution • Comb filter • 2 selectable video inputs • Internal/external sync • Tally lamp • AC or 12/24VDC power supply • Remote controllable • Carrying handle \$795.00

VM-R190SU 19" Color Monitor

• Horizontal resolution of over 600 lines • Multi-format compatibility: component video (MII/Betacam); Y/C separate video (S-VHS); RGB analog/TTL (IBM CGA); composite video • Pulse-cross circuit • Underscan switch • Horizontal AFC select switch • Rack-mountable • Tally lamp • Remote control \$1940.00

TM-9U 9" Color Monitor

• 76° deflection angle • Rackmountable • "Utility Usage" in small editing systems and to monitor multi-camera shoots • Front panel controls • Pushbutton on/off switch with LED indicator • Durable black metal casing \$495.00

TM-200SU 20" Color Monitor

TM-91SU 9" Color Monitor

Common Features:

• 7-pin YC 358 connector • BNC connector for composite video signal; bridged output possible • 8-pin VTR connector (EIAJ) for composite video and audio • RCA connector for mono audio; bridged output possible • 8cm round speaker with 1W output • Y/C input reduces crosstalk and dot interference • Durable metal cabinet also minimizes interference • Comb filter • NTSC

TM-13U 13" Color Monitor

• 90° deflection angle • Audio input • Ideal for video networking and internal communications systems • Attractive tan metal housing • Concealed front panel controls—pushbutton on/off switch • Rackmountable. \$420.00

TM-200SU 20" Color Monitor

• Includes common features plus: • 20" FS data-grade CRT • Horizontal resolution of over 500 lines • Bridged output possible via Y/C 358 connector • 80W power consumption \$710.00

TM-R14U 14" Professional Studio Monitor

• 2 composite video inputs • Separate RGB analog inputs • Internal/external sync signal • Built-in comb filter separates luminance and chrominance for 400 lines resolution • Underscan switch for total-image viewing • Tally lamp for "live" camera indication • Degaussing switch \$895.00

TM-91SU 9" Color Monitor

• Includes common features plus: • 9" medium-high resolution CRT with a dot pitch of 0.47mm • Horizontal resolution of over 300 lines • Space saving design • 2 units can be mounted in a standard EIA rack with optional rackmount adaptor, RK-9U • 37W power consumption \$615.00

VM-R140SU 14" Color Monitor

• 500 lines plus horizontal resolution • Multi-format compatibility: component video (MII/Betacam); Y/C separate video (S-VHS); RGB analog; composite video • Pulse-cross circuit • Underscan switch • Horizontal AFC select switch • Rackmountable • Tally lamp • Remote control \$1300.00

MONITOR/RECEIVERS

TM-2080SU 20" Stereo Color Monitor/Receiver

• Cable compatible • 180-channel tuner • MTS stereo with speakers • Matrix surround system • On-screen display • Full square tinted tube • S-Video inputs • Bridged A-V inputs (RCA) • Master command remote \$550.00

TM-1400SU 14" Color Monitor

• Multiple input terminals include: 1) 7-pin Y/C 358 terminal: for S-VHS, bridged output possible; 2) Composite video signal, bridged output possible; 3) 8-pin VTR terminal; 4) RCA terminal for audio signal (mono), bridged output possible • More than 400 lines of horizontal resolution • Pulse-cross circuit allows sync signal to be viewed • Notch filter reduces horizontal noise and dot interface • Horizontal AFC select switch (fast/normal) • Underscan switch: wide scan/narrow scan \$755.00

TM-2760SU 27" Stereo Color Monitor/Receiver

• Cable compatible • 180-channel tuner • MTS stereo with speakers • Master command remote • On-screen display • Matrix surround system • 4-pin S-inputs • Bridged A-V inputs (RCA) \$800.00

* To Be Announced

MI-1200U Professional Audio Mixer

• Ideal for use in combination with the KM-1200U • AC/DC 2-way operation • 10 input bus lines (4 balanced mic, 4 unbalanced aux, 1 tape, 1 phono) • 2 monophonic output lines (1 balanced, 1 unbalanced) • Large slide controls for easy operation • 5-LED level meter display • EIA rackmount standard

Specifications

Input Signals

Microphone: x4, -64dBs, 600 ohms balanced transformer type (XLB-31-3) (Hot: pin 3 for MI-1200U)
Turntable: x1, -54dBs, 50K ohms unbalanced (RCA type pin x2) (L/R mixing system)
Tape Recorder: x1, -10dBs, 50K ohms unbalanced (RCA type pin x2) (L/R mixing system)
Auxiliary: x4, -10dBs, 50K ohms unbalanced (RCA type pin)

Output Signals

Program: x1, 0dBs/-20dBs switchable, 600 ohms balanced (XLB-32-3)
Program (sub): x1, -10dBs, 10K ohms unbalanced (RCA type pin)
Headphones: x1, 80mW max., 8 ohms load (stereo phone jack)
Frequency Response: 50 to 15,000Hz, ± 1.5 dB (at 1kHz)
S/N: > 60dB (at 1kHz)
Residual Noise: < -70dB
Distortion: < 1% (at 1kHz, rated output)
Level Indicators: 5 LEDs (-15/-10/-3/0/+3dB indications)
Ambient Temp.: 0°C to 40°C (32°F to 104°F)
Power Supply: 120VAC (MI-1200U), or 12VDC
Power Consumption: 5W (AC), 2.2VA (DC)

Dimensions

Unit Dimensions: 5 $\frac{1}{4}$ " H x 19" W x 3 $\frac{5}{8}$ " D

MI-1200U \$485.00

MI-2000U Compact Audio Mixer

• Rackmount capability • Balanced mic/line inputs • Full monitoring capability including prefader listening (source output level) • Selectable (line, -20, -40, -50, -60, -70dB) input gain controls for matching input sensitivity • Phono (RIAA) inputs are available at channel 7 and 8 • Talkback mic (-60dB) • External monitor input (-10dB) • 3-band input channel equalization • Input peak indicators • LED bar graph dB metering • Built-in phantom power supply and oscillator • 8-input/2-stereo program out

Specifications

Frequency

Response: Mic: 20Hz to 20kHz (+0dB/-2dB)
 Line: 20Hz to 20kHz (+0dB/-1dB)
THD: Mic: < 0.1% (1kHz)/0.3% (30Hz to 20kHz) + 20dB output)
 Line: < 0.1% (20Hz to 20kHz) (+ 20dB output)

Equivalent Input

Noise: < -128dB (input 150 ohm, termination filter IHF-A)

Residual Noise

Level: < -90dB (master fader off), < -78dB (channel faders off)

Crosstalk:

< -70dB (1kHz, between channels, between PGM and AUX out)

Oscillator:

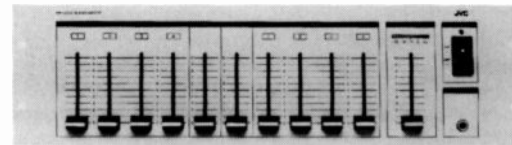
1kHz, sine-wave

Max. Output:

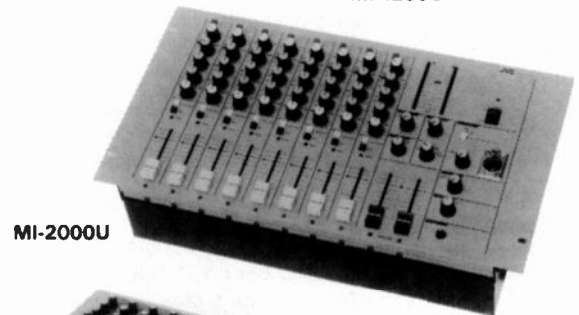
+ 20dB

Phantom Power

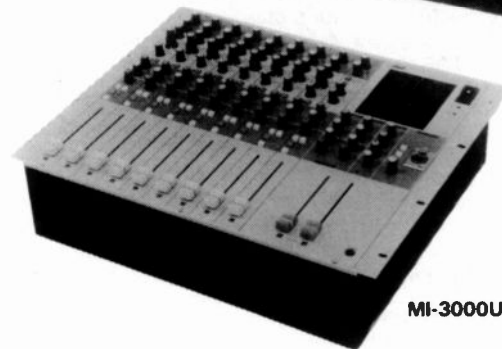
Supply: 48VDC



MI-1200U



MI-2000U



MI-3000U

Power Supply: 120VAC, 12VDC (with optional DC/DC converter)

Power Consumption: 17W AC, 1A DC (with optional DC/DC converter)

Dimensions: 4 $\frac{15}{16}$ " H x 19" W x 10 $\frac{15}{16}$ " D

Weight: 18 lbs.

Finish: Panel: Metallic brown

Case: Metallic black

MI-2000U \$1260.00

MI-3000U 10-Channel Audio Mixer

• 8 monaural channels plus a set of stereo channels • Built-in VCA (voltage-controlled amplifier) can be controlled by the MI-F30U • EIA rackmountable • 3-band equalizer for each channel (low, mid and high) • Trim control (channels 1 to 8) • 100mm scale ultra-smooth fader control • Power requirement: 120VAC, 60Hz • 4 $\frac{9}{16}$ " H x 19" W x 15 $\frac{3}{4}$ " D • Weight: 27.6 lbs.

MI-3000U \$3830.00

MI-F30U Serial Control Interface for MI-3000U

• Enhanced interface flexibility (RS-422, RS-232C and 3 GPIs) • 4 different transition patterns with possible transition rates 0 ~ 999 frames • 100-event memory • EIA rackmountable • Power requirement: 120VAC, 60Hz • 3 $\frac{1}{2}$ " H x 19" W x 7 $\frac{1}{8}$ " D • Weight: 12.1 lbs.

MI-F30U \$1700.00

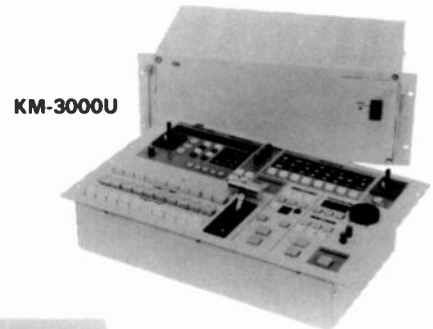
SPECIAL EFFECTS GENERATORS/ACCESSORIES



KM-3000U Component Special Effects Generator

- Component processing • 8-input component mixer, inputs 6, 7 and 8 also accept RGB signals • Outputs in 3 different signal formats (component, composite and Y/C) • Soft chroma, external and luminance keys also possible • Auto and manual transition: special effects, downstream keys and fades can be operated either automatically or manually • Transition time in auto mode can be set 0 to 999 frames with rotary dial or 10-digit keypad • Color matte generation for border, background color and downstream key • Built-in data memory (up to 16 events and 24 colors) • 3-mode composite effects can be mixed by leaving both the Background and Key switches on and actuating 1 extra effect • RS-422 or GPI interface with editing controllers • 23 different wipe patterns • Power requirement: 120VAC, 60Hz • Dimensions: control unit 5¹⁵/₁₆" H x 19" W x 12¹/₄" D; main unit 7¹/₈" H x 19" W x 16³/₁₆" D • Weight: control unit 14.4 lbs.; main unit 32 lbs.

KM-3000U \$15,000.00

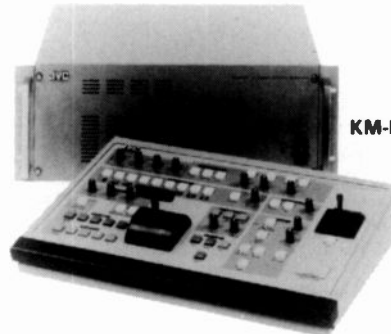


KM-3000U

KM-D600U Y/C Digital Effects Generator

- Built-in dual channel TBC • Digital effects (freeze, strobe, mosaic, slide, paint, negative and compression) • Y/C 358 and composite signals can be input • Y=8 bits, C=8 bits 4:1:1 component process • DOC and Advanced Sync for VTR • Built-in full field color bar generator • Auto and manual transition • Soft wipe • Positioner wipe • GPI control for connection with VTR controller • Built-in RGB chroma key • Built-in color matte generator • Fill video input terminal for DSK • DSK masking function • Y, C and black levels and hue can be preset • Dimensions: main unit 7¹/₈" H x 19" W x 13¹³/₁₆" D; control unit 3¹/₂" H x 16¹⁵/₁₆" W x 12¹/₄" D

KM-D600U \$7,950.00

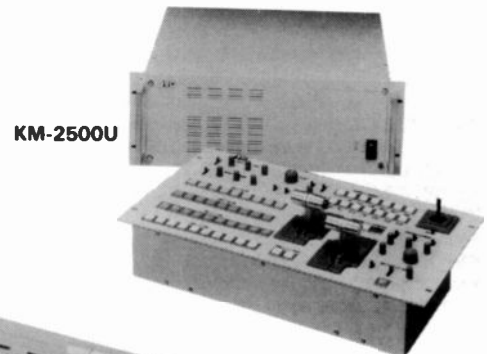


KM-D600U

KM-2500U Color Special Effects Generator

- Specially designed for a wide range of wipes, transitions and special effects • Color border wipe • Color bar generator and background generator • Auto transition • DSK Fill video input terminal • Flip-flop mix circuit • GPI (General Purpose Interface) input terminal • RGB chroma key circuit • SSG conforming to RS-170A • Built-in DSK • Multiple input connectors • Superimpose • 3-button program selector • DSK and superimpose signals can be previewed • 13 wipe patterns available • 3-way switching of wipe direction: normal, reverse and normal/reverse • Tally circuit • Dimensions and Weight: main unit standard EIA rack size (4 unit size) (27.6 lbs.); control unit standard EIA rack size (6 unit size) (11.1 lbs.) (The 2 units are connected with 10m cables with 37-pin connector)

KM-2500U \$5,995.00



KM-2500U

KM-1600U Y/C Special Effects Generator

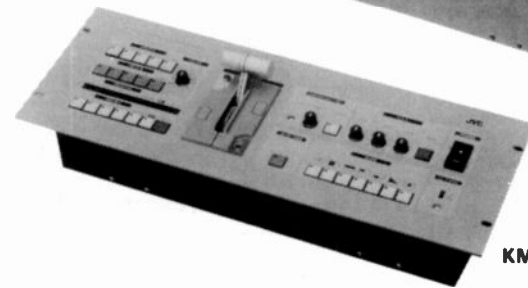
- Built-in color matte generator: any color can be created independently for either the background or the DSK • Simplified flip-flop bus operation: you can automatically change over the program bus and the preset bus using the fade lever or the Auto button • Built-in data memory: the luminance key and chroma key slice level settings of the Effects Keyer are independently memorized for each input channel • Auto transition: DSK and all of the main effects, including mix and wipe, can be operated automatically. A timer is built-in to set the period between pushing a button and completing an effect • Soft wipe function is effective in both normal and reverse • Dimensions: 10³/₈" H x 19" W x 7¹/₁₀" D • Weight: 20.9 lbs.

KM-1600U \$4,495.00

KM-1200U Color Special Effects Generator

- 4 composite video input connectors • Genlock input is usable as the 5th video input instead of having background color • Auto-take • Color background generator • DSK (downstream keyer) • Chroma keyer • Mix • Wipe • External keying • 2 PGM outputs, 1 PVW output and 1 DSK PVW output • Sync pulse output connectors • AC/DC operation • Power requirement: 120VAC, 60Hz or 12VDC • Dimensions: 7" H x 19" W x 4" D • Weight: 9.3 lbs.

KM-1200U \$2,150.00



KM-1200U

KM-E300U Border Generator for KM-3000U/ KM-1600U/KM-D600U

- Allows you to add color borders, drop shadows and outlines to DSK and Effects Keyer graphics • 2-piece rackmountable unit • Accepts RGB signals

KM-E300U \$2,450.00

SW-203U 5-Input Video/Audio Switcher

- Passive switcher • 5 video (Y/C 7-pin) inputs • 5 stereo audio (RCA) inputs • 1 video output (7-pin) • 1 stereo audio output (dual RCA)

SW-203U \$300.00



Kangaroo Video Pack™ Recorder Packs

• Provide efficient organization and convenient access for all the gear you need to carry • Designed by a news photographer to meet the rugged demands of ENG field use • Even white-balancing is easy with built-in white balance panels • Compact enough for 1-man operation, versatile enough for 2-man crews • All packs come complete with pockets, hand and standard shoulder strap

KVP-1A	Sony BVV-1, Thompson VR-611, Bosch BCB-1, Ampex CVR-1 (with VA-1 or Ikegami VBA-1A adaptor)	\$220.00
KVP-1B	Sony BVV-1, Thompson VR-611, Bosch BCB-1, Ampex CVR-1 (with VA-1V adaptor)	220.00
KVP-5	Sony BVV-5 or Ampex CVR-5 (with VA-1 or VA-5 adaptor). Specify battery carried at time of order	220.00
KVP-20	Sony BVW-20, Thompson VT-625, Bosch BCB-20, Ampex CVR-20	189.00
KVP-21	Bosch BCN-21	210.00
KVP-25	Sony BVW-25, BVW-21, Thompson VT-626, VT-624, Bosch BCB-25, BCB-21, Ampex CVR-25, CVR-21	220.00
KVP-35	Sony BVW-35	220.00
KVP-50	Sony BVU-50	210.00
KVP-100	Sony BVU-100, VO-3800, blue only	210.00
KVP-110	Sony BVU-110	210.00
KVP-150	Sony BVU-150	220.00
KVP-220	Panasonic AU-220	210.00
KVP-400	Panasonic AU-400	220.00
KVP-500	Panasonic AU-500	220.00
KVP-2000	Sony Digital	120.00
KVP-DVR-2	Sony DVR-2	245.00
KVP-4400	JVC CR-4400U, Panasonic NV-9400, Hitachi SV-340, blue only	210.00
KVP-4400LU	JVC CR-4400LU, RCA HE-1020, Ampex VPR-4400, blue only	210.00
KVP-4700	JVC CR-4700U, PR-4800U, CR-4900U, Panasonic NV-9450	169.00
KVP-4800	Sony VO-4800	162.00
KVP-5000	Panasonic NV-8420	120.00
KVP-6200	JVC BR-6200	140.00
KVP-6400	Panasonic AG-6400	140.00
KVP-6800	Sony VO-6800	179.00
KVP-7400	Panasonic AG-7400	165.00
KVP-8800	Sony VO-8800	187.00



KVP-25



Emikote



Semi-Tough



Super-Tough

Emikote™ Products

• An advanced line of products and custom design services • Protection of sensitive electronic equipment and recording media from the effects of electromagnetic radiation

KEP-CC	Emikote camera cover (specify camera)	\$750.00
KEP-RC	Emikote recorder cover, accommodates most broadcast and industrial portable recorders (specify recorder)	650.00

Kangaroo Semi-Tough™ Camera Cases

• Side-loading camera case • Ideal for airline travel or limited space situations • Rigid frame of tough aircraft aluminum completely surrounding the camera • Convenient detachable pocket holds batteries, tapes and cables • Comes complete with hand strap and heavy-duty padded shoulder strap for over-the-shoulder carrying

KCC-SEMTGH	Ikegami HL-79A, HL-79D, HL-79E, ITC-730A, Sony BVP-250, BVP-300, BVP-330, DXC-M3A, Thompson 501, 601, 701, Hitachi FP-10, FP-21, FP-22, SK-81, SK-91	\$265.00
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Kangaroo Super-Tough™ Camcorder Cases

• Meet a variety of carrying needs for users of the following camcorder combinations: Sony BVP-3, BVP-30, BVW-3, BVW-30 and the BVW-3 and BVW-30 with DC-100 battery • Top-loading case • Triple-hemmed • U-shaped aluminum frame to maximize equipment protection while dense Evazote foam helps insulate the camera's most sensitive components • Inner pockets on both sides hold extra batteries, tapes, headset and tripod plate • 3-way zipper system • Ideal for access from the back of car or remote van

KCC-STGH3	Sony BVP-3 or BVP-30	\$280.00
KCC-STGHB3	Sony BVW-3 or BVW-30	280.00
KCC-STGHLTD	Sony BVW-3 or BVW-30 with DC-100 battery	280.00
KCC-SUPTGH	Custom designed to fit any camera height, length, width	280.00

SIGNAL PROCESSING EQUIPMENT



SERIES 300 GRAPHIC EQUALIZERS

Common Features

• Circuit designs utilize "Melt" filters • Electronically balanced input and LED overload indicator • Earth lift switch enables signal chassis grounds to be isolated, eliminating ground loop problems • Equalization bypass allows comparison between direct and equalized signals

DN300 30-Band 1/3 Octave Graphic Equalizer

Includes standard 300 Series features plus: • 30 45mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz • Adjustable high and low cut 12dB/octave shelving filters with selectable 6/12dB per octave high cut slope \$1150.00

DN301 1/3 Octave Attenuating Graphic Equalizer

Includes standard 300 Series features plus: • 30 45mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz • Adjustable high and low cut 12dB/octave shelving filters with selectable 6/12dB per octave high cut slope \$1150.00

DN332 Dual 16-Band 2/3 Octave Graphic Equalizer

Includes standard 300 Series features plus: • 2 x 16 45mm oil damped precision faders graphically positioned at 2/3 octave ISO frequencies between 20Hz-20kHz • Sturdily constructed throughout and complies with standard 19" 2U rackmounting requirements • Useful low cut 18dB/octave filters prevent subsonic components from overloading speakers or amplifiers \$1095.00

DN360 Dual 30-Band 1/3 Octave Graphic Equalizer

Includes standard 300 Series features plus: • 2 x 30 30mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz • 30 45mm oil damped precision faders graphically positioned at 1/3 octave ISO frequencies between 25Hz-20kHz • Scale switching gives choice of either higher slider resolution (± 6 dB) or normal (± 12 dB) • Low cut 18dB/octave filters prevent subsonic components from overloading speakers or amplifiers \$1795.00

SERIES 400 PARAMETRIC EQUALIZERS

Common Features

• 100% frequency overlap and a wide range of filter bandwidths • Individual EQ in/out switch with LED "Filter On" status indication for each parametric filter section and overall EQ in/out switch • Automatic fail-safe bypass facility • Electronically balanced inputs and LED overload indicator • Earth lift switch enables signal and chassis grounds to be isolated, eliminating ground-loop problems

DN405 5-Band Single Channel Parametric Equalizer

• 5 bands of full parametric equalization with separate variable high and low pass filters \$775.00

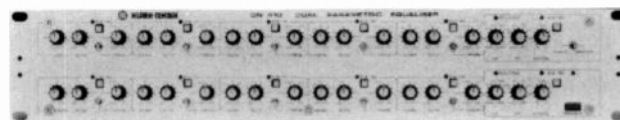
DN410 5-Band Dual Channel Parametric Equalizer

• 2 channels of 5 bands of full parametric equalization with separate variable high and low pass filters in each channel • Switchable dual/mono operation, automatically bypassing unwanted controls in the single channel 10-band mode \$1195.00

SERIES 500 DYNAMIC PROCESSORS

DN500 Dual Compressor/Limiter/Expander

• 2 channels of full function compression, expansion, limiting and peak clipping in 1 unit of rack space • Variable knee control for compression styles from hard to easy • Auto attack/release for inaudible compression and easy setup • Manual attack/release mode for creating compression effects • Separate side chain inputs provided for compressor and expander sections • Stereo link • Gain reduction meters for compressor/expander sections and output level meter. \$1195.00



DN410



DN504

DN504 Quad Compressor/Limiter

• 4 channels of compression in 1 unit of rack space • Switchable knee function provides hard and soft compression styles • Auto attack/release mode for inaudible compression and easy setup • Manual attack/release mode for creating compression effects • Separate side chain inputs provided for each channel • Gain reduction and output level metering provided for each channel • Stereo link function provides 2 pairs of stereo channels \$1350.00

DN510 Advanced Dual Gate With MIDI

• Velocity sensitive MIDI out provides instant triggering for drum machines and samplers • Additional DC trigger inputs/outputs allow triggering of non-MIDI devices or remote keying of DN510 • Fixed envelope function allows reshaping of existing or sampled sounds and predetermines MIDI note length when required • "Mask" removes off-beats, drum fills or echo and creates accents. During MIDI operations "Mask" allows modified rhythms to be generated by selective triggering • "Duck" for automatic voice-over control or level change keyed from dominant track • "Delay" sets envelope initial delay to produce slap-back effects, control percussion reverb and enable audio to MIDI time shift \$1100.00

DN514 Quad Auto Gate

• 4 frequency-conscious gates in 1 unit of rackspace • 2 semi-automatic attack modes and hold time automatically scaled to release value • Sync synchronizes harmony parts, brass sections, etc., by interlocking all 4 gate release times • Additional key inputs for each channel allow triggering from external sources • Side chain monitor simplifies filter setup • Release contour indicated by release LED • Master and channel bypass switches provided to aid setup. \$1100.00

DN716 Multiple Outlet Digital Audio Delay Line

• Provides for 1 input and 3 outputs, with 1300ms delay available for each output at a full bandwidth of 20kHz • Variation of 10dB from the nominal output level is possible from the front panel for each output • Audio connection is via XLR style connectors • 1 input, 3 output digital delay, 0-1.3 sec. \$1625.00

DN780 Digital Reverberator/Processor

• Hall, chamber, room and plate programs with 20 factory set variations • Comprehensive effects package including chorus, infinite room, multitap echo and delay • Superior audio performance through 16-bit linear conversion and 12kHz bandwidth • 50 non-volatile user memory locations combined with 16-step sequence function offer instantaneous recall • Input level indication allows maximum use of dynamic range • MIDI "in," "through" and "tape" for storing programs to tape and reloading • Full function remote control \$2595.00
780MC MIDI card retrofit kit for existing 780 units \$175.00

Legend Character/Graphics Generator

- Antialiasing of all fonts and graphics with Paint option • 65,000+ colors displayable on a single page—display line-by-line standard, or pixel-by-pixel with Paint option, on text, backgrounds and graphics • Paint system operates on a separate plane, allowing all character generator capabilities to be used over paint backgrounds • Real time operation—on-line capability • Program output with a true preview channel • Standard special effects feature—includes horizontal and vertical wipes, venetian blind effect, random "pixelate" and slow reveal • Dual 3 1/2" floppy disk drives • Expanded keyboard enhances speed and ease of operation • Y/C (S-VHS) or composite outputs with optional encoder • Major options allow expansion—including Paint, hard disk, camera entry, Font Developer II and more • Automatic display sequences—rolls and crawls in multiple speeds • Programmable auto sequencing allows character generator to provide continuous unattended display

The basic Legend has an array of features with speed and simplicity of operation matched only by an array of readily available options.

Legend maintains a significant degree of compatibility with 1500 Series character generators. Existing pages, fonts, font bases, auto sequences, Pen Tip files, graphic files and color palettes created on a 1500 with any level of 2.X operating software will run directly on Legend without conversion. Material created on a 1500 with operating software earlier than version 2.0 can run on Legend by using a one-time conversion utility program.

Most files created on Legend are backward compatible to 1500 character generators with 2.X or newer software, except the special effects available in Legend. Dynamic pages created on Legend which incorporate a special effects feature will appear as static pages on a 1500.

Several graphic character enhancement features are standard: italics, edging, kern, tuck and overlap, horizontal and vertical flip.

Specifications

Resolution:	35ns (1506 pixels x 483 lines)
Fonts Furnished:	70
Fonts in RAM:	16
Fonts Displayable per Page:	16
External Video Channel	
Frequency	
Response:	20Hz-5MHz ± 1dB
Field Time Distortion:	< 1%
Line Time Distortion:	< 0.1%
S/N Ratio:	56dB
Pages in RAM:	100
Inputs:	PGM IN-composite, 1V p-p, looping; ENC-composite, 1V p-p looping; AUX-RS-422
Outputs:	RGB-non-composite, 0.7V p-p; KEY-composite, 1V p-p, monochrome; PGM-composite, 1V p-p; PVW-composite, 1V p-p, monochrome; AUX-RS-422
Connectors:	BNC (Video, RGB, Key), Sub. D, 9-pin (auxiliary)
Dimensions:	Main Unit-7"H x 17"W x 15.75"D; Keyboard-3.5"H x 22.50"W x 9.0"D; 2.5"H (feet flat)
Combined Weight:	46 lbs.

Little Legend Character generator, similar to Legend except no disk drives, has 11 fonts, upgradeable to full Legend, should have BC-325 power supply. \$ 4,595.00
Little Legend/2 Same as Little Legend, except with 1032 encoder. \$ 5,895.00
Little Legend/2YC Same as Little Legend, except with 1032 Y/C encoder. \$ 6,440.00
Little Legend Plus Character generator, similar to Legend. Has dual disk drives, 14 fonts and Augmencia. Upgradeable to full Legend. \$ 6,495.00
Little Legend Plus/2 Same as Little Legend Plus except with 1032 encoder. \$ 7,795.00
Little Legend Plus/2YC Same as Little Legend Plus except with 1032 Y/C encoder. \$ 8,340.00
Legend Character/graphics generator, keyboard, 70 fonts. \$ 8,195.00
Legend/2 Same as Legend, except with 1032 encoder. \$ 9,520.00
Legend/2YC Same as Legend, except with 1032 Y/C encoder. \$ 10,090.00
Legend-GXT Character/graphics generator, same as Legend, except supplied with 1534 hard disk drive and 1529 Font Developer II. \$ 9,195.00*
Legend-GXT/2 Same as Legend-GXT, except with 1032 encoder. \$ 10,520.00



Legend

Legend-GXT/2YC Same as Legend-GXT, except with 1032 Y/C encoder.	\$11,090.00
Legend-LX Character/graphics generator, same as the Legend, except with 1540 Paint, 1534 hard disk drive, 1529 Font Developer II, 1526 Camera Entry and 1524 Data Tablet.	\$15,995.00*
Legend-LX/2 Same as Legend-LX, except with 1032 encoder.	\$17,320.00
Legend-LX/2YC Same as Legend-LX, except with 1032 Y/C encoder.	\$17,890.00

Accessories

K-120 Downstream keyer/fader with transparency capability. Includes choice of remote controls.	\$895.00/595.00†
K-121 Same as K-120 with Y/C compatibility. Includes choice of remote controls.	\$1,095.00/795.00†
DTR-125 Desktop remote control for K-120/121.	\$195.00
BDR-126 GVG bridge drop-in remote control for K-120/121.	\$195.00
1032 Encoder for RGB to composite.	\$1,325.00
1032/YC Encoder for RGB to composite/YC.	\$1,895.00

Options

101 Y/C cable adaptor, 7-pin female to 2 BNC.	\$ 30.00
102 Y/C cable adaptor, 7-pin male to 2 BNC.	30.00
103 Y/C cable adaptor, 4-pin S-Video DIN to 2 BNC.	30.00
1032 Color encoder, RGB to NTSC.	\$1,325.00
1032-Y/C Same as above with full Y/C compatibility.	\$1,895.00
1508 Deluxe option package, includes 1540 Paint option, 1534 hard disk drive, 1524 Data Tablet, 1526 Camera Entry and 1529 Font Developer II.	\$8,500.00
1516 Power supply required for a remote/second keyboard or a 1524 Data Tablet, rackmountable, with 15' cable (50' and 100' available).	\$500.00
1521 Rackmount, with slide for legends.	\$120.00
1524 Data Tablet, includes 1516, requires 1529 or 1540, also used with 1526.	\$1,500.00
1526 Camera Entry, requires separate B and W camera, copy stand 1524 and 1529.	\$1,000.00
1529 Font Developer II.	\$700.00
1534 Hard disk drive.	\$995.00
1538 Clock/calendar.	\$400.00
1540 Paint option.	\$3,800.00
1547 Augmencia software package with 2.2 or later software.	\$300.00
1560 Upgrade Little Legend to Little Legend Plus.	\$1,995.00
1562 Upgrade Little Legend to Legend.	\$3,695.00
1564 Upgrade Little Legend Plus to Legend.	\$1,795.00
1580 Graphics import program, allows import of GIF, TIF and TGA files.	\$495.00
1586 Alias control fonts—set of 225 fonts (12 new typefaces in 10-20 sizes).	\$895.00
1587 Font Master typefaces—set of 12 masters, 256 scanlines high. Can be developed into smaller sizes with use of 1529 Font Developer II.	\$495.00

*Special package pricing †Price with combined purchase of a Legend

CHARACTER GENERATORS



1450/1480 Color Character Generators

• 35ns resolution • Capable of producing 65,000 different colors • 6 resident fonts, with optional 6 for 12 total • 100 pages of memory and a keyboard • Built-in color encoder • Features enhancements such as italics, edging, outline, 4 quadrants of drop shadow and 8 intensity levels • Vertical and horizontal flip • Inverted video • Flash and underline • Capable of roll up or down at any of 9 speeds • Crawl left or right at any of 6 speeds • Can be used either downstream or as a stand-alone system • Encoder modulates RGB signals into composite NTSC • Rackmountable

The standard configurations of the 1450/1480 include 6 resident fonts, 100 pages of memory and a keyboard. Built-in is a color encoder with the same high quality and specifications as the 1032 Color Encoder.

The 1450/1480 feature: italics (at 1 of 7 angles from 12° to 56°), edging (with full edge, outline, 4 quadrants of drop shadow and 8 intensity levels), vertical and horizontal flip, inverted video, flash and underline. The 1450 also has the ability to roll up or down at any of 9 speeds and crawl left or right at any of 6 speeds.

The 1450/1480 can be used "upstream," "downstream," or as "stand-alone" systems. All timing adjustments are accessible behind the front panel.

An optional 1422 Computer Interface Kit allows the 1450 to communicate with most IBM® compatible computers. This feature permits unlimited, permanent storage of text on the computer's floppy disk.

- 1450 Includes 6 fonts and encoder, should have optional BC-200 power supply \$3995.00
- 1480 Same as 1450 but has a remote disk drive \$5295.00

Options and Accessories

- BC-200 Tripp Lite uninterruptible power supply, 200W, for 1450 \$ 400.00
- 1401 Optional font set. 400.00
- 1402 Optional international font set 400.00
- 1403 Any 6-font set, select any 6 from library. 600.00
- 1420 Rackmount, with slide. 120.00
- 1422 Computer interface kit (1450 only) 200.00
- 1482 Upgrade existing 1450 to 1480 1300.00
- 1484 Upgrade 1450 with existing PC to 1480 600.00
- 1486 Upgrade 1450 with existing PC and RS-422 card to 1480 500.00

CG-7000/ES and CG-7000Y/C

Color Character Generators

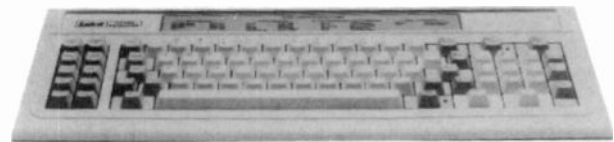
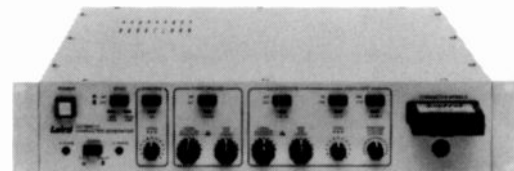
• Vertical scroll in 4 speeds • Full editing capability • Optional remote control gives random access to first 15 pages or manual sequencing through all pages • Flashing effect available on any character, word, line or page • Drop shadow any quadrant and surround edge, with 0-100 IRE shadow level control • Characters can be filled in by an external video signal. Allows multicolored or special texturing effects • Key output permits interface to any SEG • Text will only appear within SMPTE safe title area • Special highlight window can surround any line; can be colored • Main unit will auto start and run without keyboard. Permits text to be programmed in advance and run later at trade shows, meetings, point-of-purchase displays, etc. • Internal battery protects memory up to 3 years • Automatic bypass of video during power loss • Will automatically switch to internal sync if genlock source is lost • Crystal controlled sync generator • 80 pages or 12,160 characters of memory space • Proportional spacing • Optional rackmount with slide for main unit • 13 optional fonts • Auto page sequence in 4 speeds • Auto sequence of all lines on all pages at any screen position in 4 speeds, replaces horizontal crawl • Automatic line centering • Insert and delete a line • Automatic page centering • Copy a line • Copy a page • Move a page • Program pages to display in any desired order prior to scrolling, auto paging or auto lining • Pause or freeze text in place when scrolling, auto paging or auto lining • Random page access

The CG-7000Y/C is the same as the CG-7000/ES, except that it is fully Y/C compatible. The CG-7000Y/C has a Y/C-3.58 dual input, built-in Y/C channel keys and Y/C-3.58 dual outputs. The unit also has composite NTSC program and preview outputs.

- CG-7000/ES NTSC output only \$2295.00
- CG-7000Y/C Y/C, NTSC outputs 2495.00



1450



CG-7000/ES

Accessories

- 4-pack Any 4 from the following list may be purchased for the CG-7000 at this special price (maximum 1 each) \$400.00
- MM-1400 Memory module, for CG-7000ES and Y/C 120.00
- RM-5 Rackmount, with slide, for CG-7000ES and Y/C (older version, consult factory) 120.00
- RM-5-1 Rackmount, with slide, for CG-7000ES and Y/C (newer version, consult factory) 120.00
- RC-30 Optional remote control, for CG-7000 120.00
- ES-200 Optional enhanced software, for older CG-7000s 120.00
- FM-7601 Font module, similar to Helvetica Medium with graphics, shapes and symbols 120.00
- FM-7602 Font module, similar to City Medium with graphics, shapes and symbols 120.00
- FM-7603 Font module, similar to Helvetica Bold with graphics, shapes and symbols 120.00
- FM-7604 Font module, similar to Helvetica Medium with graphics, shapes and symbols 120.00
- FM-7605 Font module, similar to Helvetica Medium with Spanish text symbols 120.00
- FM-7606 Font module, similar to Stencil Bold 120.00
- FM-7607 Font module, similar to Dom Casual with graphics, shapes and symbols 120.00
- FM-7608 Font module, similar to Clarendon Bold with graphics, shapes and symbols 120.00
- FM-7609 Font module, similar to Helvetica Medium with French text symbols 120.00
- FM-7610 Font module, similar to Helvetica Medium with large graphics package 120.00
- FM-7611 Font module, similar to Helvetica Medium with Portuguese text symbols 120.00
- FM-7612 Font module, similar to Formula One with graphics, shapes and symbols 120.00
- FM-7613 Font module, similar to Peignot Medium with graphics, shapes and symbols 120.00
- FM-7614 Font module, similar to Helvetica Medium with Vietnamese text symbols. 120.00

CKM-4 Series Multi-Layer Keyers

CKM-4 Series keyers are all variations of a 4-input device which can be utilized in any post production suite no matter what type of production switcher is used. Each CKM-4 is a freestanding unit, requiring no modifications to your switcher or other production equipment.

The unique design of the CKM-4 Series allows 4 distinct layers to be generated by 4 separate keyers. Any combination of synchronous key sources may be stacked in any order. Inputs may be taken from any video source with or without associated key signals. Sources may include DVEs, still stores, character generators, paint systems, chroma keyers, cameras, VTRs, etc. It's like adding another M/E or more to your switcher.

In addition to its many uses with a production switcher, a CKM-4 Series keyer can be used as a stand-alone keyer/switcher/fader in conjunction with an editing system utilizing its built-in GPI control interface.

The layering proficiency of CKM-4 Series keyers offers distinct advantages over existing multiple-input keyers. Instead of just superimposing video signals, the upper layers cut a hole and fill over lower layers, not only in the background video, but in all video sources under the foreground. Thus, a true layering effect is achieved.

All CKM-4 Series keyers offer flexibility in changing layer priorities. Layers may be interchanged instantaneously by simply preselecting sources on the control panel and pressing the Take button. GPI contacts in parallel with the Take and Fade buttons allow the presets to be executed by an edit system or other external controller.

CKM-4 Series keyers will execute external keys from sources that provide a key signal and internal keys (self-key) from sources that provide only a video signal. The internal key is a luminance key with adjustable clip level. If desired, CKM-4s will execute 4 different self-keys at 1 time, including graphics on tape with a drop shadow, in any layer combination. All of these layers may be recorded with 1 pass of the videotape machine.

All CKM-4 Series keyers are extremely versatile and easy to operate. The control panels contain 4 sets of illuminated switches, each of which represents 1 of the 4 priority levels within the key "stack" (background, mid-back, mid-fore and foreground). The switches within each set represent the 4 input channels, permitting any of the inputs to be assigned to each level. When steadily illuminated, these buttons indicate the active input on each layer. When a new input selection is preset by pushing 1 of the buttons, that button will flash until the preset is executed by pushing the Take button. 4 clip level adjustments on the panel allow the key level to be adjusted on each of the inputs.

The control panel is available in 3 package configurations for rack-mounting, desktop mounting or for installation in a GVG-style accessory bridge. Each control panel is supplied with a 25' cable for connection to the CKM-4 chassis.

CKM-4A

The CKM-4A is the basic model of the series for use in composite video (NTSC or PAL) systems.

The CKM-4A can be installed with any production switcher, either into the external key input (upstream) or into the downstream keyer—or both.

When used in an upstream application, the CKM-4A feeds a composite key/video signal into the switcher's built-in keyer consisting of a background signal with as many as 4 inserts keyed into it before the effects from the switcher are added. In downstream operation, the CKM-4A provides up to 4 different key sources inserted over the switcher background.



CKM-4

CKM-4DB

Designed for freestanding use either on its own or downstream from the production switcher, the CKM-4DB is essentially 2 CKM-4A systems in a single package, permitting variable-rate dissolves from 1 key "stack" setup to another. An internal color black signal is provided for fade-to-black capability. A 2-digit thumbwheel selector on the control panel allows selection of dissolve/fade rates from 0 to 99 frames.

Component Configurations

Component versions of both the CKM-4A and the CKM-4DB are available for use in 2-channel (Y-C) or 3-channel (RGB, Y-I-Q or Y-U-V) systems. Component versions are packaged in a 2 rack unit (3.5") chassis.

Composite Keyers

- CKM-4A** 4-input, 4-layer keyer with blank front panel on 1 3/4" rackmountable electronics. Includes choice of control panel from list below \$3795.00
- CKM-4DB** 4-input, 4-layer keyer plus: fades keys on or off, dissolves keys from 1 state to any other state (including in-between layers), 0 to 99 frame adjustable rate master fade to black. System also includes preview video output. Includes choice of control panel from list below \$5995.00

Component Keyers

- CKM-4CA** Full component, 4-input, 4-layer keyer with blank front panel on 3 1/2" rackmountable electronics. Most inputs are supplied as loopthrough. Includes choice of control panel from list below. \$5895.00
- CKM-4CDB** Full component, 4-input, 4-layer keyer plus: fades keys on and off, dissolves keys from 1 state to any other state (including in-between layers), 0 to 99 frame adjustable rate master fade to black. System also includes preview video output. Includes choice of control panel from list below. \$9395.00

Control Panels

- FPR-1** Control panel, 1 3/4" x 19" front panel, electronic chassis or remote mountable. Includes 25' cable. Not for 3 1/2" component version chassis. . . . \$595.00*
- DTR-1** Control panel, 6" x 8" desktop remote control. Includes 25' cable \$595.00*
- BDR-1** Control panel, 4" x 5" GVG bridge drop-in remote control. Includes 25' cable \$595.00*
- CC 25-25** Additional 25' remote extension cable for above \$75.00

*Price for replacement panels.

Note: Purchase of all composite and component keyers includes choice of control panel.

All systems operate to NTSC or PAL standards. Strappable 117VAC/50-60Hz or 234VAC/50-60Hz.

TEST EQUIPMENT

LEADER
FOR PROFESSIONALS WHO KNOW
THE DIFFERENCE

HALF-RACK WIDTH VIDEO MEASUREMENT

5870 Combination Waveform Monitor, Vectorscope and SCH Display

- SCH, line number, field and all display
- Up to 9 points of fields and line numbers can be preset in memory for recall
- All front-panel switches can be remotely controlled
- Dual-channel display function
- DP and DG can be easily measured through a one-touch operation
- An RGB and YRGB parade display function is provided
- Can use a supply voltage of 85-264VAC and 48-440Hz or 11-20VDC without switching

The 5870 is a unique TV signal measurement monitor that integrates a waveform monitor with a vectorscope in one body, and has a built-in SCH phase measurement circuit. Waveforms and vectors can be independently or simultaneously displayed on a single CRT by operating the provided electronic switches (this feature is only available for horizontal time limit display). In addition, this equipment has a built-in SCH phase numerical measuring function for video editing. The phase variations of jitter are also displayed with the waveform. Furthermore, a full-line selector function is installed for reading the field and line number on the CRT. As a result, the 5870 is very useful not only in observing the blanking time intervals for VITS, VIR, character broadcasting and ITS, but also in checking the various characteristics of video camera resolution.

5870 NTSC\$4995.00
5871 PAL7995.00
5872 NTSC without SCH and full line select3795.00

5130 NTSC Color Monitor

The 5130 is a half-rack color picture monitor designed to make more efficient use of rack space. It fits into the space made vacant by the use of combination waveform monitor/vectorscopes such as the 5870 or 5872. Underscanned operation is standard, and remote control of selected function is available. The 5130 has dual video inputs and external sync drive and operates from both AC power mains or 12VDC (battery or vehicle) power.

5130\$1495.00

5860C Series Waveform Monitors

The 5860C is an economical half-rack Waveform Monitor. The unit has an internal graticule and a 7kV (16kV "H" model) accelerating potential for bright, easy-to-read displays. Total RGB and YRGB (optional) capability is available and horizontal sweep speeds of 2H (2 lines), 1 μ s/div (expanded 2 lines), 2V (2 fields) and 2V Mag (expanded 2 fields) are standard. The LBO-5860H Waveform Monitor offers all these features in addition to allowing the Vertical Internal Test and Reference signals to be displayed by a front panel line selector. Lines 7 through 21 can be selected from field one or two without interference from the active portion of the video signal. The instrument also has a blanking output to blank the companion Vectorscope during the active portion of the video signal, allowing differential gain and phase measurements to be accomplished easily. The LBO-5860H/C are half-rackmountable and can be mounted side by side with the 5850B Vectorscope. The LBO-5860H is also available in a PAL/SECAM version as the 5861V. The LBO-5865 features all the above features plus full line select capability with LED numerical readout.

5860C NTSC\$1850.00
LBO-5860H NTSC (lines 7-21 line select)1995.00
5861V PAL2675.00
LBO-5865 NTSC (full line select)2745.00

5850C/5851V Vectorscopes

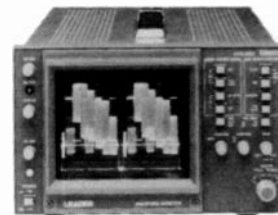
The 5850C Vectorscope provides a convenient method for observing and measuring the relative phase and amplitude of chrominance signal components. It utilizes a unique technique which electronically displays the "inner boxes" which represent error limits of $\pm 2.5^\circ$ and ± 2.5 IRE units. The 5850C includes three loopthrough inputs including a dedicated external subcarrier reference input which is front panel



5870



5860C



5850C



5100

selectable. Either of the two composite video loopthrough inputs can also be selected as the reference signal and all three inputs can be displayed individually. The unit is also equipped with a Z-axis blanking input to provide blanking during the active portion of the video signal and unblanking during the VITS signal for a stable, jitter-free display. A test circle pattern is also selectable for a quick calibration check of the instrument. A gain control, with a detented calibrated position, provides for continuous amplitude adjustment. A phase control permits rotating the display through 360°. The 5850C is supplied in a protective carrying case or in a half-rack width configuration.

5850C NTSC\$1995.00
5851V PAL2750.00

5100 Component/HDTV Waveform Monitor

Designed to provide convenient and precise video system measurements for component, PAL, NTSC composite and HDTV (1125/60) signals, the 5100 features overlaid display of 4 signals such as Y, R-Y, B-Y and composite as well as parade displays of 3 channels. Also featured is a vector display of color difference or RGB signals and display of the unique "shark fin" signal developed by Leader (Model 425) to provide a high-resolution relative timing reading over a wide band of frequencies. The unit also features full raster line select for 525/60/625/50 and 1125/60 signals and provides 4-channel output (3 trans-coded to RGB from Y, R-Y, B-Y for 525/60 systems). Cursor operation aids in level measurements and in presetting measured parameters to specified values. And the switching mode power supply adjusts automatically to a very wide range of AC line voltages and frequencies, as well as DC from 12VDC battery or vehicle supplies.

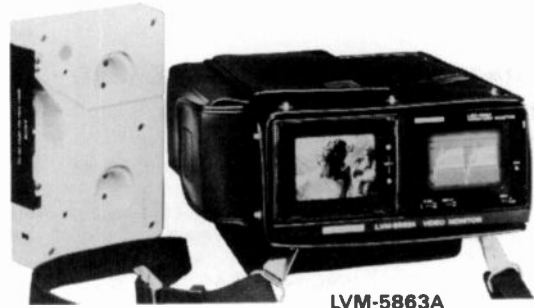
5100\$3800.00

**QUARTER-RACK WIDTH
VIDEO/AUDIO MEASUREMENT**

LVM-5863A EFP/ENG Monitor

• Combination color monitor/audio monitor/waveform monitor • Perfect for EFP/ENG crews • Full monitoring capabilities for video camera, VCRs and audio recorders • Confidence tests camera and VCR performance • Operates from 12VDC NP-1 batteries • IRE filter • Size: 3 1/2" H x 8" W x 10 1/4" D • Lightweight—only 8 lbs. • Full-color NTSC and 2H and 2V waveform displays • Soft carrying case with hood and shoulder strap

The LVM-5863A Monitor has full monitoring capabilities for video cameras, VCRs and audio recorders. Its 2H/2V waveform monitor provides the most useful displays an operator can have. A switchable IRE filter facilitates lens-opening checks. The 1V/0.25V selector acts as a 4X magnifier to simplify setup level and black-balance checks. It makes field productions as technically and artistically correct as they can be.
LVM-5863A \$2195.00



LVM-5863A

5854 EFP/ENG Vectorscope

• NP-1 or BP-90 battery is used • Built-in battery check function to blink the pilot lamp when power voltage drops (+ 10.5V or less) • A and B input connectors • Input sensitivity is selectable from either CAL or Variable • Horizontal synchronization is selectable from either A or B on the front panel • Phase control on the front panel • 75mm rectangular internal graticule CRT • Loophrough type BNC input connectors

The 5854 is the same size as the 5864A Waveform Monitor and the LCG-413 Pattern Generator, so it can share various attachments. This feature lets you make your own system according to your application.

This vectorscope displays the chrominance component (amplitude and phase) on the CRT. It demodulates the chrominance component and then displays the chrominance in vector field for measuring the phase and amplitude to the burst signals in each chrominance component.

5854 \$1495.00



5854

5864A Dual Input EFP/ENG Waveform Monitor

• Battery powered • 2H, 2V, 2H Mag and 2V Mag time bases • Accelerating potential 1.5kV • 2 loophrough input terminals (A or B switchable) on rear panel • Switchable IRE filter facilitates lens opening checks • 1V/0.25V selector acts as a 4X magnifier to simplify setup level and black balance checks

5864A \$1395.00



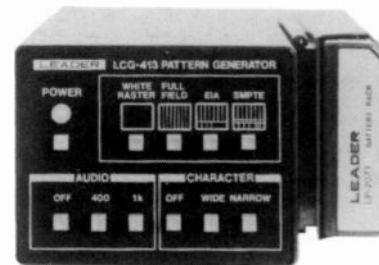
5864A

LCG-413 Video Pattern/Audio Tone Generator

• SMPTE color bar, EIA, full field, white raster • 400Hz/1kHz audio signal (XLR) • Battery operated • 4 alphanumeric character display • Character width can be set to narrow or wide

Checking and distinguishing numerous productions transmitted by the various stations during field television broadcasting can prove to be a difficult task. This is where the LCG-413 takes action. Easy circuit identification has been made possible by the character display of 4 alphanumeric characters that are output on the standard color bar. Compact and lightweight, the LCG-413 is capable of operating effectively on an NP-1 battery.

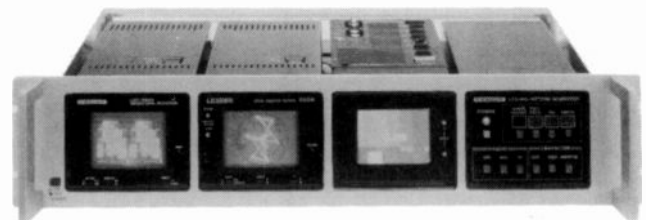
LCG-413 \$1455.00



LCG-413

**Accessories for EFP/Quarter-Rack
Video/Audio Test Equipment**

- LR-2451-011 Rackmount cabinet holds up to 4 quarter-rack type devices \$225.00
- LA-2019 Joint panel permits the physical connection between 2 quarter-rack type devices \$25.00
- LA-2020 Battery attachment holds LP-2071 battery on side of quarter-rack type device \$75.00



LR-2451-011

MIXER/WIRELESS MICROPHONE SYSTEMS



AS 100 Powered Automatic Mixer/Equalizer

The AS100 includes an integrated equalizer and 100W power amplifier in a single package. The AS100 has 6 input channels which will accept either mic or line level signals and is an ideal choice for smaller churches, conference rooms and other installations requiring an affordable automatic mixing system.

The equalizer is a constant-Q attenuation only type. The constant-Q attenuation minimizes adjacent band interaction, and the filter bandpass characteristics stay substantially the same for all attenuation levels. A variable low frequency rolloff (20Hz-300Hz) is also part of the AS100 equalization. 10 bands of 1/3 octave filters are included in the 315Hz-2.5kHz region to allow precise equalization of the voice band. In addition, 1 octave filters at 5kHz and 10kHz permit shaping the system response above the voice band.

The AS100 includes an automatic ambient threshold sensing circuit (switchable to manual) which eliminates the need to adjust for varying background noise conditions. This makes the initial setup of the AS100 quick and simple. In addition, a Last Mic Hold function is included to prevent audible "breathing" during pauses in speech, which is so common in other automatic mixers. With Last Mic Hold in the on position, the last active microphone is held on until another microphone becomes active. In this way, much better performance is achieved in situations where there are soft talkers, or talkers who turn away from the microphone.

Each channel may be jumpered either "pre-EQ" or "post-EQ" to facilitate both microphones and recorded music. The microphone channels may be jumpered pre-EQ to allow house equalization. The channel which is used for recorded music (or other line sources) may be jumpered post-EQ to permit full frequency sound reproduction. The volume of each channel and the main audio output may be controlled remotely by means of external linear potentiometers. A line output is provided for auxiliary feed or tape recording. A 70V output for distributed speaker systems is available as a factory option \$2995.00

M170 Freedomike® VHF Transmitters

• Compressor type input suppresses overload distortion • Crystal controlled oscillator prevents transmission drift • Offered in 5 versions: M170 with single locking micro jack for electret lavalier mic, and M170LS with audio mute switch, M170-XLR with multiple jacks including XLR for handheld mics, M170-BGO with necktrap and push-to-talk switch and M170-CTM boundary type table mic built in solid walnut • Compander noise reduction • 150 to 216MHz operating frequency range

- M170 Lavalier (locking microjack) \$260.00
- M170-LS With audio mute switch 275.00
- M170-XLR Locking micro and XLR jacks 280.00
- M170-BGO "Bingo" style with plug-in mic, push to talk switch and integral neck cord. 360.00
- M170-CTM Conference table mic/transmitter. 600.00

M185 VHF Pro Series Transmitter

• Matches any mic or audio source • LED input level indicator with adjustment • LED battery level indicator (9VDC) • "Soft" compressor cleanly limits audio input signals • Compander noise reduction • 150 to 216MHz operating frequency range \$550.00

M119/M140 Electret Lavalier Microphones

• XLR, mini, locking-micro and 5-pin TA5F connectors available • Includes wind-screen and tie clip

The M119 is an omni-directional model ideal for use in windy or indoor conditions and has no "proximity effect." The M140 has "brighter" frequency response and is recommended for indoor applications.

- M119 Omni-directional with 5-pin plug \$140.00
- M140 Directional with 5-pin plug 140.00

H185 "Plug-On" Transmitter

• Plugs into the XLR jack of any handheld mic • Flat frequency response preserves the characteristics of mic used • LED input level indicator with adjustment • "Soft" compressor audio limiting • 150 to 216MHz operating range \$550.00

R170 Freedomike VHF Receiver

• Crystal controlled frequency eliminates drift • Compander noise reduction • 150 to 216MHz operating frequency range • Unique audio input allows "stacking" of receivers to allow mixing of receivers without audio mixer • XLR (200 ohms bal.), 1/4" phone (600 ohms bal.), RCA (1K ohm unbal.) audio input jacks • Antenna, AC power supply included \$600.00

CR170 Freedomike VHF Compact Receiver

• Compact (1" x 3" x 4 1/2") and light weight (9 1/2 oz.) • Powered by 9VDC battery, AC adaptor, ext. 12VDC from camcorder, etc. • Audio output level adjustment • Compander noise reduction • 150 to 216MHz operating frequency range • Antenna, padded vinyl pouch included \$600.00



M170-XLR

M185 Shown With the M140 Lavalier Microphone



H185

R170



CR170

RMP-3 Rackmount System

• Permits 3 receivers to be mounted in single chassis for 19" rack mounting \$180.00

Performer XR Series Systems

- XR STD-L R170 receiver with M185 transmitter, includes lavalier microphone. \$1150.00
- XR STD-H R170 receiver with H185 plug-on transmitter 1150.00
- XR MINI-L CR170 receiver with M185 transmitter, includes lavalier microphone. 1150.00
- XR MINI-H CR170 receiver with H185 plug-on transmitter 1150.00

170 Series High Band Systems

- 170 STD-L R170 receiver with M170 lavalier style transmitter. With M140 microphone \$895.00
- 170 STD-XLR R170 receiver with M170-XLR plug-on style transmitter. With M140 microphone 895.00
- 170 MINI-L CR170 receiver with M170 lavalier style transmitter. With M119 microphone. 895.00
- 170 MINI-XLR CR170 receiver with M170-XLR plug-on transmitter. With M119 microphone. 895.00
- 170 MINI-AC SR170AC receiver with M170 lavalier style transmitter. With M140 microphone 399.00

All 170 series standard or miniature systems include an M119 or M140 lavalier microphone.

TCD-RT Event Controller

• Controls up to 64 tape machines, 4 functions each machine, through the use of coax bus deck interfaces • Coax bus control of up to 64 switcher destinations (any combination of 10 x 1 switchers and/or routing switchers) • Coax bus control of up to 32 CGs • Coax bus control of up to 32 video floppy disk players • Easy to program, prompts users with messages instead of codes and flashing numbers • Powerful internal event management functions • Modem capability (requires external modem, cable and remote computer software) • Using only 1 event, you can start a tape machine, delay ("Auto-Take") and then switch the machine to 1 or more destinations • 16 opto-isolated GPI outputs (optional relay or open collector configuration) • Bright, easy-to-read VFD display • Coax bus control is easy to cable using standard BNC video cables • Long life battery-backed event memory • Battery-backed real time clock • Processor watchdog protects event data • Can be programmed for up to 250 multi-function events—each occurring up to 7 times per week • Event listing/logger

The TCD-RT can control playback systems, satellite recording, character generators, etc. Unlike standard timers which rely on GPI outputs for controlling equipment, the TCD-RT communicates directly with tape machines, switchers, video floppy disk players and character generators. Besides direct control capability, it features 16 GPI outputs.

Your TCD-RT system is easily tied together by a coax bus system. The coax bus system runs a single line from the TCD-RT to your tape machines, switchers, video floppy disk players and character generators, looping from 1 interface to the next and eliminating the stringing of cables from each piece of equipment back to the controller.

Programming the system is easy. "Plain English" prompts and menus give the user step-by-step assistance. System parameters can be entered at the time of installation. Once they have been programmed, the TCD-RT will automatically perform all programmed events.

TCD-RT Version 3 \$2995.00

TCD Options

TC2PRINTER Dot matrix listing/logger printer \$299.00
TC2EM Event Manager software (Version 4.10) 500.00
 Includes: 25-pin adaptor, 9-pin to 25-pin adaptor, 3.5" 720K and 5.25" 380K format diskettes

Note: TC2EM Event Manager software requires an IBM PC, AT or compatible computer with at least 1 5.25" or 3.5" disk drive, 512K RAM and an RS-232 interface addressed as COM1: or COM2:. Modem operation requires an internal or external 2400 baud modem for the PC and an external modem at the TCD-RT site. Each copy of the TC2EM software is keyed to operate with a specific TCD-RT.

TC2IMODEM 2400 baud internal modem PC host \$299.00
TC2EMODEM 2400 baud external modem for TCD-RT. 299.00
TC2RELAY GPI relay (1 needed per GPI output). 5.00

TCD Character Generator Interface

TC2CG7SC Control for Laird/ICM CG-7000. \$250.00

TCD Video Floppy Interface

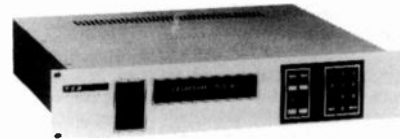
TC2PVFI Interface for Panasonic AG-800 or AG-ES100 \$350.00

TCD 10 x 1 Switcher Control Interfaces

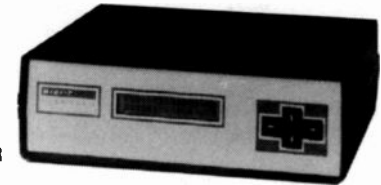
TC2XL Grass Valley TEN-XL 10 x 1 \$250.00
TC2XS Grass Valley TEN-X 10 x 1 250.00
TC2MC Pesa/3M Mincom 101 10 x 1 250.00
TC2VT Videotek RS-10ARC-LSW 10 x 1 280.00
TC2SM Sigma SAV-210 10 x 1 250.00
 (requires EX-210 in switcher)
TC2SW Panasonic AG-SW100 10 x 1 250.00
TC2IS Intergroup/ISI 982 10 x 1 300.00
-VV (suffix) Valid video option for above interfaces 150.00

TCD-RT Routing Switcher Interfaces

TC2S10SC Dynair Series-10 10 x 10 \$750.00
TC2DY21 Dynair Dynasty System 21 250 x 64 750.00
TC23MSC Pesa/3M router with 6X00 controller. 64 x 64 750.00



TCD-RT



Mini-T-IR

TC2ACE	ACE VX-164	16 x 4	\$400.00
TC2SVS8X	Sierra Series 8	8 x 8, 8 x 16	500.00
TC215X	Pesa/3M 15X router	15 x 6	350.00
	(price per output)		
TC2HD101	Hedco HD-16 with SCE-101	16 x 16	750.00
TC2HD12	Hedco HD-12	12 x 12	750.00
TC2BTS	BTS (Bosch) routers.		750.00
TC2GV20	Grass Valley TEN-20	10 x 20	750.00
TC2P162	Pesa 162	16 x 2	750.00
TC2US	Utah Scientific AVS-2	250 x 64	750.00

Mini-T-IR Event Controller

• 64 user-programmable events with multi-day selection • Battery-backed clock and event memory • 4 independent output channels with 2 deck functions per channel (example: play, rewind) • 2-line alphanumeric LCD display • Easy-to-understand prompts and menus • 4-key programming of the following functions: event programming, editing programmed events, setting real-time clock, forcing an immediate event, setting auto-take times for automatic switcher control, manual switching of internal switcher to another input

Using the Mini-T-IR to control your equipment allows routine tasks to be performed automatically and on time, even when no personnel are on hand. Although primarily designed to facilitate automatic playback, the Mini-T-IR can be used for off-air recording, automatic modulator input-switching, channel blackout and many other automated operations.

The Mini-T-IR offers a 5-input video/audio switcher, 4 video tape deck control outputs and a microprocessor-based real time controller capable of handling up to 64 programmed events. The Mini-T-IR also offers flexibility of event programming with options allowing an event to be programmed for all days, Monday-Friday, Saturday and Sunday or any single day. Event programming can also control any of the 4 tape decks or directly control the internal switcher. This programming flexibility offers you over 400 automatic operations weekly.

Easy-to-understand prompts and menus simplify the Mini-T-IR's programming. While in the Program mode, events can be entered, edited, cleared and viewed with minimal keystrokes. Setting an event is as simple as selecting the day, the time, the machine to be controlled and the machine's function. An event can also be programmed to directly control the internal 5 x 1 switcher.

MINI-T	64 events, 4 outputs, no switcher	\$495.00
MINI-T-IR	Mini-T with internal 5 x 1 V/A router	695.00
MINI-T-XR-V-10	Mini-T with control for Videotek RS-10ARC-LSW	695.00
MINI-T-XR-M-10	Mini-T with control for Mincom 101	695.00
MINI-T-XR-S-10	Mini-T with control for Sigma SAV-210 with EX-210	695.00
MINI-T-XR-G-10	Mini-T with control for Grass Valley TEN-XL	695.00
MINI-T-XR-P-10	Mini-T with control for Panasonic AG-SW100	695.00

Mini-T Options

MTCG-06 Control option for Laird/ICM CG-7000 . . . \$100.00
MTRACK Rackmount for any Mini-T 110.00
MTRelay Relay conversion box for 1 output 75.00
MTPS1 Mini-T power supply 9VDC @ 1A. 20.00

CLOCK SYSTEMS



CSD-5300 Master Clock System Driver

Serves as master, submaster or slave. Telephone interface for automatic time checks. RS-232 interface for remote programming and computer reference. Outputs include SMPTE time code, impulse, parallel BCD and more.

CSD-5300	.....	\$4265.00
5300CD	12V impulse driver	220.00
5300MB	Modem board	515.00
5300RI	Reference interface	500.00
5300ME	Module extender	150.00
100ME	Module extender	65.00
	Extra instruction manual	65.00



CSD-5300

CDD-5400 Clock Distribution Driver

The CDD-5400 not only increases the impulse clock load capacity of your Master Clock System driver, it also provides load isolation and overload protection. The compact, 1RU mounting frame comes with a plug-in power supply and will accept 1 or 2 distribution driver modules, depending on your expansion or distribution requirements. LED status indicators and fault alarms keep you informed. Also features power backup and rear panel connections.

CCD-5400	Includes 1 5400ID impulse driver	\$1615.00
5400ID	Second impulse driver	830.00
1101ME	Module extender	160.00
	Extra instruction manual	65.00



DTD-5203

CDA-5500 Clock Driver Autochange

• Autochange for 2 CSD-5300 Master Clock System Drivers • Compatible with CSD-510 Master Clock System Drivers • Switches impulse drive, time code, RS-232 and telephone line • Accepts external 24VDC standby power

CDA-5500	Includes 5500CS cable set	\$2155.00
5500TS	Telephone switch	295.00
1101ME	Module extender	160.00
101ME	Module extender	65.00
	Extra instruction manual	65.00

UDT-5700 Production Up/Down Timer

Fully programmable, 2-channel up/down timer for production and control applications. Each channel is completely independent, and may display either hours:minutes:seconds or minutes:seconds:frames.

Single seconds or frames may be added to or subtracted from a running sequence with 1 keystroke. Time segments may also be added or subtracted on the fly, using the time calculator features. 10 programmable "softkeys" allow instant access to common time sequences. A simple operator interface permits a sequence to be entered while the current 1 is running. Additionally, time sequences may be queued, permitting multiple timing sequences to be chained together without interruption.

The UDT-5700 provides 5 GPI inputs, as well as an RS-232 or RS-422 port, allowing access to any function via remote terminal, host computer or other equipment, and 4 GPI outputs for controlling other devices. Other features include leading zero blanking, drop frame timing, brightness control, built-in diagnostics and a stopwatch-style of operation that is easy to use and configure for limitless applications.

UDT-5700	.....	\$995.00
	Extra instruction manual	40.00

DTD-5200 Series Digital Time/Date Displays

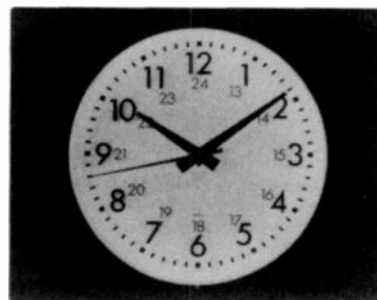
The DTD-5200 Series are microprocessor controlled devices and accept standard serial time code in SMPTE or EBU format. No input selection or switching is needed for either type of code. The decoded signal drives a 6-digit, 7-segment real time (time of day) display in hours, minutes and seconds (HH:MM:SS). Either the 24-hour format or the 12-hour format with AM/PM indication can be selected.

The time displays are available in rackmount, console mount or desktop versions. Readout digits are 0.8" H. The brightness of the readout can be set to 1 of 4 levels with a rear panel DIP switch.

The time display units are compatible with a user-defined time offset when driven from the CSD-5300N Clock System Driver.

1 instruction manual is supplied with each shipment. Optional, genuine hand-rubbed oak wood frames available for most clock models.

DTD-5200	Time/date display	\$ 920.00
DTD-5201	Time/date display with parallel BCD output	995.00
DTD-5202	Time/date display with DQC output	1300.00
DTD-5203	Dual time/date display	1840.00
DTD-5210	Desktop version of the DTD-5200	920.00
DTD-5220	2.25" LED readout display	1300.00
	Extra instruction manual for the 5200 Series	40.00



DAC-5012

DAC-5000 Series Analog Clocks

The DAC-5000 Series clocks are designed to combine the advantages of large, easily understood analog time displays and the self-setting capability of digital SMPTE/EBU serial time code readers. This advanced automation is made possible by a unique, digitally controlled drive mechanism. A microprocessor is used to decode the digital time code information and precisely position each hand via 3 independent motors.

DAC-5005	Digital analog clock 5" desktop	\$695.00
DAC-5006	Digital analog clock 5" rackmount	655.00
DAC-5008	Digital analog clock 8" wall mount	695.00
DAC-5012	Digital analog clock 12" wall mount	695.00
DAC-5016	Digital analog clock 18" wall mount	795.00
RM-5008	Rackmount panel for the DAC-5008	65.00
RM-5012	Rackmount panel for the DAC-5012	65.00
RM-5016	Rackmount panel for the DAC-5016	65.00
WM-5012	Dual wall and ceiling mount kit for 2 DAC 5012s	105.00
	Extra instruction manual	45.00

VCD-5600 Video Character Display

• Keys SMPTE/EBU time code (HH:MM:SS) into program video • Simultaneous display of time and text • 3 character sizes • RS-232/422 input • Time window can contain EEPROM-stored source id

The VCD-5600 is a 1RU, stand-alone device, designed to key SMPTE/EBU time code derived real time (HH:MM:SS) into program video. No input selection or switching is needed for either type of code. Time can be displayed in 12-hour format with AM/PM indication, or in 24-hour format. Local time-offset can be added in 30 minute increments. The unit is also compatible with a user-defined auxiliary offset when it is driven from the CSD-5300 Clock System Driver. A second line under the time numerals can be used for source identification. The characters appear white on program background or on a black matte. The time/ident window can be positioned anywhere in the picture area.

VCD-5600	.....	\$1990.00
5600CD	Second character display	950.00
1101ME	Module extender	160.00
	Extra instruction manual	40.00

Prompter Displays

A-4175 9" Displaybox EL Flat Screen Ultra-Lightweight Studio/Field Display—110VAC/12VDC operation. For mounting above or below the lens. Weighs 9 lbs. \$3800.00

A-4250 Shoebox Prompter for Field Use—110VAC/12VDC operation. Features bright 4" monitor for palm-of-the-hand prompting or with mirror/hood assembly for camera mounting. Complete with scan reversal switch. Weighs 1 lb. (4 lbs. with hood assembly). \$1795.00

A-2009 9" Portable/Studio Prompter—110VAC/12VDC operation. With fold-up mirror and hood assembly and easy-mount hardware. Weighs 17 lbs. \$1995.00

A-2012P 12" Portable/Studio Prompter—110VAC/12VDC operation. With fold-up mirror and hood assembly and easy-mount hardware. Weighs 27 lbs. \$2100.00

A-2012CCD 12" Lightweight Studio Prompter for CCD/ENG Cameras—110VAC/12VDC operation. With easy-mount hardware including (1) 10 lb. counterbalance weight and 3" riser block. Weighs 42 lbs. \$2175.00

A-2012 12" Lightweight Studio Prompter for Full-Size Cameras—110VAC/12VDC operation. With easy-mount hardware to suit any camera complement. For mounting monitor above the lens, specify A-2012EFP. Weighs 32 lbs. \$2100.00

A-2013CCD 13" Color Studio Prompter for CCD/ENG Cameras—NTSC color monitor modified for prompting. Complete with mirror and hood assembly. Features easy-mount hardware including (1) 10 lb. counterbalance weight and riser block. Weighs 46 lbs. \$2575.00

A-2015CCD 15" Studio Prompter for CCD/ENG Cameras—Lightweight with easy-mount hardware including (1) 10 lb. counterbalance weight and 3" riser block. Weighs 47 lbs. \$2275.00

A-2015 15" Studio Prompter for Full-Size Cameras—Lightweight with easy-mount hardware to suit any camera complement. Cut-away design allows maximum tilt. For mounting monitor above the lens, specify A-2015EFP. Weighs 38 lbs. \$2200.00

A-2015FS 15" Studio Prompter for Full-Size Cameras, Recommended for Robotic Use—Includes special 32" offset plate with fixed mounting bracket to monitor case. Cut-away design allows maximum tilt. Weighs 43 lbs. \$2375.00

Note: Whenever the television camera features a large zoom lens with a wide angle (16mm focal length for 1 1/4" tubes—12mm or less on 1" tubes), an oversized mirror and hood assembly should be specified by adding "W" to the Item Number.

A-2012SA 12" Stand-Alone Prompter—110VAC/12VDC operation. With monitor, mirror and hood assembly mounted on roll-around dolly. Recommended for use with lightweight cameras and pan and tilt heads. Weighs 49 lbs. \$2650.00

A-2015SA 15" Stand-Alone Prompter—With monitor, mirror and hood assembly mounted on roll-around dolly. Recommended for use with lightweight cameras and pan and tilt heads. Weighs 55 lbs. \$2750.00

A-2015CS 15" Executive Presidential Prompter—With floor mounted mirror in wood veneer case, mirror and microphone-type stand. Weighs 33 lbs. \$1675.00

Script Tables

A-2210 Short Drive Table—For continuous roll scripts. Complete with 2 1/3" Vidicon camera with lens, adjustable lighting and plug-in remote speed control. 110VAC. Weighs 20 lbs. \$3000.00

A-2215 Short Drive Table—As above, but with 12VDC input. Not including battery/charger. Weighs 20 lbs. \$3750.00

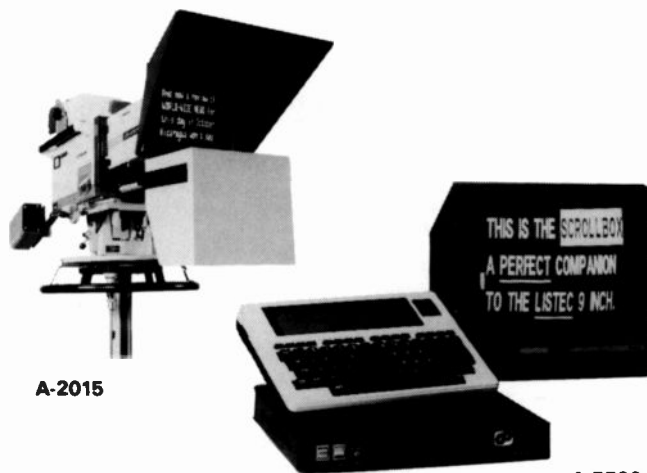
A-2201 Long Drive Table—For individual layout of 8 1/2" x 11" sheets. Includes 2 1/3" Vidicon camera with lens, lighting and plug-in remote speed control. Weighs 33 lbs. \$4150.00

Electronic Prompting

A-5500 Scrollbox Electronic Prompter—With 32K memory standard.* Accepts ASCII text files from serial or parallel port on host computer. Apple and PC compatible. Complete with hand control for smooth scroll, page forward/reverse. Includes AC power supply. Weighs 8 lbs. \$4295.00

***Note:** Scrollbox is upgradeable to 128K memory in 32K increments. Must be specified at the time order is placed.

A-5501 Scrollbox Plus Electronic Prompter—All features as above, but with the addition of the Scrollbox Plus Editor Program. Provides simultaneous on-air edit and prompt functions from PC compatible computers through serial connection. Weighs 8 lbs. \$5465.00



A-2015

A-5500

A-5000PC "Live" Electronic Prompter Interface Module—For use with PC compatible computers. Complete with Listec Split Screen Editor and ScrollControl providing story start, pause, next and previous recall. Weighs 14 lbs. \$5150.00

A-5000S Electronic Prompter Interface Module—With buffered story management capability. For use with any computer running standard word processing. Apple and PC compatible. Complete with ScrollControl providing story start, pause, next and previous recall. Weighs 15 lbs. \$5650.00

A-6000 Personal Prompter Software Systems for IBM Compatibles*

(Recommended for computers with 12MHz clock speed or better.)

A-6000/2 Software System for Laptop Computers With Provision for External EGA Monitor—Includes Gray Scaler and Serial Mouse. Requires serial port for operation of mouse. Provides separate edit and prompt functions in black and white \$2275.00

Note: With computer upgrade, this program will provide simultaneous edit and prompt functions.

A-6000/3 Software System for Desktop Computers With Mono Adaptor and Monitor—Includes EGA Card, Gray Scaler and Serial Mouse. Provides simultaneous edit and prompt in black and white. Requires 1 free slot in addition to that provided for the Mono Adaptor/Monitor and serial port for mouse \$2475.00

A-6000/4 Software System for Desktop Computers With Mono Adaptor and Monitor—Includes VGA-NTSC Card and Serial Mouse. Provides simultaneous editing in black and white and prompting in color or black and white. Requires 1 free slot in addition to that provided for the Mono Adaptor/Monitor and serial port for mouse. \$2995.00

A-6000/5 Software System for Desktop Computers With Color Monitor—Includes VGA-NTSC Card, Compatible Color Card and Serial Mouse. Provides simultaneous edit and prompt in full color or prompt in black and white. Requires 2 free slots for VGA and color cards in addition to serial port for mouse. Either an EGA or VGA monitor may be used for editing in color \$3500.00

A-6000/6 Software System for Laptop Computers With Provision for External VGA Monitor—Includes gray scaler with loophrough and serial mouse. Provides separate edit and prompt functions \$2475.00

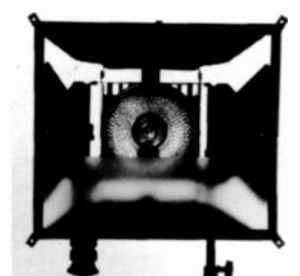
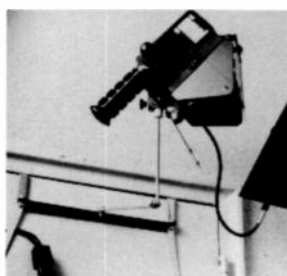
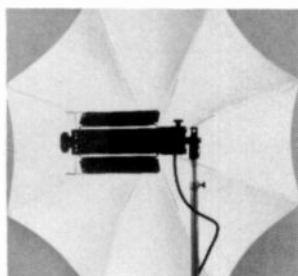
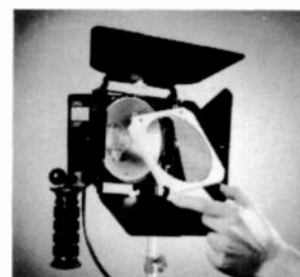
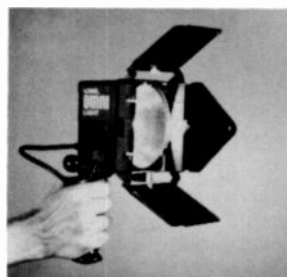
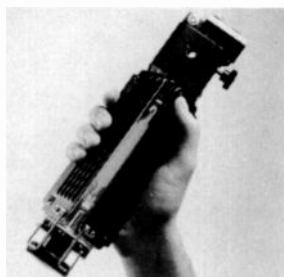
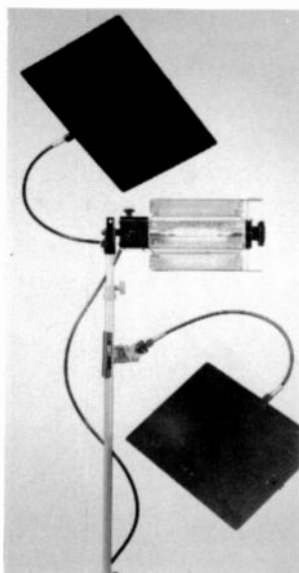
*All programs include key tag license.

Software Configurations

A-6000/1 Software Only, for Desktop or Laptop Computers—Provides simultaneous edit and prompt in black and white or color. Automatically provides functions based on hardware available. Requires appropriate video cards and accessories as per specifications \$2250.00

Note: Dependent on whether a single or dual card configuration is selected, this program will provide either simultaneous edit and prompt or separate edit or prompt facility.

A-6050 (Additional) Key Tag License—Allows A-6000 program to be run on second computer. Requires parallel port \$1125.00



TOTA-LIGHT

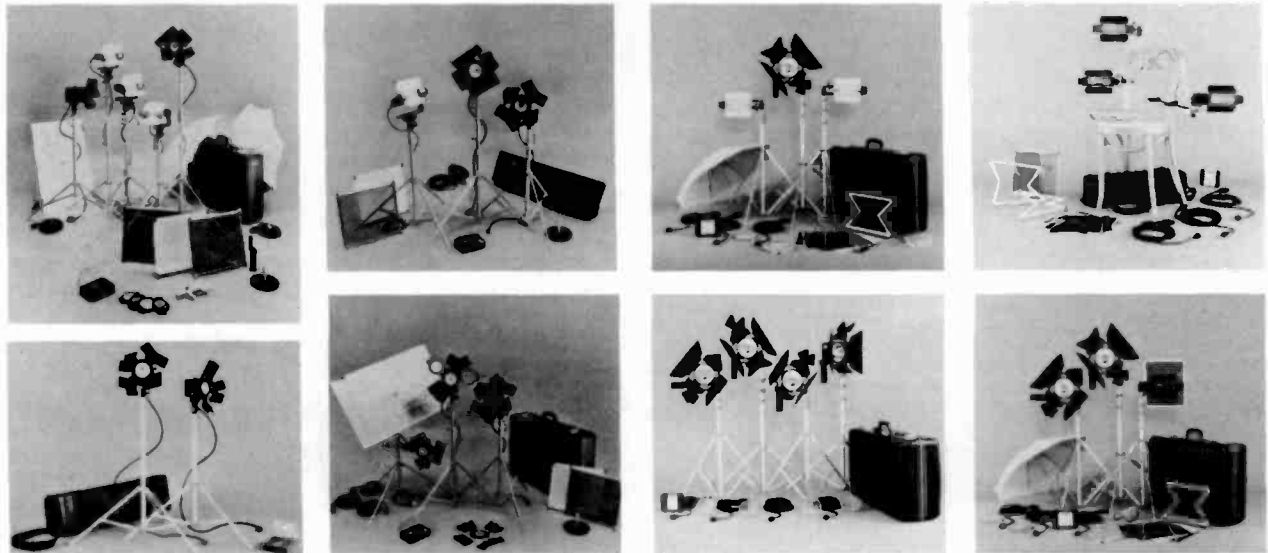
- Broad Source—120, 220/240v
- Exceptionally wide angle halogen source
- Gull-wing reflector produces smooth, efficient light pattern
- Watts: 750 & 500 at 120v; 800 at 220/240v
- Light controls: umbrella, gel-frame, flags, etc.
- Mounting System: stand, wall/door mount, clamps
- Protective front screen
- Closes compactly for storage and travel
- US Patent No. 3852582

OMNI-LIGHT

- Focusing—12, 30, 120, 220 & 240v
- Double parabolic, peened reflector
- Halogen Source
- Focus range: up to 10:1
- Watts: 600, 500, 420 at 120v; 650 at 220/240v; 250 at 30v (battery operation); 100 at 12v (car & battery operation)
- Quick-change high intensity reflector
- Light controls: expandable barn-doors, snoot, scrims, dichroic filter, diffuser, cookaloris . . .
- . . . And uses Tota accessories: umbrella, gel-frame, flags, etc.
- Mounting System: stand, clamps, wall/door mount, camera-top
- Protective front screen
- US Patent No. 4187531

	Light &	
T1-10	Tota-light	142.50
O1-10	Omni-light (standard)	165.00
O1-12	Omni-light 12v	170.00
O1-13	Omni-light 30v	185.00
	Light Controls	
T1-20	Tota-frame	27.00
	Gels (5)	13.50
T1-21	Tota-shade (1)	17.50
T1-24	Tota-shade (4)	58.50
T1-25	Tota-brella Standard/Silver	30.00
T1-26	Tota-brella Special/White	30.00
T1-34	Tota-tatch	14.50
T1-50	Flexi-shaft (2)	22.50
T1-52	Tota-flag	18.50
T1-54	Tota-flector	25.50
	Omni Reflectors	
O1-15	#1 Reflector	16.50
O1-16	#2 Reflector	16.50
O1-17	#3 Reflector	16.50
O1-18	#4 Reflector	16.50
T1-19	Tota-light Protective Screen	9.00
O1-19	Omni-light Protective Screen	9.00
	Omni Light Controls	
O1-20	Complete	
	Barndoor	59.50
O1-21	Barndoor Frame	32.50
O1-22	Rectangular Leaf	13.00
O1-23	Triangular Leaf	13.00
O1-50	Diffused Glass	33.50
O1-51	Dichroic Filter	89.50
O1-52	Clear Glass	31.50
O1-53	Snoot	38.50
O1-54	Full Scrim	15.00

O1-55	Half Scrim	15.00
O1-56	Graduated Scrim	18.00
O1-57	Cookaloris	17.00
	Mounts	
O1-33	Omni-stand	98.00
T1-30	Tota-clamp	22.50
T1-35	Tota-daptor	19.50
T1-32	Tota-mount	29.50
CM-20	Scissor-mount (2)	19.50
ViP-35S	Vipod with Stud-link	15.50
ViP-38	Stud-link	6.50
ViP-41S	Cam-link & Stud-link	11.50
ViP-43	Handle & Stud-link	15.50
CM-50	Safety Cable (3)	20.00



ViP Kits

Tota/Omni Kits

Name * All Lights & Kits (except for I-light) are sold without lamps		ViP Kits						Tota/Omni Kits					
		Easy V	Pro-visions	All Pro	Jet Set	Intro-kit	Far & Wide	Sophisti-kit	Tube Kit	Little-t-Kit	Trans-kit	T4	Action
Kit Code		V1-90	P1-92	P1-93	VP-97	VP-98	VP-95	VP-96	T1-90	T1-91	T1-92	T1-94	01-92
Lights In Kits	Pro (focusing)		2	3	1	2	2	2					
	V (broad)	2			2	1	2	3					
	Tota (broad)								2	3	3	4	
	Omni (focusing)												3
	DP (focusing)												
	Lowel-light (broad or spot)												
	Softlight 2 (super-soft)												
	Light-Array (super-soft)												
Option	Super spot ☉												
	Soft	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	
Reflector	Vari-flector												
Number of Accessories in Kits •	VIP Stand	2	2	3	3	3	4	5					
	Omni Stand								2		3	4	3
	KS Stand												
	Grand Stand												
	Light control	4	3	12	5	6	20	16	4	5	4	20	4
	Mounting			2	2	1	4	4		4		4	
Weight	Pounds	13	15	28	17	17	34	37	18	15	28	36.5	31
	Kilos	5.9	6.8	12.7	7.7	7.7	15.4	16.8	8.2	6.8	12.7	16.6	14.1
Price	US\$	\$565	\$595	\$1195	\$845	\$865	\$1495	\$1675	\$625	\$675	\$975	\$1645	\$1175

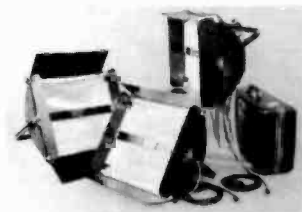
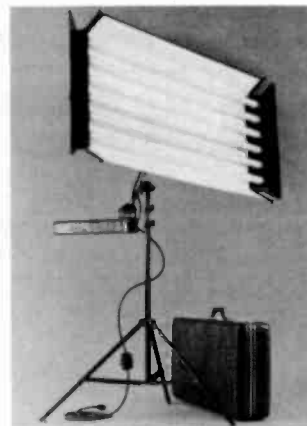
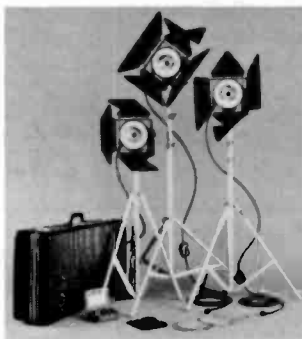
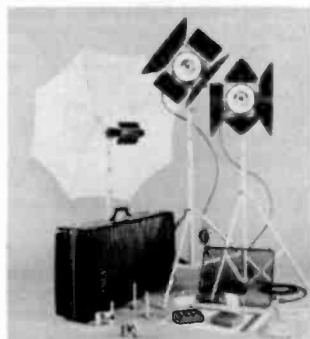
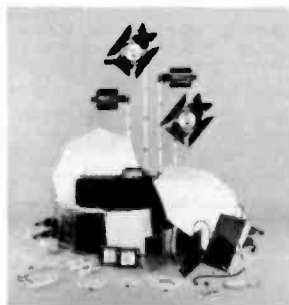
☉ Kit has super-spot reflector to convert light to high intensity unit.

✓ Kit has 1 or more umbrellas and/or gel frames with diffusion which lock into lights and produce soft-light quality.

• Plus protective screens and stands. See kits and cases.

•• KSA stand.

KIT COMPARISON CHART



Tota/Omni Kits *continued*

DP Kits

Softlight 2 Kits

Special Kits

Omni 3	Omni 4	Basically 3	Elemental	Ambi	Solo	DP & T	DP 3	DP Remote	DP 4	Close Quarters	Light Soft	Standard Soft	Triple Soft	Lower-Light	Full Array	Variflector	Summountable
01-93	01-95	T0-97	T0-98	T0-95	T0-96	DT-98	D2-93	D2-96	D2-94	D2-97	S2-91	S2-92	S2-93	K5BR	A1-90	V44SC	CM-90
		2	1	2	2	1											
3	4	1	2	2	4												
						2	3	3	4	4							
														5			
											1	1	3				
															1		
✓		✓	✓	✓	✓	⊙ ⊙		⊙		⊙							
																1	
3	4	3	3	4	5	1											
						2	3	3	4	4		1			1••		
																1	
13	5	6	8	23	39	7	4	19	5	14	2	2	4	5			17
3				4	9	4		1		1				1	3	4	21
35	42	28	29	42	63	45	45	53	54	57	24	29	43	9	38	25	27
15.9	19.1	12.7	13.2	19.1	28.6	20.4	20.4	24	24.5	25.9	10.9	13.2	19.5	4.1	17.2	11.3	12.2
\$1375	\$1495	\$995	\$1095	\$1695	\$2650	\$1450	\$1425	\$1895	\$1795	\$2045	\$700	\$825	\$1525	\$475	\$1295	\$625	\$895

		ViP System			Tota/Omni System					
Name		Pro	i	V	Tota	Omni	BP	Lowel	Soft 2	Array
Code		P1-10	i-10	V1-10	T1-10	O1-10	O2-10	LL-1	S2-10	A1-10
Type of Light	focusing (hard light)	★★	★★			★★	★★			
	broad (flood)			★★	★★					
	soft	★ ←		★★ ←	★★ ←	★ ←	★ ←		★★	★★
	high intensity	★ ⊙	★ ⊙			★★ ⊙	★★ ⊙			
Lamp Type	tungsten halogen	✓	✓	✓	✓	✓	✓		✓	
	reflector lamp							✓		
	fluorescent									✓
Lamp Wattage	120v	125-250		500	300-750	420-600	500-1000	40-500	2x(300-1000)	6 x 40
	220/240v			500	800	650	650-1000		2 x 800	
	30v battery	200				250				
	12/14v battery	100	55/100			100				
	Focus	range	W	5:1	6:1		6:1	8:1		
Foot Candles at 10' (3 m)	full flood	W	47	15	→ 25	→ 34	84	88	125	40 CW
	full spot	W	228	86	← 43	← 41	497	711		
	super-spot	W	502	372			1421	1161		
Lux at 10' (3 m)	full flood	W	500	158	→ 270	→ 365	900	950	1350	435 CW
	full spot	W	2450	930	← 465	← 445	5350	7650		
	super-spot	W	5400	4000			15300	12500		
Approximate f-stop At 10' (3 m) ASA 200, 1/60th sec.	full flood	W	2.8 -	1.4 -	→ 2 -	→ 2 +	2.8 +	2.8 +	4	2 +
	full spot	W	5.6 -	2.8 +	← 2 +	← 2 +	8 +	11 -		
	super-spot	W	8 +	8 -			16 -	11+		
Beam Size in feet at 10' (3 m)	full flood	W	6.25	6.75	→ 15.25	→ 15.5	10	14	13	18.25
	full spot	W	4	2.25	← 14.5	← 16	2.75	3.5		
	super-spot	W	2	1			2.25	2.25		
Lamp Life	average hours	100	100	100	400-2600	75	300-2000	6-2000	400-2600	10,000
Reflector	parabolic, peened	✓	✓			✓	✓			
	special	⊙	⊙	Trough	Gull-wing	⊙	⊙	In Lamp	Fold Up	Roll Up
Lamp Failure Protection	glass	✓	✓	✓						
	screen				✓	✓	✓			
Weight With cable	pounds (oz)	2	1.2	1.5	2.25	2.6	3.9	10 oz	8	18
	kilos (grams)	907 g	544 g	680 g	1.02 kg	1.18 kg	1.77 kg	284 g	3.63 kg	8.16 kg
Control	accessories	U, BD	U, BD	U	U, F	U, BD, F	U, BD, F		F	F
Typical Uses	key light	★	★	★	★★	★★	★★	★	★★	★
	fill light	★ ←	★	★ ←	★★ ←	★★ ←	★★ ←		★★	★★
	backlight	★★		★	★	★★	★★	★★	★	
	background	★	★	★	★★	★★	★★	★	★★	★
	wall "wash"			★	★★	★	★		★	
	high intensity	A ★ ⊙	★ ⊙			★★ ⊙	★★ ⊙			
	ceiling grid	A ★ ★		★★	★★	★★	★			
	tape-up	A ★ ★		★★	★★	★★	★	★★		
	camera-top	A ★ ★	★★			★				
	hand-held	A ★ ★	★★	★★	★★	★★	★			
	industrial	★		★	★★	★★	★★	★	★	★★
	documentary	★★	★	★	★★	★★	★★	★	★★	★
	architectural	★★		★	★	★★	★★	★	★★	★
	weddings, etc.	★★	★★	★★	★★	★★	★	★		
	news	★★	★★	★★	★★	★★	★			
	copy, paintings			★	★★	★	★★			
	portraits	★	★	★ ←	★★ ←	★	★	★	★★	
	small studio				★	★	★		★★	★

Symbols

- ★ good;
- ★★ ideal;
- ★ ← with umbrella or full diffusion;
- ⊙ with super-spot accessory reflector;
- Tota and V reflector door angle normal;
- ← Tota and V reflector door angle open 180°;
- W with highest wattage, recommended 120v lamp;
- U umbrella, gel frame, gels;
- BD barndoor, scrims, dichroic, diffuser, snoot, cookaloris, etc;
- F Frame-up for large flag, diffusion, gels;
- A Lowel accessory (camera-mount, scissor-mount, etc.) may be required;
- CW cool white tubes.

QUARTZ LIGHTING



Pepper Series — Miniature Quartz Lighting

- Compact, lightweight design location lighting
- Sturdy, cast-aluminum construction
- Full range of accessories, designed for fast and easy attachment and adjustments

The Pepper line consists of 5 focusing fresnel units, 1 open face and 1 soft light. Together they make a complete package for all types of photographic lighting situations.

Pepper 100

PH100-1548	Head with 1 ¹ / ₈ " fresnel lens	..... \$223.00
PA9999-510415	4-leaf barndoor	..... 73.00
PA9999-510466	Hinged gel frame	..... 21.00
PA9999-900825	Filter pak	..... 3.50
PA9999-510501	4-piece snoot set	..... 86.00
PA9999-900005	Focal spot	..... 171.00
PA9999-901020	Focal spot retainer ring—100	..... 20.00
PA9999-A245	Full single scrim	..... 12.00
PA9999-A244	Full double scrim	..... 12.00
PA9999-A270	Half single scrim	..... 12.00
PA9999-A269	Half double scrim	..... 12.00

Pepper 300

PH300-165F	Head with 3 ¹ / ₈ " fresnel lens	..... \$320.00
PA9999-510451	4-leaf barndoor	..... 86.00
PA9999-510452	Hinged gel frame	..... 25.00
PA9999-900835	Filter pak	..... 4.50
PA9999-510502	4-piece snoot set	..... 89.00
PA9999-900005	Focal spot	..... 171.00
PA9999-901025	Focal spot retainer ring—300/420	..... 20.00
PA9999-A247	Full single scrim	..... 12.00
PA9999-A246	Full double scrim	..... 12.00
PA9999-A249	Half single scrim	..... 12.00
PA9999-A248	Half double scrim	..... 12.00

Pepper 420

PH420-154E	Head with 3 ¹ / ₈ " fresnel lens	..... \$294.00
PA9999-510451	4-leaf barndoor	..... 86.00
PA9999-510452	Hinged gel frame	..... 25.00
PA9999-900835	Filter pak	..... 4.50
PA9999-510502	4-piece snoot set	..... 89.00
PA9999-900005	Focal spot	..... 171.00
PA9999-901025	Focal spot retainer ring—300/420	..... 20.00
PA9999-A247	Full single scrim	..... 12.00
PA9999-A246	Full double scrim	..... 12.00
PA9999-A249	Half single scrim	..... 12.00
PA9999-A248	Half double scrim	..... 12.00

Pepper 650

PH650-154H	Head with 4 ³ / ₈ " fresnel lens	..... \$385.00
PA9999-510460	4-leaf barndoor	..... 97.00
PA9999-510461	Hinged gel frame	..... 34.00
PA9999-900845	Filter pak	..... 5.50
PA9999-510503	4-piece snoot set	..... 113.00
PA9999-A251	Full single scrim	..... 12.00
PA9999-A250	Full double scrim	..... 12.00
PA9999-A253	Half single scrim	..... 12.00
PA9999-A252	Half double scrim	..... 12.00

Pepper 500/1K

PH5/1K-106001	Head with 5" fresnel lens	..... \$504.00
HA9999-510301	4-leaf barndoor	..... 91.00
HA9999-510298	Gel frame	..... 57.00
	3-piece snoot set:	..... 176.00
	Small snoot #2	..... 41.00
	Medium snoot #3	..... 67.00
	Large snoot #4	..... 68.00
PA9999-A346	Full single scrim	..... 10.00
PA9999-A347	Half single scrim	..... 10.00
PA9999-A348	Full double scrim	..... 11.00
HA9999-445310	Half double scrim	..... 11.00
HA9999-445311		
HA9999-445312		
HA9999-445313		



Pepper Soft 400

PH400-412	Head	..... \$281.00
PA9999-50412	Egg crate	..... 93.00
PA9999-30412	Gel frame	..... 19.00

Universal Pepper Accessories

PA9999-901170	Pepper pot: 1-channel dimmer	..... \$202.00
PA9999-901175	Pepper pot: 3-channel dimmer	..... 572.00
PA9999-8389787	Light/medium pepper stand	..... 70.00
PA9999-8389788	Medium pepper stand	..... 75.00
PA9999-8387490	Light/heavy pepper stand	..... 121.00
PA9999-901030	Pepper scrim bag	..... 14.00
PA9999-510417	3" baby plate	..... 38.00
PA9999-429678	Scissor clamp	..... 14.00
PA9999-510214	3" C-clamp	..... 37.00
PA9999-510219	6" C-clamp with 2 5/8" pins	..... 61.00
PA9999-8429587	Gaffer grip with 5/8" pin	..... 33.00
PA9999-901040	Gold/silver reflector pak	..... 15.00
PA9999-901045	Velcro cable ties	..... 3.20
PA9999-901050	Leather gloves	..... 10.00
PA9999-901060	Globe table	..... 5.35
PA9999-901055	3-prong plug adaptors	..... 1.25

Pepper Pak Cases

PA9999-900897	Soft canvas case	..... \$347.00
PA9999-900898	Back pak canvas case	..... 340.00
PA9999-900890	Hard case—red	..... 409.00
PA9999-900880	Hard case—cyan/green	..... 485.00
PA9999-900895	Hard case—full spectrum	..... 578.00

Pepper Paks

	Blue pepper pak	..... \$1829.00
	Yellow pepper pak	..... 1898.00
	Red pepper pak	..... 2168.00
	Green pepper pak	..... 2321.00
	Cyan pepper pak	..... 2278.00
	Full spectrum pepper pak	..... 3612.00



HMI LIGHTING

200W Luxarc System

Includes: Luxarc MARKIII head with 5" fresnel, Ballast MARKIII 120V/60Hz, 15' mains cable, 4-leaf barndoor, hinged gel frame.

Luxarc 200 \$3,341.00

270W Blue Torch Kit

Includes: Blue Torch 270 MK III head with 5' head to ballast cable, solid-state square wave 24 or 34VDC inverter ballast, 5' inverter ballast to battery cable, 4-leaf barndoor and soft pak carrying case with padded compartments. \$6,900.00

575W Luxarc System

Includes: Luxarc MARKIII head with 7" fresnel and wire screen, Ballast MARKIII 120V/60Hz, 15' mains cable, 33' head to ballast cable, 4-leaf barndoor, hinged gel frame.

Luxarc 575 \$5,016.00

575W Cinepar System

Includes: Cinepar MARKIII head with 4 lens rings, Ballast MARKIII 120V/60Hz, 15' mains cable with Hubbell U ground, 33' head to ballast cable.

Cinepar 575 \$4,536.00

1200W Luxarc System

Includes: Luxarc MARKIII head with 10" fresnel and wire screen, Ballast MARKIII 120V/60Hz, 15' mains cable, 33' head to ballast cable, 4-leaf barndoor, hinged gel frame.

Luxarc 1200 \$6,292.00

1200W Cinepar System

Includes: Cinepar MARKIII head with 4 lens rings, Ballast MARKIII 120V/60Hz, 15' mains cable, 33' head to ballast cable.

Cinepar 1200 \$5,345.00

2500W Luxarc System

Includes: Luxarc MARKIII head with 12" fresnel, wire screen, hours counter, Ballast MARKIII 120V/60Hz, with retractable handle, 15' mains cable, 33' head to ballast cable, 4-leaf barndoor, hinged gel frame.

Luxarc 2500 \$11,722.00

2500W Cinepar System

Includes: Cinepar MKIII head with 4 lens rings, Alimarc MKIII ballast 120V/60Hz, mains cable 15' and head to ballast cable 33'.

Cinepar 2500 \$11,445.00



575W Cinepar System



1200W Luxarc System



1200W Cinepar System



2500W Cinepar System

DC to AC Inverters

500W inverter \$2,890.00

Inverter to ballast cable 91.00

1200W inverter 4,943.00

Inverter to ballast cable 154.00

VIDEOCASSETTES/ VIDEOCASSETTE HANGERS

3M

Authorized 3M Distributor



3/4" Broadcast Videocassette Tapes

Master Broadcast U-Matic (MBR™)

The Master Broadcast video tape is designed to meet your most exacting needs. The Anti-Stat System of treated component parts and shell and Anti-Stat leader dissipates static charge for lower dropout activity and better performance under adverse environmental conditions. Ten units per carton.

	Playing Time	Price
MBR-10 Hanger or Album	10	\$23.68
MBR-20 Hanger or Album	20	24.35
MBR-30 Hanger or Album	30	31.51
MBR-50 Hanger or Album	50	38.36
MBR-60 Hanger or Album	60	40.96
Mini MBR-5S Hanger or Album	5	22.72
Mini MBR-20S Hanger or Album	20	25.59

Broadcast U-Matics (UCA Color Plus)

Broadcast UCA Videocassettes use a special Color Plus oxide video tape which provides a superior signal-to-noise ratio, color-noise ratio and lower dropouts. Ten units per carton.

UCA-5 Hanger or Album	5	\$20.11
UCA-10 Hanger or Album	10	20.47
UCA-20 Hanger or Album	20	23.32
UCA-30 Hanger or Album	30	25.71
UCA-60 Hanger or Album	60	34.60
UCA-75 Hanger or Album	75	59.62

Broadcast Mini-U-Matics (UCA Color Plus)

Mini U-matic videocassettes are designed for use with such mini U-matic portable recorders. Features Color Plus oxide. An "S" after the model number (UCA-10S) indicates mini size. Ten units per carton.

UCA-10S Hanger or Album	10	\$19.41
UCA-20S Hanger or Album	20	21.94
UCA-30S Hanger or Album	30	39.84

Betacam/Betacam SP Videocassettes

Broadcast quality products designed specifically for use on high speed 1/2" equipment such as Betacam SP. Has 3M's exclusive Anti-Stat Treatment. Twenty units per carton.

Betacam Format		
PB-5 Hanger or Album	5	\$12.17
PB-10 Hanger or Album	10	14.39
PB-20 Hanger or Album	20	19.50
PB-30 Hanger or Album	30	24.40
PB-30L Album	30	33.53
PB-60L Hanger or Album	60	63.38
PB-90L Hanger or Album	90	83.81

Betacam SP Format		
PB-5M Album	5	\$ 42.64
PB-10M Album	10	48.42
PB-20M Hanger or Album	20	63.69
PB-30M Hanger or Album	30	59.71
PB-30ML Album	30	57.73
PB-60ML Album	60	81.48
PB-90ML Album	90	125.72

VHS Professional Videocassettes

Standard Grade VHS Videocassettes designed for general purpose applications. 40 units per carton.

T-30 Sleeve	\$ 8.06
T-60 Sleeve	9.04
T-120 Sleeve	9.40
T-160 Sleeve	14.19

VHS Broadcast Videocassettes

High grade quality product with superior electromagnetic and dropout characteristics designed for critical applications. Twenty units per carton.

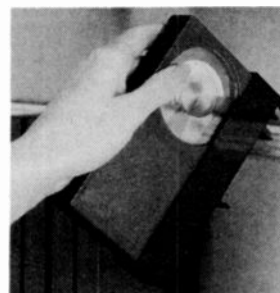
VHS	Price
T-30 Sleeve	\$ 9.76
T-60 Sleeve	11.27
T-120 Sleeve	13.42
T-30 Album Box	11.87
T-60 Album Box	13.32
T-90 Album Box	14.55
T-120 Album Box	15.04
T-30 Hanger Case	12.07
T-60 Hanger Case	13.72
T-90 Hanger Case	14.95
T-120 Hanger Case	15.44



S-VHS Master Broadcast Videocassettes

S-VHS tape is designed for peak performance with super VHS systems. Twenty units per carton.

ST-30 Hanger Shipper	\$20.81
ST-60 Hanger Shipper	23.42
ST-120 Hanger Shipper	24.98
ST-30 Album	20.81
ST-60 Album	23.42
ST-120 Album	24.98



Snap Cap™ Hanger Bar System

- Allows maximum storage density (280 videocassettes in a 4' x 8' area)
- Adapts to many locations and space requirements • Provides maximum protection of videocassettes without additional packaging • Allows easy and uniform labeling • Locks firmly onto videocassette but is easily removed • Locks onto the hanger bar but is easily detached and transported • Features light high strength aluminum bar • Installs easily and inexpensively • 40 units per carton

The Snap Cap Hanger System efficiently protects and stores your valuable videocassettes in a minimum of space while allowing you to transport and quickly access the tape.

Betacam	
PB-5 Snap-Cap (PBSC-5)	\$13.96
PB-10 Snap-Cap (PBSC-10)	16.47
PB-20 Snap-Cap (PBSC-20)	21.59
PB-30 Snap-Cap (PBSC-30)	26.38

Betacam SP	
PB-5M Snap-Cap	\$43.65
PB-20M Snap-Cap	54.69
PB-30M Snap-Cap	60.72



Authorized 3M Distributor

1" VIDEO TAPE/ACCESSORIES VIDEOCASSETTE HANGERS

1" Helical Open Reel Video Tape

No. 480 Helical video tape is an improved broadcast video tape providing better signal-to-noise, color-noise qualities and virtually eliminates head stiction. For use on all recorders capable of using 479 mastering/broadcast video tape (type "C" recorders).

No. 479—Helical video tape is a special application tape that can only be used with type "C" video recorders.

480 XST 1" Master Broadcast Video Tape	Reel Size	Price
480 XST 34 Library Box	8"	\$ 89.92
480 XST 66 Library Box	9"	135.44
480 XST 96 Library Box	10 1/2"	204.68
480 XST 34 Shipper	8"	\$ 93.97
480 XST 66 Shipper	9"	139.49
480 XST 96 Shipper	10 1/2"	210.33
480B XST 34 Library Box	8"	\$ 89.92
480B XST 66 Library Box	9"	135.44
480B XST 96 Library Box	10 1/2"	204.68
480B XST 34 Shipper	8"	\$ 93.97
480B XST 66 Shipper	9"	139.49
480B XST 96 Shipper	10 1/2"	210.33

480 XST Long Lengths Master Broadcast Video Tape	Reel Size	Price
480 XST 105 Shipper	10 1/2"	\$ 246.21
480 XST 125 Shipper	11 1/2"	284.98
480 XST 155 Shipper	12 1/2"	358.36
480 XST 188 Shipper	14"	454.69
480B XST 105 Shipper	10 1/2"	\$ 249.71
480B XST 125 Shipper	11 1/2"	290.48
480B XST 155 Shipper	12 1/2"	363.86

479 1" Broadcast Video Tape	Reel Size	Price
479 34 Library Box	8"	\$ 85.64
479 66 Library Box	9"	128.98
479 96 Library Box	10 1/2"	194.92
479 34 Shipper	8"	\$ 89.69
479 66 Shipper	9"	133.03
479 96 Shipper	10 1/2"	200.57
479B 34 Library Box	8"	\$ 85.64
479B 66 Library Box	9"	128.98
479B 96 Library Box	10 1/2"	194.92
479B 34 Shipper	8"	\$ 89.69
479B 66 Shipper	9"	133.03
479B 96 Shipper	10 1/2"	200.57

479 Long Lengths Broadcast Video Tape	Reel Size	Price
479 105 Library Box	10 1/2"	\$ 234.32
479 125 Library Box	11 1/2"	277.03
479 155 Library Box	12 1/2"	341.02
479 188 Library Box	14"	432.78
479 105 Shipper	10 1/2"	\$ 237.82
479 125 Shipper	11 1/2"	282.53
479 155 Shipper	12 1/2"	346.52
479 188 Shipper	14"	438.28

Tape Accessory Descriptions

- R139**—1" x 8" phenolic NAB hub reel with aluminum flanges in box.
- R178**—1" x 9" or 1" x 10 1/2" heavy-duty precision reel in box designed to be used with all 479 tape.
- C129**—High impact plastic shipping container for 10 1/2" R179B reels.
- C132**—High impact plastic shipping container for 9" R179B reels.
- C134**—High impact plastic shipping container for 11 1/2" and greater R179B reels.

Hanger System

A videocassette case design that's triggered a revolution in videocassette storage and handling. The shipper/storage case represents a design concept based upon the idea that hanging your videocassettes not only is the best way to protect them from damage, but it will organize your storage area and simplify the way you transport videocassettes.



Hanger System

Shipper/Storage Case

This sturdy shipping box can be labeled and mailed with no other packaging needed. Its unique hanging hook and slide-snap latch are only two of the features of this case that opens to reveal a recess for storing the record-lockout button when you are not using the record mode.

CHB-1 Case Hanger

This extruded aluminum bar comes in 4' lengths and can be cut to fit doors, desk backs, cabinets, shelves, walls, etc. Standard screws or bolts anchor them securely to concrete, wood, plaster or metal surfaces, and when properly mounted, the bars can maintain weights of up to 240 lbs.

Video Tape Reels and Accessories

Cat. No.	Reel Size	Price
Empty Metal Video Reels in Box		
R139-1-8	1" x 8"	\$39.06
R178-1-9	1" x 9"	40.10
R178 10 1/2	1" x 10 1/2"	57.14
R178 11 1/2	1" x 11 1/2"	59.98
R178 12 1/2	1" x 12 1/2"	65.44
Fire Retardant Empty Plastic Shipping and Storage Cases		
C132-1-9	1" x 9" for flat flange R179	\$28.50
C129-1-10 1/2	1" x 10 1/2" for flat flange R179	36.92
C134-1-14		49.54
C137-2-10 1/2		42.82
Empty Plastic Reel in Box		
VRB-1-6 1/2	1" x 6 1/2"	\$6.06
Head Cleaning Videocassettes		
UCS-HC (C124)	(Mini; recorded)	\$45.26
V-HC (VHS)	(Hanger box; unrecorded)	28.32
Diagonal Stripe Hold Down Tape		
8125-1/4-90	1/4" x 90'	\$11.04

OPEN REEL AUDIO TAPE/ CASSETTES/ACCESSORIES



Authorized 3M Distributor

Open Reel Audio Tape

996, 226, 227 and 250 are premium quality tapes for critical music mastering. 996 allows recording at +9.

806 and 807 are high output/low print open reel tapes. 808 and 809 are low print/low noise open reel tapes designed for critical voice and general music mastering.

Studio Mastering Tapes

Cat. No.	Reel Size	Per Carton	List Price
996-1/4-1200	7"	20	\$14.00
996-1/4-2500	10 1/2"	10	37.10
250-1/4-1200	7"	20	14.00
2500-R181	10 1/2"	12	35.78
226-1/4-1200	7"	20	12.38
2500-RN	10 1/2"	12	32.54
227-1/4-1800	7"	20	19.04
3600-RN	10 1/2"	12	56.14
Mastering Tapes			
806-1/4-600	5"	20	\$ 7.31
1200	7"	20	10.87
2500-RN	10 1/2"	12	29.13
807-1/4-900	5"	20	9.19
1700	7"	20	15.01
3600-RN	10 1/2"	12	40.05
808-1/4-600	5"	20	7.19
1200	7"	20	12.09
2500-RN	10 1/2"	12	29.99
809-1/4-900	5"	20	9.08
1800	7"	20	16.27
3600-RN	10 1/2"	12	40.15

General Purpose Tape

Cat. No.	Pancake	Per Carton	List Price
186-1/4	2500	12	\$ 9.50
186-1/4	5000	12	17.43

Logging Tapes

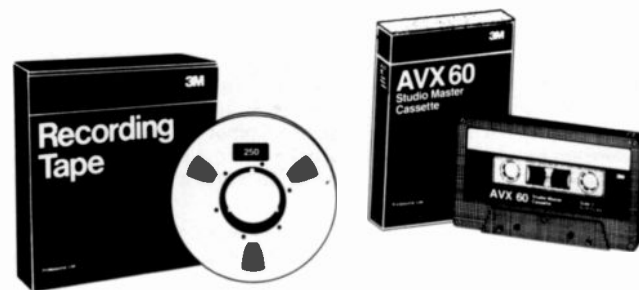
8206 is a 1.0 mil polyester tape with back treatment designed for logging. 8207 is a .7 mil version of the 8206. 8614 is a 1.0 mil polyester tape without back treatment for use on Magnasync recorders.

Cat. No.	Reel Size	Per Carton	List Price
8206-1/4-3600R183	10 1/2"	12	\$ 47.53
8206-1/2-3600R183	10 1/2"	10	86.33
8206-1-3600R183	10 1/2"	5	146.54
8206-10800	Glass 14"	5	674.73
8207-1/4-3600PR7	7"	20	36.16
8207-1-7200RL	10 1/2"	5	202.39
8614-1/4-3600RN	10 1/2"	12	50.30
8614-1/2-3600R183	10 1/2"	10	87.64
8614-1-3600R183	10 1/2"	5	151.73

Accessories

	Cat. No.	Reel Size	Per Carton	List Price
NAB Reels In Boxes	RNB-1/4-10 1/2	10 1/2"	12	\$ 25.50
	1/4-10 1/2	10 1/2"	10	32.47
Splicing Tape	41A-7/32-66		40	4.22
	620-7/32-66		12	5.65
	67-7/32-100		12	7.37
	100 bulk		48	5.88
Leader Tape	20-1/4-1000		12	9.14
	61W-1/4-1500		20	23.19
	61Y-1/4-1500		20	24.37
Relabel Tape	Relabel Tape		48	2.29
Recording Studio Dispenser Kit	RSD-1		1	266.63

RN = 10 1/2" metal reel with solid NAB hub.
R181 = 10 1/2" digital metal reel with NAB hub.



Digital Audio Tape

3M DAT	Minutes	Per Carton	List Price
	46	40	\$13.00
	60	40	15.00
	90	40	18.00
	120	40	21.00

AVX Professional Cassettes — Boxed

AVX cassettes are professional quality high output, low noise cassettes designed for the rigorous use of instructional applications. 5-screw shell with roller guides. 2-piece plastic album box with labels. 20 cassettes per master carton. Tensitized polyester.

AVX-20	0.5 mil.	\$1.06
AVX-30	0.5 mil.	1.15
AVX-46	0.5 mil.	1.21
AVX-60	0.5 mil.	1.30
AVX-90	0.3 mil.	1.90
AVX-120	0.25 mil.	2.40

AVX Bulk Cassettes

Bulk version of AVX Cassettes. Identical performance, but bulk packaged in master carton of 400; without labels or boxes. Designed especially for critical mastering applications.

Packed 25 identical cassettes per overwrapped tray, 4 trays per intermediate box, 4 intermediates of 100 cassettes per master carton. Black high impact styrene plastic shells are used.

AVX-10	\$.84
AVX-20	.90
AVX-30	.94
AVX-46	.99
AVX-60	1.04
AVX-90	1.30
AVX-120	2.25

IRC Cassettes — Boxed

Instant Record Cassettes with a magnetically coated leader are professional quality, low noise cassettes designed for instant recording applications such as dictating, interviewing, conference recording, slide sync, surveillance and information logging. 20 cassettes per master carton. Tensitized polyester.

IRC-30	.5 mil.	\$1.55
IRC-60	.5 mil.	1.80
IRC-90	.3 mil.	2.30

IRC Bulk Cassettes

Bulk version of IRC Cassettes. Identical performance, but bulk packaged without labels or boxes. 400 cassettes per master carton.

IRC-30	\$1.30
IRC-60	1.60
IRC-90	1.95

SX High Bias Studio Master Cassettes

SX-30	Norelco Case	\$2.75
SX-60	Norelco Case	2.90
SX-90	Norelco Case	3.45

Magni Monitor—Compact Monitoring System

• Base Unit: 3 monitoring inputs; Remote Unit: menus and straightforward controls for streamlined operation; Display Unit: compact LCD screen • Waveform monitor or vectorscope versions • NTSC, PAL, component • View waveforms on standard picture monitors or optional LCD unit—eliminates specialized CRTs • Adjustable waveform/graticule colors • Adjustable intensity • SC/H phase and color frame limit warnings (vectorscope version) • Component amplitude/timing warnings (waveform monitor version) • Remote and display units are only 2" deep—fit in production panels, vans, front panels

The Magni Monitor

Base unit includes the power supply and remote unit, and is available in waveform and vector monitoring versions (please specify when ordering).

MM-W Basic waveform version (NTSC/PAL/component) . . . \$995.00
MM-V Basic vectorscope version (NTSC/PAL/component) . . . 995.00

Magni Monitor With Display Unit

Optional LCD screen for signal display
MM-W-D Waveform version with NTSC display \$1395.00
MM-V-D Vector version with NTSC display 1395.00
MM-W-PD Waveform version with PAL display 1395.00
MM-V-PD Vector version with PAL display 1395.00
MM-Half-Rack A kit allowing a single Magni Monitor Remote and a Magni LCD to be mounted in a conventional half-rack unit. 59.00
MM-Rack A special full width rackmount (< 2" depth) to mount combinations of Magni Monitor Remote and LCDs 99.00

WV560/WV561 Combination Waveform Monitor/Vectorscope for Component/Composite Use

• 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite • WV560: NTSC and 525-line component standards, including Y/C; WV561: NTSC, PAL, 525-line and 625-line component standards, including Y/C • SC/H phase measurement and color frame indicator • Built-in differential phase and gain measurements • Simultaneous waveform/vector display mode • Time and voltage cursors with on-screen readouts

WV560 6-channel NTSC/CAV waveform monitor/vectorscope with SC/H and color framing \$6355.00
WV561 6-channel NTSC/PAL/CAV waveform monitor/vectorscope with SC/H and color framing 7355.00

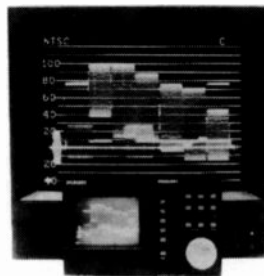
WFM560 Component/Composite Waveform Monitor

• 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite • Multi-standard capability for NTSC, PAL, SECAM, 525-line and 625-line component • Component vectorscope function • Component format switching for SMPTE/EBU, Betacam, M-II, GBR • Extensive memory settings for front panel setups • Time, voltage and risetime cursors with readouts • Invalid signal and Video Overdrive™ indicators • Overlay modes for signal comparison • Lower-cost "S" version available

WFM560 6-channel NTSC/PAL/SECAM/CAV waveform monitor, CAV vectorscope \$3950.00
WFM560S 6-channel NTSC/PAL/SECAM/CAV waveform monitor 3495.00

WFM530 Component/Composite Waveform Monitor

• 3 inputs for component or composite measurements • Capability for NTSC, PAL, SECAM, 525-line and 625-line component standards • Front panel and remote memories • On-screen readouts and measurement cursors • Supports 90Hz/100Hz feeds from D2 VTRs • Staircase input for telecine/camera applications \$2950.00



Magni Monitor



Signal Creator

VS560/VS561 Component/Composite Vectorscope

• 6 inputs for: 2 complete component signal sets, 6 composite signals, a combination of component and composite • VS560: NTSC and 525-line component standards; VS561: NTSC, PAL, 525-line and 625-line component standards • Simultaneous component and composite vector displays • Amplitude/phase measurement cursors • Graticule and mode readouts • VITS display and R-Y output for differential phase and gain measurements (with WFM560) • Calibrated stereo audio display • SC/H phase measurement and color frame indicator (VS561 only)

VS560 6-channel NTSC/CAV vectorscope \$3595.00
VS561 6-channel PAL/NTSC/CAV vectorscope with SC/H and color framing 4595.00

VS531DS Dual-Standard Composite Vectorscope

• 3 inputs for composite and vector displays • NTSC/PAL dual standard operation • SC/H phase measurements • Color framing indicator • Cursors for amplitude and phase measurements, with graticule and mode readouts \$3745.00

Signal Creator™

• Compact multiple-format generator • Memory card storage allows user-specific setups plus application-specific signal sets • Configurable for any combination of NTSC, PAL, 525-line and 625-line component analog, 525-line and 625-line D1, and 525-line and 625-line D2, including multiple digital outputs • Extensive signal sets for all formats • Creator™ software offers user-designed custom signals and transfer of signals to a memory card through a user-friendly program • Straight-forward LCD menu screens for easy visibility of chosen formats and signals • Timing/frequency/ID adjustable from front panel • Options including analog and digital stereo audio tones, sweep and zone pattern, blackburst and pulse outputs

Signal Creator NTSC-configured base unit. \$4950.00

NTSC Options

Opt BB Outputs for pulses, blackburst, separate
SMPTE color bars \$1395.00
Opt C Component analog capability 1695.00
Opt D12 525 D1/NTSC D2 signal capability 1985.00
Opt IO D2 input/analog output 595.00
Opt A Digital and analog audio with voice capture. 1495.00
Opt Z Sweep and zone plate 1795.00

Signal Creator Accessories

Blank RAM card (256K memory) \$ 295.00
Blank RAM card (512K memory) 495.00
RAM card writer (includes blank 256K RAM card) 1495.00
Backup signal set (standard) 395.00

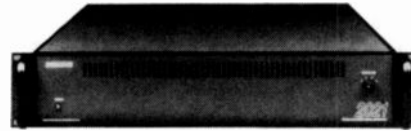
Note: Creator software is supplied with all Signal Creator units at no charge.

TEST EQUIPMENT/ VIDEO GRAPHICS ENCODING

MAGNI™

2021 Programmable Test Signal Generator

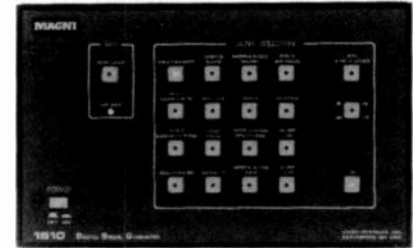
• Interconnection with an IBM or compatible PC allows signal generation for virtually any existing or developing television system • Supports signal standards from 525/60 NTSC to 1125/60 HDTV and beyond, in both analog and digital formats • Extensive libraries of commonly used signals for NTSC, PAL, SECAM, CAV, GBR, 4:2:2, D2, HDTV, RS-343 and other formats • Signal Master™ software for user-friendly custom signal development • 3 analog outputs flat to more than 30MHz • Digital outputs with clock frequency selectable from 13.5MHz to 32X subcarrier • Non-volatile memory and front panel switch selection between 4 different signals (of the same or different video standards) \$14,950.00



2021

2021PL Programmable Test Signal Generator

• All the features of a 2021 plus a digital encoder for PAL systems B and G • 25Hz offset subcarrier and correct Bruch blanking (other offsets possible) • Adds common PAL signals to the standard 2000 Series signal set. \$19,000.00



1510

2030 Programmable HDTV Generator

• PC interconnection for HDTV signal generation in a wide range of proposed formats: 525/29.97, 525/59.94, 787.5/59.94, 900/29.97, 1050/59.94, 1125/59.94, 1125/60.0, 1250/50.0, others • Full test signal library available for current HDTV standards, including tri-level and bi-level sync signals • 3 channels of video for GBR or Y/B-Y/R-Y test signals • 3 additional channels for sync or drive signals • 2 outputs from each channel (1V and 2V) • Sync generator can be genlocked to external sync reference or used as studio reference source • Test signal generator usually locked to sync generator; can be locked to external reference for re-timing \$26,950.00



1527

1515 Component (525/60) Plus Composite (NTSC) Test Signal Generator

• Component analog video and composite NTSC test signals combined in a single, half-rack unit • Version M: M-II™ (Y/CTCM); Version S: SMPTE (Y P₁P₂); Version SP: Betacam™ plus Betacam SP™ plus Y/CTDM; Version U: combination of all versions plus Y/C signals • All versions include NTSC composite, GBR and Y/B-Y/R-Y outputs • Up to 48 different test signals, some as multiple signals in a field matrix • Dual timing pulses signal for distortion-free testing between component and composite formats • Digital signal generation for high accuracy and stability • Optional D1 component digital output in 8 and/or 10 bits • Optional D2 composite digital output and input • Custom signal development and blackburst/pulse output options available

Vers M M-II + NTSC + GBR formats. \$5,495.00

Vers S SMPTE + NTSC + GBR formats. 5,495.00

Vers SP Betacam + SP + NTSC + GBR formats + CTDM. 6,395.00

Vers U Betacam + M-II + SMPTE + S-VHS + NTSC + GBR 6,395.00

1510A NTSC Test Signal Generator

• Optional D2 composite digital output and input • Convenient half-rack size conserves rack space and simplifies portable use • "S" version available with reduced signal set • 40 precision test signals, including 6MHz field sweep • 10-bit generator with 0° SC/H phase • Half-field signal interleaving "fills in" signals for ease of measurement • Built-in genlock and audio tone outputs (pulse output and color black optional)

1510S Composite (NTSC) test signal generator, 16 signals \$2,490.00

1510A Composite (NTSC) test signal generator, 40 signals, with audio tone 3,490.00

1510A-D2 1510A with options O1, O5, O5K (no audio tone). 5,945.00

1527 NTSC Signal Generator/ Waveform Monitor/Vectorscope

• Expanded 22-signal generator includes test signals specific to transmitter maintenance • Character ID overlay • Differential phase and gain measurements • Integrated measurement package incorporates waveform and vector monitoring plus test signal generation in a single unit • Complete color frame and SC/H phase testing, even from a VTR Demod output • Signal Follows Measurement mode automatically generates the correct signal for the chosen test \$6,945.00

125AD/125DA CAV-Digital 4:2:2-CAV Transcoders

• 8-bit rounded or full 10-bit processing • Selectable format inputs and outputs for GBR, SMPTE, Y P₁P₂, Betacam, M-II • 525/625 operation • Optional digital test signal generator and digital VITS insertion capabilities • Ancillary data input and output for user-inserted data during digital blanking • Digital clamping • Adjustable setup level or removal of setup • Remote control of front panel functions • Front panel error indicators • 4/4/4 versions available

125AD CAV—digital 4:2:2 transcoder \$7,990.00

125DA Digital 4:2:2—CAV transcoder 4,995.00

VGA Producer™

• Highest-quality video encoding in versions for IBM AT or PS/2 and compatibles • NTSC or PAL plus Y/C inputs and outputs • Fully genlockable (composite or Y/C) • Flicker Stabilizer minimizes distortion in fine-line displays (optional on AT versions, standard on PS/2 versions) • Compatible with VGA cards having a 28-pin socketed RAM DAC, or through a PLCC adaptor • Supports resolutions up to 640 x 480 (800 x 600 PAL) at 256 colors • Remote control box for effects features: fades, selectable color keying, X-Y positioning, border color fills and more • Transparent to software operation and non-interlaced RGB display

VGA Producer NTSC. \$1,695.00

VGA Producer PAL 2,695.00



VIDEO DELAY SYSTEMS

Video Delay Boxes (Variable), NV Series

• Impedance: 75 ohms • Frequency Response: ± 0.05 dB ripple up to 5.5MHz (0.1dB p-p) • Return Loss: 27dB • Temperature Range: 0-70°C • Max. Input Voltage: 2VDC • Performance of box and 19" rack units is a function of the delay line combinations used

Small metal boxes with BNC connectors provide infinitely variable video delay either with switches (type 180 or 360) or taps (type 097) over a range of 10-665ns. A ± 1 ns trim achieves precise timing at installation and will compensate for temperature and aging variations during subsequent maintenance. For longer delay requirements, these variable boxes may be cascaded with lump delay boxes (type NV 0100-1000) for a maximum delay of 2500ns. The prefix NV identifies boxes which can be used as stand-alone units or can be mounted on a 19" rack panel (Type 5) which accommodates 15 separate boxes.

Adjustment of time delay in TV signal routes is important in all countries of the world. 75 ohm delay units are suitable for use in all TV systems including NTSC, PAL, SECAM and all variations.

The Smaller Video Delay Units are designed to make the fullest use of the miniature DIP video delay line modules, and retain features important to TV engineers.

Passive Delay Boxes

Rackmounted—V Series or Stand-Alone N Series

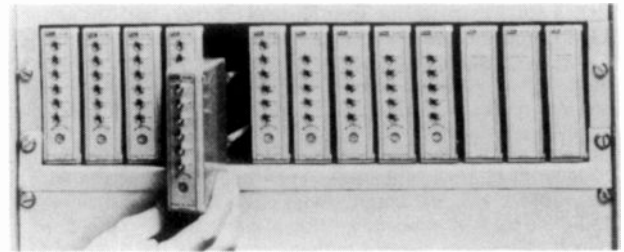
Boxes with Switches and \pm Vernier

Delay Range (ns)	Part Number	Price
10-170	NV 180	\$266.00
10-330	NV or VU 360	360.00

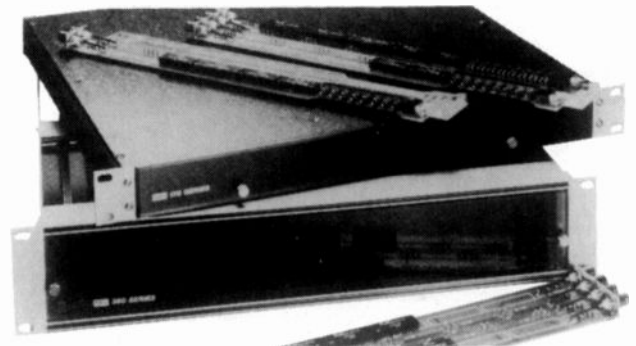
Delay Time Conversion Table

Nanoseconds (ns)	Feet	Meters	Deg. of Phase PAL	Deg. of Phase NTSC	Nanoseconds (ns)	Feet	Meters	Deg. of Phase PAL	Deg. of Phase NTSC
5	4	1	8	6	200	130	40	319	258
10	7	2	18	13	205	133	41	327	264
15	10	3	24	19	210	137	42	335	271
20	13	4	32	26	215	140	43	343	277
25	16	5	40	32	220	143	44	351	283
30	20	6	48	38	225	146	45	359	290
36	23	7	56	45	230	150	46	367	298
40	26	8	64	62	235	153	47	376	303
45	29	9	72	58	240	158	48	383	309
50	33	10	80	64	245	159	49	391	316
55	36	11	88	71	250	162	50	399	322
60	39	12	96	77	256	166	51	407	329
65	43	13	104	84	260	169	52	415	335
70	46	14	112	90	265	172	53	423	341
75	49	15	120	97	270	176	54	431	348
80	52	16	128	103	275	179	55	439	354
85	55	17	136	110	280	182	56	447	361
90	59	18	144	116	285	185	57	455	367
95	62	19	152	122	290	189	58	463	374
100	66	20	160	129	296	192	59	471	380
105	68	21	168	135	300	195	60	479	387
110	72	22	176	142	305	196	61	487	393
115	75	23	184	148	310	202	62	495	399
120	78	24	192	155	315	205	63	503	406
125	81	25	200	161	320	208	64	511	412
130	85	26	207	168	325	211	65	519	419
135	88	27	215	174	400	260	80	638	515
140	91	28	223	180	500	325	100	798	644
145	94	29	231	187	600	390	120	958	773
150	96	30	239	193	700	455	140	1117	902
155	101	31	247	200	800	520	160	1277	1031
160	104	32	255	206	900	585	180	1436	1150
165	107	33	263	213	1000	650	200	1596	1289
170	110	34	271	219	1100	715	220	1756	1417
175	114	35	279	225	1200	780	240	1915	1546
180	117	36	287	232	1300	845	260	2075	1675
185	120	37	295	238	1400	910	280	2235	1804
190	124	38	303	245	1500	975	300	2394	1933
195	127	39	311	251					

N.B. B.I.C.C. co-axial cable T3206 (Velocity Ratio 0.666)



Boxed Delay Lines



176/350 Series

Zero Loss Delay Video Delay Line

• 1 input, 1 output • 1V p-p in—1V p-p out • 75 ohm active • Delay selection 10-1830ns • Delay trim at front 5ns (8° \emptyset PAL) 6.4 \emptyset NTSC

The Zero Loss Delay unit is designed to delay a composite color TV signal without significant distortion. The printed circuit card selected will determine the delay time available. If additional delay is subsequently required, the user may add more Matthey DIP delay modules in spaces provided. Gold plated switches or "handbags" ensure a long lifetime of very low noise operation.

The Zero Loss Delay unit can be fitted into any rack frame equipped with ± 15 V nominal DC power supply and an Amp-Blade 23-pin socket (such as the 3400 Series made by Grass Valley Group, Inc.)

Features accessible without removing the PC card:

1. 5ns adjustment via 2 x 2ns switches and ± 1 ns fine trim screwdriver adjust.
2. Optional gain variation by screwdriver adjust ± 0.7 dB. (Note: gain is automatically compensated for each delay step switched).
3. Optional DC offset by screwdriver adjustment over the range ± 750 mV.

Items 2 and 3 are normally not necessary but can be fitted if stated on the order.POR*

176/350 Series

Rackmounted PC Card Delay (Infinitely Variable)

Video delay range 10-1830ns.

Type 176 Rack Frame: Height 1³/₄" ; accommodates 10 PC cards (2 delay lines on each card); total 20 delays; BNCs on back of PC card; Lucite front cover, cards mount horizontallyPOR*

Type 350 Rack Frame: Height 3¹/₂" ; accommodates 16 PC cards (2 delay lines on each card); total 32 delays; BNCs on back of PC card; Lucite front cover; cards mount verticallyPOR*

PC card delay lines for 176 and 350 Series (not interchangeable).

Video delay channels available.

Available with switches (suffix "S") or taps (suffix "N").

*Price On Request

VIDEO TAPE



D-2 Composite Digital Videocassettes

Product	Length	Quantity	Price
DS-6M	6 min.	10	\$ 30.97
DS-12M	12 min.	10	50.29
DS-22M	22 min.	10	70.32
DS-32M	32 min.	10	171.08
DM-6M	6 min.	10	30.97
DM-12M	12 min.	10	50.29
DM-22M	22 min.	10	70.32
DM-32M	32 min.	10	90.19
DM-64M	64 min.	10	134.02
DM-94M	94 min.	10	201.49
DL-126M	126 min.	5	279.26
DL-156M	156 min.	5	339.25
DL-188M	188 min.	5	390.19
DL-208M	208 min.	5	524.34

Certified S-VHS Videocassettes

Product	Length	Quantity	Price
ST-31BQ	30 min.	20	\$ 19.20
ST-62BQ	60 min.	20	20.50
ST-126BQ	120 min.	20	21.85

CV 1" Video Tape

Cardboard Box

Product	Length	Quantity	Price
CV-30	30 min.	5	\$ 73.60
CV-60	60 min.	5	95.50
CV-90	90 min.	5	125.50

Shipper Box

Product	Length	Quantity	Price
CV-30S-BQ	30 min.	5	\$ 79.60
CV-60S-BQ	60 min.	5	101.50
CV-90S-BQ	90 min.	5	131.50

KCA 3/4" Videocassettes

• Fully packaged with album and sleeve
High Grade

Product	Length	Quantity	Price
KCA-5HG	5 min.	10	\$ 23.00
KCA-10HG	10 min.	10	25.00
KCA-20HG	20 min.	10	26.50
KCA-30HG	30 min.	10	28.50
KCA-30HG Shipper	30 min.	10	30.00
KCA-60HG	60 min.	10	41.50
KCA-60HG Shipper	60 min.	10	43.00

Broadcast Quality

Product	Length	Quantity	Price
KCA-5BQ	5 min.	10	\$ 23.90
KCA-10BQ	10 min.	10	25.90
KCA-20BQ	20 min.	10	27.43
KCA-30BQ	30 min.	10	29.51
KCA-30BQ Shipper	30 min.	10	31.01
KCA-60BQ	60 min.	10	47.95
KCA-60BQ Shipper	60 min.	10	49.45

KCS 3/4" Videocassettes

• Fully packaged with album and sleeve
High Grade

Product	Length	Quantity	Price
KCS-10HG	10 min.	10	\$ 21.94
KCS-20HG	20 min.	10	26.01
KCS-20HG Shipper	20 min.	10	27.51

Broadcast Quality

Product	Length	Quantity	Price
KCS-10BQ	10 min.	10	\$ 22.54
KCS-20BQ	20 min.	10	27.01
KCS-20BQ Shipper	20 min.	10	28.51

VHS 1/2" Videocassettes

• Fully packaged with sleeve and label

Standard	Length	Quantity	Price
T-30PLUS	30 min.	10/50	\$ 7.88
T-60PLUS	60 min.	10/50	8.21
T-90PLUS	90 min.	10/50	8.32
T120PLUS	120 min.	10/50	8.43
T-160(EX)	160 min.	10/50	16.99

HGX Plus Videocassettes

Product	Length	Quantity	Price
HGX Plus T-60	60 min.	10/50	\$ 8.96
HGX Plus T-120	120 min.	10/50	10.32
HGX Plus T-160	160 min.	10/50	12.48

Broadcast Quality

Product	Length	Quantity	Price
T30BQ	30 min.	20	\$ 11.99
T60BQ	60 min.	20	12.99
T120BQ	120 min.	20	14.86

XRSF S-VHS Videocassettes

Product	Length	Quantity	Price
XRSF-120	120 min.	10/100	\$ 20.85

Compact Videocassettes

Product	Length	Quantity	Price
EX TC-20	20 min.	10/100	\$ 8.79
HGX Gold TC-20	20 min.	10/100	9.32
RX Pro TC-20	20 min.	10/100	10.26
SQ TC-20	20 min.	10/100	14.47

Beta 1/2" Videocassettes

• Fully packaged with sleeve and label

Standard

Product	Length	Quantity	Price
L-250PLUS	30 min.	10/50	\$ 7.88
L-500PLUS	60 min.	10/50	8.21
L-750PLUS	90 min.	10/50	8.43

Betacam - BQ

Product	Length	Quantity	Price
B-10BQ	10 min.	10	\$ 19.00
B-20BQ	20 min.	10	20.50
B-30BQ	30 min.	10	23.00
B-60LBQ	60 min.	10	37.00
B-90LBQ	90 min.	10	45.00

Betacam - SP

Product	Length	Quantity	Price
B-10M SP	10 min.	10	\$ 47.78
B-20M SP	20 min.	10	53.08
B-30M SP	30 min.	10	58.38
B-60M LSP	60 min.	10	67.88
B-90M LSP	90 min.	10	85.88

8mm Videocassettes

• Fully packaged with sleeve and label

Product	Length	Quantity	Price
EX6-15	15 min.	10/200	\$ 10.28
EX6-30	30 min.	10/200	11.85
EX6-60	60 min.	10/200	13.14
EX6-90	90 min.	10/200	14.21
EX6-120	120 min.	10/200	15.31

HGX 8mm Videocassettes

• Fully packaged with sleeve and label

Product	Length	Quantity	Price
HGX-M P-15	15 min.	10/200	\$ 10.84
HGX-M P-30	30 min.	10/200	12.46
HGX-M P-60	60 min.	10/200	13.88
HGX-M P-90	90 min.	10/200	14.97
HGX-M P-120	120 min.	10/200	16.34

Video Floppy Disk

Product	Frames	Quantity	Price
VF1-M	50 frames	10/100	\$ 180.00

Audio Cassettes

Instant Start Cassettes (Fully Packaged — With Albums and Labels)

Product	Length	Quantity	Price
IS-30	30 min.	10/100	\$1.49
IS-60	60 min.	10/100	1.75
IS-90	90 min.	10/100	2.00

Duplicator Series Cassettes (Bulk)

Duplicator Series cassettes are identical to the Communicator Series. The only difference is they are unlabeled.

Product	Length	Quantity	Price
DUP-30	30 min.	20/200	\$1.44
DUP-45	45 min.	20/200	1.60
DUP-60	60 min.	20/200	1.75
DUP-90	90 min.	20/200	2.42
DUP-120	120 min.	20/200	3.45

Communicator Series Cassettes (Fully Packaged — With Albums and Labels)

These cassettes feature wide frequency response and uniform output characteristics, assuring dependable performance from one end of the tape to the other, with normal bias and equalization settings, so they can be used with the vast majority of P/I recording equipment.

Product	Length	Quantity	Price
COM-30	30 min.	10/100	\$1.55
COM-45	45 min.	10/100	1.65
COM-60	60 min.	10/100	1.85
COM-90	90 min.	10/100	2.47
COM-120	120 min.	10/100	3.71

UDS Cassettes (Packaged — Ultra Dynamic)

UD Ultra Dynamic Cassettes high sensitivity high output of 5dB at 12,500Hz wide bias latitude and frequency range.

Product	Length	Quantity	Price
UDS I-46	46 min.	10/100	\$2.49
UDS I-60	60 min.	10/100	2.49
UDS I-90	90 min.	10/100	2.99
UDS II-46 Studio	46 min.	10/100	2.49
UDS II-60 Studio	60 min.	10/100	2.49
UDS II-90 Studio	90 min.	10/100	2.99

XLII Cassettes (Cobalt Ferrite Epitaxial — High Bias)

To be used with cassette decks that have a chrome position. By using the setting for chromium tape, the recorder will be adjusted for a different bias current. The difference is easily heard upon playback, where the noise level between sound and tape is reduced between 4 and 5dB.

Product	Length	Quantity	Price
XLII-46	46 min.	10/100	\$2.99
XLII-60	60 min.	10/100	2.99
XLII-90	90 min.	10/100	3.99

XLI-S Cassettes (Studio Series — Normal Bias)

The XLI-S is the finest ferric-based tape formulation available in a cassette designed to use normal bias and EQ. Frequency response extends to the widest limits ever achieved in this class of cassette, with greater sensitivity throughout the entire tonal range as well.

Product	Length	Quantity	Price
XLI-S-60	60 min.	10/100	\$3.99
XLI-S-90	90 min.	10/100	5.49

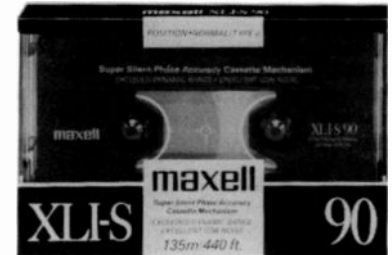
XLII-S Cassettes (Studio Series — High Bias)

The XLII-S represents an advanced tape formulation, high epitaxial, with notably finer magnetic particles, plus an entirely new molecular fusion binder system. (Use XLII-S with the recorder's High, or Chrome settings for bias and equalization — 70µs).

Product	Length	Quantity	Price
XLII-S-60	60 min.	10/100	\$3.99
XLII-S-90	90 min.	10/100	5.49



R-120DM



XLI-S Series

MX Metal Tape Cassettes

When MX is recorded on a metal-compatible deck, the Maximum Output Level (MOL) is 2dB greater in the high frequency range than the output of a non-metal premium tape. Distortion is also dramatically reduced at the same input level.

Product	Length	Quantity	Price
MX-60	60 min.	10/100	\$5.29
MX-90	90 min.	10/100	6.99

Digital Audio Tape (DAT)

RDM Series R-DAT Digital Mastering Tape

Audio tape designed specifically for DAT recorders.

Product	Length	Quantity	Price
R-46DM	46 min.	5/100	\$ 9.80
R-60DM	60 min.	5/100	11.00
R-90DM	90 min.	5/100	12.20
R-120DM	120 min.	5/100	13.40

Microcassettes

UD Microcassettes

Made with Maxell's famous UD tape formulation, UD microcassettes exhibit surprisingly high fidelity at both speeds of microcassette recorders.

Product	Length	Quantity	Price
MC-60UD 3 pack	60 min.	10/100	\$6.49

Open Reel Audio Tape

UD 1/4" Open Reel Tape

UD Ultra-Dynamic. The quality choice of professionals. Wide dynamic range and full frequency response has made this polyester tape the longtime favorite of studio professionals.

Product	Length	Quantity	Price
UD35-90	1800' x 7" RL-1 1/2 Hr.	10/40	\$ 7.49
UD35-180	3600' x 10 1/2" RL-3 Hr.	10/20	22.99

XL 1/4" Professional Open Reel

XL Professional Back-Coated. Unsurpassed for high performance mastering. Totally responsive to all the demands of a live performance. Available in the "professional thickness" of 1.5 mil in addition to 1.0 mil thickness.

Product	Reel	Length	Price
XLI-35-90B	7" precision plastic reel	1800'	\$10.39
XLI-35-180B	10.5" NAB metal reel	3600'	28.99

EFFECTS SYSTEMS/ TIME BASE CORRECTORS



Genesis ACT 3™ Digital Effects System

- Page turn • Simultaneous rotation and perspective • 9 selectable axes of rotation • Expansion to 2X normal size • Infinite compression
- Variable aspect ratio • Variable picture position on and off the screen
- Linear or curvilinear motion or cut transitions • Proportional borders — nine widths selectable • Selectable softness between the picture and border • Variable border hue, saturation and luminance • 7 posterize levels, including negative luminance • 7 solarize levels, including forced monochrome • Defocus • Freeze • Variable strobe freeze
- Mosaic tiles with variable size • Individual cropping on all 4 sides of the picture in a sequence • System crop function to accommodate input blanking variations • Programmable pauses in a sequence • Walk mode for previewing sequences • Composite and component video inputs/outputs • 2 x 1 switcher for composite video inputs • Built-in keyer to superimpose manipulated video over a background input • GPI input for edit control • Control panel may be located up to 2000' from the mainframe • Key signal output for keying in a switcher • Available in NTSC, 525 PAL and 625 PAL versions

Genesis ACT 3 With 25' cable \$19,995.00
 Upgrade To add rotation, perspective and page turns to Genesis Act 1 11,000.00
 Extender Card 500.00
 Additional Cable 2000' maximum ft./2.50
 DATAKEY® 5 per package 475.00
 ACT 3 Control Panel 3,500.00

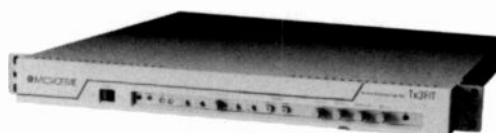


Genesis ACT 3

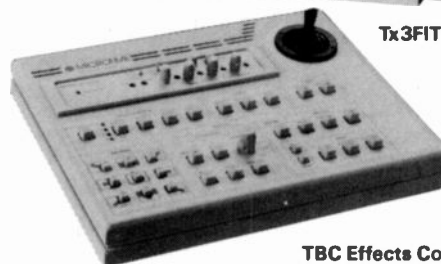
Tx3FIT Time Base Corrector

- 4:2:2 processing • Component input and output • S-VHS dub input and output • Composite input and output • U-Matic dub input (standard or SP) • Operates in PAL highband or lowband dub • VARI-TRAK for -1X to +3X playback • Frame freeze • Interpolated field freeze • Genlock • Stand-alone sync generator • Shuttle to ±40X play speed • Proc amp controls with presets • Optional TBC remote • Optional effects control complements wideband component VTR formats, including Betacam, MII, S-VHS, ED-Beta, etc., Y, R-Y, B-Y (YUV); Y/C 3.58 (4.43); U-Matic dub and composite inputs are all standard, and are switch selectable from the front (or remote) panel. Multi-format outputs are also standard, providing total format interchange capability. Simultaneous outputs of Y, R-Y, B-Y (YUV), Y/C 3.58 (4.43) and composite video are provided

Tx3FIT \$7,995.00



Tx3FIT

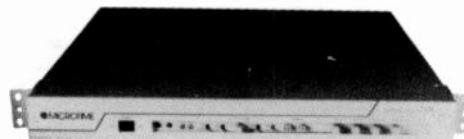


TBC Effects Control

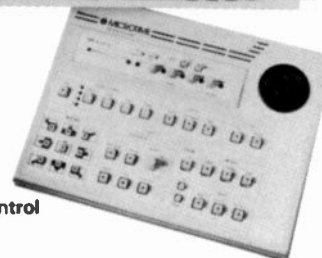
Tx4.2 S-VHS Time Base Corrector

- S-VHS input and output • Composite input and output • Component output • U-Matic dub input (standard or SP) • Operates in PAL highband or lowband dub • Component design • Full frame of memory provides freeze frame and interpolated field freeze • Can be operated with or without advanced sync • Will genlock or automatically reference to internal RS-170A sync generator (stand-alone mode) • Dropout compensator • Proc amp controls with presets • Shuttle performance to ±40X

Tx4.2 \$5,995.00



Tx4.2



TBC Effects Control

Tx3FIT/Tx4.2 TBC Effects Remote Control

- Posterize and solarize • Mosaics—tiles, columns or bars • Variable strobe freeze • Quarter size with joystick positioning • 4 preset quarter size positions • Dissolves, fade to black or background • Horizontal, vertical and corner wipes • Horizontal, vertical and corner pulls • Mid effect hold • Pause • 4 transition speeds • Storage of 4 events • Key output • Proc amp controls • Presets • Freeze buttons • Internal keyer is provided with the Effects Control option • Composite TBC video can be keyed, pushed or wiped over a background video, or over black, providing a complete video production system in a single TBC • Up to 4 events can be stored and triggered manually or by GPI

Tx3FIT/Tx4.2 Factory installed \$4,500.00

Options for Tx3FIT/Tx4.2

Noise Reducer Option for Tx4.2 \$1,500.00
 TBC Remote with 75' cable 650.00
 Rackmount for TBC Remote Mounts 2 remotes
 side by side 95.00
 RGB Output Option 500.00
 Component Cable — Tx3/Tx4.2 Output to:
 3 BNC 195.00
 Betacam 195.00
 M2 195.00

Tx5 Component Time Base Corrector

• Low cost component TBC • Y/C input and output • Composite input and output • 5.5MHz luminance bandwidth • 4:2:2 component processing • Frame freeze • Field freeze • Genlock • Stand-alone sync generator • Shuttle to $\pm 40X$ play speed • Front panel proc amp and mode controls

The Tx5 is designed to stabilize the output of virtually any $\frac{3}{4}$ " , $\frac{1}{2}$ " or 8mm VTR. Use the Y/C input and output with S-VHS™ and other Y/C VTRs to preserve the increased bandwidth of those formats. The 5.5MHz luminance bandwidth, and 4:2:2 8-bit sampling, offer wide-band transparent processing. Use the composite input with virtually any VTR. Y/C and composite outputs let you transcode video between formats if you have a mixture of VTRs.

The full frame of memory lets you operate with or without advanced sync to the VTR, so you can synchronize and time base correct a remote feed. Use frame freeze for maximum resolution on still images, or, for flicker-free freeze of moving pictures, use field freeze.

Proc amp controls, timing adjustments, and all other operator controls are located on the front panel for easy access.

The built-in sync generator conforms to RS-170A in NTSC and EBU standards in 625 PAL. The Tx5 will genlock to an external reference, or will automatically select stand-alone mode if a reference is not connected.

Arithmetically correct sync-to-subcarrier phasing is maintained in the stand-alone mode.

Tx5 \$3295.00

Tx6/ABEffects System

Tx6 Modular TBC/Framestore System

Tx6 TBC/Framestore

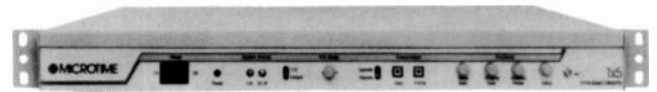
• System configurations: dual TBC with noise reduction; dual TBC; single TBC with noise reduction; single TBC • Infinite window TBC/framestore • Y/C input and output (for S-VHS and similar formats) • Composite input and output • Component input and output (for Betacam or M2) • U-Matic dub input (standard or SP) • Operates in PAL highband or lowband dub • Vari-Trak™ for $-1X$ to $+3X$ playback • Frame freeze • Interpolated field freeze • Genlock • Stand-alone sync generator • Shuttle to $\pm 40X$ play speed • Proc amp controls with presets • Dropout compensation • Modular system with plug-in cards • Available in NTSC, 625-line PAL and 525-line PAL

The Tx6 Modular TBC/Framestore System allows you to achieve maximum capability from your $\frac{1}{2}$ " and $\frac{3}{4}$ " VTRs, utilizing all current signal architectures, such as composite, component, dub and S-VHS input and output, with format transcoding.

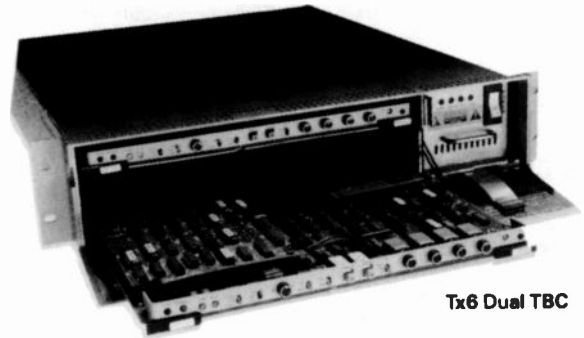
The Tx6 is modular in design, so you may begin with a single TBC/framestore and upgrade to a dual TBC/framestore in the field. In addition, the Tx6 allows further upgrade capability to full AB effects as your needs and requirements change.

ABEffects Modular Framestore System

• System configurations: dual TBC with effects; dual TBC; single TBC with effects; single TBC • Infinite window framestore • YC input and output (for S-VHS and similar formats) • Composite input and output • Component input and output (for Betacam or M2) • U-Matic dub input (standard or SP) • Operates in PAL highband or lowband dub • Vari-Trak for $-1X$ to $+3X$ playback • Frame freeze • Interpolated field freeze • Genlock • Stand-alone sync generator • Shuttle to $\pm 40X$ play speed • Proc amp controls with presets • Dropout compensation • Modular system with plug-in cards • Available in NTSC, 625-line PAL and 525-line PAL • Video effects include: posterize and solarize; horizontal, vertical and corner wipes; mosaics, tiles, columns or bars; horizontal, vertical and corner pulls; variable strobe freeze; horizontal, vertical and corner pushes (dual channel systems only); quarter size with joystick positioning; horizontal, vertical and corner splits; border color and size control; square wipes; fade to black, fade to background color, dissolve to other channel; mid effect hold; 4 transition speeds; stereo audio mixer with mix, fade and hold



Tx5



Tx6 Dual TBC



ABEffects Modular
Framestore System

ABEffects is available in a number of different configurations for your current and future needs. Start out with a single or dual framestore TBC and add effects later, or purchase the system in its entirety.

In the dual channel configuration, the system will operate as 2 independent framestore TBCs, each with a full complement of video inputs and outputs. Add the effects option, and each framestore can be programmed for a wide range of digital effects. The component video mixer combines the 2 channels and provides a third set of outputs.

Multiple format, switchable inputs and simultaneous outputs of composite, component and Y/C video provide total format interchange, so the ABEffects system can expand with your system.

Dual framestore TBC with mixed effects (1) \$18,160.00
 Dual framestore TBC—no effects (2) 13,490.00
 Single framestore TBC—with effects (3) 15,045.00
 Single framestore TBC—no effects (4) 9,335.00
 Upgrade to add second TBC to item (3) or (4) 6,225.00
 Upgrade to add mix effects to item (2) or (4) 6,225.00
 Page turn option (1 per system) 1,560.00
 Noise reduction option. Order 1 per TBC 1,560.00
 RGB output option. Order 1 per TBC 520.00
 TBC remote for item (2) or (4). Order 1 per TBC 675.00
 Rackmount for TBC remote (mounts 2
 remotes side by side) 100.00

TRANSMITTERS/ANTENNA/ MICROWAVE SYSTEM

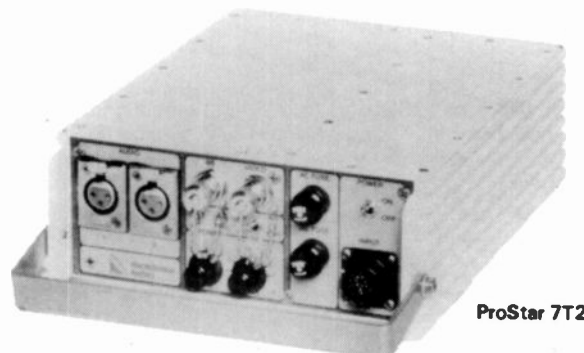


ProStar 7T2 6/7GHz Transmitter

- Lightweight, compact and self-contained • Frequency range: 6.425 to 7.125GHz • Digital frequency synthesizer—42 channels • Video plus 2 audio program channels—selectable mic or line inputs • Video low pass filter standard • Sophisticated, field-proven RF circuitry • Standby mode—instant on-frequency transmission • Internal AC/DC power supply—11 to 15VDC or 115/230VAC operation (50/60Hz) • Ruggedized and weather-resistant

The ProStar 7T2 is a low-cost portable transmitter designed for television broadcast in both domestic and international bands and cable ENG operations, offering a combination of performance, functionality and reliability unmatched in the industry. This high-performance, frequency agile radio transmitter features a high degree of multichannel flexibility. It concurrently handles a color television channel and 2 audio program channels, while producing a 1.5W output in the 6/7GHz frequency bands. The 7T2's compact and lightweight design provides the mobility and quick response required in broadcast and cable ENG applications. It is a self-contained, low-cost ruggedized unit that can be installed on a seasonal or semi-permanent basis for reoccurring events such as government and education sessions, sporting events, theater and meetings.

- 900350 7T2 transmitter
- 89870-77 Lightweight tripod
- 900341-1 7T2 transit case
- 808542-1 Battery pack/charger (optional)



ProStar 7T2

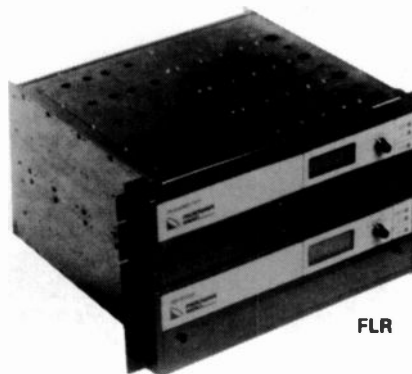


ProStar 2T2WB

ProStar 2T2WB 2GHz Transmitter

- Low-cost, self-contained, lightweight • Frequency range: 1.7 to 2.7GHz • Digital frequency synthesizer: 30 channels cover both low and high U.S. broadcast bands • Video low pass filter standard • Video plus 2 audio program channels: selectable mic or line input, either channel • Auto peak limiting on mic input • Standby mode for instant RF transmission on-frequency • Internal AC/DC power supply: 11 to 15VDC or 115/230VAC (50/60Hz) operation • Ruggedized and weather resistant

The 2T2WB is a low-cost, portable transmitter designed for domestic and international television broadcast and cable ENG operations that offers a combination of performance, functionality and reliability unmatched in the industry. This high-performance, frequency-agile radio transmitter features a high degree of multichannel flexibility. It concurrently handles a color television channel and 2 audio program channels, while producing a 3W output in the 2GHz frequency band. The 2T2WB features a compact, lightweight design that provides the mobility and quick response required for broadcast and cable ENG operations. A full line of "quick-disconnect" high-gain antennas are available for use with the 2T2WB transmitter.



FLR

FLR 2, 6, 7 and 12GHz Direct Modulation Microwave System

- Modern, high performance design meets EIA and CCIR requirements
- Built-in, low noise GaAs FET preamplifiers are standard in all receivers and provide excellent threshold performance
- Synthesized transmitter and receiver microwave sources are field-tunable across various frequency bands
- Up to 4 internal, high performance program audio channels available with each transmitter and receiver
- Solid-state FET or bipolar broadband RF output amplifiers are incorporated in all transmitters
- High power amplifier "HP" version option available in all bands for additional fade margin protection

The FLR Series is advanced design, high performance, directly modulated microwave equipment suitable for both domestic and international applications, including: STL and TSL, multi-hop and multi-channel broadcast, CATV and ETV video system networks. The equipment may be configured as either a simplex or duplex system. Protection options such as hot-standby, including space and frequency diversity, are also available.

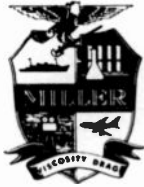
ProStar 2A20/7A30 Transmit Antenna

- Rugged fiberglass-honeycomb construction • High gain • Broad-band design covers both 2 and 2.5GHz band • 7GHz broadband model covers 6.425 to 7.125GHz • Dual band 2/7GHz version available • Excellent front to back and side lobe performance

The ProStar 2A20/7A30 is a low profile, offset fed antenna. The reflector is constructed from honeycomb reinforced material which provides extreme ruggedness and light weight. Ideally suited for van applications.

It is available as a single band antenna covering either the 1.8GHz, 2/2.5GHz or 7GHz band or as a multi-band antenna system covering both the 2/2.5GHz and 6.5/7GHz bands.

The feed design permits either linear or circular polarization with a full range of remote switching options. The antenna is designed to interface with the QuickSet QPT90 pan and tilt head.



MILLER

TRIPODS/HEADS

System 10A Cat. 332

• Junior fluid head 101 • Junior A tripod with column lift 331 • Reversible spike/pad feet • Single handle 270 • 10 lb. capacity \$620.00

System 15 II Cat. 335

• Senior F fluid head 102 • Compact tripod with spreader 301 • Feet, handle • 20 lb. capacity \$1795.00

System 20 Cat. 338

• Miller 20 fluid head 105 • Compact tripod with spreader 301 • Rubber feet 375 • Handle 271 • 20 lb. capacity \$1920.00

System 25 II Cat. 341

• Light Professional fluid head 106 • Compact tripod with spreader 302 • Rubber feet 375 • Handle • 30 lb. capacity \$2095.00
Cat. 342 As above with 2-stage tripod 403 \$2620.00

System 30 Cat. 344

• Miller 30 fluid head 155 • Compact tripod with spreader 302 • Rubber feet 375 • Handle 271 • 30 lb. capacity \$3560.00

System 30 ENG Cat. 345

• Miller 30 fluid head 155 • 2-stage tripod with spreader 302 • Rubber feet 375 • Handle 271 • 30 lb. capacity \$3750.00

System 35 II Cat. 347

• VG50 fluid head 118 • Midi tripod with spreader 285 • Feet, 2 telescopic handles • 50 lb. capacity \$2915.00

System 40 ENG Cat. 353

• Miller 50 fluid head 160 • 2-stage tripod with spreader 302 • Set of 3 rubber feet 375 • Single handle 271 • 30 lb. capacity . . . \$3975.00

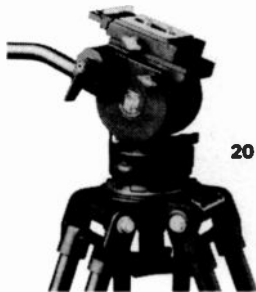


System 40 Cat. 350

• Miller 50 fluid head 160 • Midi tripod with spreader 285 • Rubber feet 375 • 2 telescopic handles 272 • 50 lb. capacity \$3970.00

System 80 Cat. 355

• Miller 80 fluid head 150 • Maxi tripod with spreader 290 • Set of 3 rubber feet 375 • Dual telescopic handles 274 • 80 lb. capacity \$6940.00



20 II



30 II



50 II



80

With Integrated Counterbalance

Miller 20 II Fluid Head Cat. 105

• Capacity 20 lbs. • Features integrated counterbalance system • Sliding camera platform and integrated claw-ball level \$1145.00

Miller 30 II Fluid Head Cat. 155

• Capacity 30 lbs. • Features integrated variable counterbalance system • Multi-step drag control and integrated claw-ball level \$2650.00

Miller 50 II Fluid Head Cat. 160

• Capacity 50 lbs. • Features integrated variable counterbalance system • Multi-step drag control • Sliding camera platform and integrated claw-ball level \$2875.00

Miller 80 Fluid Head Cat. 150

• Capacity 80 lbs. • Features integrated variable counterbalance system • Multi-step drag control • Sliding camera platform and integrated claw-ball level \$5495.00

Without Integrated Counterbalance

Miller Junior Fluid Head Cat. 101 Capacity 10 lbs. Features independent, variable pan and tilt drag adjustment. Supplied with flat base (claw-ball level available) \$ 395.00

Senior F Fluid Head Cat. 102 Capacity 20 lbs. Features independent, variable pan and tilt drag adjustment and independent tilt lock. Supplied with flat base (claw-ball level available) \$900.00

Light Professional Fluid Head Cat. 106 Capacity 30 lbs. Features independent, variable pan and tilt drag adjustment and independent tilt lock. Supplied with flat base (claw-ball level available) \$1375.00

VG50 Fluid Head Cat. 112 Capacity 50 lbs. Features independent, variable pan and tilt drag adjustment and independent tilt lock. Supplied with flat base (claw-ball level available) \$1515.00

TRIPODS/ACCESSORIES



MILLER



331



301/302



285



290/292



403

331 Junior A Tripod With Column Lift

• 20 lb. capacity • Collapsed height 29" • Extended height 67" • Includes built-in spreader and reversible spike/pad feet
331 With flat base top \$225.00

301/302 Compact Tripod II With Spreader

• 30 lb. capacity • Collapsed height 33" • Extended height 58" • Also available in mini size
301 With 75mm bowl \$775.00
302 With 100mm bowl 775.00

285 Midi Tripod With Spreader

• 50 lb. capacity • Collapsed height 35" • Extended height 61" • Also available in mini size
285 With 100mm bowl \$925.00

320/321 Professional Series Tripod (Wood)

• 30 lb. capacity • Collapsed height 40" • Extended height 60" • Also available in medium and mini sizes (spreader optional)
320 With 75mm bowl \$690.00
321 With 100mm bowl 690.00

310/311 ENG Tripod With Spreader

• 50 lb. capacity • Collapsed height 36" • Extended height 60"
310 With 100mm bowl \$860.00
311 With 75mm bowl 860.00

290/292 Maxi Tripod With Spreader

• 100 lb. capacity • Collapsed height 35" • Extended height 61"
• Also available in mini size
290 With 150mm bowl \$1175.00
292 With Mitchell type flat base 1175.00

403 2-Stage With Spreader

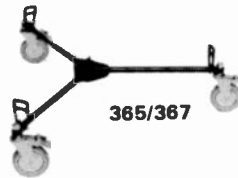
• 55 lb. capacity • Collapsed height 26.6" • Extended height 58.5"
• Eliminates need for "baby legs"
403 With 100mm bowl \$1100.00



217



245/298/309



365/367



229/238/239



294/296

Accessories

217 Column Lift Elevator

Provides up to 12" variable extension and ball leveling for above tripods, except 290/292 \$475.00

365 Medium Duty Dolly (Formerly 209)

100 lb. capacity, 5" wheels \$865.00

367 Lightweight Dolly (Formerly 224)

30 lb. capacity, 3" wheels \$495.00

229/238 Millmount

30 lb. capacity, 100mm bowl 229; 75mm bowl 238 \$610.00

239 Millmount

30 lb. capacity, 150mm bowl \$725.00

- 300 Tripak case, 7" diameter \$315.00
- 309 Tripak case, 9" diameter (short) 315.00
- 245 Tripak case, 9" diameter 315.00
- 298 Tripak case, 11" diameter 375.00
- 234 Spreader suit 320, 321 tripod 175.00
- 295 Monopod. 225.00
- 254 Hi Hat, 75mm bowl 265.00
- 253 Hi Hat, 100mm bowl. 265.00
- 255 Hi Hat, 150mm bowl. 375.00
- 259 Mitchell flat base 375.00
- 375 Rubber feet (set). 135.00
- 294/296 Soft case 149.00
- 306 Soft case. 225.00
- 381 75mm flat base adaptor suit 104, 105. 125.00
- 360 100mm flat base adaptor suit 114, 115, 116, 119, 155, 160 . . . 125.00
- 362 150mm flat base adaptor suit 150. 250.00
- 363 Gitzo adaptor suit 114, 115, 116, 119, 155, 160 225.00
- 364 Gitzo adaptor suit 104, 105. 225.00
- 308 Fast strap, adjustable carry strap 29.95



WIRELESS MICROPHONE SYSTEMS

101/201 VHF Wireless Systems

- 101 VHF is a single channel receiver
- 201 VHF includes 2 complete front ends for true diversity reception to assure dropout-free performance
- Designed to operate simply and reliably in all conditions
- Panel combines striking graphics with the efficiency of a single overlay that includes recessed power and signal LED indicators, and a power on/off membrane switch
- Audio output is also conveniently located on the front bezel
- Fold-down retractable antennas are positioned in front of receivers for ease of use when rackmounted

Each System Includes Receiver and Transmitter Described Below

101 GT	With body pack instrument transmitter . . .	\$249.95
101 LT	With hardwired lavalier transmitter	279.95
101 LT/SX	With body pack transmitter (mini XLR connector)	297.95
101 HT	With handheld microphone transmitter	299.95
101 HT/58	With handheld microphone transmitter (Shure SM-58 element)	509.95
101 HT/NDYM	With handheld microphone transmitter (E-V 257 element)	534.95
201 GT	With body pack instrument transmitter	369.95
201 LT	With hardwired lavalier transmitter	409.95
201 LT/SX	With body pack transmitter (mini XLR connector)	414.95
201 HT	With handheld microphone transmitter	429.95
201 HT/58	With handheld microphone transmitter (Shure SM-58 element)	609.95
201 HT/NDYM	With handheld microphone transmitter (E-V 257 element)	639.95

Components and Accessories

Rack-01	Rackmount for 101/201 receivers	\$ 39.95
	Road case for 101/201 systems	34.95
AD-4	Antenna distribution system (includes cables, connectors and antenna)	624.95
ARM-1	Rackmount plate for AD-4	79.95
	AC adaptor for 101 and 201	17.95
RM-1	Rackmount ears for 1200 receiver	59.95

Transmitters

GT-ST	Standard instrument transmitter	\$144.95
LT-ST	Hardwired lavalier transmitter	164.95
LT-SX	Lavalier transmitter with mini-XLR connector (mic not included)	199.95
LT-1200	Nady 1200 lavalier transmitter	844.95
HT-ST	Handheld mic transmitter	209.95
HT-58	Handheld mic transmitter with Shure SM-58 element	389.95
HT-NDYM	Handheld mic transmitter with E-V 257 element	419.95
HT-1200	Handheld transmitter with SM-58 or 257	899.95

Receivers

101	Receiver only	\$179.95
201	Receiver only	252.95
650	Receiver only	524.95
1200	Receiver only	999.95

Lavalier Microphones

GLM-100	Crown	\$199.95
GLM-200	Crown	229.95
AT-831	Audio Technica	139.95

Headset Microphones

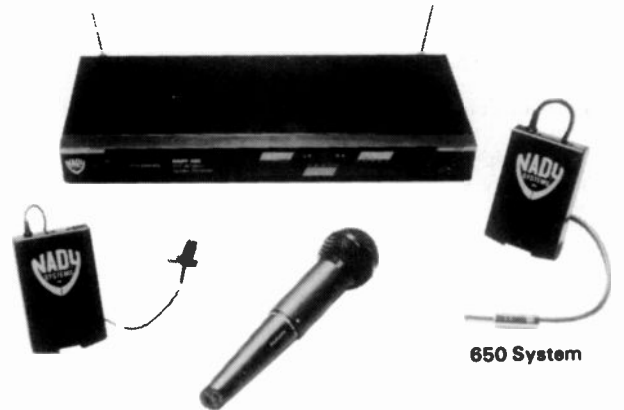
C-410	AKG	\$249.95
ATM-73	Audio Technica	199.95

650 True Diversity Wireless System

- Operates on VHF high band frequencies
- 120dB dynamic range for superior sound
- True diversity for dropout-free performance



101/201 Systems



650 System

- Instrument, handheld and lavalier transmitter with attached lavalier microphone available
- 10-channel capability allows up to 10 standard frequencies to operate simultaneously
- Available with optional 1200 Series handheld transmitters that allow user-switchable elements featuring: Shure SM 58, E-V N/DYM 357 and 757 units, plus optional 1200 LT and GT transmitter

Each System Includes a 650 Receiver and Transmitter Described Below

650 GT	With body pack instrument transmitter . . . \$	599.95
650 LT	With hardwired lavalier transmitter	639.95
650 LT/SX	With body pack transmitter (mini XLR connector)	639.95
650 LT/1200	With body pack 1200 Series transmitter (mini XLR connector)	999.95
650 HT	With handheld microphone transmitter	659.95
650 HT/58	With handheld microphone transmitter (Shure SM-58 element)	859.95
650 HT/NDYM	With handheld microphone transmitter (E-V 257 element)	889.95
650 HT/1200	With handheld 1200 Series microphone transmitter (Shure SM-58 or N/DYM 757)	1099.95

1200 True Diversity Wireless System

- True diversity for dropout-free performance
- Instrument, handheld and lavalier transmitters available
- Completely redesigned handheld transmitter with user-switchable elements

Each System Includes 1200 Receiver and Transmitter Described Below

1200 GT	With body pack instrument transmitter . . . \$	1599.95
1200 LT	With body pack transmitter (mini XLR connector)	1599.95
1200 HT	With handheld transmitter (Shure SM-58 or N/DYM 757)	1699.95

WIRELESS MICROPHONE SYSTEMS



501 VR Portable VHF Wireless System

• Patented companding circuitry gives 120dB dynamic range for crisp, clear, noise-free operation • Double-heterodyne receiver for over 100dB image and spurious rejection • Choice of lightweight handheld or miniature lavalier transmitter in a body-pack • Internal power supply with flexible external powering options

The 501 VR wireless system was specially designed for ENG/EFP applications. The system operates on VHF high-band frequencies, with 5 channels between 170 and 216MHz offered standard and other frequencies available.

The 501 VR receiver is housed in a lightweight metal case compact enough to fit into equipment pockets. The receiver's unique double-heterodyne design allows unmatched image and spurious rejection. This enables the system to be used with confidence in the most RF-polluted environments.

The receiver is internally powered by a 9V battery, or externally powered from any 12V to 35V power source. Controls and indicators include a switchable combination RF/battery level meter and a combination on/off/headset level control. An LED peak meter indicates audio overmodulation. Headphone output and audio output (mic level) are provided.

Specifications

Frequency

Response: 25Hz-20KHz \pm 3dB

Dynamic Range: 120dB (max. SPL to A-weighted noise level)

Harmonic

Distortion: < 0.3%

RF Carrier

Frequencies: 5 channels: A through E, between 170-216MHz

Frequency

Stability: \pm 0.005% crystal controlled

Modulation: FM/ \pm 15kHz

Operating Range: 200' adverse conditions, up to 1500' line-of-sight

501 VR/LT Professional video camera wireless microphone system for ENG, EFP—lavalier \$ 849.95

501 VR/HT Professional video camera wireless microphone system for ENG, EFP—handheld 1099.95

151 VR Wireless Microphone System

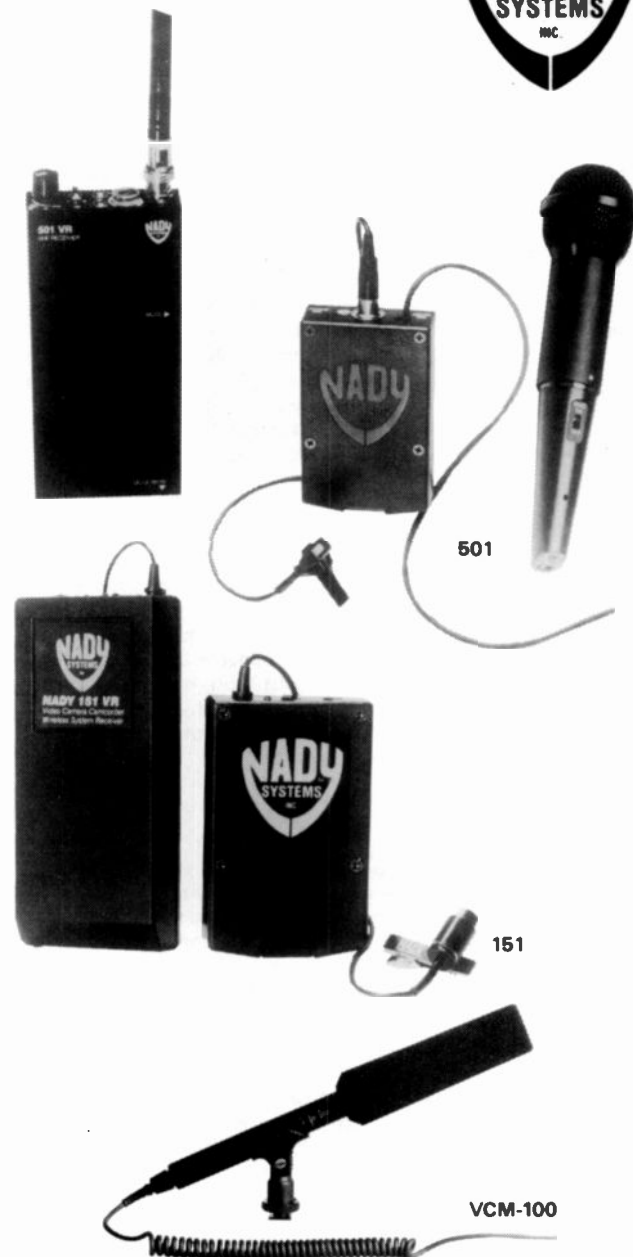
• Puts the microphone "where the action is" for professional quality audio on your tapes • Operates on VHF high-band frequencies for interference-free performance • Companding circuitry gives crisp, clear sound without overload distortion or background hiss • Dynamic range over 110dB • Compatible with all camcorders and video cameras

The 151 VR has companding circuitry for dynamic range over 110dB, which means no background hiss or overload distortion. The system works with all video cameras and camcorders having an audio input. Range is 250'. The 151 wireless transmitter body pack clips on belt where it can't be seen. Then the attached lavalier microphone is positioned near the speaker's mouth on a tie, coat, shirt, etc. The transmitter is powered by a 9V battery. Controls include transmitter on/off and audio on/off.

The 151 VR wireless receiver is ruggedly built and packed with professional features. The receiver is powered by a 9V battery in convenient "pop-in" battery compartment. LED lights indicate low battery and received signal. Controls include output level and mute adjusts. Audio output and headset connectors are 3.5mm mini-plugs. An attached software antenna extends from the top of the receiver.

151 VR/LT VHF video camera wireless lavalier microphone system \$ 199.95

151 VR/HT VHF video camera wireless handheld microphone system 249.95



VCM-100 Video Camera Boom Microphone

• Solves the problem of poor quality sound in your videos by replacing the on-board mic supplied with your camera • Highly sensitive super-directional microphone gives you professional quality audio in all your videos. Switchable for normal or long distance • In long distance mode the mic eliminates extraneous noise, picks up only what you want to record. Ideal for lectures, concerts, weddings, parties or nature recordings • Super cardioid electret condenser element gives wide frequency response with extremely low noise • Powered by a AA battery • Includes microphone, 3' coil cord and shoe bracket for on-camera mount, 20' cord for remote use and a full length foam windscreens • Sensitivity: for short distance -70dB (1V/ μ bar 1kHz); for long distance -56dB (1V/ μ bar 1kHz) • Frequency response: 80Hz-12kHz • Output impedance: for short distance 1000 ohms; for long distance 2.3K ohms • Power source: 1.5VDC AA battery • Sound pressure level: 120dB max. • S/N ratio: 40dB or better

VCM-100 \$64.95

PR-2700S 27" Professional Monitor/Receiver

- 1 UHF/VHF 128-channel cable ready input • S-video input with loop out • 2 composite video inputs with loop out and monitor out • Stereo TV reception with built-in MTS decoder • dbx noise reduction • SAP separate audio program • On-screen time and channel display

PR-2700S\$1040.00

PM-971A 9" Color Monitor

- Black matrix picture tube • Picture tube corrects for pincushion distortion • Switchable AFC • Blue raster switch for quick correct picture setup • High DC restoration • Heavy-duty switching power supply • Video input/loop output with BNC connectors; switchable input impedance 75 ohms/high • Detachable 3-prong, grounded AC cable • Audio inputs, built-in audio amplifier and loudspeaker • Full range of controls: color, tint, black level, picture and sharpness • EIA rackmount capability

PM-971A\$525.00
 RM-97A Dual PM-971A rackmount kit (6 rack units high) . . . 100.00

PM-1271A 12" Color Monitor

- Black matrix picture tube with detachable tinted glass filter • 90° deflection line picture tube with black stripe shadow mask • 0.6mm slit pitch • Detachable tinted glass shield • 350 lines horizontal resolution • Selectable AFC speed • 3.58MHz trap filter • DC restoration • BNC type input/loop output • 8-pin VTR connector • Automatic controls: color killer, degausser, voltage control, color control, beam limiter • Power requirements: 120VAC, 60Hz • Power consumption: 61W

PM-1271A\$525.00
 RM-127A Rackmount kit for PM-1271A (8 rack units high) . . . 100.00

PM-1971S 19" S-VHS Color Monitor

- Black matrix picture tube with detachable tinted glass filter • 90° deflection in-line picture tube with black stripe shadow mask • Detachable tinted glass filter • 450 lines horizontal resolution • Selectable AFC speed • 3.58MHz trap filter • DC restoration • Built-in stereo amp and speakers • Wide range of inputs/outputs for future expansion plus 8-pin input/output socket • S-Video input

PM-1971S\$810.00

PM-2571A 25" Color Monitor

- 100° deflection in-line picture tube with black stripe shadow mask • 400 lines horizontal resolution • Other features same as PM-1971S except not S-VHS compatible

PM-2571A\$1030.00

CM-2791 27" Color Monitor

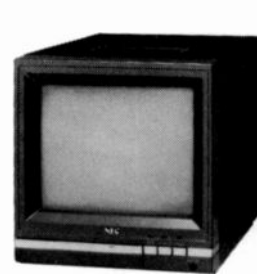
- Cubic designed cabinet • Takes up less space than conventional 26" monitors • 1 video input with loop output and 1 input (4 BNC analog or 9-pin TTL/analog) • RGB input is compatible with both CGA or EGA graphics • Remote in/out and ABL in/out jacks • Cubic design allows easy stacking for videowall applications • 9-pin to 9-pin interface cable included • 20⁷/₁₆" H x 25⁷/₁₆" W x 20¹/₂" D • 104 lbs.

CM-2791\$1600.00

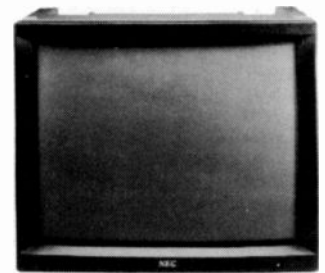
SVC-10 S-Video Converter

- Interfaces S-Video VCRs to existing RGB analog monitors and projectors • Interfaces to CM-2591A • Allows switching between a personal computer and an S-Video VCR • 4-pin DIN Y/C input with left and right audio connections and loopthrough output • 34-pin RGB input • Individual color, tint and sharpness controls

SVC-10\$285.00



PM-971A



CM-2791



SVC-10



PV-1300

HM-2050 20" /2750 27" Commercial Color Monitors

- All controls behind panel door or on back • 1 video input with left and right audio inputs • 1 RF input with channel 2 through 6 tuning for simple connection to a VCR or cable box • Built-in stereo amplifier • 2 internal speakers • Separate controls for volume, color, tint, picture and black level • HM-2050: 300 lines horizontal resolution • HM-2750: 500 lines horizontal resolution

HM-2050\$540.00
 HM-2750850.00

PV-S98A PC-VCR

- Ideal for video filing and desktop video presentations from multimedia sources • PC controls all VCR functions by way of RS-232C serial interface • Advanced "full load" mechanism for quick command response • 3 speeds: forward, play and slow motion • Insert/assemble editing with flying erase head • MTS stereo 155-channel cable ready programmable tuner • Built-in address generator allowing address post-dubbing of pre-recorded tapes • Compatible with Apple Macintosh II or MS-DOS architecture • Single frame accurate record/playback capability and Jet Search (2.5 minutes on T-120) • Random access controlled through either RS-232C port or via wireless remote control

PV-S98A\$2100.00

PV-1300 Professional VHS VCR

- 2-head • Auto repeat • 110-channel cable capable tuner receives VHF, UHF, mid and superbond channels • 4-event/21-day programmable timer • 1-touch segment recording of up to 5 hours • Record lock switch • Real time counter • Counter memory • Picture search visibly scans the tape forward or back at about 5 times normal speed in SP mode or 9 times in EP mode • Jet Search visibly scans the tape forward or back at about 9 times normal speed in SP mode or 27 times in EP mode • Automatic and manual tracking control

PV-1300\$610.00
 RM-130 Rackmount for PV-1300 100.00
 RC-1001E Remote control for PV-1300 23.00

TIME BASE CORRECTORS/ FRAME SYNCHRONIZERS



NOVA 502 EFP Time Base Corrector

• Full bandwidth direct processing • Provides stable, wideband video playback for reliable microwave and satellite transmission from remote field locations • Enables high quality dubbing and interformat transfer in the field • 12VDC powered—designed for portable applications • Attaches directly to Sony's VA-500 color playback adaptor for the BVV-5 dockable VCR and for BVW-200 or BVW-300 Betacam SP camcorders • Easily interfaces with portable VCRs • Matches the hue and level of the video input automatically • DC loopthrough connections allow other 12V equipment to be powered by the same supply. \$1990.00

NOVA 700 Time Base Corrector

• 32-line video memory for twice the "window" of conventional time base correctors • Heterodyne picture processing • 8-bit, 4X subcarrier sampling for maximum transparency • Perfect RS-170A output with digitally generated SCH • Program and monitor composite outputs • Video, chroma, hue and setup adjustments with presets \$2290.00

NOVA 710S Wideband Time Base Corrector

All features of the NOVA 700 plus: • VTR-SC mode—full bandwidth processing with U-Matic, Panasonic S-VHS, portable Betacam and MII VCRs • Wideband composite outputs • S-VHS input processing with full 5.5MHz bandwidth and resolution of over 440 lines • Subcarrier feedback processing of S-VHS input for reduced chroma noise and enhanced chroma resolution • With DOC \$2890.00

Optional Accessories

S/SC Option 700 to 710S. \$850.00
Frame Option 700 to 800/710S to 810 (serial number 4715 and up only) 850.00
Remote Control POR*

NOVA 800 Full Frame Time Base Corrector

• Infinite window time base correction for reliable, error free video • Synchronize all inputs including non-capstan servo VCRs • Freeze—frame, field 1 or field 2 selectable for quality still video and auto freeze upon loss of video input • Universal heterodyne processing of all 3/4", 1/2" and 8mm VCRs • 8-bit, 4xfsc encoding and true RS-170A outputs • Proc amp controls with preset for video, chroma, hue and setup adjustments \$2890.00

NOVA 810 Full Frame Time Base Corrector

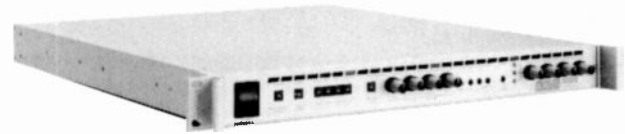
All features of the NOVA 800 plus: • Wideband composite video outputs with up to 5.5MHz bandwidth and 440 lines of resolution • Y/C (Y-3.58MHz) input processing for S-VHS, Hi8 and Ed-Beta VCRs • VTR-SC mode (subcarrier feedback/direct) for full bandwidth processing of U-Matic, U-Matic SP, portable Betacam SP and MII VCRs • Subcarrier feedback processing for Panasonic S-VHS VCRs reduces chroma noise and improves resolution • Digital dropout compensator (DOC) fills in missing video from tapes with dropouts \$3490.00

Optional Accessories

S/SC Option 800 to 810 upgrade \$850.00
Remote Control POR*

NOVA 900S Super Time Base Corrector

• 2 S-VHS component inputs • 2 composite inputs • S-VHS (Y/C), component (Y/R-Y/B-Y) and composite outputs • 4 x 1 input switcher • Freeze mode (remote controllable) • Variable rate strobe • Mosaic • Posterize • Fade-to-black • Infinite window time base correction • All inputs synchronized for use with non-capstan servo VTRs • 4- and 7-pin S-VHS input and output connections • 8-bit component encoding, 4:2:2 sampling at 13.5MHz • NTSC and PAL standards available • Full proc amp with presets • Video, chroma, setup (NTSC) or black (PAL) level and hue (NTSC only) controls • Y/C timing adjustment to eliminate color bleed • Color bar test mode
NOVA 900S NTSC version \$4250.00
NOVA 900S-PAL PAL version 4750.00
NOVA 920SP Wideband Y/C TBC. Same as 900S plus: wideband comb filter/chroma noise reduction/Y/C dub inputs/DOC 4750.00



NOVA 900S

NOVA 950 Multi-Format Transcoding Time Base Corrector

• Infinite window time base correction for reliable, error-free video • Multi-format transcoding with component, Y/C and composite inputs and outputs • Advanced design comb filter for maximum bandwidth processing of composite inputs • Digital image enhancement (DIE) for sharper pictures • Digital chroma noise reduction (DCNR) with up to 12dB improvement • Digital black stretch (DBS) for bringing out details in dark pictures • 4 x 1 input select for "hot" switching between asynchronous sources • Freeze and fade-to-black effects for production creativity • Synchronize all inputs including non-capstan servo VCRs • 8-bit component encoding with 4:2:2 sampling at 13.5MHz—conforms with CCIR 601 specification • Proc amp for clean sync and burst and control of important signal parameters • Digital dropout compensator (DOC) fills in missing video • Color bars, Y/C timing adjustments (H+V) and more

NOVA 950 \$5750.00
NOVA 950-PAL PAL version 6250.00

Optional Accessories

Component Input Adaptor: 7-pin to 3 BNC \$ 100.00
Component Input Adaptor: 7-pin to 12-pin 100.00
SP Option 900S to 920SP upgrade 750.00
950 Option A 920SP to 950 upgrade 1250.00
950 Option B 900S to 950 upgrade (serial number 11074 and up only) 1750.00
RGB Output 900S, 920SP and 950 500.00
RGB Input 950 only 500.00
Remote Control POR*

NOVA Sync™ Frame Synchronizer

• Full bandwidth, broadcast quality signal processing • 8-bit, 4X subcarrier sampling for maximum transparency • A/B video inputs plus synchronous alternate input • Auto default to black, color bars or alternate input • Select—input video, black color bars or alternate input • Auto Gain Control (AGC) for recovery to proper video level • Full processing amplifier with presets—video, chroma, hue and setup • Compact, 1 rack unit high • Remote feeds to master control and production switchers • Satellite downlinks from network feeds, SNG vehicles, teleconferencing, weather satellites and scientific reconnaissance • Microwaved video from ENG locations and off-site facilities • Studio sources for easy backtiming and accurate system phasing • Commercial insertion sources for broadcast and cable TV automation

NOVA Sync \$4490.00
NOVA Sync F Frame synchronizer with freeze. NOVA Sync with frame/field 1 + 2 freeze 5290.00

NOVA Sync 2 Frame Synchronizer/Time Base Corrector

All features of the NOVA Sync plus: • Wideband time base correction, VTR-SC and S-VHS input processing • Auto select mode, synchronize/TBC • Manual selection of synchronize, heterodyne, VTR-SC or S-VHS processing modes • Digital dropout compensator (DOC)
NOVA Sync 2 \$5590.00
NOVA Sync 2F Frame sync/TBC with freeze. NOVA Sync with hetero/VTR-SC/S-VHS (input) TBC and frame/field 1 + 2 freeze 6390.00

Optional Accessories

Freeze Upgrade Sync - syncF/sync2 - sync2F (serial number 6250 and up) 1000.00
TBC Upgrade Sync - sync2/syncF - sync2F (serial number 6250 and up) 1300.00
Remote Control POR*

Optional Accessory for All Models

Rack Slides Chassis Trak model (except 502) \$75.00

*Price On Request



CAMERA SUPPORT EQUIPMENT

CAMERA SUPPORT SYSTEMS

Ultimate Series

System 5-15 With 35A

The Ultimate 5-15 fluid head with 14⁷/₈" handle, Model 35A 100mm ball quick release metal tripod, cable spreader and spike guards\$2,440.00

System 5-15 With 55 Metal

The Ultimate 5-15 fluid head with 14⁷/₈" handle, Model 55M 100mm ball metal tripod, spreader and spike guards\$2,650.00

System 5-15 With 55 Wood

Same as above except substituting with a Model 55W 100mm ball wood tripod.....\$2,555.00

System 10-30 With 35A

The Ultimate 10-30 fluid head with 14⁷/₈" handle, Model 35A 100mm ball quick release metal tripod, cable spreader and spike guards\$3,680.00

System 10-30 With 55 Metal

The Ultimate 10-30 fluid head with 14⁷/₈" handle, Model 55M 100mm ball metal tripod, spreader and spike guards\$3,885.00

System 10-30 With 55 Wood

Same as above except substituting with a Model 55W 100mm ball wood tripod.....\$3,790.00

System 25-75 With 155 Metal

The Ultimate 25-75 fluid head with side loading platform, 17" handle, Model 155M 150mm ball metal tripod, spreader and rubber feet . . .TBA*

System 25-75 With 155 Wood

Same as above except substituting with a Model 155W 150mm ball wood tripod.....TBA*

Originator Series

System 30 With 35A

Model 30 fluid head with 15" handle, Model 35A 100mm ball quick release metal tripod, cable spreader and spike guards . . . \$2,295.00

System 30 With 55 Metal

Model 30 fluid head with 15" handle, Model 55M 100mm ball metal tripod, spreader and spike guards\$2,495.00

System 30 With 55 Wood

Same as above except substituting with a Model 55W 100mm ball wood tripod.....\$2,405.00

System 50 With 35A

Model 50 fluid head with 15" handle, Model 35A 100mm ball quick release metal tripod, cable spreader and spike guards . . . \$3,485.00

System 50 With 55 Metal

Model 50 fluid head with 15" handle, Model 55M 100mm ball metal tripod, spreader and spike guards\$3,690.00

System 50 With 55 Wood

Same as above except substituting with a Model 55W 100mm ball wood tripod.....\$3,595.00

System 105 With 155 Metal

Model 100 fluid head with side loading platform, 15" handle, Model 155M super claw ball metal tripod, spreader and rubber feet \$6,010.00

System 105 With 155 Wood

Same as above except substituting with a Model 155W super claw ball wood tripod.....\$5,775.00
Fixed platform, Mitchell base and Mitchell tripod can be substituted.

System 105-HD With 155 Metal

Model 100-HD fluid head with side loading platform, 15" handle, Model 155M super claw ball metal tripod, spreader and rubber feet . . \$6,580.00

System 105-HD With 155 Wood

Same as above except substituting with a Model 155W super claw ball wood tripod.....\$6,345.00
Fixed platform, Mitchell base and Mitchell tripod can be substituted.



System 10-30 With Model 35 Tripod



System 105



System 50 With Model 35A Tripod



127A

System 57

Model 127 Aeroped with Model 50 fluid head and 15" handle\$9,675.00

System 107

Model 127 Aeroped with Model 100 fluid head and 15" handle.....\$11,520.00

System 107-HD

Model 127 Aeroped with Model 100-HD fluid head and 15" handle\$12,090.00

System 127

Model 127 Aeroped with the Ultimate 25-75 fluid head and 17" handleTBA*

127A Aeroped Pedestal

• Full floating column pedestal for small broadcast and industrial studios • Pneumatic column can support up to 120 lbs. of camera, prompter and fluid head yet floats its 20" of travel with a very light touch on the 16" diameter column ring • 3-way selector valve located on the control panel permits quick adjustment of the column pressure for perfect balance • Self-contained air reservoir • Cast aluminum base is over 40" in diameter for stability, but can pass through a 29" wide doorway.....\$7,145.00
Also available with fluid heads Models 50D, 100C and 100-HD.

* To Be Announced

CAMERA SUPPORT EQUIPMENT



Fluid Camera Heads

Ultimate 5-15

Fluid Head with fully adjustable counterbalance capability, quick release, adjustable camera platform and 100mm ball base with tiedown assembly, 2 14⁷/₈" handles \$1695.00

Ultimate 10-30

Fluid Head with fully adjustable counterbalance capability, quick release adjustable camera platform and 100mm ball base with tiedown assembly, 2 14⁷/₈" handles \$2975.00

Ultimate 25-75

Fluid Head with adjustable counterbalance system, adjustable side loading platform, 150mm ball base with tiedown assembly and 1 17" handle TBA*

Model 30B

Fluid Head with quick release adjustable camera platform and 100mm ball base with tiedown assembly, 1 15" handle and counterbalance adjustment wrench \$1555.00

Model 50D

Fluid Head with 200 in.-lb. counterbalance spring, quick release adjustable camera platform and 100mm base with tiedown assembly, 1 15" handle \$2695.00

Model 100C

Fluid Head with 500 in.-lb. counterbalance spring, Mitchell base with tiedown assembly, side loading or fixed platform and 1 15" handle \$4565.00

Model 100C-HD

Fluid Head with 800 in.-lb. counterbalance spring, Mitchell base with tiedown side loading platform and 1 15" handle \$5150.00

Handles

08094 Standard handle for models 30 or 50 (1¹/₂" diameter, 15" length) \$ 85.00

1030-145 Standard handle for Ultimate 5-15 or 10-30 (3³/₄" x 14⁷/₈" length) 85.00

1030-088 Long handle for Ultimate 5-15 or 10-30 (3³/₄" x 19" length) 110.00

08095 Standard handle for models 100 or 150 (5⁹/₈" diameter, 15" length) 110.00

08122 Long handle for models 100 or 150 (3³/₄" diameter, 26" length). Can be cut to desired length 155.00

08188 Handle extension, fits models 30 or 50 (1¹/₂" .3³/₄" x 18") . . 210.00

08189 Handle extension, fits models 100 or 150 (5⁹/₈" .3³/₄" x 18") 210.00

Tripods

Model 35A

Quick release tripod with 100mm ball top casting, built-in spreader and spike guards, load capacity 60 lbs. \$795.00

Model 55C-M

Metal regular tripod with 100mm ball top casting, spreader and spike guards, load capacity 100 lbs. \$1010.00

Metal Tripod Only:

Regular (24" to 60") 790.00

Baby (16" to 24") 770.00

Model 55C-W

Wood regular tripod with 100mm ball top casting, spreader and spike guards, load capacity 80 lbs. \$910.00

Wood Tripod Only:

Regular (24" to 60") 890.00

Baby (16" to 24") 670.00

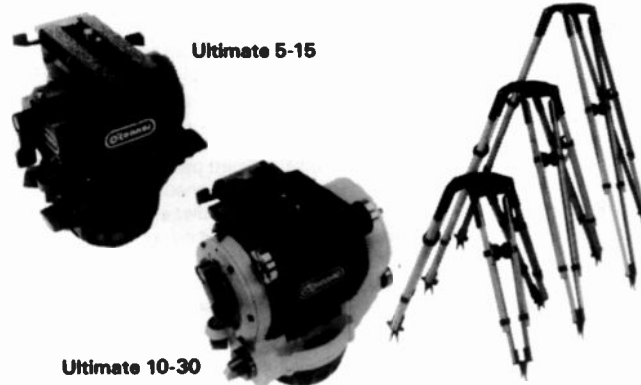
Model 155A-M

Metal regular tripod with super claw ball 150mm, or Mitchell top casting, spreader and rubber feet, load capacity 200 lbs. \$1490.00

Metal Tripod Only:

Regular (28" to 58") 1250.00

Baby (20" to 30") 1240.00



Model 155A-W

Wood tripod with super claw ball 150mm, or Mitchell top casting, spreader and rubber feet, load capacity 160 lbs. \$1250.00

Wood Tripod Only:

Regular (30" to 70") 1010.00

Baby (26" to 38") 1000.00

Hi Hats

Model 45

Claw Ball Hi Hat (5¹/₂" height) \$205.00

Model 145

Super Claw Ball Hi Hat (6" height) \$270.00

Tripod Dollies

Model 53A

Tripod Dolly with 6" diameter wheels:

Regular (43" diameter spread) \$1395.00

Wide Stance (48" diameter spread) 1395.00

Model 53B

Tripod transport dolly with 4" diameter wheels:

Regular (43" diameter spread) \$750.00

Wide Stance (48" diameter spread) 750.00

Model 51 Claw Ball/Column Adaptor

Claw Ball to Round Column Adaptor

(Please specify 1³/₄", 1⁷/₈" or 2") \$300.00

Model 21 Video Monitor Side Mount

A Universal Side Mount Plate for mounting any monitor

beside a video camera, with 2³/₈-16 screws \$195.00

Molded Cases for Systems and Tripods

Fits Systems 30, 10-30 or 50. Metal or wood (08143)	Regular	Special †
	\$265.00	\$255.00

Fits Model 55W or 55M Baby (08144)	255.00	245.00
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Fits Model 155 Regular Wood (08199)	300.00	290.00
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Fits Model 155 Regular Metal (08170)	290.00	280.00
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Fits Model 155W or 155M Baby (08169)	275.00	265.00
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Soft Pak Systems Case

Soft carrying case for any System 30 or 50.

Made of 1000 denier Cordura with foam

padding, inside pockets, handles

and shoulder strap \$110.00 \$100.00

Foam Lined Molded Case

For Model 100C Fluid Head

\$475.00 \$455.00

† Price applies if purchased with system or tripod.

* To Be Announced

MX-55-N 1/4" Compact Recorder

- DC capstan, servo-controlled • Variable speed, $\pm 20\%$ • Speed select in pairs: 15/7.5 or 7.5/3.75 ips • Reel size compensation control • Plug-in 4-head design for easy access • Reel size capability: 11.8" (maximum) • Integral tape splicing block • Microprocessor controlled real time counter with search-zero, search-cue, 3-point cue memory and repeat • Dump edit mode • Standard recording level selectable (185/250/370 or 250/320/514 nWb/M) • Front panel record setup adjustable • XLR input/output and microphone connectors • Lighted VU meter with peak reading indicators • Rugged diecast deckplate and side panels • Available 19" rackmount • Noise-free punch in/out • Built-in test oscillator (100Hz, 1kHz and 10kHz) • Active-balanced in/output • Equalization IEC/NAB switchable • Rotary encoder enabling 0.01% steps for pitch • Cue control with monitor loudspeaker • Selective reproduce (sync) for overdubbing • Optional transformer available • Optional fader control function

The MX-55 series is designed for use in recording studios and audio post-production. This series uses 1/4" tape at user-selectable speed pairs of 15/7.5 ips or 7.5/3.75 ips, and is available in 5 versions. These are: full track, twin track NAB or DIN stereo, twin track with center-track time code and twin track in a desktop "overbridge" design. The extra reproduce head provides flexible performance of 1/4 track reproduce. The transport features a DC quartz PLL capstan motor and a 7-digit tape timer featuring a 4-memory "mini-locator."

MX-55-N	1/4" 2-channel recorder	.....	\$4295.00
MX-55N-HS	2-channel 30 ips half-track mastering recorder	.....	4595.00
MX-55-NM	1/4" 2-channel recorder with meter bridge console	.....	5495.00
MX-55-TM	1/4" 2-channel recorder with center track time code and meter bridge console	.....	6495.00

Accessories

ZA-5CV	Voice editing module (VEM)	.....	\$ 263.00
CB-119	8-memory locator	.....	1775.00
CB-127	Remote transport control	.....	263.00
ZB-51A	Rackmount kit for MX-55N	.....	63.00
ZB-51F	Rackmount kit for MX-55NM, TM	.....	184.00
ZB-51D	Metal roll-around floor stand for MX-55N, with skirt	.....	520.00
ZB-51E	Metal roll-around stand for MX-55NM and TM, with skirt	.....	520.00
ZB-51L	30 ips retrofit kit for MX-55N	.....	210.00

MX-50 II 1/4" Compact Recorder/Reproducer

- DC capstan PLL quartz clock motor • Speed selectable in pairs of 15/7.5 ips or 7.5/3.75 ips • Max. 1000m tape usable • Switchable EQ: NAB/IEC • Search zero plus 1 search cue point • Winding-up function • Standard fader start function (option for low voltage version) • $\pm 7\%$ vari speed • Dump edit function • Optional Voice Editing Mode (VEM) • VU meters with lamp and peak indicator • Alternate and momentary cueing • 19" rackmount available • Other options: CB-127 transport remote, input/output transformer, DIN AEG clamper/plate, scissor, pedestal, full track head assembly, NAB reel • Built-in monitor speaker function in addition to the standard headphone jack

The MX-50 II has 2 basic versions: high and low voltage. Each version is switchable for NAB/IEC, and a DIN version is available with AEG DIN-clamper. Speed pairs 15/7.5 ips or 7.5/3.75 ips are user selectable. The tape transport features a DC quartz PLL capstan motor and a 7-digit tape timer with search-zero and search-to-cue functions.

MX-50 II	\$2595.00
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Accessories

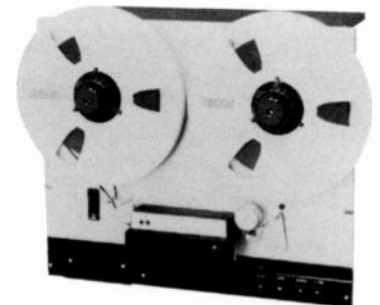
CB-127	Remote transport control	\$263.00
ZA-5EK	Rackmount kit	58.00
ZA-5EL	Voice editing module (VEM)	.....	263.00
ZB-51M	Metal roll-around floor stand	.....	368.00



MX-55-N



MX-50 II



ARS-1000

ARS-1000 Automated Radio Station Reproducer

- 2 speeds — 7 1/2 and 3 3/4 ips, front panel selectable • Adjustable front panel cue control • Recessed front adjustable output level and head azimuth, with flip-up head cover • Plug-in professional grade PC boards and relays • In-head IC preamp assembly improves S/N • Simple operation plus remoteable play and stop • Ready light indicates proper tape threading • Special long-life pinch roller and ball bearings • Ruggedly designed for long term reliability under continuous operating conditions • 25Hz sensor optionally available • Decoupled, belt-driven capstan for low wow and flutter

The ARS-1000 is a 2-speed reproduce only tape machine specifically designed to meet the needs of the automated radio broadcaster. This machine is engineered for heavy-duty continuous operation, with special emphasis placed on long term reliability, simple operation, consistent performance and ease of maintenance.

ARS-1000	\$2250.00
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EDIT CONTROLLERS



Abner-II A/B Roll Edit Controller

- 50-event edit decision list memory • EDL input and output
- Paltex and Interchange EDL formats • Sequential auto assembly
- Drop frame and non-drop frame time code • Multiple GPI triggers • VITC jam sync trigger

Abner-II provides frame accurate control of M-II, S-VHS and 3/4" U-SP. Popular VTR interfaces are all built into Abner-II: just pick the appropriate cable and plug it in. Abner-II is a true interformat controller: parallel and serial VTRs can be mixed without problems.

Abner-II is easy to operate, with individual controls for each VTR. There's no time sharing with Abner-II, making it the logical controller for anyone currently using a simple, dual-knob cuts-only editor. Abner-II is designed for "Park and Perform" simplicity, even with A/B roll edits. Park the VTRs where you want the edit to start and press preview or edit. Abner-II takes control, automatically loads the in-edit times for the VTRs and triggers the switcher at the appropriate time. For special effects, our Animation mode is available with a single keystroke.

Abner-II comes in 2 chassis configurations, tabletop and rack-mount, and a choice of 2 tape timing methods: longitudinal time code (LTC) or vertical interval time code (VITC).

Price includes 3 parallel VTR control cables. For serial VTR control, add R-SID at \$300.00 per cable with system order.

ABNER-II/TC	Tabletop editing system (includes LTC time code readers)	\$5,300.00
ABNER-II/RC	Rackmount editing system (includes LTC time code readers)	5,300.00
ABNER-II/TVC	Tabletop editing system (includes VITC/LTC readers)	6,100.00
ABNER-II/RVC	Rackmount editing system (includes VITC/LTC readers)	6,100.00

Cables—JVC

- P5005 KR-M800 MII; BR-S810/11, BR-S610/11 S-VHS \$250.00
- P5007 CR-850, CR-600 U-Matic 250.00

Cables—Panasonic

- P5019 AG-6500 VHS; AG-7750/7650, AG-7500/A, AG-7300 S-VHS \$250.00

Cables—Sony

- P5002 Type V VO-5850, VO-5800 U-Matic \$500.00

Cables—Optional RS-422

- P1013 R-SID—JVC KR-M860/840/820/545/540 MII. . \$700.00
- P1013 R-SID—Panasonic AU-660/650/65/63/62 MII. . 700.00
- P1013 R-SID—Sony BVU-950, VO-9850/9800 3/4-SP. . 700.00

VITC Reader Exchange

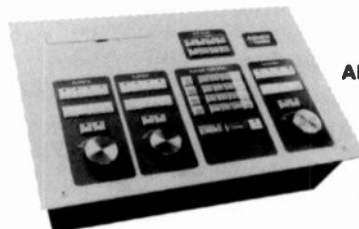
- VITC-EX** Adds VITC decoding capabilities to Abner-II/TC and RC versions \$1,000.00

ECS-85 Edit Controller

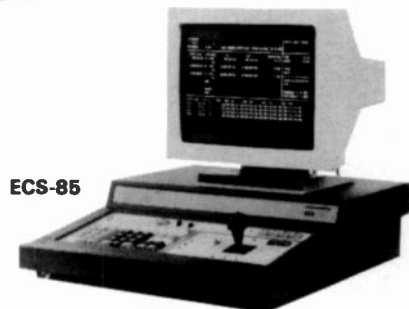
A/B/C roll edit controller with: • Convergence joystick control • 1000-line non-volatile EDL memory • Sequential and check-board auto-assembly • 32 special function cells per event for motion control, TenCom GPI or switcher memory • Full 409™ list management software • Comments keyboard • TwoCom™ GPI control • RS-422 serial switcher interface with switcher effects register capture capability (not ECS-85/2) • 2 to 6 RS-422 serial VTR interfaces • 2 to 6 SMPTE/EBU LTC time code readers and generator • RS-232 serial I/O port • Control of popular parallel VTRs through optional SID and V-SID serial interface devices • E-COM™ PC communications software • Software integration with optional DB-35 • Optional TenCom™ GPI control, with 10 independently programmable GPIs per event



Abner-II Tabletop



Abner-II Rackmount



ECS-85

ECS-85/2	As above with 2 RS-422 serial VTR interfaces and LTC readers	\$ 6,900.00
ECS-85/3	As above with 3 RS-422 serial VTR interfaces and LTC readers	9,500.00
ECS-85/4	As above with 4 RS-422 serial VTR interfaces and LTC readers	10,600.00
ECS-85/5	As above with 5 RS-422 serial VTR interfaces and LTC readers	11,700.00
ECS-85/6	As above with 6 RS-422 serial VTR interfaces and LTC readers	12,800.00

Options

- DB-35 Smart Disk system, with keyboard \$2,200.00
- SID serial interface device 1,100.00
- SID/1" serial interface device 1,400.00
- A/B roll field upgrade kit (ECS-85/2) 3,000.00
- CG-100/TenCom GPI 1,000.00
- SWI-140 audio mixer interface 2,000.00

R-SID Serial VTR to Parallel Control System

- Allows various RS-422 serial VTRs to interface with the Abner Editing System • Communicates with the serial VTR and converts the data into the parallel structure needed by Abner
- Reverses the process and provides the VTR with serial data from Abner commands • Identifies all machine types with 1 set of software, thereby allowing it to be plugged into numerous styles of VTRs without modification • Communicates with the following: VO-9850 Series, BVU-950, BVU-800 Series, BVW-SP Series, AU-660, KRM-860, KRM-820, CR-850, PR-900 and others • Comes with 9-pin serial cable, multi-pin Abner cable and external low voltage power supply
- R-SID** \$700.00

CLE SERIES 3-CCD COLOR CAMERAS

WV-F300 3-CCD Color Camera

• Three 2/3" semi-frame interline transfer CCDs with 344,835 pixels each • f/1.4 prism • 700 lines resolution • 25 lux minimum illumination (f/1.7, +18dB) • 60dB S/N • 1/250, 1/500, 1/1000 sec. shutter • Auto white balance (Can be preset at 3200°K and will remember 2 settings) • Auto black balance with pulse cancel • 1.5" EVF with camera functions monitored • 3 gains 0, +9dB, +18dB • Detail high/low/off switch • Color matrix masking • S-VHS compatible or NTSC switchable output • 2 VCR start switches • Flare correction • SC-H phase adjuster • SMPTE color bars • Iris 1/2 open/close switch • Genlockable • MII compatible with optional adaptor • Usable as studio camera with optional WV-RC36 remote control unit

Standard Configuration

• Camera head • Camera adaptor

WV-F300. \$5,700.00

WV-200CLE 3-CCD ENG/EFP Color Camera

Same as WV-F300 except: • Three 2/3" interline CCDs with 250,920 pixels each • 650 lines resolution • 59dB S/N • Without electronic shutter

Standard Configuration

• Camera head • Camera adaptor • WV-VF38A 1.5" viewfinder • J12X10BKRSRM Canon 12X (10-120mm) lens • WV-MC35 microphone • WV-Q47 tripod mounting adaptor • WV-CC37 soft carrying case

WV-200CLE. \$6,900.00

System Accessory Kits for WV-F300/

WV-200CLE Color Cameras

WV-S330 Basic Kit

• WV-VF38A 1.5" viewfinder • WV-PS60 1.65AH battery • WV-PS31 AC adaptor with quick charger • WV-CC37 carrying case \$1,350.00

WV-S350 ENG/EFP Kit

• J12X10BKRSRM 12X servo zoom lens • WV-MC35 microphone • WV-VF38A 1.5" viewfinder • WV-PS60 1.65AH battery • WV-Q47 tripod mounting adaptor • WV-PS31 AC adaptor with quick charger • WV-CC37 carrying case \$2,700.00

WV-S370 Studio Kit

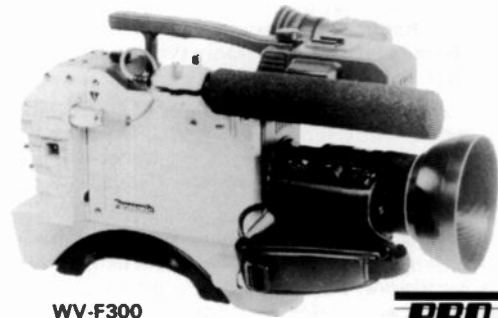
• Extender board • J12X10BKRSRM 12X servo zoom lens • WV-LK35 lens control kit • WV-VF65B 5" viewfinder • WV-Q47 tripod mounting adaptor • WV-RC36 camera RCU • 32A-25 remote control cable \$5,150.00

WV-S390 S-VHS Dockable Kit

• WV-VF38A 1.5" viewfinder • J12X10BKRSRM 12X servo zoom lens • WV-Q47 tripod mounting adaptor • WV-MC35 microphone • WV-VT12M S-VHS adaptor and battery holder \$2,500.00

DS3050 Dockable Package

• WV-F300 3-CCD color camera • WV-S390 S-VHS dockable kit • AG-7450 S-VHS/VHS Hi-Fi portable VCR • AG-B745 battery charger • AU-BP220 2.2AH battery pack \$11,300.00



WV-F300
With WV-S350
ENG/EFP Kit



WV-200CLE

Accessories

WV-LK35	Lens rear control kit.	\$1,000.00
WV-MC35	Microphone	90.00
WV-VF38A	1.5" viewfinder	500.00
WV-VF65B	5" studio viewfinder	750.00
J12X10BKRSRM	Canon 12X servo zoom lens, f/1.8	1,500.00
A12X9BERM-C	Fujinon servo zoom lens, f/1.7	2,500.00
J15X9.5BKRSII	Canon servo zoom lens, f/1.8.	1,900.00
WV-LC10	12 to 8-pin lens conversion cable.	100.00
WV-Q47	Tripod adaptor	150.00
WV-CC37	Carrying case.	300.00
WV-CC38	Hard shell carrying/shipping case.	750.00
WV-CA32/10	32P-10P VTR cable	90.00
WV-CA32A/14	32P-14P VTR cable	150.00
10H-30AS	10m 10P-10P VTR extension cable	95.00
10H-50AS	15m 10P-10P VTR extension cable	145.00
WV-CA14X30	30' 14-pin extension cable for use with WV-CA32A/14	280.00
WV-RC36	Remote control unit.	1,800.00
WV-VT10	MII dockable adaptor.	2,000.00
WV-VT11	Betacam dockable adaptor.	2,200.00
WV-VT12M	S-VHS dockable adaptor battery case.	750.00
32A-25	7.5m 32P-32P RCU cable	400.00
32A-50	15m 32P-32P RCU cable	530.00
32A-100	30m 32P-32P RCU cable	790.00
WV-PS33	3.5AH battery	495.00
WV-PS60	2.65AH battery	200.00
WV-BC30	Battery charger for WV-PS33	100.00
DE-1232	Battery charger for WV-PS60	60.00
WV-PS31	AC adaptor with quick charger	395.00
WV-AD19	Battery case	400.00
AG-BP212	12V, 2.3AH battery	55.00
PAN-CLE	Anton-Bauer SQ-13FV battery adaptor	145.00
AG-B640	AC adaptor with battery charger	420.00
WV-CA38	Conversion cable for desktop VCR monitor, must use with WV-CA32A/14.	170.00

CCD CAMERA

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

WV-F250 3-CCD Color Camera

• Three 1/2" frame interline transfer (FIT) CCDs with 380,000 pixels each • 700 lines resolution • 60dB S/N ratio • 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. shutter • 30 lux min. illumination (f/1.4, +18dB) • Y/C, RGB and Y/R-Y, B-Y outputs • -6dB gain switch for fine gain adjustment • SMPTE color bar generator with time/date display and camera identification display • 2 VCR start switches • Directly dockable with AG-7450 S-VHS portable VCR • Optional WV-DKT70M dockable accessory kit • Easily connected to VHS, Beta, 3/4", MII and Betacam models via optional adaptor kits • High efficiency Peltier element • 2-setting white balance memory • Auto black balance with auto pulse cancel • Color matrix masking circuit • Flare correction circuit • Iris 1/2 open/close switch • Bright light compression circuit • High band detail (high/low) • Detail select (high/low/off)

The WV-F250 has separate Y (luminance) and C (chrominance) outputs for direct S-VHS compatibility. It docks directly with the Panasonic AG-7450 dockable S-VHS Hi-Fi video cassette recorder, and also provides analog component signal output (Y/P_s, P_r) for connection with broadcast recorders. Direct S-VHS compatibility and VHS VCR connectability mean the WV-F250 will deliver the high picture quality and outstanding all-around video performance demanded day-in and day-out by top video professionals.

Standard Configuration

• Camera head • Shoulder pad
WV-F250H\$4,250.00

System Accessory Kits for the WV-F250H

WV-S250 ENG/EFP Kit

WV-AD250 Camera adaptor
S12x7.5BRM 12X zoom lens
WV-VF39 1.5" electronic viewfinder
WV-MC35 Condenser microphone
WV-PS31 AC adaptor/quick charger
WV-PS60 Battery pack
WV-QT70 Tripod mounting adaptor
WV-CC71A Carrying case\$3,550.00

WV-S270 Studio Kit

WV-AD250 Camera adaptor
S12x7.5BRM 12X zoom lens
WV-LK36 Lens control kit
WV-VF65B 5" electronic viewfinder
WV-RC36 Remote control unit
WV-QT70 Tripod mounting adaptor
32A-25 Studio cable\$5,750.00

WV-S290 S-VHS Dockable Kit (for WV-F250H/AG-7450)

WV-VF39 1.5" electronic viewfinder
S12x7.5BRM 12X zoom lens
WV-MC35 Condenser microphone
WV-QT70 Tripod mounting adaptor
WV-CC71A Carrying case
WV-DKT70M Docking accessory kit\$2,600.00

DS2550 Dockable Kit

Contains: WV-F250H, WV-S290, AG-7450, AG-B745, AU-BP220\$10,000.00



WV-F250 With S-VHS Dockable AG-7450 VCR

Optional Accessories

10H-30AS 10-pin extension cable, 30' (use with WV-CA32/10)\$ 95.00
10H-50AS 10-pin extension cable, 50' (use with WV-CA32/10)145.00
32A-25 25' remote control unit cable400.00
32A-50 50' remote control unit cable530.00
32A-100 100' remote control unit cable790.00
AG-B640 AC adaptor with battery charger420.00
AG-BP212 2.3AH battery (use with AG-B640)55.00
AG-B745 Battery charger for AU-BP220550.00
AU-BP220 2.2AH battery (use with WV-DKT70M)140.00
DE-1232 Battery charger (use with WV-PS60)60.00
S12x7.5BRM 12X servo zoom lens1,350.00
WV-AD19 Battery case for AG-BP212400.00
WV-AD250 Camera adaptor700.00
WV-BA71 Battery case for AU-BP402365.00
WV-BA72 Battery case for AU-BP220365.00
WV-BC30 Battery charger (use with WV-PS33)100.00
WV-CA14x30 14-pin extension cable, 30' (must use with WV-CA32A/14)280.00
WV-CA32/10 32-pin camera to 10-pin VCR cable, 10' (for VHS format and NV-9400)90.00
WV-CA32 A/14 32-pin camera to 14-pin VCR cable, 10' (for AG-7400 and 3/4" except NV-9400)150.00
WV-CA38 Conversion cable for S-VHS VCR, S-VHS monitor, S-VHS projector (use with WV-CA32A/14)170.00
WV-CC71A Carrying case550.00
WV-DKT70M Dockable kit for AG-7450360.00
WV-LC10 Lens conversion cable from 8 to 12-pin100.00
WV-LC25 2/3" bayonet lens adaptor450.00
WV-LK12 Lens control kit for the WV-LZ71/12 lens800.00
WV-LK36 Lens remote control1,150.00
WV-LZ71/12 12:1 servo zoom studio lens1,350.00
WV-MC35 Microphone (use with WV-MH70)90.00
WV-MH70 Microphone holder100.00
WV-PS31 Clip-on type. AC adaptor/quick battery charger (use with WV-PS33, WV-PS60)395.00
WV-PS33 3.5AH battery (use with WV-BC30, WV-PS31)495.00
WV-PS60 1.65AH battery (use with DE-1232, WV-PS31)200.00
WV-QT70 Tripod mount adaptor165.00
WV-RC36 Camera remote control unit. RGB sync output, maximum distance from RCU to camera is 300 meters1,800.00
WV-RC37 Camera remote control unit. Does not offer RGB sync output, maximum distance from RCU to camera is 100 meters900.00
WV-VF38A 1.5" viewfinder500.00
WV-VF39 1.5" viewfinder, high resolution680.00
WV-VF65 5" studio viewfinder750.00
WV-VT15 MII docking adaptor1,450.00
WV-VT16 Betacam adaptor1,450.00

WV-F70 2-CCD Color Camera

• Two 1/2" interline transfer CCDs with 335,500 pixels each • f/1.4 prism • 500 lines resolution • 56dB S/N ratio (typical luminance -6dB) • 1/250, 1/500, 1/1000 sec. shutter • Directly dockable with AG-7450 S-VHS Portable VCR • Optional WV-DKT70M dockable accessory kit • Y/C separation output circuit • 25 lux (f/1.6, +18dB) minimum illumination • Gain settings of 0dB, +9dB, +18dB, -6dB, +3dB and +12dB • Operational status and warning/error indication in EVF • High S/N type CDS (Correlated Double Sampling) circuit • 2-setting white balance memory • Versatile connectability: S-VHS (S-Video in/out), VHS, 3/4" and Beta • Full color bars • Genlockable • Maximum cable distance with optional RCU: 1000' • Sturdy aluminum diecast chassis • Resistant to shock, vibration and effects of magnetic fields • Standard configuration: camera head, camera adaptor, shoulder pad • Studio configuration possible with optional WV-RC36/WV-RC37 remote control units

The WV-F70 features a 2-CCD design that dedicates separate CCDs to luminance signal processing and color (chrominance) signal processing. This arrangement enables high-performance S-VHS format compatibility.

Standard Configuration

• Camera head • Camera adaptor • Shoulder pad
WV-F70H \$2800.00

WV-70ACLE 2-CCD Color Camera

• WV-F70H camera with adaptor and shoulder pad • WV-F39 high resolution electronic 1.5" viewfinder • WV-MC70 stereo microphone • WV-LZ70/12 12X servo zoom lens • WV-QT70 tripod mount adaptor • WV-CC71 ENG/dockable carrying case \$4300.00

WV-F70D 2-CCD Color Camera With Docking Kit

• WV-F70H camera with adaptor and shoulder pad • WV-VF38A 1.5" viewfinder • WV-MC70 stereo microphone • WV-LZ70/12 12X servo zoom lens • WV-DKT70M docking kit (battery sub-bracket, battery case, docking handle, shoulder strap) .. \$3600.00
WV-AD70 Camera adaptor 700.00

DS-750 Dockable Package

• WV-F70D 2-CCD color camera • AG-7450 S-VHS/VHS Hi-Fi portable VCR • AG-B745 battery charger • AU-BP220 2.2AH battery pack \$6950.00

Accessories for WV-F70H/WV-70CLE/WV-F70D

4E10	AC adaptor cable (use w/AG-B640)	\$ 70.00
AG-B640	AC adaptor w/battery charger (use w/AG-BP212)	420.00
AU-BP220	2.2AH battery (use with WV-DKT70M)	140.00
AG-B745	Battery charger for AU-BP220	550.00
CH-13V	Anton/Bauer battery charger (use with SQ-13FV battery)	110.00
LSFC	Anton/Bauer quick battery charger (use with SQ-13FV battery)	605.00
PH12x7.5		
BKRS*	f/1.4 servo zoom lens 7.5-90mm	1365.00
PH15x7		
BKRSII*	f/1.4 servo zoom lens 7-105mm	2050.00
S13x7.3		
BRM*	f/1.4 servo zoom lens 7.3-95mm	1350.00
S16x7BRM*	f/1.4 servo zoom lens 7-112mm	1950.00
SQ-13FV	Anton/Bauer clip-on NiCad 4AH battery (use with CH-13V, LSFC)	550.00
WV-CC71	ENG/dockable carrying case	550.00
WV-DKT70M	Dockable kit for AG-7450	360.00
WV-LC10	Lens conversion cable from 8 to 12-pin	100.00
WV-LC70	1/2" lens adaptor (bayonet)	500.00



WV-F70 With S-VHS Dockable AG-7450 VCR

WV-LZ70/12	f/1.6 12X servo zoom lens 8-96mm	\$1050.00
WV-MC35	Microphone (use with WV-MH70)	90.00
WV-MC70	Stereo microphone	85.00
WV-MH70	Microphone holder	100.00
WV-QB70	Shoulder strap	35.00
WV-QT70	Tripod mount adaptor	165.00
WV-RC36	Camera remote control unit	1800.00
WV-VF38A	1.5" viewfinder	500.00
PAN-7450	Anton/Bauer battery adaptor (use with SQ-13FV)	135.00

Accessories for WV-F70H/WV-70CLE

10H-30AS	10-pin extension cable, 30' (use w/WV-CA32/10)	\$ 95.00
10H-50AS	10-pin extension cable, 50' (use w/WV-CA32/10)	145.00
32A-25	25' remote control unit cable	400.00
AG-BP212	12V, 2.3AH battery (use with WV-AD19 when mounting on CLE Series)	55.00
DE-1232	Battery charger (use with WV-PS60)	60.00
FC-S10A	Lens rear control kit (use with S13x7.3BRM, S16x7BRM)	1002.00
PAN-CLE	Anton/Bauer battery adaptor (use with SQ-13FV battery)	145.00
WV-AD19	Battery case (use with AG-BP212)	400.00
WV-BC30	Battery charger (use with WV-PS33)	100.00
WV-CA14x30	14-pin extension cable, 30' (must use with WV-CA32A/14)	280.00
WV-CA32/10	32-pin camera to 10-pin VCR cable, 10' (for VHS format and NV-9400)	90.00
WV-CA32	32-pin camera to 14-pin VCR cable, 10' (for AG-7400 and 3/4" except NV-9400)	150.00
A/14		
WV-CA38	Conversion cable for S-VHS VCR, S-VHS monitor, S-VHS projector (use with WV-CA32A/14)	170.00
WV-LK12	Lens control kit for the WV-LZ71/12 lens	800.00
WV-LZ71/12	12:1 servo zoom studio lens	1350.00
WV-PS31	Clip on type. AC adaptor/quick battery charger (use with WV-PS33, WV-PS60)	395.00
WV-PS33	3.5AH battery (use with WV-BC30, WV-PS31)	495.00
WV-PS60	1.65AH battery (use with DE-1232, WV-PS31)	200.00
WV-RC37	Remote control unit, will also work with WV-F300 series cameras. However, the WV-RC37 does not offer R, G, B; sync output and maximum distance from RCU to camera is 100 meters	900.00
WV-VF65B	5" studio viewfinder	750.00

*Must be used with WV-LC70

CCD CAMERA

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

WV-D5100 CCD Color Camera Head

With Y/C or Composite Output

• 2/3" high density CCD • 768H x 493V pixels with color mosaic filter • Y/C or composite output • 460 lines resolution • 46dB S/N • 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. shutter • ATW (TTL and sensor level mixing for accurate white balance) or AWC (auto white balance control) • AGC Low (max. +12dB)/High (max. +18dB) • 4 lenses available (bayonet mount) • 2H enhancer with horizontal/vertical movement • 7 lux minimum illumination with f/1.4 lens • Interchangeable 35mm SLR and C-mount lenses with optional adaptor • Automatic preset function

The WV-D5100 offers superb picture definition and achieves more than 480 lines of horizontal resolution. To supplement the 2/3" CCD D-5100 camera head, 3 convenient kit configurations are available to allow a wide variety of video applications.

The WV-D5100 is S-VHS compatible for outstanding picture quality. The Y (luminance) and C (chrominance) signals are output separately when the video output is switched from composite to Y/C to allow use of the WV-D5100 with S-VHS VCRs.

An auto focus zoom, power zoom, auto iris and various telephoto lenses are available for the WV-D5100. The unit's advanced color temperature sensor detects changes in light sources and color temperature.

Standard Configuration

- Camera head
- Body cap
- AAA dry battery

WV-D5100 \$1500.00
 WV-D5100RGB WV-D5100 with RGB adaptor attached . . 1720.00

System Accessory Kits for the WV-D5100

WV-S051 ENG Kit

- WV-VF02 1" EVF
- WV-MC12 stereo microphone
- Shoulder pad/grip
- Camera strap
- Cheek pad \$400.00

WV-S061 EFP Kit

- WV-VF02 1" EVF
- WV-MC12 stereo microphone
- Shoulder pad/grip
- WV-AD36 genlock adaptor
- WV-PS03 AC adaptor
- WV-CA10 VCR cable

The genlock adaptor does not supply a Y/C signal. The Y/C signal is supplied directly from the camera head \$670.00

WV-S071 Studio Kit

- WV-LZ15/12 studio lens
- WV-LK11 lens control kit
- WV-VF65B 5" EVF
- WV-Q39A 5" EVF bracket
- WV-RC35 remote control unit
- WV-AD37 RCU adaptor
- 14C-30 studio cable

The RCU does not supply a Y/C signal. The Y/C signal is supplied directly from the camera head \$3000.00



WV-D5100

Accessories

10H-30AS	30' VCR extension cable	\$ 95.00
10H-50AS	50' VCR extension cable	145.00
14C-30	30' studio cable (WV-D5100)	130.00
14C-100	100' studio extension cable (WV-D5100)	230.00
WV-3203B	AC adaptor/stereo audio	99.00
WV-AD10	Beta format VCR adaptor	70.00
WV-AD15A	Film/slide adaptor	240.00
WV-AD16	C-mount lens adaptor	25.00
WV-AD36	Genlock adaptor (WV-D5100)	220.00
WV-AD37	RCU adaptor (WV-D5100)	275.00
WV-CA10	8' 10-pin/10-pin VCR cable	35.00
WV-CA11	10-pin/14-pin conversion cable, 1', used with WV-CA10 for 3/4" VCR (14-pin)	45.00
WV-CA14X30	14-pin VCR extension cable for use with WV-CA11	280.00
WV-CA14A/14	14-pin/14-pin VCR cable	95.00
WV-CC29A	Carrying case	185.00
WV-CL19	1.5X tele-conversion lens	145.00
WV-CR12	Camera/VCR remote controller—pan/tilt head control, WV-LZ14/8AF zoom and focus control, intermittent recording, rec, fade, rec/review VCR controls	440.00
WV-KB12A	Full keyboard tilter with scroll	185.00
WV-LK10A	Lens filter kit (use with WV-LZ14/8AF)	145.00
WV-LK11	Lens control kit	865.00
WV-LT21*	35mm SLR lens adaptor (Canon)	50.00
WV-LT22*	35mm SLR lens adaptor (Nikon)	50.00
WV-LT23*	35mm SLR lens adaptor (Minolta)	50.00
WV-LT24*	35mm SLR adaptor (Olympus)	50.00
WV-LT25*	35mm SLR adaptor (Pentax)	50.00
WV-LZ14/8AF	8X auto focus zoom lens	550.00
WV-LZ14/12A	12X power zoom lens	570.00
WV-LZ15/12	12X studio lens	755.00
WV-LZ14/15	15X power zoom lens	970.00
WV-MC12	Stereo microphone	40.00
WV-PH10	Pan/tilt head	660.00
WV-PS03	AC adaptor	220.00
WV-Q39A	5" viewfinder bracket	180.00
WV-RC35	Camera remote control unit (WV-D5100)	550.00
WV-VF02	1" B/W viewfinder	280.00
WV-VF65B	5" studio viewfinder	750.00

*Must be used with WV-AD16

SINGLE CCD MICRO CAMERA SYSTEMS

WV-CD1BW 1/2" CCD Micro B/W Camera System

- Camera head measures 2/3" D x 1 1/2" L (without lens)
- Camera head can be extended up to 30' from CCU using optional 24' extension cable
- Operates off any 12VDC power source such as an automobile or VCR battery
- Wide angle, super wide angle and pinhole lenses available
- Optional C-mount lens adaptor available
- Designed for covert security installations where size, sensitivity and picture quality are essential
- Other applications include automatic teller machines, robotics machine vision, inspection, quality control and hazardous waste monitoring
- 510(H) x 492(V) pixel array
- 0.07 lux low light sensitivity at f/1.4 minimum illumination (with optional GP-AD22 lens)
- 380 lines horizontal resolution
- 46dB signal-to-noise ratio
- Genlock feature eliminates roll in multi-camera systems that use sequential switching

Standard Accessories

- Camera head with cable (2m)
- Camera holder
- Camera control unit

WV-CD1BW\$1915.00

WV-CD2 1/2" CCD Micro Color Camera

- Same features as the WV-CD1BW except the following:
- Built-in 7.5mm ALC lens for varying light conditions
 - 330 lines horizontal resolution
 - 19 lux low light sensitivity at f/1.8 minimum illumination
 - TTL Auto Tracing Continuous White Balance (ATW) system for true color definition

Standard Accessories

- Camera head with cable (2m)/built-in 7.5mm ALC lens
- Camera holder
- Camera control unit

WV-CD2\$3300.00



WV-CD1BW

Shown With Optional Lens

WV-CD2

Accessories for WV-CD1BW/WV-CD2

GP-AD22	C-mount lens adaptor (WV-CD1BW)	\$ 28.00
GP-CA31A	Extension cable 8 meter, all models	535.00
GP-LM3	Super wide angle lens f/1.4 3mm (WV-CD1BW)	285.00
GP-LM3T	3mm wide angle lens	330.00
GP-LM15T	15mm telephoto lens	250.00
GP-LP12	Pinhole lens (WV-CD1BW)	525.00
WV-LM7.5T	Wide angle manual lens 7.5mm (WV-CD1BW)	240.00
WV-PS12	AD adaptor (120VAC, 12VDC) (all models)	50.00

GP-KS102 1/2" CCD Micro Color Camera Head

- 1/2" integrated color filter interline transfer for CCD 682(H) x 485(V) pixels
- 430 lines horizontal resolution
- S-VHS (Y/C connector) compatible
- 46dB S/N
- Minimum illumination of 10 lux at f/1.4 AGC on, +6dB manual gain, >30IRE of Y-signal with setup
- Genlock capability for multi-camera systems
- 2/3" diameter x 1 7/16" long
- Weighs just over half an ounce

Standard Accessories

- Camera head
- Camera holder
- Camera control unit

GP-KS102\$3000.00

Accessories

GP-AD22	C-mount lens adaptor	\$ 28.00
GP-CA31A	Extension cable (8m)	535.00
GP-CA44	2 meter cable	260.00
GP-CA45	5 meter cable	290.00
GP-CA46	10 meter cable	400.00
GP-CA49	30 meter cable	860.00
GP-LM3	Super wide angle lens f/1.4 3mm	285.00



GP-KS102

(Cable Shown is Optional)

GP-LM3T	3mm wide angle lens	\$330.00
GP-LP12T	Pinhole lens	590.00
GP-LM15T	15mm telephoto lens	250.00
GP-LM7R5TA	7.5mm lens	240.00
WV-PS12	AC adaptor (120VAC, 12VDC)	50.00

CAMCORDERS

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

AG-460U 2 CCD S-VHS Hi-Fi Camcorder

- Two 1/2" CCDs with 360,000 pixels each (1 for Y and 1 for C signals)
- 45dB video S/N • 470 lines resolution • 2 hour • Camera search (advanced rec./review) • 25 lux minimum illumination • 4 laminated amorphous video heads • Heads are composed of a cobalt-based alloy material • Audio level controls with LCD metering • Mic sensitivity is extremely accurate because Hi-Fi stereo mic performance is automatically adjusted while the camera's zoom lens is in operation • 2-speed 10X power zoom lens (f/1.4) with macro function • 0.9" EVF • Automatic iris with manual override • Piezo auto focus with advanced 3-step focus zone • Advanced auto-tracing white balance with manual override • Rotary erase head for noiseless insert editing, audio dubbing and sound-on-sound • Variable high-speed electronic shutter, with settings of 1/250, 1/500 and 1/1000 second • B/W audio/video fade-in and fade-out • Push auto button for temporary autofocus in manual mode • Index search function • 0dB, +18dB, AGC sensitivity switch • S-Video out terminal/synchro edit/5-pin edit terminal/edit switch/character generator direct connecting capability

Standard Accessories

- AG-B3A AC adaptor • AG-BP212 battery pack • System carrying case • Line adaptor • Shoulder strap • Pause remote control unit • Audio cable • Y/C cable • VHF coaxial cable • Battery pack charging connector • 300 ohm to 75 ohm transformer • Earphone

AG-460U\$3500.00

AG-450 1/2" CCD S-VHS Camcorder

- 2-hour • 360,000 pixels • >400 lines resolution • 45dB video S/N (VHS mode) • Separate Y/C input and output • 10 lux minimum illumination • Flying erase head • 1/250, 1/500, 1/1000 sec. shutter • 4 rotary heads • Audio and video fade-in/out • 0.9" viewfinder with status indicator and vision-compensating eyepiece • Piezo auto focus with dual focus zones • Video insert editing makes it possible to take a new scene and insert it while retaining the sound originally recorded • Audio dubbing • Edit switch maintains optimum video signal quality when dubbing • Index search function • 10X power zoom lens with macro function • Standby switch • External AV input terminal • Pause remote control unit • Uni-directional high-sensitivity microphone • Earphone and external microphone input jacks • Automatic-tracing white balance system • Auto/date recording allows superimposition of time/date • Record/review function • Optional VW-CG1 character generator

Standard Accessories

- VW-VBM7E 2.0AH battery pack • AG-B3A AC adaptor • VW-RM1E pause remote control • 300 to 75 ohm transformer • AG-HT5 system carrying case • AV cable • VW-KMS1P line adaptor • AV converter connector • Shoulder strap • Battery pack charging connector • VHF coaxial cable • Y/C cable • Earphone • Battery for clock operation

AG-450\$1950.00

AG-190U 1/2" CCD VHS Camcorder

- 8X power zoom lens • Piezo TTL automatic focus system • 3 auto focus zones • Macro auto focus • 7 lux minimum illumination • 1/500, 1/1000 sec. shutter • Rotary erase head • 0.9" electronic viewfinder with on-screen display • Automatic-tracing white balance • Camera search (advanced rec./review) • Automatic iris with manual override • Audio and video fade-in and fade-out • Interval and self timer recording • Auto date recording • Built-in mic • Standby function • 160 min. operation with NV-T160 • 5.74 lbs. • Optional VW-CG1 character generator

Standard Accessories

- AG-B6 AC adaptor/battery charger • AG-BP212 battery pack • System carrying case • Line adaptor • RF adaptor • Shoulder strap • Pause remote control unit • AV cable • VHF coaxial cable • DC cable • Battery pack charging connector • 300 ohm to 75 ohm transformer • Earphone

AG-190U\$1200.00



AG-450

AG-180U 1/2" CCD VHS Camcorder

- Piezo TTL automatic focus system f/1.2 (9-54mm) • 2-hour • Automatic iris with manual override • Self-timer recording • Interval recording • Camera search function (advanced rec./review) • EIA standard NTSC color signal; 525 lines, 60 fields • 4 rotary heads, helical scanning system; Luminance: FM azimuth recording; Color signal: converted subcarrier phase shift recording • Rotary erase head • 0.09" electronic viewfinder • 6X power zoom lens with macro capability • Auto-tracing white balance • Automatic time/date recording • 1/2" CCD image sensor • Video horizontal resolution: color, > 230 lines • S/N ratio: video, > 43dB; audio, > 42dB • Frequency response: 100-8000Hz • 1 audio track • Standard illumination: 1400 lux • Minimum required illumination: 7 lux • Synchro edit

Standard Accessories

- AG-B3A AC adaptor • AG-BP212 battery pack • AV converter connector • Battery pack charging connector • 300 ohm to 75 ohm transformer • Coaxial cable • Shoulder strap • AG-HT4 system carrying case • VM-RM1E pause remote control unit • Battery for clock operation

AG-180U\$990.00

Accessories

AG-B3A	AC adaptor/battery charger (AG-180U, AG-450, AG-460U)	\$220.00
AG-B3B	AC adaptor/battery charger (AG-190U)	TBA*
AG-B6	AC adaptor/battery charger	150.00
AG-B12	Plug-in AC adaptor/battery charger 12VDC, 1.5AH (all models)	165.00
AG-BP212	Battery pack 12V, 2.3AH (all models)	55.00
AG-C70A	S-Video (Y/C) cable (10') (AG-450, AG-460U)	16.00
AG-C71A	S-Video (Y/C) cable (16.6') (AG-450, AG-460U)	20.00
AG-HT4	Carrying case (AG-180U)	220.00
AG-HT5	Carrying case (AG-450, AG-460U)	285.00
VW-ACM1	Car battery cord (AG-180U, AG-450, AG-460U) ..	25.00
VW-ACM10P	Car battery cord (AG-190U)	25.00
VW-CG1	Character generator (all models)	300.00
VW-KM2	Line adaptor for AG-180U	55.00
VW-KMS1P	Line adaptor (AG-460U, AG-450)	60.00
VW-SP7E	Shoulder pad (AG-180U, AG-190U, AG-450)	65.00

AG-40U 1/2" CCD S-VHS Compact Cassette Camcorder

- Uses compact S-VHS/VHS-C cassettes with 30 minute SP and 90 minute SLP record/playback times • 400 line S-VHS horizontal resolution • 2-speed, 6X power zoom lens with macrofocus • TTL piezo auto focus • Auto iris with manual override • Laminated amorphous video heads • Cassette adaptor (supplied) enables videotape playback in standard S-VHS (VHS) VCRs

Standard Accessories

- Adaptor with DC power cable • RF adaptor • VHS playback; 1 "AA" battery • Shoulder strap • VW-VBC5P battery pack • LR1130 clock battery • Audio/video output cable • VHF coaxial cable • 300 ohm to 75 ohm transformer • S-VHS connecting cable • NV-STC30P compact videocassette tape • System carrying case

AG-40U\$1650.00

*To Be Announced

AG-7400 2 Hour S-VHS/VHS Hi-Fi Portable Recorder/Player

- Excellent picture quality over 400 lines • Y/C comb filter • Digital servo circuitry (10 bits) for jitter reduction • Framing servo circuitry for clear editing • Ball-bearing equipped tape posts (P1, P2, back tension for jitter reduction) • Rotary erase heads • 14-pin camera connector • Battery alarm and tape-end alarm indication possible in viewfinder • 4-channel audio (2-channel linear with Dolby NR, Hi-Fi 2-channel) • 80dB dynamic range in Hi-Fi • Auto backspace function • Camera-in switch (ENC/YC) • Camera selector (14-pin/10-pin) • Camera trigger (\pm) • SMPTE time code recording and playback • Separated S-Video terminals (4-pin) • External battery connector for long time operation • XLR 4-pin DC input • Audio dub selector (CH. 2 or CH. 1/CH. 2) • Detail switch • Picture adjustment VR • 1/4" phone mic jack • S-VHS/VHS mode selector • Soft carrying case and Y/C cable included

AG-7400\$2,700.00



AG-7400

AG-7450 Dockable 2 Hour S-VHS/VHS Hi-Fi Portable Recorder/Player

- S-VHS picture quality • Dockable with WV-F300 (optional WV-VT12M required); directly with WV-F250 and WV-F70D • Laminated amorphous video heads • XLR audio input connectors • XLR DC input connector • 4-channel audio (2 Hi-Fi, 2 linear); 80dB dynamic range in Hi-Fi • Half-loading system • Anti-rolling system • TCR/TCG available (AG-F745, optional) • VTR adaptor available (AG-S745, optional) • Compact and lightweight • Highly reliable 2 reel motor • Rotary erase head • LCD audio level indicator • Linear time counter • Hi-Fi audio record/playback • SP record speed • Independent input level adjustments for four channels

The versatile AG-7450 can be used as either an integrated camcorder with Panasonic dockable cameras, or as a portable VCR with a wide range of system configurations.

The AG-7450 docks via an optional S-VHS docking adaptor to Panasonic's Professional 200CLE and 300CLE 3-CCD video cameras. The AG-7450 will also dock directly to Panasonic's WV-F250 3-CCD video camera and WV-F70 2-CCD video camera.

Laminated amorphous video heads enhance the unit's S-VHS picture quality. The S-VHS format is capable of achieving more than 400 lines of horizontal resolution and an enhanced S/N ratio over the VHS format by increasing the FM luminance signal frequency and bandwidth, and by processing the luminance and chrominance video signals separately through S-video in/out connectors. In addition to S-VHS tapes, the unit allows playback of standard VHS tapes.

The AG-7450 delivers incredible sound by way of two Hi-Fi and two linear channels with Dolby C.

AG-7450\$3,000.00



AG-7450

S7450 Portable Package

Includes: • (1) AG-7450 • (1) AG-S745 VCR adaptor

S7450\$3,700.00

DS2550 Dockable Package

Includes: • (1) WV-F250H 3-CCD color camera • (1) WV-S290 S-VHS dockable kit • (1) AG-7450 dockable S-VHS Hi-Fi VCR • (1) AG-B745 battery charger for AU-BP220 • (1) AU-BP220 2.2AH battery pack

DS2550\$10,000.00

DS3050 Dockable Package

Includes: • (1) WV-F300 3-CCD color camera • (1) WV-S390 S-VHS dockable kit • (1) AG-7450 S-VHS/VHS Hi-Fi portable VCR • (1) AG-B745 battery charger • (1) AU-BP220 2.2AH battery pack

DS3050\$11,300.00

Accessories

AG-B640 A/C adaptor/charger, XLR 4-pin DC output, 12VDC, 4A\$420.00

AG-B745 Battery charger for AU-BP220 (AG-7450)\$550.00

AG-BP212 Battery pack 12V, 2.3AH (AG-7400, S7450)\$55.00

AG-C70A S-Video (Y/C) cable (10') (AG-7400, S7450)\$16.00

AG-C71A S-Video (Y/C) cable (16.6') (AG-7400, S7450)\$20.00

AG-F745 Time Code Generator/Reader Compact and lightweight. Can generate and read LTC/VITC signals. Permits setting of VITC recording line as desired. Rec Run/Free Run selectable. VITC/LTC/Off selectable (AG-7450, S7450)\$900.00

AG-S745 VCR Adaptor (converts AG-7450 for use as separate portable video recorder). Uses one AG-BP212 rechargeable battery pack. Y/C separate circuitry, 5-pin remote control terminal, Synchro edit terminal (playback), color framing circuitry. Connectable with 14-pin/10-pin camera\$900.00

AU-BP220V 2.2AH battery pack (AG-7450)\$140.00

CC-390 Hard shell carry case for AG-7450 docked to WV-F300 camera\$450.00

WV-CC71A Hard shell carry case for AG-7450 docked to WV-F250 camera\$550.00

NV-C450 Car battery cord (16.7') (all models)\$35.00

VW-R17E Wired remote control (16.4') (AG-7400, S7450)\$55.00

WV-CA32A/14 32-pin camera to 14-pin VCR (10') with Y/C (AG-7400, S7450)\$150.00

WV-VT12M S-VHS Interface Adaptor with battery holder for the WV-F300 to allow the AG-7450 S-VHS to dock to them\$750.00

S-VHS EDITING RECORDERS/ PLAYER/CONTROLLER

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

AG-7750 S-VHS Hi-Fi Editing Recorder/Player

- Built-in time base corrector
- Built-in digital noise reduction circuitry
- 3-line comb filter
- 4-channel audio with dynamic range of 90dB
- RS-422A (9-pin) serial interface connector
- Field freeze at ready off mode
- Balanced XLR audio connectors
- 34-pin parallel connector
- Plug-in time code generator/reader (optional)
- 32X viewable search speed
- System setup and mode display
- More than 400 lines resolution
- Digital decoder for complete Y/C separation
- Separated S-Video input/output terminals (4-pin)
- 7-pin Y/629kHz dub-in/dub-out terminals for superior dubbing quality
- Edit switch
- 19" rackmountable with front load
- Insert and assemble editing
- Jog/shuttle dial
- Auto-prompting illuminated switch system
- Framing servo circuitry for clear editing
- Digital servo circuitry
- Rotary erase heads
- Automatic backspace function
- External sync input
- SMPTE time code record/play capability
- Built-in sync generator
- LED tape counter for frame display
- VHS mode selector
- Improved video/chroma S/N ratio with special laminate amorphous video heads and high performance record/playback circuitry
- Capstan override control for improved editing precision
- S-Video (Y/C) cable

AG-7750	.....\$6500.00
AG-F700 Time code generator/reader	.....650.00
AG-M750 Rackmount brackets	.....75.00

AG-7650 S-VHS Hi-Fi Source Player

- Built-in time base corrector
- Built-in digital noise reduction circuitry
- RS-422A (9-pin) serial interface connector
- Balanced XLR audio connectors
- Plug-in time code generator/reader (optional)
- 32X viewable search speed
- System setup and mode display
- Ideally matched as a source machine for the AG-7750
- More than 400 lines resolution
- 4-channel audio
- External sync in
- Jog/shuttle dial
- Audio output level meter with Hi-Fi/normal selector
- 8-digit frame counter
- Hi-Fi/normal audio output selector
- Tracking control with meter
- 19" rackmountable
- Remote/local switch
- Stereo headphone jack (1/4" phone) with level control
- Edit switch

AG-7650	.....\$4500.00
AG-F700 Time code generator/reader	.....650.00
AG-M750 Rackmount brackets	.....75.00



AG-7750



AG-A750

AG-A750 Editing Controller

- Edit point setting with large jog and search dial
- Frame trim for simple revision of edit in and out points
- Auto-prompting illuminated switches
- Preview of programmed edit prior to actual editing
- Easy, automatic review
- LED frame counter (green) readout in hours, minutes, seconds and frames
- Free choice of editing mode
- Preroll for both source machine and editor
- Lap time display
- Audio monitor level adjustment for both source machine and editor
- Trigger output
- On-line connection of up to 3 machines (using optional NV-J500 Multi-Source Switcher and NV-A505 Remote Search Controller)

AG-A750\$1950.00
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Accessories

AG-A600	Remote control unit with search dial, 10'	...\$ 200.00
AG-A800	A/B roll, multi-event editing controller4100.00
AG-C65	7-pin dubbing cable (10')	.....45.00
AG-C70A	S-Video (Y/C) cable (10')	.....16.00
AG-C71A	S-Video (Y/C) cable (16.6')	.....20.00
AG-IA81	34-pin interface board for AG-A800 (16.6') with TCG, TCR	.....1000.00
AG-IA82	9-pin interface board for AG-A800 (16.6')	.....300.00
NV-A505	Full-function remote search controller with LED readout and dial (16.4')	.....990.00
NV-C15	8-pin monitor/VCR cable (5')	.....28.00
NV-C21S	8-pin extension cable (10')	.....33.00
NV-C80	Remote control extension cable (16.4')	.....120.00
NV-J500	Multi-source audio/video switcher	.....600.00
WV-CA38	Conversion cable for desktop VCR (use with WV-CA32A/14)	.....170.00

EDITING CONTROLLER/ SWITCHER

AG-A800 Multi-Event Editing Controller

• For AG-7750/7650/7500A/7510/AU-65 • 128-event memory using control track or SMPTE time code • 2 source VCRs can be alternated for multi-source editing • Use of an A/V switcher (AG-SW800, optional) enables simultaneous playback from 2 source machines for creation of special effects in multi-event editing • A/B roll editing • Single jog/shuttle search dial • Optional interface boards for 34-pin parallel/9-pin serial remote control • External capstan override • Audio split editing • Aux control for remote control of playback start/stop of external equipment • RS-232C 25-pin D-Sub connector • Separate control panel and interface unit • Digital edit point memory • Remote selection of time code generator modes • Switchable pre-roll time settings: 3/5/7/10/15 seconds

Standard Accessories

• 19" rackmount adaptor • 15-pin to 15-pin cable

Specifications

Power Requirement: 120VAC, 50/60Hz
Power Consumption: 30W (With interface board)
Editing Functions System: Micro computer
Controls: Play, Stop, Rew, FF, Ready, Search, Jog, Shuttle, Rec., Edit
Editing Controls: Preview, Review, Auto, Edit, Go To, Edit Stop, TCG Set, Event, Dur, Total
Editing Modes: Assem, Ins V/A1/A2/TC, (Insert), A/B Roll (A/B Roll Editing Mode), Audio Split (Audio Split Editing Mode)
Counter Display Event No.
Display Indication: Event No.
Display (Recorder/Player) Indication:
 Max. ± 9 hr. 59 min. 59 sec.
 29 frames (CTL)
 Max. 23 hr. 59 min. 59 sec.
 29 frames (T/C)
Switcher Control Display
Transition: Transition max. 999 frames
Pattern: Dis, Wipe, Key
Connections
Ref Video In/Out: BNC x 2 75 ohm on/off loopthrough



AG-A800

SW I/F: 9P x 1
To Key Board: 15P x 1
Aux. Control: 15P x 1 relay contact (TTL output) x 3 pulse durations, selectable output timing
Data In/Out: 25P x 1 RS-232C (Selectable parity, baud rate, stop bit)
Control Panel Connector TO I/F UNIT: 15P x 1
Data Transfer: TTL parallel, RS-422A, RS-232C
Connection Capability VTR: AG-7750/7650/7500A/7510/AU-65
Connection Capability (No. of Units): Recorder: 1 unit
 Player: 1 ~ 2 units
Edit Reference: CTL (Control) LTC (SMPTE Time Code)
Editing Precision: ± 0 frames (Time Code Editing, Normal Play Mode)
Preroll Time: 3, 5, 7, 10, 15 sec. (selectable)
Operating Temperature: 41°F ~ 104°F (5°C ~ 40°C)
Operating Humidity: 35% ~ 80%
Dimensions: Main Unit—3³/₄" H x 16¹/₁₆" W x 11¹³/₁₆" D
 Control Unit—2¹⁵/₁₆" H x 16¹/₁₆" W x 10³/₁₆" D
Weight: Main Unit— 12.54 lbs.
 Control Unit— 4.84 lbs.
AG-A800\$4100.00
AG-IA81 34-pin interface board with TCG/TCR, 16.6' ... 1000.00
AG-IA82 9-pin interface board, 16.6'300.00

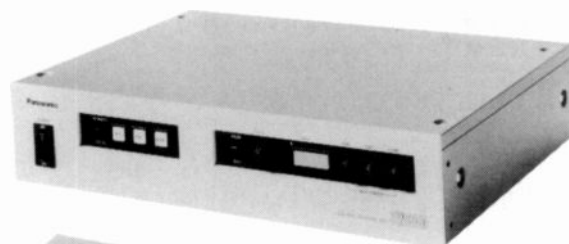
AG-SW800 Audio/Video Switcher

• 3-input/1-output • Y/C and composite video input and output • 4 channels • Balanced and unbalanced audio input and output • Can be connected to the 9-pin serial interface for automatic editing using AG-A800 control over AG-SW800 functions, and for A/B roll editing using special effects • Fade in/out • Dissolve • 8 wipe patterns • DSK • Manual control of special effects with optional AG-RM800 A/V switcher remote controller (15-pin terminal) • Audio split editing • Blackburst out (BNC) • 19" rackmountable • Includes: 9P-9P cable for editing controller and 19" rackmount adaptor

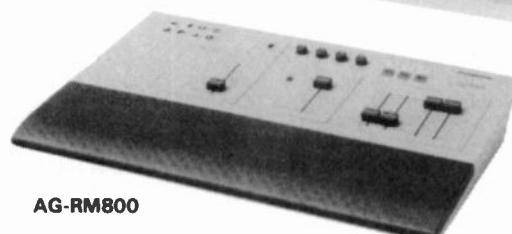
AG-SW800\$4500.00
AG-C70A S-Video (Y/C) cable, 10'16.00
AG-C71A S-Video (Y/C) cable, 16.6'20.00

AG-RM800 Switcher Remote Controller for AG-SW800

• Allows manual operation of the fader for special effects • Video fader • Independent audio fader controls (4-channel) • Video fader H/V separation • Select buttons for wipe/dissolve and wipe pattern and transition memory • 8 wipe patterns • Normal, reverse and normal/reverse wipe • Key control • Multiple input select—Player 1, Player 2, Aux, Black/White, for both A and B bus
AG-RM800\$2100.00



AG-SW800



AG-RM800

S-VHS RECORDERS/ PLAYERS/VIDEOTAPE

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

AG-7000 Series S-VHS/VHS Recorders/Players

Common features:

- 2 hour • High performance digital servo circuit • External sync in
- Random auto repeat (zero stop/set rewind/repeat) • Sub-loading system • 5-digit real time counter with remaining-time indication • Edit switch • Virtually noiseless forward slow/reverse slow and frame shift
- 34-pin remote control connector • Switchable audio monitoring: CH1/CH2/Mix • Headphone level control • 3 video modes: Color/Auto/B-W • 19" rackmountable (with optional adaptor) • Built-in RF converter

AG-7110 S-VHS/VHS Hi-Fi Player

- Includes common features • 14-step shuttle dial • Loophrough playback • SMPTE time code playback • 4-channel audio: 2 channels of Hi-Fi with dynamic range greater than 90dB; 2 linear audio channels with Dolby NR • Audio out select switch: Hi-Fi/Normal • External timer playback capability \$2400.00

AG-7300 S-VHS/VHS Recorder/Player

- Includes common features • 2-channel audio with Dolby NR • Rotary erase head • Audio recording levels adjusted independently • Audio limiter • Audio dubbing on channel 2 • SC input terminal • 17-step shuttle dial • Video sensor recording switch • Loophrough recording for dubbing • SMPTE time code record/playback \$3000.00

AG-7330E S-VHS/VHS Hi-Fi Multi-Standard Recorder/Player

- S-VHS picture quality (in PAL) • Multi-standard record/playback, PAL: S-VHS/VHS, record/playback; CCIR: VHS record/playback; NTSC 4.43: VHS playback • Auto repeat playback • External sync input • On-screen mode set-up • Hi-Fi audio with 90dB dynamic range • Laminated amorphous video heads • Jog/shuttle search • Time code record/playback • Video sensor recording • Linear audio with Dolby NR • Heads, Video: 4 rotary heads; Audio: 2 rotary heads (Hi-Fi 2 channels); Audio/control: 1 stationary head (normal audio); Erase: 1 full track erase, 2 selectable audio erase tracks for editing, 1 rotary erase head • Video Horizontal Resolution, VHS: Color, 240 lines, B/W 300 lines; S-VHS: More than 400 lines (color, B/W in PAL) • Audio frequency response: 50-12,000Hz (normal audio); 20 ~ 20,000Hz (Hi-Fi Sound) • Signal-to-noise ratio, video: 45dB (color), (VHS) 45dB (B/W); audio: 48dB (normal audio: Dolby NR on) • 34-pin remote \$3200.00

NV Series S-VHS Videotape*

NV-ST120P	2-hour record/play time	\$ 10.99
NV-ST60P	1-hour record/play time	9.99
NV-ST30P	1/2-hour record/play time	10.99
NV-ST120M	Professional 120-minute	18.00
NV-ST60M	Professional 60-minute	16.00
NV-ST20M	Professional 20-minute	13.00

NV Series VHS Videotape*

NV-T120SHG	2-hour high grade VHS blank tape	\$4.99
NV-T120PSD	2-hour standard VHS blank tape	3.99
NV-T60PSD	1-hour standard VHS blank tape	3.95
NV-T30PSD	1/2-hour standard VHS blank tape	3.89

*Shipped in standard packing quantities 10 to a carton.

AG-7350 S-VHS Hi-Fi Recorder/Player

- 58µm wide laminated amorphous video heads • 4-channel audio (2 Hi-Fi/2 linear channels) with Dolby NR • 90dB dynamic range • 34-pin parallel/optional RS-232C serial interface capability • Jog/shuttle • 17-step shuttle dial with variable speeds from 1/25 to 11X • Full loading tape mechanism offers stop to play mode with picture on screen in less than 2 seconds • Soft pause • Auto repeat play/counter memory functions • Advanced chroma aperture circuit (CAC) and comb filter for outstanding color reproduction • Digital circuitry for Y/C separa-



AG-7110



AG-7300



AG-7330E

- tion • 6-hour playback capability (normal audio only) • Wide 42µm heads for Hi-Fi audio (SP/2-hour mode) • Optional time code recording/playback using linear CH2 (with optional RS-232C serial interface board) • Sensor recording • On-screen menu display • 48-hour memory backup for counter • Mode lock for front panel controls • Self-illuminated switches • 11-bit digital servo • Motherboard construction • 19" rackmountable \$2600.00

AG-7000 Series Accessories

AG-A600	Remote control unit with search dial, 10' (all models)	\$ 200.00
AG-A750	Full function editing controller, single event, 16.4' (AG-7110, AG-7300)	1950.00
AG-C70A	S-Video (Y/C) cable, 10' (all models)	16.00
AG-C71A	S-Video (Y/C) cable, 16.6' (all models)	20.00
AG-M700	19" rackmount bracket. Use chassis track CC-3004-99-0017 (18") or CC-3004-99-0018 (24") (AG-7110, AG-7300)	130.00
NV-A505	Full function remote search controller with LED readout and dial, 16.4' (all models)	990.00
NV-A850	Programmable auto search controller, 6.6' (AG-7300)	550.00
NV-C15	8-pin monitor/VCR cable, 5' (AG-7300)	28.00
NV-C21S	8-pin extension cable, 10' (all models)	33.00
NV-C80	Remote control extension cable, 16.4' (AG-7110, AG-7300)	120.00
NV-J500	Multi-source audio/video switcher (AG-7110, AG-7300)	600.00
WV-CA38	Conversion cable for desktop VCR (use with WV-CA32A/14, AG-7300).	170.00

DUPLICATION RECORDERS/ CASSETTE CHANGER

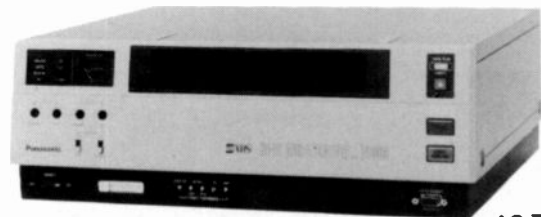
AG-7800 S-VHS/VHS Hi-Fi Duplication Recorder/Player

- Digital-servo circuitry (10-bit) for jitter correction • Y/C comb filter • 2/6-hour recording/playback (S-VHS mode) • 2-hour recording/playback (VHS mode) • 8 head design • 4-channel audio (2-channel Hi-Fi, 2-channel linear with Dolby NR) • 90dB audio Hi-Fi • Separate S-Video input/output terminal (4-pin) • 34-pin serial remote control • Serial remote control receiver unit • Auto cassette changer connection • 19" rackmountable with optional adaptor • Durable, heavy-duty construction • Adds the flexibility of both S-VHS (2 and 6 hr.) and VHS (2 hr.) record and playback • Built-in serial remote receiver unit allows centrally actuated transport control for large or small multiple unit systems • Front panel test terminals • Hour meter • Easily removable top cover panel • Rackmountable • Diecast aluminum chassis and ball bearing based tape guide posts

The AG-7800—a dedicated system for large-scale S-VHS duplication. The AG-7800 adds a range of improvements to basic S-VHS technology. Separate input and output of Y and C signals* reduces cross-color and dot interference for finer picture clarity. Wider video heads, 10-bit digital servo-circuitry that corrects jitter, and a Y/C comb filter improve performance. The result: stunning picture quality that meets the highest professional standards. Pictures are superb even with extended 6-hour tapes, and the AG-7800 can also be used for VHS duplicating.

The AG-7800 gives you extra flexibility with 3 modes to choose from. This includes S-VHS SP mode for 2 hours of recording/playback and S-VHS SLP mode for 6 hours, as well as VHS SP mode for 2 hours of recording/playback. In S-VHS SLP mode, the AG-7800 offers a high 400 lines of resolution for exceptional picture quality, plus the convenience of 6 full hours of programming on a single tape. The VHS SP mode lets the AG-7800 duplicate conventional VHS Hi-Fi tapes.

A serial interface decoder built into the AG-7800 enables multiple VCR connection, in series or parallel, using a simple rec/remote jack. The optional AG-IA12 Serial Remote Transmitter enables an even wider range of remote control functions. These include play, record, stop, pause, rewind, fast forward, eject, audio limiter on/off, Dolby NR on/off, video AGC on/off, and HD recording on/off. All units in your duplicating system can be controlled simultaneously (up to 500 VCRs without signal amplification).



AG-7800

The loop-through recording capability of the AG-7800 greatly facilitates series connection, permitting simplified remote control operation of large-scale systems with up to 500 VCRs. An external on/off switch provides easy remote control over recording starts.

To ensure superb sound quality, the AG-7800 features 4 discrete audio channels—2 linear channels with Dolby NR plus 2 Hi-Fi channels with a 90dB dynamic range and 0.005% wow and flutter. The level meter is switchable for either system, and 4 recessed level control knobs allow separate adjustment of the left and right channels in each audio system.

AG-7800 \$3000.00

Accessories

- AG-A600 Remote control unit with search dial, 10' . . . \$ 200.00
- AG-C70A S-Video (Y/C) cable, 10' 16.00
- AG-C71A S-Video (Y/C) cable, 16.6' 20.00
- NV-C80 Remote control extension cable, 16.4' 120.00
- NV-A505 Full function remote search controller with LED readout and dial, 16.4' 990.00
- AG-IA 10 Serial remote receiver 45.00
- AG-IA 11 Serial remote transmitter circuit board 50.00
- AG-IA 12 Serial remote transmitter board 160.00
- AG-M600 19" rackmounting brackets (use with chassis track #C-300-S1 (XX)/B308) 77.00
- AG-DA700 Video distributor with 10 Y/C outputs and selectable input (component, composite, Y/C) 2400.00
- AG-DA750 Video distributor with 10 Y/C outputs 1000.00
- AG-DA760 Audio distributor with 10 outputs (2CH) and selectable input (XLR or RCA) 1000.00

*With the optional AG-DA700 and AG-DA750 Video Distributors.

AG-6840H VHS Duplication Recorder

- 2 hour VHS record only • High silicon head cylinder • Advanced IQ mechanism • 34-pin/serial remote • 90dB dynamic range with Hi-Fi • Auto off/standby output jacks • External test points • Ready for auto changer/audio meters

AG-6840H \$1500.00

AG-6850H VHS Duplication Recorder/Player

- Recorder/player version of AG-6840H

AG-6850H \$1800.00

Accessories

- AG-A600 Remote control unit with search dial, 10' . . . \$200.00
- AG-AM10 Audio meter 100.00
- AG-AM20 Remote audio meter 200.00
- AG-IA 10 Serial remote receiver 45.00
- AG-IA 11 Serial remote transmitter circuit board 50.00
- AG-IA 12 Serial remote transmitter board 160.00
- NV-C80 34-pin remote control extension cable, 16.4' . . . 120.00



AG-6850H

AG-CL78 Automatic Cassette Changer

- Interconnects with AG-6840H and AG-6850H duplication recorders • Automatically loads and unloads cassettes • Up to 7 cassette tapes can be accommodated (4 on the top, 1 in the recorder and 2 in lower holder) • Optional AG-CH78 allows up to 4 ejected tapes • Manual loading override • Built-in self-diagnostic system, with front panel VCR error indicator

AG-CL78 \$425.00

S-VHS/VHS SYSTEM COMPONENTS/SWITCHERS

TBC-200 Plus S-VHS/VHS Time Base Corrector

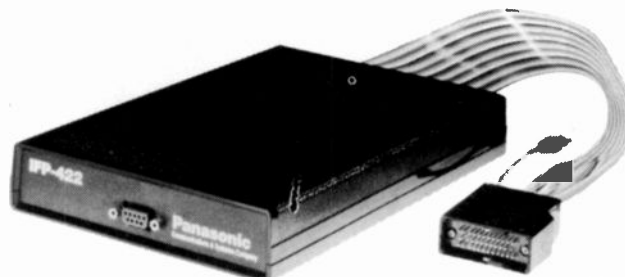
- 16-line correction window • 8-bit digital component processing
- Proc amp control with presets • Genlock • Separate chrominance edge enhancement and chrominance noise reduction • Horizontal and vertical Y/C delay adjustments • NTSC, Y/C 3.58MHz and Y, R-Y, B-Y outputs for MII or Betacam, NTSC and Y/C 3.58MHz inputs • 6.0MHz (-3dB) luminance bandwidth • Frame editing capability with consistent horizontal position • QIW circuit for stable pictures in jog/shuttle modes • Rackmountable, adaptor included • AC power cord included \$4950.00



TBC-200 Plus

UTP-2 Video Signal Transcoder

- Transcodes virtually any video signal into any other video signal • Can handle S-VHS, U-Matic, RGB and RGB with separate sync, as well as MII and Betacam • Input signals: Y/688kHz; Y/C 3.58MHz, Y, R-Y; B-Y; linear RGB w/sync • Output signals: Y/688kHz, Y/C 3.58MHz; Y, R-Y, B-Y; linear RGB w/sync, NTSC composite (monitoring) • 5.5MHz (-1dB) bandwidth, 60dB S/N ratio • Front panel level controls with preset switch, front panel NTSC monitoring point • 19" rackmountable, 1 rack unit high • Rack slides provided \$1950.00



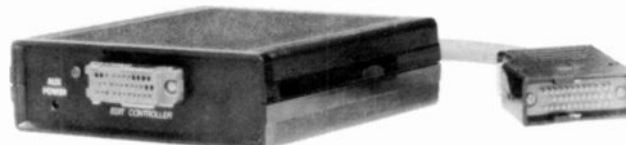
IFP-422

Accessories for TBC-200 Plus/UTP-2

AG-C65 7-pin dub cable, 10' (UTP-2) \$45.00
 AG-C70A S-Video (Y/C) cable, 10' (all models) 16.00
 AG-C71A S-Video (Y/C) cable, 16.6' (all models) 20.00

IFP-422 Serial-to-Parallel Interface Unit

- Provides the capability of controlling Panasonic's S-VHS VCRs (AG-7000 Series) and standard VHS VCRs (AG-6000 Series) via an RS-422 serial controller • Serial-to-parallel interface unit for edit control with selected RS-422 serial controllers and Panasonic 34-pin control professional VCRs • Controls Panasonic 34-pin control VCRs on the source side • Controls AG-7500A/AG-7500/AG-6500 on the edit side • LTC reader • Capstan override capability • No modifications required to VCRs or RS-422 serial controllers. \$1850.00



IFP-45

IFP-45 Machine Control Interface Unit

- For editing with Sony® RM-440/RM-450 and Panasonic 34-pin control professional VCRs • Controls Panasonic 34-pin control VCRs on the source side • Controls AG-7500/AG-7500A/AG-6500 on the edit side • No modifications required to VCRs or Sony RM-440/RM-450 • Microprocessor based design/CMOS logic • Power: Maximum of 120mA, 12VDC from VCR, maximum of 650mA, 9VDC external power supply • 1 1/2" H x 5 3/32" W x 5 1/4" D • 10' cable/34-pin connector to Panasonic VCRs • Weight: 1 lb. \$860.00



WJ-220

IFP-232CJ PC Machine Control Interface Adaptor

- Suitable for Panasonic AG-7000 Series S-VHS VCRs and AG-6000 Series VHS VCRs with 34-pin parallel control protocol • No machine modifications and no wires or cables between the VCR and IFP-232CJ • Allows full computer control from a standard RS-232C communications port using standard 4-conductor RJ-11 phone cable and connectors • Externally selectable dip switches permit up to 32 binary interface addresses • Serial data/serial cabling (daisy chain configuration capability) • Operating power obtained for VCR • Provides full duplex serial communications commands to and from VCR • Comprehensive protocol structure • Packaged with test and applications software and basic source code, cable adaptor connectors, 10' RJ-11 cable and manuals \$300.00



WJ-225

WJ-220/220R Active Manual Switchers

- 6 composite video inputs that can be switched to a single video output • Switching is accomplished during the vertical interval for glitch-free results • Non-locking pushbuttons light up to show which input has been selected • Clear cover on each pushbutton snaps out for insertion of input labels • Inputs are Hi-Z looping with BNC connectors

WJ-220 Desktop \$315.00
 WJ-220R 1 3/4" high EIA rackmount 315.00

WJ-225/225R Active Manual Switchers

- Same as WJ-220/220R but with 12 composite video inputs

WJ-225 Desktop \$460.00
 WJ-225R 1 3/4" high EIA rackmount 460.00

WJ-300B Video Distribution Amplifier

- Selectable 1 input to 6 output or 2 channel with 1 input to 3 output each channel • BNC connectors • Use with all video cameras and system equipment \$290.00

WJ-A01 3 1/2" rackmount frame 65.00
 WJ-B01 Blank panel, 3 1/2" H x 2 3/4" W (1 1/4" span) 30.00
 WJ-B02 Blank panel, 3 1/2" H x 5 1/2" W (1 3/8" span) 35.00
 WJ-B03 Blank panel, 3 1/2" H x 8 1/4" W (1 1/2" span) 40.00

WJ-MX12 Y/C and Composite Audio/Video Mixer

- 2 Y/C and 2 composite inputs/outputs (switchable) • Resolution 500 TV lines with S-Video input/output (typical) • S/N more than 55dB with S-Video input • Auto take/auto fade function • Built-in color corrector • Negative/positive picture reversal • 8-color background selection • Built-in audio mixer—4 audio inputs with headphone output • Built-in digital frame synchronizer (frame memory) • Does not require a TBC • Special digital effects such as freeze-frame, strobe, mosaic, paint (posterize) and negative/positive picture reversal are easily achieved manually, or using the Automatic Programmable Effects Memory, which can store 4 different effects for instant activation. The convenient array of controls on the panel puts these and other effects—including superimposition, 17 wipe patterns, 8-color background selection, color correction, master AV fade-in/fade-out, and more—right at your fingertips \$3,000.00
- WV-KB12A Full keyboard titler with scroll 185.00



WJ-MX12

WJ-MX10 Digital Audio/Video Mixer

- Built-in frame memory • Does not require a TBC • 17 different wipe effect patterns; square or round wipe screens movable to any position with positioning • 3 selectable video inputs for superimposition with reverse, key level control and color selection, plus shadow effect and edging effect • 8-color background selection • Create special digital effects like freeze frame, interval adjustable stroboscope, 5-level mosaics, and 7-level adjustable painting • Built-in 4 input audio mixer with headphone output and level meter (-30dB 8 ohms (8-100 ohms), phono jack) • Fade-in and fade-out functions can be used alone or together for video, audio and video title signals • Video, Y signal: 3MHz, -3dB; Audio: 20Hz-20kHz frequency response • >46dB video S/N • 50dB audio S/N \$2,400.00
- WV-KB12A Full keyboard titler with scroll 185.00



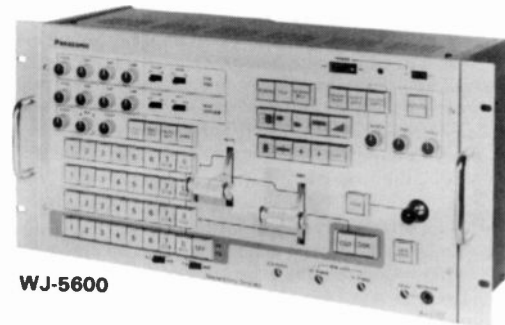
WJ-MX10

WJ-KB15 Character Generator for WJ-MX12 and WJ-MX-10

- Random access key selections • When the WJ-KB15 is connected with the WJ-MX10 or WJ-MX12, the following functions/operations are possible: 9 pages of character displays and a scroll feature for versatile program productions; 1 page (page A) of character display with date and time display capability; stop watch with lap time; title positioning feature \$295.00

WJ-5600 Color Special Effects Generator

- 2 built-in mixing amplifiers allow 3-channel mixing • 8 channel inputs • 9 patterns • Built-in sync generator • 3 blackburst outputs • Mixing in fade-in, fade-out and dissolve modes • Switch-over in normal, normal-reverse and reverse • Wipe waveforms in 3 stages: soft, sharp and color border • Switchover by self-collating non-locking button during the vertical interval • A built-in positioner circuit • 2 color generators for the matte key and border wipe, and for downstream keying and background • Color generators adjusted independently for hue, saturation and luminance • The matte key has a negative/positive selection switch • Downstream keyer has a built-in edge on/off switch • Color matte key and RGB chroma-key are independent • Chroma-key creates key signals in full hue, and controls key delay levels • Downstream key signals capable of color/monochrome switch-over • Input signals in both the VBS composite and VB non-composite modes. VBS genlock is also possible • AC or 12VDC • Rackmountable \$7,260.00



WJ-5600

WJ-4600C Color Special Effects Generator

- DC operation for EFP use • Vertical interval switching of 6 program inputs • Fades, dissolves, and 6 wipe patterns • Super, external key (monochrome); internal key • Built-in EIA RS-170A sync generator (HD, VD, sync, BL, BFP, SC, and blackburst outputs) plus genlock capability • Genlock circuitry for non-synchronous video signal mixing • Subcarrier phase and horizontal phase adjustments for genlock

- Blackburst (program output only) 3 outputs • Can mix composite and non-composite video inputs • Effect, preview, and 2 program outputs • "Cut" pushbutton transfers program and preview buses • 2-step illuminated, non-locking pushbuttons: light dimly when pressed to indicate selected preview inputs; light brightly when pressed to indicate selected program inputs • Illuminated lock-release buttons light up when pressed to show function selected • Supplies intercom power to 6 cameras and level adjustable • Supplies tally light on/off switching to all 8 inputs • BNC connectors • Audio amplifier for intercom with level control • Rackmountable • AC or 12VDC \$2,650.00

EGP-7 Production/Post-Production A/V Switcher

- 6 external plus 2 internal (black and background) video inputs • 6 stereo or monaural plus mic and line audio inputs • Audio follow video capability • CH1/CH1 VU meters • Built-in audio test tone generator • 28 effects patterns, including circle and 2 rotary wipes, plus reverse joystick positioner with on/off control • Manual or adjustable rate automatic transitions • 99-event memory • 3 external key signal inputs • 3 digital color matte generators • Genlocking EIA RS-170A sync generator • 3 isolated blackburst outputs • Built-in SMPTE color bar generator \$11,500.00
- IFP-7 RS-422 interface 1,000.00
- CKP-1 RGB chromakeyer 1,000.00
- CKP-2 NTSC chromakeyer 1,000.00
- IMP-7 Audio intercom mixer 500.00

VHS RECORDERS/PLAYERS

Panasonic

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

AG-1400CR VHS Player for Automobiles

- Full-function video playback inside any vehicle • 12VDC operation
- Built to withstand heat and vibration in an automobile interior • 4-head video system • Clear still and slow playback at 1/8 normal speed
- Cue and review at 5X normal speed (15X SLP) • DD cylinder motor
- 1-piece aluminum diecast chassis • Compact and lightweight: 2 3/4" H x 8 7/16" W x 9 1/4" D • 4.62 lbs. • SP/LP/SLP playback • LCD display with tape remaining indicator with blinking display when there is less than 5 minutes left • Tracking/slow tracking control • Soft/sharp picture sharpness control • Counter memory • Wired remote controller capability, optional VW-R17E

The compact AG-1400CR will bring full-function video playback capability inside any vehicle from the family auto to a limousine, motor home or tour bus. Whatever programming you regularly view on standard VHS cassettes can go "on the road" with you—from rental tapes to recorded TV programming to prerecorded tapes for business or entertainment (SP/LP/SLP mode). The AG-1400CR operates from standard 12V car batteries, and it's built to withstand the heat and vibration in an automobile's interior. What's more, the video technology it features is as advanced as you'll find in other Panasonic professional models, including the GT4s 4-head video system for clear, crisp still and slow playback, and an LCD display with tape remaining counter.



AG-1400CR

Standard Accessory

- 10' car battery cord \$1150.00
- VW-R17E Wired remote control, 16.4' \$55.00

AG-5200 VHS Hi-Fi Recorder/Player

- 4-head video system • Provides clear special effects playback including slow, still and cue/review • Hi-Fi stereo sound with 90dB range
- Audio record level controls • Audio output selector • 1-piece aluminum diecast chassis • DD cylinder motor • Fold-up handle • External timer recording playback • Series playback • Counter/audio meter display • Quasi-S-VHS playback • 2/6 hour recorder • 2/4/6 hour playback • Built-in serial interface • Automatic power on • Auto repeat playback • Auto playback eject • Wired remote control capability, optional AG-A11 • Power off/eject, mode lock • RF converter channel selector (CH3/CH4) • Tracking/slow tracking and picture sharpness controls • Edit switch • Audio dubbing function (normal audio) • Mode lock

Durable construction meets audio-video excellence in the compact AG-5200. A tough, 1-piece aluminum diecast chassis houses its advanced GT4 head system and VHS tape mechanism. This precision 4-head configuration keeps the picture clear in still and slow, as well as in other special effects modes. The extra pair of heads also provides 2-channel audio for Hi-Fi stereo or dual-language commentary. Practical controls and connection facilities help assure operational convenience and versatility.



AG-5200

Standard Accessories

- VHF connecting cable • 75 ohm to 300 ohm transformer . . . \$870.00
- AG-5100 Player only version of AG-5200 \$770.00
- AG-A10 Wired remote controller, 16.7' \$17.00
- AG-A11 Wired remote controller \$17.00

AG-1730 VHS Hi-Fi Recorder/Player

- High response mechanism • Jog and shuttle search • Hi-Fi audio with 90dB dynamic range • Digital tracking • Auto repeat playback
- 155-channel cable compatible tuner • VISS • FF/rewind time 2.5 min. • 1-month/8-event program timer • Super OTR (24 hr.) • Simultaneous recording • SP/LP/SLP record/playback • Super 4-head video system • Synchro edit function • Audio dubbing capability • BNC video connectors • Microphone jack/headphone jack • Automatic operations: auto power on, play, power off/eject and tape canceller • Picture sharpness controls • Timer programmable • MTS/SAP I, II
- Search speed 7X (SP), 21X (SLP) • Time search • Blank search • Tape remaining indicator • Wireless remote controller

Advanced video technology gives the AG-1730 improved picture and sound quality, plus greater ease of operation. The AG-1730 features a high-response mechanism with improved jog and shuttle search for fast, easy operation. With superb picture performance and remarkable response time, the AG-1730 sets a high standard for VCRs used in education, business and other professional applications.



AG-1730

Standard Accessory

- Wireless remote controller \$680.00

AG-1000B VHS Player

• 3-head system • High speed search, 5X normal SP/LP, 9X SLP • 2/4/6 hour playback (SP, LP, SLP) • Built-in RF converter and RF cable supplied • Easy connection to any TV • Optional wired remote controller, AG-A10, provides easy access to 8 modes • Automatic playback • Auto repeat playback • When auto repeat feature is not used, auto eject will rewind tape and eject • External timer playback • Power off eject • Series playback • A/V in/out terminals • 1-piece aluminum die-cast chassis • Provides clear still and slow playback in SP and SLP modes • Tracking, slow tracking and picture sharpness controls • LED indicators: power, play, FF, rew, still, dew (moisture) • Front-loading mechanism • Compact design with carrying handle • RF converter channel selector (CH3/CH4) • Input selector (line/VHF)



AG-1000B

Standard Accessories

- Built-in handle • VHF connecting cable • 75 ohm to 75 ohm/300 ohm transformer \$650.00
- AG-A 10 Wired remote controller, 16.7' cable \$17.00
- AG-A 11 Wired remote controller \$17.00

AG-1150 VHS Player

• 2/4/6 hour playback (SP, LP, SLP) • 3-head system for noiseless slow/still/still advance • Multi-function display features a 4-digit counter with memory, tape speed indicator, tape running mode, search lock, and dew/moisture • 11-function wireless remote control • DD cylinder motor with oil-film suspension contributes to the ultra-slim design and smoother operation than bearing designs • 1-piece aluminum diecast chassis • Auto rewind • Auto power on • Auto-repeat playback • Search lock function • Power off eject • Cue and review • Tracking and slow tracking controls • Power and cassette-in LED indicators • Front-loading • Channel 3/4 RF outputs for standard receivers • BNC video connector and RCA audio connector for monitors



AG-1150

Standard Accessories

- Wireless remote controller • VHF connecting cable • 75 ohm to 300 ohm transformer \$550.00

AG-1150R Same as AG-1150 except includes both AG-A10 wired remote controller and a wireless remote controller \$600.00

AG-2510 VHS Recorder/Player

• Super 4-head video system • 2/4/6 hour recording and playback (SP, LP, SLP) featuring double fine slow • Clear field still and frame advance • Double-speed playback and reverse playback • Oil-film suspension system • 8-pin monitor out • BNC video in/out • Camera remote terminal • Auto repeat playback • Linear time counter that also doubles as a clock • Time search • Digital tracking adjustment • Monitor switch on the remote control for a quick check of concurrent TV broadcasting during video playback • 1-month, 8-program calendar timer • Wireless infrared remote control • 100-channel frequency synthesized (FS) tuner • Auto operations: auto power on, auto play, auto rewind, power off eject, tape canceller • Search lock and skip search • Picture sharpness control • Edit switch



AG-2510

Standard Accessories

- Wireless remote controller • Twin-lead cable • Coaxial cable • 300 ohm to 75 ohm transformer • AC power cord \$490.00

AG-2510R Same as AG-2510 except includes both AG-A10 wired remote controller and a wireless remote controller TBA*
 NV-C15 8-pin monitor/VCR cable, 5' \$28.00
 NV-C21S 8-pin extension cable, 10' \$33.00

AG-1250 VHS Recorder/Player

• Super 4-head video system • Time search • TV/tape monitoring • Channel search • Quick play, 1 second for picture to appear when going from stop to play • 2/4/6 hour recording and playback (SP/LP/SLP) with double super fine slow in all 3 modes • All modes offer field still, frame advance and double speed playback • Oil-film suspension system • On-screen display • 1-month/4-program calendar timer • Auto-repeat playback • Digital tracking adjustment • Programmable wireless remote control with 10-digit keypad • Real time counter • Remote input select • 155-channel/155-position cable-compatible TV tuner • Standby 1-touch recording, from 30 minutes to 4 hours • Audio/video noise mute function replaces video noise with a pleasant blue background during playback of tape sections bearing no recorded signal • Auto operations: auto power on, auto play, auto rewind, power off eject, tape canceller • Search lock and skip search • Professional BNC video in/out connectors



AG-1250

Standard Accessories

- Wireless remote controller • 75 ohm to 300 ohm transformer • AC power cord • Coaxial cable \$350.00
- * To Be Announced

S-VHS/VHS EDITING SYSTEMS/ PORTABLE VHS RECORDER

AG-1960 S-VHS/VHS Hi-Fi Editing Recorder/Player

- S-VHS picture quality • High-response mechanism • Jog/shuttle dial • Edit modes: assemble, insert, audio dub • 5-pin edit terminal for AG-A95 • Synchro edit function for synchronized assemble editing with selected camcorders • Linear time counter (in hours, minutes, seconds) • Time search functions • Rotary erase head • GT4W super 4-head system • SP/SLP recording; SP/LP/SLP playback • Digital tracking • Auto repeat playback • On-screen display • Video input terminals: BNC 1; RCA 1; S-Video 1 • Video output terminals: BNC 2; S-Video 2 • Search speed 7X (SP), 21X (SLP) • FF/Rewind time (T120) 2.5 min. • Color level control • VISS (VHS Index Search System) • 1-month/8-program timer • Super OTR (24 hr.) • Mic/headphone • Blank search • Interval rec. • Tape remaining indicator • 155-channel/155-position cable compatible TV tuner • Wireless remote controller

AG-1960\$1300.00
AG-C70A S-Video cable, 10' 16.00
AG-C71A S-Video cable, 16.6'20.00



AG-1960

AG-A95 Editing Controller

- Usable with a variety of recorders including AG-1830, AG-1960, AG-6400, AG-2400 • Direct tape search • 8 programmable memory inset and outset points • Assemble/insert/audio dub • +7, -4 frame accuracy with AG-1960 • Built-in jog/shuttle search dial • Preview and edit stop functions • LCD multi-function display

The AG-A95 editing controller now makes VHS and S-VHS editing extremely affordable. Equipped with 8 programmable memory inset-outset points, the AG-A95 is an excellent way to get into the world of editing. In addition, the AG-A95 will work with a variety of console and portable VHS recorders.

AG-A95\$440.00



AG-A95

AG-2400 VHS Portable Recorder/Player

- 2/4/6 hour playback; 2/6 hour record • 4-head system with quartz-servo direct drive cylinder • 5-speed search/variable slo-mo playback • Multi-function LCD display • Diecast aluminum chassis • Wired remote control enables variable slo-mo playback • Video adding for basic insert editing • Audio dubbing capabilities • Memory function • 10-pin camera connector • Auto-rewind

Standard Accessories

- Wired remote control • Carrying case • Shoulder strap • Ear-phone • 300 ohm to 75 ohm transformer • F-type plug adaptor • VHF matching box with 75 ohm to 300 ohm transformer • V lock tool • RCA-BNC adaptor • Audio output cord • Coaxial cable with one touch F-type connector

AG-2400 is ideal for use with a portable video camera and is also perfect for stationary VCR applications when connected to the matching AG-V340 video tuner/timer (optional). Two heads are used for conventional recording and playback, while the other two enable clear still, frame advance, and slow playback modes. In addition, a speed search mode is included, making it easy to locate any desired point on the tape.

AG-2400\$1250.00



AG-2400

Optional Accessories for the AG-2400

AG-BP212 Battery pack 12VDC 2.3AH\$ 55.00
AG-B12 Plug-in AC adaptor/battery charger 12VDC 1.5A165.00
AG-B11 AC adaptor/battery charger multiple AC power 12VDC 1.5A195.00
AG-CR240 Car battery cable30.00
10H-30AS 10-pin extension cable, 30'95.00
10H-50AS 10-pin extension cable, 50'145.00
WV-CA10 VCR cable with WV-D5000, 8'35.00
WV-CA32/10 32-pin camera to 10-pin VCR cable, 10'90.00

AG-6300 VHS Recorder/Player

- High performance VCR perfect for use in editing systems with all the precision and connectors required for professional use • 2 hr. • 4 heads • 2 DD reel motors for smooth tape transport • Forward (noiseless) and reverse slow motion playback and frame shift • 17-step dial search • Audio dubbing selector • Audio level/tracking meter • Ext sync in • Time code in and out connectors • Dub/Normal switch select • Random auto repeat functions • Real time counter • 2-channel audio with Dolby noise reduction system • Audio limiter • Audio level meters • Headphone level control • Loophrough recording for dubbing • Intermediate loading system • Mode lock function • Optional remote control • External clock timer • 19" rack-mountable • Multiple AC power sources • 34-pin remote • 8-pin connector

Standard Accessories

- Dust cover • VHF matching box with 75 ohm to 300 ohm transformer • Coaxial cable with 1-touch F-type connector • 300 ohm to 75 ohm transformer • F connector

AG-6300\$2420.00



AG-6300

AG-6200/AG-6200E VHS Recorder/Players

- Ideal for dubbing and a wide range of other applications including education, research, medical analysis and demonstration • 2 hr. • 4 heads • Noiseless slow (forward) • 14-step dial search • Intermediate loading • Audio dubbing possible on channel 2 • Headphone level control • Audio limiter • Audio level meters • 2-channel audio with Dolby noise reduction system • Real time counter with "tape remaining" time counter • Random auto repeat • Optional remote control • Mode lock function • Time code connectors • Loophrough recording for dubbing • 19" rackmountable • Multiple AC power sources • 34-pin remote • 8-pin connector

Standard Accessories

- Dust cover • VHF matching box with 75 ohm to 300 ohm transformer • Coaxial cable with 1-touch F-type connector • 300 ohm to 75 ohm transformer • F connector

AG-6200\$2195.00

AG-6200E VHS Multi-Standard Recorder/Player Records/plays PAL, CCIR and plays 4.43MHz NTSC (dust cover included)\$2365.00



AG-6200



AG-W1

Accessories for AG-6300/AG-6200/AG-6200E

AG-A600	Remote control unit with search dial (10')	.....\$ 200.00
AG-A750	Full function single event editing controller (16.4')	.....1950.00
AG-M600	19" rackmounting brackets (use with chassis track C-300-S1 (XX)/B-308)	.....77.00
NV-A505	Full function remote search controller with LED readout and dial (16.4')	.....990.00
NV-A850	Programmable auto search controller (6.6')	.....550.00
NV-C15	8-pin monitor/VCR cable (5')	.....28.00
NV-C21S	8-pin extension cable (10')	.....33.00
NV-C80	34-pin remote control extension cable (16.4')	.....120.00
NV-J500	Multi-source audio/video switcher	.....600.00

AG-W1 VHS Universal Recorder/Player

- Record and playback in any TV broadcast system—NTSC, PAL or SECAM • Advanced digital technology, including a field memory chip, specially developed LSIs for control and VTR sections • Fully amorphous, laminated video heads • Multivoltage selection capability 100-127/220-240VAC (50/60Hz) • Hi-Fi stereo audio system with 90dB dynamic range and 20kHz frequency response • Convenient front panel geographical (standards) display • Functions as a stand-alone converter • Quasi-S-VHS playback (VHS spec'd playback of S-VHS tape)

Standard Accessories

- Infrared remote control (includes 2 "AA" batteries) • AC power cable • Video cable • Audio cable

AG-W1\$2550.00



AG-2600E

AG-2600E VHS Multisystem VHS Recorder/Player

- 5-system playback: NTSC 3.58/NTSC 4.43/PAL/SECAM/MESECAM • 4-system recording: NTSC 3.58/PAL/SECAM/MESECAM • NTSC playback on PAL monitor • Built-in 99-channel synthesizer tuner: NTSC-M/PAL-D; B/G & I/SECAM D/K, B/G • Built-in RF converter: PAL-D, B/G & I/SECAM-D/K, B/G • Auto line voltage select: 110-240VAC • Wireless remote control • 1-month, 8-program calendar timer (with 1-hour timer backup) • Auto power on/play and auto repeat play • GT4W video head system • Digital tracking • Auto head cleaning function (at stop mode transit)

Standard Accessories

- Infrared wireless remote control • F-DIN connector adaptor • 300 ohm-75 ohm transformer • F-DIN coaxial cable • DIN-DIN coaxial cable • AV cable

AG-2600E\$855.00

DUPLICATION SYSTEM COMPONENTS

AG-DA700 Transcoder/S-Video Distribution Amplifier

- Switchable input terminals: component (12-pin)/composite (BNC)/S-Video (4-pin)
- Simultaneous separated Y/C dubbing for 1 to 10 VCRs
- Composite monitor output terminal (BNC)
- Test terminal on front panel for easy maintenance
- Rackmountable, adaptor included

The AG-700 provides outstanding video quality by using a 3-line corrective decoder that completely separates the Y and C signals out of a composite input signal. And the encoder processes MII component signals for S-VHS recording/dubbing. The 10 Y/C output channels allow you to dub on up to 10 S-VHS VCRs simultaneously. A composite monitor output terminal (BNC) allows monitoring while dubbing is in progress.

AG-DA700 \$2400.00
AG-C70A S-Video (Y/C) cable 10' 16.00
AG-C71A S-Video (Y/C) cable 16' 20.00



AG-DA700

AG-DA750 S-Video Distribution Amplifier

- S-Video (4-pin) input terminal with loophrough capability
- Simultaneously separated Y/C dubbing on 1 to 10 VCRs
- Composite monitor output terminal (BNC)
- Test terminal on front panel for easy maintenance
- Rackmountable, adaptor included

The AG-DA750 provides basic S-VHS duplication from an S-VHS source. The S-Video input, with loophrough capability, distributes the separated Y/C signals to up to 10 S-VHS VCRs.

AG-DA750 \$1000.00
AG-C70A S-Video (Y/C) cable 10' 16.00
AG-C71A S-Video (Y/C) cable 16' 20.00



AG-A100

AG-DA760 Audio Distribution Amplifier

- Stereo XLR and RCA input terminals
- 10 CH1/CH2 output
- Switchable input levels
- Monitor output (Mix) for maintenance use
- Test terminal for easy maintenance
- Rackmountable, adaptor included

The AG-DA760 provides stereo audio distribution from either an RCA or XLR stereo input pair to as many as 10 VCRs.

AG-DA760 \$1000.00



AG-DA100

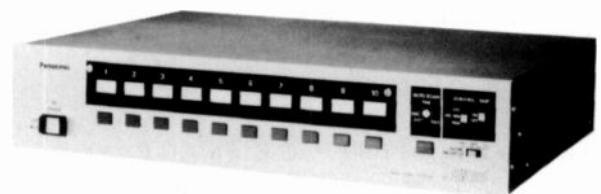
AG-A100 Dubbing Controller

- Either 1 or 2 master VCRs can be connected
- From 1 to 10 slave VCRs can be connected
- Remote control of the start and stop of the playback mode of the master VCRs (1 or 2 units)
- Remote control of slave VCRs recording (1 to 10 units), playback, fast forward, rewind, forward and reverse search, stop, pause/still and cassette ejection
- As many as 40 slave VCRs can be connected by using the multi-connection system (with 4 dubbing controllers, AV distributors and switchers)
- Remote control possible with any master VCR which has an RCA-type record remote jack
- Rackmountable, bracket included

AG-A100 \$880.00
AG-C10 20 pin-20 pin multi-connection cable 4.5' 65.00
AG-C11 20 pin-34 pin remote control cable
4.5' between AG-A100 and VCR. 65.00
AG-C12 Same as AG-C11 except 9' 100.00

AG-DA100 Audio/Video Distribution Amplifier

- 2 inputs, A and B, selectable for 2 outputs. A (1-5) and B (2-10)
- Because loophrough type input terminals are used, video/audio distribution can be further expanded by using an additional AV distributor
- Video and audio output level can be adjusted



AG-SW100

while monitoring the level meter

- Distribution to as many as 40 slave VCRs is possible by using the multi-connection system (with 4 dubbing controllers, AV distributors and switchers)
- Rackmountable, bracket included
- Stereo audio

AG-DA100 \$880.00

AG-SW100 Audio Follow Video Automatic Switcher

- Video/audio selection of one from as many as 10 input signals for monitoring
- Manual and automatic modes can be selected for the output signal
- Selection timing for the automatic mode ranges from about 1 second to 30 seconds
- Selection timing can be set according to the external pulse
- Stereo audio
- Audio monitoring selectable as either audio channel 1, mixed, or audio channel 2
- Mode lock function for inhibition of remote control input (normal side) and front panel control (remote side)
- Automatic skip function makes selection quicker by skipping terminals with no input signal
- Interval switching function makes it possible to switch within the synchronized signal of the video signal if a video input signal is present at input terminal 1
- Rackmountable, bracket included

AG-SW100 \$990.00

AG-505 5" Color LCD Monitor/VHS Recorder/Player

- A/V 9-head configuration provides 4 audio heads, 4 video heads, rotary erase head
- 5" TFT (Thin Film Transfer) LCD screen with backlighting for clear, sharp rendition and wide angular view
- SP/SLP record and playback capability, using full-size VHS cassette
- Compact and lightweight with rugged aluminum diecast chassis
- Fold-down ("clam shell") monitor design to protect screen and make carrying and storage easy
- Built-in carrying handle
- 3-way power supply: battery pack (AG-BP212) AC/car battery (using optional VW-ACM10P car battery cord)
- Hi-Fi audio record/playback capability (playback requires connection to stereo speakers, optional)
- Versatile in/out capability, including video and stereo audio terminals (phono)
- Stereo headphone jack
- Built-in speaker (monaural)
- On-screen display: battery indicator/tape counter
- Simple, convenient operation: auto play/auto rewind syncro edit and edit switch

Standard Accessories

- AC adaptor/charger
- Battery pack

AG-505 \$1800.00

AG-550 10" Color Monitor/VHS Recorder/Player

- 4 recording heads
- 1 audio track
- 300 lines resolution
- Vertical load
- Built-in handle
- Tracking/slow tracking control
- Picture adjustment controls
- SP, LP, SLP record/play tape speeds
- Auto repeat playback, tape end/video end
- 5-digit lap timer
- Tape running display
- Memory stop, search lock and dew-moisture status display
- Wireless remote control
- Headphone/earphone jack
- Phono video in/out terminal
- 1-hour backup for clock/calendar
- Black finish
- 3-prong power cord

Standard Accessories

- Wireless remote control
- 2 "AA" batteries

AG-550 \$900.00

PC-560 Soft carrying case 90.00

AG-560 10" Color Monitor/Receiver/VHS Recorder/Player

Same features as AG-550 plus:

- 99-channel tuner
- 8-program/1-month timer recording

Standard Accessories

- Wireless remote control
- 300 ohm to 75 ohm transformer
- 2 "AA" batteries

AG-560 \$970.00

PC-560 Soft carrying case 90.00



AG-550

AG-505



AG-513



AG-560



AG-520

AG-513 13" Color Monitor/VHS Recorder/Player

- 2 recording heads
- 1 audio track
- SP, LP, SLP record/play tape speeds
- Internal timer playback
- End of program sensor and auto repeat playback
- On-screen display programming
- 4-digit time counter
- Wireless remote control
- Headphone/earphone jack
- BNC video in/out terminal
- Almond finish
- 3-prong power cord
- Special effects playback; fast search; double speed playback; still and variable slow playback

Standard Accessories

- Wireless remote control
- 2 "AA" batteries

AG-513 \$690.00

PC-513 Soft carrying case 95.00

AG-520 20" Color Monitor/VHS Recorder/Player

- Includes same features as AG-513 except has 20" screen

AG-520 \$875.00

COLOR MONITORS

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

BT-M1310Y/BT-D1920Y High-Grade S-Video Color Monitors

Common features:

- S-VHS compatible • Versatile In/Out connectors, including line A, line B, Ext Sync and RGB, all with automatic termination; also 8-pin VCR In/Out • Line A/B/VCR/RGB selectable • Component (Y, R-Y, B-Y) input available as option • Versatile front panel controls: Preset picture On/Off; line A/B split; set-up switch; RGB cutoff; fast/slow time constant; pulse cross; normal/underscan; blue signal only; color/auto/mono mode; comb/trap filter; degauss • Separated H/V size controls; H and V centering controls; V-hold control • Commercial UL listing; 3-prong AC power cord • Rackmountable • Front panel tally lamp • Rugged metal cabinet construction

BT-M1310Y 13" High-Grade S-Video Color Monitor

Includes common features plus:

- 0.39 dot pitch medium-grade CRT • More than 560 lines of horizontal resolution \$1600.00

BT-D1920Y 19" High-Grade S-Video Color Monitor

Includes common features plus:

- 0.55mm dot pitch data-grade CRT • More than 560 lines of horizontal resolution • Gray face screen (transparency, 70%) • More than 90fL brightness and 40 ± 5fL preset contrast \$1900.00
- BA-M100 Component (Y/R-Y/B-Y) adaptor (all models) 170.00

BT-S1900N 19" Color Monitor

- High resolution CompuFocus picture tube with overlapping field lens gun • Line 1/2/VTR selectability • External sync switch for use with non-composite video signal • Normal/underscan switch • Chroma switch for black and white display • Blue only switch defeats red and green signals, makes hue, chrominance adjustment easier • Pulse cross switch (H-delay, V-delay) • Audio monitoring with built-in speaker • Comb filter • Rackmount kit included (slides required) \$890.00

BT-S1300N 13" Color Monitor

- High resolution CompuFocus picture tube with overlapping field lens gun • Line/VTR selectable • Normal/underscan switch allows viewing of picture corners • Blue only switch defeats red and green signals and makes hue and chrominance adjustment simpler • Pulse cross display for easy observation of sync detail \$750.00
- BA-130 Rackmount brackets (1 pair) 66.00

BT-H1350Y 13" Color Monitor

- SMPTE Type C phosphor • 750 lines horizontal resolution • Line A, line B, RGB input • External sync in/out • Front mounted 1.5W speaker • Selectable color temperature (9300°K or 6500°K) • Blue-only, underscan, pulse cross • Multi-standard (PAL, SECAM, NTSC, M-NTSC) • Y, PB, PR input • Rackmountable with optional rackmount \$1300.00

BT-S1000N 10" AC/DC Color Monitor

- Built-in audio • Normal/underscan switch • Built-in pulse cross circuit • Blue only capability • 300 lines of resolution with comb filter • AC/DC operation • Line/VCR selectable • Automatic 75 ohm termination • External sync switch • Rackmountable or desktop \$650.00
- BA-100 Rackmount brackets (1 pair) 55.00

BT-S901Y 9" High-Grade Color Monitor

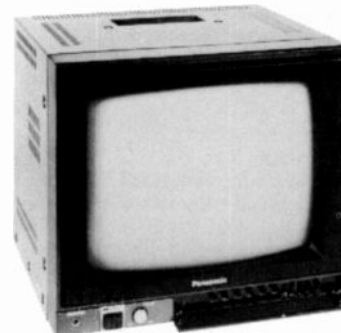
- S-VHS compatible • Compact metal cabinet • 0.47mm dot pitch • 90° deflection angle • Underscan; pulse cross; blue signal only • Comb filter for high resolution • Rackmountable; dual rackmountable with optional heavy-duty rackmount bracket, BA-90 • Line A/line B selectable; S-Video/video selectable for line A • External sync input/output for non-composite video signals • Built-in audio amp and speaker, 1.0W audio output • Auto termination • Automatic degaussing • Headphone jack \$600.00
- BA-90 Rackmount (1 pair) for 2 BT-S901Y monitors 75.00



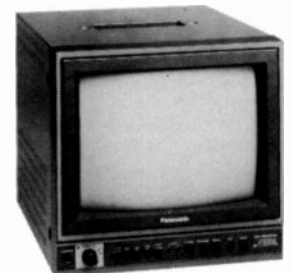
BT-M1310Y



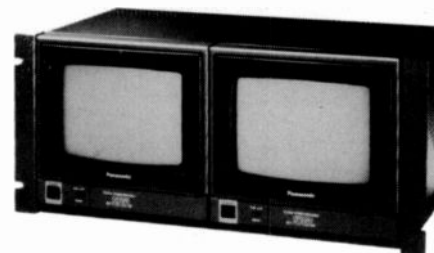
BT-D1920Y



BT-S1300N



BT-S1000N



BT-S702N

BT-S702N Dual 7" Color Monitors

- Line A/B selectable by front panel pushbuttons • External sync switch • Rackmountable in standard 19" EIA rack • Single lever selector for normal scan, pulse cross, underscan and blue only operation • Front panel controls (concealed behind door) • No audio . . . \$1300.00

BT-S701N 7" Desktop Color Monitor

- Line A/B selectable by front panel pushbuttons • External sync switch • Front panel controls (concealed behind door) • Single level selector for normal scan, pulse cross, underscan and blue only operation • No audio \$600.00

BT-S700N 7" Portable AC/DC Color Monitor

- Single lever selector for normal scan, pulse cross, underscan and blue only operation • AC/DC operation • Built-in folding carrying handle • Selectable BNC/VTR inputs via front panel pushbutton • Audio monitoring with built-in speaker \$700.00
- BA-70 Battery mount adaptor 265.00
- SQ-13FV Anton/Bauer NiCad battery 550.00
- CH-13V Battery charger 110.00

Accessories

- ET-100YC S-Video/BNC conversion adaptor (2 pieces) (BT-M1310Y, BT-D1920Y) \$67.00
- NV-C15 8-pin monitor/VCR cable (BT-M1310Y, BT-D1920Y, BT-S700N, BT-S1000N, BT-S1300N) 28.00
- NV-C21S 8-pin extension cable 10' (BT-M1310Y, BT-D1920Y, BT-S700N, BT-S1000N, BT-S1300N) 33.00

COLOR VIDEO MONITORS

CT-2582Y Color Video Monitor

• 450 lines horizontal resolution • Either S-Video (4-pin Y/C) or line (BNC) input/output • On-screen display \$585.00

CT-2010Y 20" Color Video Monitor

• Ideal for business and educational applications • Comb filter and advanced video circuitry • 450 lines resolution • 20" square-corner screen • Source selection can be made using the 3 pushbuttons located on the front panel • 2 line inputs/VCR input/S-Video input • Color, tint, brightness, contrast, sharpness, volume, and vertical hold can also be controlled via the front panel • Audio can be monitored through the built-in speaker or headphones, and up to 4 video (and audio) inputs can be connected to the rear panel facilities • Includes 2 sets of line input/output jacks, 1 set of S-Video input/output terminals and one 8-pin VCR terminal \$640.00

CT-2082Y 20" Color Video Monitor

• 20" flat square screen • 450 lines horizontal resolution • S-Video input/output terminals • Either line or S-Video • Comb filter • Audio/video monitor out terminal \$410.00

CT-1331Y 13" Color Video Monitor

• 13" tint face screen • Comb filter • Direct compatibility with the S-VHS format, for superb picture quality • Ideal for a wide variety of educational, professional and corporate applications • Interfaces with a wide variety of equipment • 8-pin VCR input, line A/B video input/output (BNC), RCA audio input/output S-Video input/output connectors with bridging capability, for direct compatibility • Input source is switch selectable from the front panel for line A/B/VCR/Y/C • Front panel controls also include color, tint, brightness, contrast, sharpness, volume, and vertical hold • >420 lines resolution for NTSC inputs • Headphone jack • Front mounted speaker • No termination switch—automatic 75 ohm termination \$510.00

CT-1382Y 13" Color Video Monitor

• 420 lines horizontal resolution • Either S-Video (4-pin Y/C) or line (BNC) input/output • Headphone jack • On-screen display . . \$310.00

COLOR VIDEO MONITOR/RECEIVERS

CT-3190VY 31" Color Video Monitor/Receiver

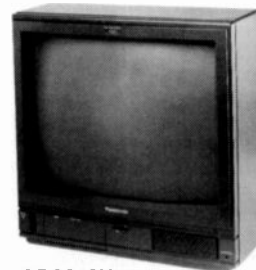
• Flat square data grade CRT • 500 lines horizontal resolution • S-Video input (4-pin mini DIN) • 155-channel cable-compatible tuner • Stereo speaker system • On-screen display from remote control including picture adjustment • Wireless remote control with learning capability \$1525.00

CT-2790VY 27" Color Video Monitor/Receiver

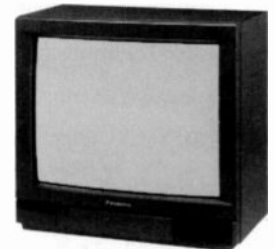
• Dome stereo speaker system • 550 lines horizontal resolution • S-Video input (4-pin mini DIN) • 155-channel cable-compatible tuner • On-screen display • Wireless remote controller \$795.00

CT-2581VY 25" Color Video Monitor/Receiver

• 100° tint face screen • 450 lines horizontal resolution • S-Video input/output terminals • Line A/B/VCR/S-Video/TV selectable • 155-channel tuning • Programmable channel scan • Last channel/alternate channel 1-button selection • Audio/video monitor out terminal • 8-pin VCR connector • 20-function wireless remote control with off timer \$710.00



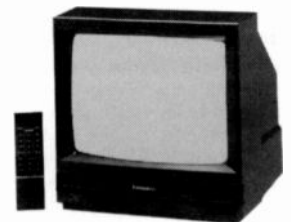
CT-2010Y



CT-2082Y



CT-1331Y



CT-1382VY



CT-1390V

CT-2082VY 20" Color Video Monitor/Receiver

• 20" flat square screen • 155-channel tuning • 20-function wireless infrared remote control • On-screen display • Antenna Terminal Impedance: UHF/VHF input 75 ohm • 450 lines horizontal resolution • S-Video in/out terminals • Programmable channel scan • Either line or S-Video \$450.00

CT-1382VY 13" Color Video Monitor/Receiver

• 420 lines horizontal resolution • Either S-Video (4-pin Y/C) or line (BNC) input/output • 155-channel cable-compatible tuner • On-screen display • Headphone jack • Programmable channel scan • 20-function wireless infrared remote control. \$350.00

CT-1390V 13" Color Video Monitor/Receiver

• Audio/video input • 155-channel cable-compatible tuner • 21-function wireless remote control • On-screen display \$288.00

Accessories

ET-100YC S-Video/BNC conversion adaptor, 2 pieces* \$67.00

NV-C15 8-pin monitor/VCR cable \$28.00

NV-C21S 8-pin extension cable, 10' \$33.00

*Not with CT-1390V

COLOR/B/W MONITORS

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

CT-2000M 19" 4-Standard Color Video Monitor

• 4-system capability enables display of CCIR or EIA standard signals in PAL/SECAM/NTSC color formats including M-NTSC videotape playback with 4.43MHz subcarrier • Video impedance switch for termination or bridging • Quick-on CRT uses no current when unit is off • Automatic AC power source compensation from 80V to 260V, 50/60Hz • Headphone jack • Built-in speaker

CT-2000M \$1250.00
 NV-C15 8-pin monitor/VCR cable 28.00
 NV-C21S 8-pin extension cable, 10' 33.00



CT-2000M

CT-1400MG 14" Color Video Monitor

• 2000 character capability • Designed for a wide variety of applications • 8-pin VCR connector, RGB linear (Teletext, etc.) and RGB (TTL), allows direct connection and easy switching • Composite video and audio inputs allow you to hook up your VCR or other video devices easily • Square corner data grade picture tube • Built-in speaker • IBM-PC compatible

CT-1400MG \$900.00
 ET-100C Computer interface cable for IBM-PC Series and Panasonic Senior Partner 65.00
 ET-101C Computer interface cable for Apple III 65.00
 ET-102C Computer interface cable for NEC-PC 8001A 40.00
 NV-C15 8-pin monitor/VCR cable 28.00
 NV-C21S 8-pin extension cable, 10' 33.00



CT-1400MG

MT-1340G 13" Color Medical Video/Data Monitor

• RGB linear and composite monitor for medical applications • Resolution more than 400 lines (RGB) • .52mm dot pitch data grade tube for crisp, fine detail • U.L.-544 rating for critical environments • 1.5V p-p linear RGB input for true rendition of subtle color tones • Built-in speaker • Audio amp

MT-1340G \$900.00

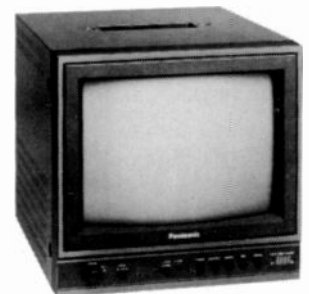


MT-1340G

CT-1030M 10" Color Video Monitor With Audio

• Solid-state IC chassis • Automatic termination • Comb filter • Metal cabinet • Front panel push controls • BNC video/8-pin VCR connectors (selectable) • RCA audio connector • Rackmountable • 300 lines resolution

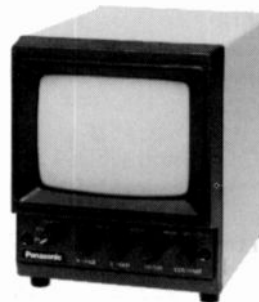
CT-1030M \$390.00
 BA-100 Rackmount brackets pair/55.00



ST-1000M 10" Color Video Monitor

• 100% solid-state IC chassis • 300 lines resolution • BNC video in/out with automatic termination • Comb filter • Metal cabinet and magnetic shield ring (for the deflection yoke) to reduce interference • B/W color mode switch • Front panel controls • Optional rack angle brackets for rackmounting • Use in security, medical, scientific/industrial process observation, fiberscope and studio monitoring, closed circuit TV applications • No audio

ST-1000M \$550.00
 BA-100 Rackmount brackets pair/55.00



ST-1000M

ST-900Y 9" Color Video Monitor

• B/W mode selectable: color/mono • S-VHS compatible • 90° deflection angle • 300 lines resolution • Compact metal-cabinet construction • Rackmountable; dual rackmountable with optional heavy-duty rackmount bracket, BA-90 • Picture sharpness control: soft/sharp • Built-in speaker (1.0W output) • Headphone jack

ST-900Y \$550.00
 BA-90 Dual rackmount brackets pair/75.00

WV-5200B 5" B/W Desktop Video Monitor

• More than 600 lines at center • DC restoration switchable
 WV-5200B \$ 350.00
 WV-5203B Triple 5" monitors. Designed for 19" rackmount .. 1090.00

WV-5200B

WV-5380A 9" B/W Deluxe Desktop Video Monitor

• Pulse cross • Underscan • DC restoration • H. AFC • Audio and ext. sync • 8-pin connector • 120VAC/VDC 12V power 'Quick On' jack

WV-5380A \$475.00

WV-5382A Double rackmount version of WV-5380A (19" rackmount) 960.00

WV-Q27 Rackmount bracket, permits mounting combination of a WV-5380A and waveform monitor, vectorscope, etc. 5 rack units high 120.00

WJ-450 Digital Color Quad System

- Allows up to four different camera or VCR outputs to be displayed on one monitor
- Suitable for use with virtually any 2:1 interlace camera without external synchronization
- Genlock input terminal allows external synchronization of different video sources, such as cameras, VCRs, video floppy disk recorders
- Advanced digital processing technology
- Remote control for selecting quad mode, individual input mode and freeze-frame
- Front panel switch calls up white borderline as a helpful quad-mode screen divider
- Sync output terminal for auxiliary equipment

The WJ-450 lets you connect as many as four separate video sources for simultaneous—or individual—display on a single monitor screen. This makes it ideal for applications like monitoring multiple studio camera outputs, viewing images from a multi-source edit machine, previewing special effects and title graphics, etc. A simple front panel switch enables quick selection of the display mode: Quad or Individual (full-screen). A built-in character generator allows alphanumeric display of up to 6 characters on each of the four screen blocks, to permit quick identification of the input. Other standard features include freeze-frame and remote control capability.

Specifications

- Video Input:** 2:1 interlace; composite 1V p-p/75 ohms; auto-termination or loop-through; black and white or color video signal x 4. (Each video signal is synchronized vertically for vertical interval switching)
- Video Output:** Video output x 2; composite 1V p-p/75 ohms; color or black and white video signal
VCR (quad) output x 2; 1V p-p/75 ohms; color or black and white video signal with composite sync and burst signal
- Sync Output:** Video sync; internally selectable; 4V p-p/75 ohms
- Genlock Input:** VBS (2:1 interlace; composite; color or black and white video signal). Or Blackburst Signal (BS). 1V p-p/75 ohms; auto-termination or loop-through x 1



WJ-450 (shown with monitor to illustrate quad effect)

Character

- Generator:** Up to 6 characters for each block. Available characters: A-Z; 0-9; .; ; /; and blank. Built-in back-up memory for title display
- Remote Input:** 5 (4 Quad, 1 Single), 1, 2, 3, 4 of single picture with max. 12VDC and a make-contact for ground
- Dimensions:** 3⁷/₁₆" H x 16¹/₂" W x 13³/₄" D
- Weight:** 14.3 lbs.
- Ambient Operating Temp:** 14°F to 122°F (-10°C to +50°C)
- Power Source:** 120VAC/60Hz
- WJ-450** \$2070.00

AK-450 Portable 2/3" 3-CCD Color Video Camera

• Frame interline transfer CCD image sensor (RGB) 838H x 485V pickup element • f/1.4 prism with quartz filter • Dual concentric filter wheels (ND: 100% 25% 6.5% capability, CC: 3200°K 4700°K 5600°K 7500°K) • Variable speed electronic shutter (off, 1/125, 1/250, 1/500, 1/1000, 1/2000 sec.) • 2000 lux (at f/5.6) high sensitivity • High S/N ratio of 62dB typical • 800 TV lines resolution (Y-signal) • 0.05% all zones registration • Dynamic highlight compression • Gain select: 0, +9, +18dB • Automatic modes: auto black, auto white (A, B, preset), pulse cancel • 3 channel RGB linear color matrix • RGB shading correction: white H/V, black H/V, extender • 2H vertical aperture correction • Zebra level indicator • SMPTE color bar • Low power consumption • Viewfinder character display • Viewfinder LED indicator • Direct docking to the Panasonic MII camera recorder (AU-410) for maximum ease of handling

AK-450 Includes AK-450H camera head, AK-VF410 1.5" viewfinder, AK-Q470 tripod mounting adaptor, AKY-1044 shoulder strap, extender board \$29,500.00

AK-400 Portable 2/3" 3-CCD Color Video Camera

• Same as AK-450 except: • (RGB) 574H x 494V pickup element • Variable speed electronic shutter (off, 1/125, 1/250, 1/500, 1/1000 sec.) • S/N ratio of 60dB • 650 TV lines resolution (Y-signal) • 6dB black stretch (0-25%) • Iris override ± 1/2 f-stop • Lens extender red/blue gain, master pedestal

AK-400 Includes AK-400H camera head, AK-VF410 1.5" viewfinder, AK-Q470 tripod mounting adaptor, AKY-1044 shoulder strap, extender board \$20,000.00

Accessories

AK-AD405 Camera adaptor for AK-450 (Used when camera is not docked to a VTR) • Mounting adaptor for battery (AQ13F) • VTR connector (26-pin SMPTE) • Remote CCU connector • Genlock loop-through • Tally call button • Headphone jack • Intercom jack \$2,840.00

AK-AD401 Camera adaptor for AK-400 (Used when camera is not docked to a VTR) • Mounting adaptor for battery (AQ13F) • VTR connector (26-pin SMPTE) • Remote CCU connector • Genlock loop-through • Tally call button • Headphone jack • Intercom jack \$2,840.00

AK-RC420 Camera remote control unit • Input signals: blackburst, return video, intercom, tally • Output signals: composite video, R/R-Y, B/B-Y, G/Y selectable audio, PIX, WFM, monitors staircase • Controls: gain pedestal, iris, R, B, G/Y, R-Y, B-Y, call, BAR/CAM, OPR/ST-BY, OdB/+9dB/+18dB, DTL on/off, auto white/black set phase ADJ, sub carr. 0/90/180/360 switchable: 0-90 variable; H delay +3µ sec to -1µ sec, camera cable power consumption • Monitor select: Pix-R/R-Y, B/B-Y, G/Y encoder; WFM RGB sequential, super, encoder • Dimensions: 7¹⁵/₁₆" H x 5⁹/₁₆" W x 13" D (half rack width) • Includes CCU \$6,230.00

AKR-1059 Rackmounting case for AK-RC420 camera remote control unit and AK-3091 \$360.00

RSK-L Rack slide rail for AKR-1059 (long) \$205.00

AK-VF415 5" viewfinder • Resolution 500 TV lines at center • Tilt: -15° to +10° • Controls: peaking on/off, tally on/off, brightness, contrast • Indicators: talent tally light, tally light (in VF), VTR warning (VTR. W), low voltage warning (LO.V), tape footage time (5, 10, 15 min.) • Dimensions: 5³/₈" H x 5³/₁₆" W x 10⁷/₈" D • 5.07 lbs. • Includes mounting bracket and associated connecting cables \$1,200.00

CC440 Hard carrying case • Holds camera head, ENG lens, shoulder strap, camera adaptor or AU-410 VTR, batteries, AC power supply/charger \$450.00

RA490 Camera rain cover/soft cover for AK-450/AK-400 \$195.00

AK-VT460 Betacam adaptor • Permits docking the Betacam recorder to AK-450/AK-400 \$2,550.00



AK-450

MC-480 Audio Technica AT-835 • ENG camera mounted microphone (mono, condenser type) • Includes mounting brackets and connecting cables \$395.00

GR401 Handgrip for AK-450/AU-410 or AK-400/AU-410 \$95.00

AU-B110 AC power supply \$790.00

AK-450/AK-400 Cables

CA26/26-15 Camera to VTR cable • 26-pin to 26-pin (SMPTE std) • 15' • For MII and Beta VTRs. \$275.00

CA26/26-6 Camera to VTR cable • 26-pin to 26-pin • 6' • For MII and Beta VTRs \$235.00

CA26/14-6 Camera to VTR cable • 26-pin to 14-pin • 6' • For U-Matic VTRs \$210.00

CA32R-50 50' RCU cable \$1,115.00

CA32R-100 100' RCU cable \$1,375.00

CA32R-300 300' RCU cable \$4,735.00

AK-450/AK-400 Battery Systems

SQ-13F Anton/Bauer Pro Pac 13, 4AH, 13.2V Snap-On NiCad battery \$550.00

LSFC Anton/Bauer Lifesaver fast charger. Single position, 1 hour charger for SQ-13F batteries. \$605.00

AKR-1055 Mounting bracket to mount AU-BP402 battery (for AK-AD405/AK-AD401) \$520.00

AU-BP402 Battery pack—4AH (Also used with AU-500 portable VTR) \$300.00

SPS-3 Anton/Bauer 3A 13V/110VAC power supply (use with AB13) \$495.00

MFC Anton/Bauer mobile fast charger (use with SQ-13F) \$595.00

LSQ-4 Anton/Bauer Lifesaver 8 hour QUAD quick charger (use with SQ-13F) \$995.00

AK-450/AU-410 (Docked) Battery Systems

AK-AD430 Adaptor plate for mounting AU-M400 battery case or AB13 adaptor bracket. \$175.00

AU-M400 Battery case for AU-BP220 battery pack \$220.00

AB13 Adaptor bracket for SQ-13F battery \$130.00

AU-BP220 Battery pack—2.2AH (Also used with stand-alone AU-410 VTR or AU-500 VTR) \$140.00

AU-B420 Battery charger accepting AU-BP220 and AU-BP402 batteries \$800.00

Full Line of Lenses Available.

AQ-20 2/3" FIT 3-CCD Digital Processing Camera

• 3 2/3" frame interline transfer CCD image sensor for minimal vertical smear • 400,000 pixels, 750 TV lines resolution, f/5.6 at 2000 lux high sensitivity, 62dB high S/N ratio • Registration in 0.05% of the whole zone • Variable speed electronic shutter (1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000) • Centralized controls • Parameter settings adjustable for digital processing • Cross color suppression (2D LFP) • High chroma aperture correction • Precise 1-touch shading correction (36H x 120V) • Digital gamma adjustment (0.35 to 0.55) • Selectable enhancement frequency control (2H enhancer) • Auto high light compression control • Auto white/black balance (A/B/Preset) • Black stretch switch • SMPTE standard color bar • Gain select (0, +9dB, +18dB) • Direct docking to MII camera recorder (AU-410) • Lightweight at 2.5kg, with a durable magnesium alloy chassis
AQ-20 includes: camera head; tripod adaptor; microphone bracket; carrying handle/handle extender; rain cover; shoulder strap **\$28,500.00**
AQ-20B Directly connectable to Betacam/SP VTR. **29,500.00**



AQ-20

Accessories

AQ-VF1 1.5" viewfinder • Adjustable eyecup position: left/right, up/down, diopter • Screen adjustment: zebra on/off, character on/off, tally on/off, brightness, contrast, peaking • VF indications: LED gain, battery warning, VTR warning, standby, tally, audio • Character: filter position, AWB, ABB, battery warning, VTR warning, video level, shutter speed, tape end, audio level, safe title, cross • Mode settings: detail, SP detail, level, EVF, masking, flare, shading **\$1,000.00**
AQ-VF50 5" viewfinder **2,500.00**
AQ-EC1 Camera head extension control unit for simple camera remote control CAM/Test/Bars, gain -3, 0, +9dB, AWB, ABB, R, B paint, master ped, iris auto/manual. Digital setup controls: detail, ST detail level, EVF, masking, flare, shading **\$1,300.00**
AQ-CA1 ENG camera adaptor for VTR connector 26-pin **1,850.00**
AQ-CA50 Multicore camera adaptor for cable connector 41-pin **3,600.00**
AQ-IA1 Betacam adaptor **1,200.00**
AQ-RC50 Multicore camera control unit • Input signals: blackburst, return video, intercom, tally • Output signals: composite video, R/R-Y, B/B-Y, G/G-Y selectable audio, pix, WFH, monitors, stairs LED • Controls: gain pedestal, iris, R, B, contours, gamma, call, BAR/CAM, oper/standby, -3, 0, +9dB, AWB, ABB, SC phase, H phase, shutter **\$7,000.00**
AQ-MA50 Rackmount case for AQ-BS500 and AQ-RC50 **300.00**
AQ-MA1 Carrying handle extension for AQ-20/AU-400 (long) **315.00**
AQ-MA2 Carrying handle extension for AQ-20/AU-400 or AQ-CA1 (short) **225.00**
MC480 Audio Technica AT-835 camera mounted microphone (mono, condenser type) **395.00**
CC220 Thermodyne camera carrying case holds AQ-20, AQ-CA1 or AU410, AQ-VF1 batteries, AC power supply/charger **450.00**

Cables

CA26/26-15 Camera to VTR cable • 26-pin to 26-pin (SMPTE std) • 15' • For MII and Beta VTRS **\$ 275.00**
CA26/26-6 Camera to VTR cable • 26-pin to 26-pin • 6' • For MII and Beta VTRS **235.00**
CA26/14-6 Camera to VTR cable • 26-pin to 14-pin • 6' • For U-Matic VTRS **210.00**
CA 4030 Multicore camera cable • 41-pin to 41-pin • 30m AQCA50 to AQ-RC50 **1,500.00**
CA 4050 Multicore camera cable • 41-pin to 41-pin • 50m AQ-CA50 to AQ-RC50 **1,900.00**
CA 4100 Multicore camera cable • 41-pin to 41-pin • 100m AQ-CA50 to AQ-RC50 **2,500.00**



AU-BP220



AU-BP420



AU-B110

Battery Systems

AQ-BA1 Camera battery bracket for AQ-BA2 battery holder or for AB13 battery bracket **\$128.00**
AQ-BA2 Camera battery holder for AU-BP220 battery **220.00**
AB-13Q Adaptor bracket for SQ-13F battery **130.00**
AU-BP220 Camera battery pack 2.2AH **140.00**
AU-BP420 Battery charger for AU-BP220 battery pack **800.00**
SQ-13F Anton/Bauer ProPac 13 4AH 13.2V NiCad battery **505.00**
LSFC Anton/Bauer Lifesaver fast charger • Single position 1-hour charger for SQ-13F batteries **605.00**

General Power Systems

AU-B110 AC power supply for AQ-20, AU400, AU500VTR 5A single outlet **\$790.00**
SPS-3 Anton/Bauer 3A 13V/110VAC power supply fits AB13 bracket **495.00**
MFC Anton/Bauer mobile fast charger single position 1-hour charge for all Anton/Bauer NiCad 13-14V batteries **595.00**
LSQ-4 Anton/Bauer lifesaver 8-hour quad 4-position 8-hour quick charger **995.00**
Full Line of Lenses Available.

STUDIO RECORDERS/PLAYERS

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

MII STUDIO VTRS

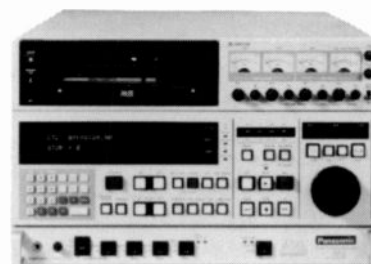
Common features:

- Built-in TBC with 32 Hp-p correction capability • 20 advanced LSIs cut total PCB area by 40% to 20% savings in weight and nearly 40% less power consumption than previous conventional MII equipment • For quick and easy mode setting, search dial controls on-screen initial setup menu for 20 parameters that once required DIP switch changes • 90-minute playback, or 20-minute playback without adaptor, from cassettes using 1/2" metal tape • Amorphous heads help reduce eddy (over) current loss and optimize high-frequency characteristics • Color framing control in a 4-field sequence to prevent H-shift • 9-pin RS-422A serial/parallel interface • 50-pin parallel input via optional AU-MK25 interface board • Encoder remote and TBC adjustments through 15-pin external encoder connector • Y/C (4-pin) output terminal for S-VHS dubbing • Advanced limiter helps prevent bearding in playback • Analog component and advanced CTCM system for excellent picture quality • Variable memory editing during slow and reverse playback, with compatible VCRs • High-speed search up to 32X normal in forward and reverse; jog mode for quick, accurate location of edit points • Optional plug-in time code generator/reader, AU-F65 • 4-channel audio: 2 FM, 2 longitudinal, with independent level adjustment on VU meters for all 4 channels • Dolby C noise reduction • Digital hour meter • Tape speed override (TSO) permits manual adjustment of playback speed differences between the AU-62 and a second VTR in steps of $\pm 6.25\%$ or $\pm 12.25\%$ • Front panel LED indication of reference SCH, color framing, Dolby NR, other data • XLR connector for monitoring of mixed audio • Universal source: 100V-240V • 19" rackmount capability using optional rack slides (RSK-L) and a handle adaptor kit (AU-M60)



AU-63

MII



AU-665

AU-62 MII Studio Player

Shares common features plus:

- Adaptive Edge Comb Filter for improved vertical resolution • Outstanding color linearity and linear audio headroom • 8-digit FL display provides time code, CTL, and all other necessary data

AU-62. \$9,950.00

AU-63 MII Studio Player With AT™ Auto-Tracking

Same features as AU-62 plus:

- AT auto-tracking for noiseless slow from -1X to +2X normal speed, plus instant starts from still frames in VAR (variable) mode and program play • Using the variable (AT) mode, playback speed can be adjusted from 80% to 120% in 0.1% steps without compromising picture quality

AU-63. \$14,500.00

AU-65 MII Studio Editing Recorder

Shares common features plus:

- Enables 1-event assemble editing, and a full range of insert editing for Video/FM (ch3/ch4), audio (ch1/ch2) and time code • Audio split editing • 32-character, 2-line fluorescent display on the control panel • Time code numerical value and type, as well as operation mode and transport speed of the VTR, can be superimposed on the screen • Subcarrier phase can be adjusted in relation to the input reference signal • Preview, Review, Go To, Trim, Auto Tag and other convenient editing functions • 50-pin parallel input via optional AU-MK25 interface board • Automatic standard/non-standard selection • Tape remaining and lap time indication • Component input/output connectors • Individual record inhibits for video, linear audio and time code

AU-65. \$14,000.00

Accessories for AU-62/63/65

AU-F65 Time code generator/reader board \$1,700.00
 AU-MK25 Parallel remote kit 340.00
 AU-MK27 Super DOC kit 2,000.00

AU-665 High Performance Studio Recorder With AT Auto-Tracking

Shares common features plus:

- Noiseless auto-tracking • S/N better than 50dB • 1-event editing function recall • Advanced video-audio quality • Confidence playback during editing • S-VHS in/out terminal and input switch, XLR TC in/out terminals, field DOC, digital timer and on-screen display • Super DOC provides for

up to a full field of dropout compensation • Standard adaptive edge comb filtering delivers outstanding horizontal resolution in slow motion and still playback in the auto-tracking mode • Jog mode capability allows noiseless playback from -1X to +2X normal speed (in 56 steps), plus noiseless still playback • Equipped with dual video and audio (ch1/ch2) heads that allow real time monitoring of picture and sound during recording • 2 FM audio tracks (ch3/ch4) enable recording and playback on 4 separate channels • Besides insert/assemble editing, the AU-665 offers Audio Split, Variable Memory, On-the-Fly in the AT mode, Preview, Review, Trim, Go To, Auto Tags, Retry • Production editing front panel

AU-665. \$36,500.00

Accessories (All Models)

AU-ER65B Encoder remote control unit \$ 750.00
 AU-WR65B Waveform remote control unit 3,500.00
 AU-IA35 Transcoder 1,000.00
 AU-A15 Dual parallel remote control for MII or other VTRs (cable not included) 550.00
 AU-A620 Operational Panel Remote Case I. When operational control panel (OPC) unit from AU-650 VTR is removed, the AU-A620 case encompasses OPC unit. Unit may be extended up to 6' from AU-650 for remote operation (6', 20-pin extension cables are included) 400.00
 AU-A630 Operational Panel Remote Case II. Case with leather edge, connection to VTR via 20-pin cable (6' cable included) 900.00
 AU-A640 Operational Panel Remote Case III. Case with leather edge and AC power, connection to VTR via 15-pin cable (extended up to 33', cable not included) 1,200.00
 AU-A650 Operational Panel Remote Case IV. Case with leather edge and AC power, connection to VTR via 9-pin cable, serial RS-422 support (extended up to 3,300', cable not included) 2,000.00
 RSK-L Long rack slide for studio VTRs 205.00
 AU-M60 Rackmount adaptor (ears) 85.00
 RSK-1 Long rack slide kit (w/ears) 290.00
 AU-C5 9-pin serial cable 16' 90.00
 AU-C10 9-pin serial cable 32' 120.00
 AU-C30 9-pin serial cable 96' 220.00



MII PORTABLE FIELD RECORDER/PLAYERS

AU-520 Portable MII Recorder/Player

• Compact, lightweight • Comb filter enables recording/playback on par with 1" VTRs • Built-in video AGC circuit • Internal SMPTE time code generator/reader • VITC can be recorded simultaneously in any 2 lines of the vertical blanking interval (switch selectable) • Time code track is provided separately from the video signal track • Time code slave lock enables the TCG to be locked to an external generator • Provides playback heads for both audio and video in addition to the recording head • Built-in RF converter • 4-channel audio recording: 2 linear with Dolby C noise reduction, 2 FM multiplexed with the color signal • Manual audio level control; sound can be recorded at minimal distortion with limiter on • Playback signal level control • Audio dubbing for addition of sound to prerecorded tapes • With Key Inhibit switch on, no function buttons operate • Only Stop and Pause/Still can be operated during recording • Advanced servo system helps assure precise recording continuity • Search function allows B/W playback for review at 5X normal speed in forward and reverse • Warning system for: tape end, tape rewind, servo system malfunction, dew condensation, battery charge depletion, head clogging • Connects with optional time base corrector, AU-TB50B • 9-pin connector for RS-422A serial remote control enables use as a source machine

AU-520 \$11,500.00
 AU-520S High performance portable field recorder/player 12,800.00

AU-410 Dockable MII Recorder/Player

• Delivers high-quality pictures on par with 1" VTRs • Records using component signals to deliver high-quality pictures from NTSC type video cameras • Employs compact, lightweight cassettes with 20-minute recording time, usable in MII editing without an adaptor • Playback heads for both audio and video, in addition to the recording head, to enable on-the-spot review of recording quality • Automatic backspacing of 20 frames (approx. 0.7 sec.); successive pictures are recorded by means of "assemble" type recording for a smooth, glitch-free bridge • Built-in time code generator: VITC/LTC • Jamsync: time code can be recorded continuously at the edit points when performing backspace editing • Ext. time code input • 4-channel audio recording: 2 linear with Dolby C noise reduction, 2 FM multiplexed with the color signal • Warning indicator lamp for: head drum or capstan servo trouble, head clogging, tape slacking or jam, excess humidity • LED indicators • Soft-touch operation buttons • Phantom power (+48V) can be supplied to the audio input connectors for CH1/CH2

AU-410 \$ 9,500.00
 AU-410S High performance dockable recorder/player 10,500.00

Accessories

AU-BP402 Battery pack used with AU-520(S) (4AH) . . . \$ 300.00
 AU-BP220 Battery pack used with AU-410(S)/AU-520(S) (2.2 AH) 140.00
 AU-S400 VTR adaptor for 2-piece VTR/camera cabled operation. Used with AU-520(S) 2,750.00
 AU-B420 Battery charger used with AU-BP402/AU-BP220 . . . 800.00
 AU-B110 AC adaptor used with AU-410(S)/AU-520(S) . . . 790.00
 AU-M400 Battery holder used with AU-410(S) 220.00
 AU-H400 Soft case used with AU-410(S) 300.00
 AU-H500 Soft carrying case used with AU-520(S) 300.00
 AU-TB50B Component TBC used with AU-520(S) 10,000.00

MII METAL TAPES

AU-M90L 90-minute video cassette tape \$90.00
 AU-M60L 60-minute video cassette tape 60.00
 AU-M30L 30-minute video cassette tape 40.00
 AU-M20L 20-minute video cassette tape 35.00
 AU-M10L 10-minute video cassette tape 30.00
 AU-M20S 20-minute video cassette tape (small) 35.00
 AU-M10S 10-minute video cassette tape (small) 30.00
 AU-MPSC1 Cleaning cassette tape (small) 65.00



AT-H1300



AU-410

AU-A65 Editing Controller

• 250-event memory • A/B roll • Split audio editing • Player control for up to 3 units plus auxiliary • Selectable preroll time • Interfaces with host CPU • RS-422A serial interface

AU-A65 \$12,000.00
 AU-SW65 Audio-video switcher 7,000.00

Accessories

C1391 CRT display \$ 899.00
 AU-IA651 34-pin interface adaptor 1,300.00
 AU-IA652 50-pin interface adaptor 1,300.00
 AU-IA653 9-pin interface adaptor 900.00
 AU-IA655 CRT interface adaptor 2,700.00

AT-H1300/AT-H1900 High Resolution Color Monitors

• 600-line horizontal resolution • NTSC chroma decoder with I and Q demodulation • Beam current feedback system • Wideband CCD comb filter • Switchable comb and trap filters • Separated Y/C signal inputs • RGB/YpPr inputs • 3 selectable video inputs • PAL capability can be added to NTSC chroma decoder • Front panel controls • Color/monochrome split screen display • Residual subcarrier display switch • NTSC correction matrix circuit (switchable) • Aperture correction circuitry (up to > 10dB) • Automatic degausser with manual switch • Blue only switch • Horizontal AFC time constant is switchable between 0.5ms and 2ms • Normal/underscan selection switch • Monitoring of blanking intervals • Horizontal scanning automatically detects and switches between 525/625 line (optional PAL decoder is needed) • No burn in • R/G/B cathode drive circuit can be switched on/off individually • Dedicated DC power supply for CRT heater • 145W power consumption • Remote control capability

AT-H1300 13" high-resolution color monitor \$7,800.00
 AT-H1900 19" high-resolution color monitor 8,000.00

Auto Setup Kit

• Consists of the Auto Setup probe and a CPU circuit board • To record brightness data simply plug the probe into the terminal and position it in the center of the screen • Simply position the sensor probe in the middle of the screen and press Auto Setup button to correctly adjust chroma, phase and white balance automatically • Any 1 of 5 color-temperature setups can be selected as standard • Choose between the built-in 9300°K, 6500°K and 3000°K presets as well as 2 additional user-defined settings • Also possible to record the color-temperature setup of a different monitor to achieve matched color reproduction • All operating menus and current settings appear on-screen for easy confirmation
 Auto Setup Kit \$1,500.00

Accessories

ET-CH130 13" hood for AT-H1300 \$200.00
 ET-CH190 19" hood for AT-H1900 250.00
 ET-CK130 13" handle for AT-H1300 200.00
 ET-LK130 13" rackmount kit for AT-H1300 300.00
 ET-LK190 19" rackmount kit for AT-H1900 300.00

MONITOR MOUNTS

peerless

Small Monitor Wall Swivel Mounts

For TV receivers and monitors 9" to 16". All of the models offer 120° of swivel and adjustable tilt and are equipped with a security tray using a key-type lock. Finished in solar black baked enamel.

- 041-307-02 Tray size: 9" x 9" D \$58.00
- 041-310-02 Tray size: 9 1/2" W x 11 1/2" D 58.00
- 042-314-02 Tray size: 13" W x 12" D 64.00
- 042-334-02 For a 10" to 16" set, tray size:
17" W x 12" D 64.00



041-307-02

Single Arm Style Wall Swivel Mounts

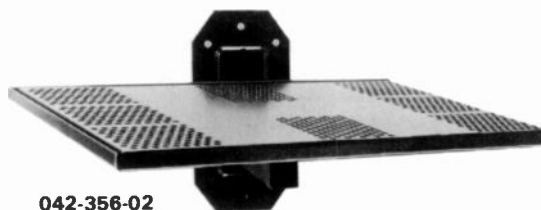
Wall Swivel Mounts conserve valuable floor space and provide a perfect viewing angle. The universal, random perforated mounting trays and a wide range of available sizes assure you of getting the right mount for the job.

All of the single arm style wall mounts offer 120° of swivel. Tilt can be specified to meet your requirements: flat tray (no tilt); fixed 10° tilt; or adjustable tilt, up to 15°. Locking security trays allow for easy removal of the set for servicing, as well as adding security. Brackets are finished in solar black baked enamel.

- 042-354-02 For a 20" cube style set, tray size:
20" W x 11" D, flat, locking \$70.00
- 042-356-02 Same as 042-354-02 except has adj. tilt . . . 77.00
- 043-530-02 For a 16" to 19" set, tray size:
22" W x 13" D, flat, locking 70.00
- 043-531-02 Same as 043-530-02 except has adj. tilt . . . 77.00
- 043-532-02 Same as 043-530-02
except has fixed 10° tilt 72.00
- 2171-000 For a large 19"-20" set, tray size:
24" W x 13 1/2" D, flat, non-locking 52.00
- 2172-000 Same as 2171-000 except has fixed 10° tilt . . . 54.00
- 2173-000 Same as 2171-000 except has adj. tilt 60.00
- 044-375-02 For large sets, tray size:
24" W x 16" D, flat, locking 91.00
- 044-376-02 Same as 044-375-02 except
has fixed 10°, tilt 94.00



042-314-02



042-356-02



2121-000



052-307-02

Double Arm Style Wall Swivel Mounts

Where maximum head clearance is an important concern, and where a locking tray is not required, the Double Arm Style Wall Swivel is an excellent choice. Almost all the bracket is hidden by the TV or monitor, giving your installation a clean, unobtrusive appearance. Finished in solar black baked enamel. Non-locking.

- 2121-000 Tray size: 24" W x 13 1/2" D \$75.00
- 2121-010 Fixed 10° tilt, tray size: 24" W x 13 1/2" D . . . 78.00
- 2123-000 Tray size: 25 7/8" W x 15 3/4" D 94.00

Small Monitor Ceiling Mounts

052-307-02 Offers an easy, attractive way to ceiling mount a small monitor. It features both swivel and tilt, with a universal locking security tray measuring 9" x 9". Standard clearance to ceiling is 12". If additional clearance is required, order extension column 1445-000. This extension column replaces the bracket's standard column and should be measured to provide the total desired clearance.

- 052-307-02 \$71.00
- 052-310-02 Provides a tray measuring
11 1/2" W x 9 1/2" D, or 9 1/2" W x 11 1/2" D.
Standard clearance to ceiling is 15" 71.00

Jumbo® Mount for Jumbo Monitors

The Jumbo Mount is engineered to handle oversized wall or ceiling monitors from 20" to 35" screen size.

Manufactured of heavy gauge steel and MIG welded, this mount offers greater load bearing strength and more stability than other mounts on today's market.

Each Jumbo Mount features bottom mounting plates adjustable in 2 directions. These give users the flexibility to fine tune the mount's center of gravity against the degree of tilt. The result is a finished monitor installation with maximum stability.

In addition to providing solid support, the Jumbo Mount is eye pleasing with its sleek design and satin black finish that blends into virtually any decor.

- Jumbo Mount \$170.00



CCTV EQUIPMENT

Pan and Tilts

Pelco offers a complete line of pan/tilt units for light-, medium- and heavy-duty applications in both indoor and outdoor models. A variety of models with preset positioning and 360° pan setting (SL) options are also available. We recommend our PT280-24P series for use in discreet surveillance domes. Mounting hole patterns on spindle base and tilt tabletop on heavy-duty models are compatible with other manufacturers' enclosures and mounts. (Pictured: PT570P medium-duty pan/tilt with EH5520 environmental enclosure)



PT570P
With
EH5520

Enclosures

Indoor/outdoor enclosures for a wide range of applications including explosion-proof, dust-proof, corrosion-proof, high security, decorative, fixed or dropped ceiling and environmental are available. In addition, our complete line of discreet surveillance domes (hemisphere or full sphere) are available with factory installed integral pan/tilts; environmental dome options include pre-wired pan/tilt and/or receiver/driver which simplify installation. (Pictured: EH4010 indoor/outdoor enclosure)



EH4010

Switchers

Manual passive and sequential video switchers are available with numerous options. Manual switchers for 4-40 inputs/1 output and sequential switchers for 4-20 inputs/1-2 outputs, with or without alarm functions, are desktop units; rackmounting is available for all models except VS5104/VS5108. Dwell time is adjustable on sequential units. Pelco's unique microprocessor based Compuswitch® System 700 is equipped with modular "building block" system expansion modules and is user programmable. (Pictured: VS5008 sequential switcher)



VS5008

Controls

Pelco offers a wide variety of controls from single function operation of scanners, pan/tilts, enclosures and motorized lenses to multiple function controls for full system needs. Pelco's unique Coaxitron® family of control systems features "up-the-coax" control for simplified installation and significant cost savings ranging from our basic System 2000 to the full Matrix 7500 series for more complex systems. (Pictured: CM7502 rack-mounted card cage with integral keyboard)



CM7502

CHARACTER GENERATORS



CG-4711N Character Generator

- Desktop 2RU size
 - Instant access to all functions for real time operation
- Working palette of 120 true colors can be displayed on screen simultaneously and used for foreground, background and edge
- Full horizontal and vertical movement control of individual characters
- Built-in DSK with cut and fade control
- Font and logo compose
- 8 levels on quadrants of shadow, border and edge
- 8 resident fonts
- Ultra fast page retrieval from diskette
- Multiple language facility
- RAM for downloading 8 fonts from disk
- NTSC, PAL or RGB/component video versions
- 35ns resolution
- Built-in genlocking SPG requires only a reference video for system timing
- Dual 3.5" disk drives
- Full diagnostics
- Includes keyboard unit with cable
- Set of accessories including:
 - 2 3.5" disks, each with 8 character fonts
 - 1 extender board and cable
 - 1 operator's and service manual
 - 1 blank 3.5" disk

CG-4711N \$7,995.00

CG-4722 Single Channel Character Generator

Includes all features of CG4711N plus:

- Subtitling facilities and software
- Titles may be automatically positioned on any part of the screen using SMPTE/EBU longitudinal timecode information
- Can also accept information from PC assembled disks
- Maximum capacity is 2048 titles of 4 rows each
- Electronics mainframe, 19" 2RU, PAL or NTSC encoder, DSK, SPG, RAM for downloading 8 fonts from disk
- Data management unit with dual 3.5" disk drives, desk mounted (1RU rackmounted version available by special order)
- Keyboard unit with cable
- Standard length (15') interconnecting cable, DMU to mainframe
- Set of accessories including:
 - 2 3.5" disks, each with 8 character fonts
 - 1 extender board and cable
 - 1 operator's and service manual
 - 1 blank 3.5" disk

CG-4722 \$11,272.00

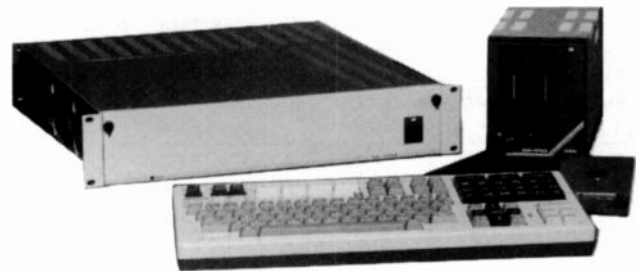
CG-4722 Dual Channel Character Generator. Same as CG-4722 single channel except includes 2 mainframes, 2 interconnector cables and 2 extender boards and cables . . . \$17,839.00

CG-4733 Character Generator

- Full range of font styles, sizes and effects
- Instant character sizing from 8 to 512 lines
- Character edge effects including: border, outline, block and drop shadow, plus combinations
- 4M byte font memory—provides virtually unlimited number of fonts on-line
- High resolution vector format licensed typeface masters readily accessible from hard disk, 10 supplied with every machine, over 1500 in library
- 16 levels of antialiasing
- 4.6ns effective resolution
- Ergonomically designed keyboard with dedicated keys—no menus on main functions
- Instant font rendering
- Full range of display modes including: cut, roll, reveal and crawl, all to fully adjustable times/speeds
- Ethernet high speed serial port for local area networking
- GPI for contact closure actuation of sequences
- RS-232/422/485 serial lines for: local and remote keyboards, remote floppy disk drives, external computer/printers, graphic tablet
- SCSI port for interfacing to external Winchester or magneto optical drives



CG-4711N



CG-4722

- Longitudinal SMPTE time code; input for auto subtitling
 - Compact, ideal for OB Van applications
 - Mainframe only 3RU (5.25") high 19" rackmounting
 - Keyboard fits into sliding 19" rack
 - 32K colors on-screen for foreground, background or edges
 - 32 levels of transparency
 - Coloring: character by character FGND/BKGND and edge and line by line FGND/BKGND
 - High capacity disk storage
 - Built-in 1.2M byte floppy and 40M byte hard disk drives
 - Remote floppy drives (optional)
 - External Winchester drive for extra storage (optional)
 - Full system incorporates 2 fast 32-bit processors with separate dedicated high speed digital signal processor (DSP) for font rendering
 - Real time, multi-tasking software operating system
 - Versatile color logos
 - Built-in logo composer
 - Easy manipulation—treated same as characters
 - Sizes from 8 to 512 lines
 - Coloring pixel by pixel
 - Internal 4:4:4 architecture with RGB/YP_P inputs and outputs or optional CCIR 656 board for CCIR 601 compatibility
 - High resolution (15K x 15K) typeface masters
 - Precision font rendering and composing
 - Typeface masters supplied with full range of characters and accents
 - Easily reconfigurable for different languages
 - Dedicated graphic processor
 - Real time frame grab
 - Integral digital linear keyer
 - Provides dual channel capability
 - Full painting facilities
 - Palette with choice of 16.7M colors
- CG-4733 TBA*

*To Be Announced

TB8000 Intercom/Talkback System

System Architecture

- 4 central switching matrices: 8 x 8, 16 x 16, 32 x 32 and 64 x 64
- A basic panel consists of a speaker, mic, amplifiers and controls
- Control panels: 16 or 32 selector keys and expandable in blocks of 16 by adding key extension panels
- A plug-in second matrix card provides control panel access to a second matrix frame
- Belt packs or external 4 wire circuits can be added to a panel using an external line panel

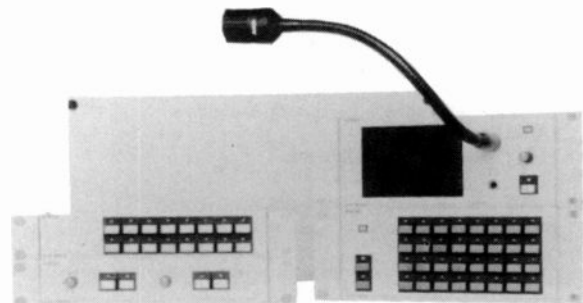
Software Configured System

Each matrix crosspoint can be configured in 1 of 4 ways:

- Normal: Unidirectional from source to selected destination
- 2-way: Bi-directional for 2-way communication between source and selected destination
- Fixed: Permanent unidirectional
- Standby: Permanent unidirectional from source to destination with ability to temporarily override with another routing selected by an authorized source

System Features

- High packaging density for low cost per crosspoint
- Modular system is expandable to new areas
- Full 4-wire operation
- Balanced transformers used to interface to external equipment
- External headset connection
- Special tally functions including changing from a rehearsal to on-air operation
- Multiple calls are made from panels



32 x 32 central matrix (background), key extension panel, external line panel, remote/talkback panel, 32-way control panel

A user programmable intercom system with high performance audio specifications. The TB8000 is an expandable, micro-processor-controlled system which can be reconfigured with a computer terminal. Self-contained modular remote panel/terminals accommodate headsets or speaker/mic hands-free operation.

Audio/Video Conferencing System

- Connects up to 16 conferences and up to 20 rooms per conference
- A point-to-point intercom system with video is an integral sub-system which enhances communications and conferencing effectiveness
- Video switching matrix configurable to as large as 128 x 128
- Connects up to 256 conference rooms
- Audio conferencing switching matrix configurable to a maximum of 80 x 80
- Separate audio conferencing matrix to allow 20 participants per conference to communicate with all selected conference stations
- Matrices designed so no single point failure results in system failure
- Central controller with full redundancy
- Master control CRT terminal can be used to reconfigure entire switching and control matrices and setup and connect separate mini conferences with multi-point rooms
- Levels of security for conference integrity
- Encoding and encryption compatibility

With Pesa's local area audio/video conferencing system, consisting of a 2-way audio/video switching matrix and micro-controller, information can be distributed in real time from multiple locations to multiple locations. Locations can view identical visual information while privately discussing the subject matter and selectively change the visual information.

The system supports up to 16 simultaneous conferences and up to 20 participating rooms per conference. This multi-point to multi-point conferencing connectivity is made possible with Pesa's unique Core Switching and Control System hardware and software.

While the system is generally used in an audio/video intercom and conferencing configuration, it is not necessary to have 2-way video. The audio paths are bi-directional and provide 2-way audio for "talkback" type applications.



Multi-point control panel and master control CRT terminal

Typically, the visual information is from cameras viewing personnel, products, maps, charts, chalk-talk boards and illustrations. Also, displays/outputs from PCs or high resolution computer workstations are distributed. Graphics devices typically used include Sun Microsystems, ADP, HP, Tektronix, IBM and Apple. The video matrix can switch both RGB (or Y, B-Y, R-Y) component video and the composite output video from these devices.

Control and signal connections between viewing rooms can use coax cable and twisted audio pairs or fiber-optics. Fiber-optics is the preferred method for security reasons. Video and audio signals from multi-points can be connected by coaxial cable and twisted audio pairs using a Local Area Broadband Network, or fiber-optic cable.

TERMINAL EQUIPMENT/ BROADCAST MONITORS



SWAT. SW2000 Sync Watcher Analyzer and Timer
SWAT automatically monitors 14 sync parameters including SCH phase relationship, sync blanking and burst measurements with out-of-tolerance alarms.
• Measures and provides complete analysis of sync, blanking and burst of a video signal • Auto measurement "Watcher" mode measures 14 parameters including SCH phase, front porch and horizontal blanking • Auto "Timer" mode measures between 2 video inputs SC phase and horizontal delay; confirms SC lock, horizontal lock, H. lock (PAL), vertical lock and PAL lock • Alarm indications on out-of-tolerance parameters • User programmable parameters to be measured, alarm activation, prime values and tolerances • Manual or automatic selection of parameters • Results displayed on integral 40-character LCD panel or external picture monitor • RS-232C port interfaces to printers for hard copies of measurement results • Built-in self test routine. \$3768.00



Transmission facility's routing systems, satellite and microwave links use SWAT to maintain image quality.

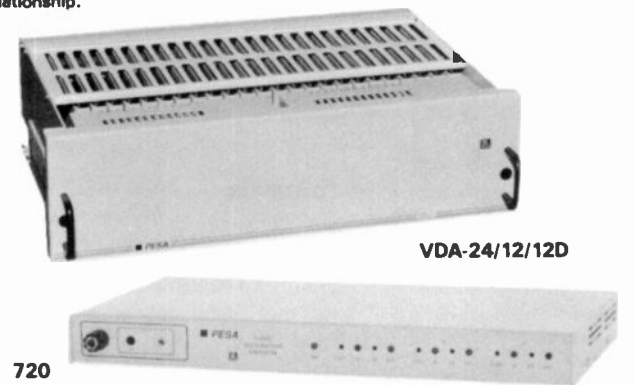
Post production houses use SWAT to check client's supplied video material prior to editing and to certify the quality of the finished tape.

Equipment manufacturers use SWAT to verify equipment performance by documenting values of 14 sync parameters, 1 of the more important being SCH phase relationship.

P-50 Video Processing Amplifier
• Front panel control of 6 video signal parameters • Accepts most sync formats • AGC to maintain proper signal level automatically • Generates pulse-cross format with auto picture brightening so standard monitor can be used for VTR skew and tension adjustments. \$1495.00

101 Series Vertical Interval Bridging Switcher
A 10 x 1 bridging switcher with built-in video and audio DAs has vertical interval switching on all inputs, lighted pushbuttons and switch position memory. Remote control is optional. \$1444.00
101 Remote control \$518.00

720 Video DA. Equalizes up to 1000'
The 720's quality signal and reliability are ideal for studio, mobile or duplication applications.
• 3 sections: 1 x 4 outputs per section. Can loop sections for 4, 8 or 12 outputs from 1 video source. Has integral/common power supply • Front panel gain adjustments and test points \$1058.00



Video DA Models VDA-24, VDA-12, VDA-12D
More outputs in less space . . . 168 in 3 RUs.
• Differential terminated or looping inputs • Modular plug-in card design • More than 80dB common mode rejection • Front panel equalization adjustment up to 600' • 35MHz bandwidth • Power supply failure alarm connections • A second optional backup power supply can be added for redundancy
VDA-24 Frame \$2340.00
VDA-24 Equalizing: Up to 24 1 x 7 cards. Inputs terminated/equalized. Max. outputs = 168. \$130.00
PS 150 Door mount single power supply \$847.00
VDA-12 Frame \$1450.00
VDA-12 Equalizing and/or unequalized: Up to 12 1 x 10 cards. Inputs terminated/equalized. Or equip with 12 cards with looping unequalized inputs, or any combination of the 2 cards. Max. outputs = 120 \$130.00
Up to 10 10L cards per frame \$110.00
PS 150 Door mount single power supply \$847.00
VDA-12D Frame \$2363.00
VDA-12D Equalizing unique dual amp for critical feeds: Up to 24 dual amp 1 x 7 cards, 7 outputs per amp. Inputs terminated/equalized. Max. outputs = 140. \$150.00
PS 150 Door mount single power supply \$847.00

BM4414/BM4420 Precision Broadcast Monitor Series
• Microprocessor automatic setup and control for component RGB and YPrPb with plug-in options for NTSC or PAL, S-VHS (Y/C) and digital video (CCIR 656) • High resolution PIL tubes with SMPTE 'C' or EBU phosphors • D1 digital (CCIR 656) plug-in decoder option for system interconnected in the 4:2:2 format • Remote control panel for up to 64 monitors • Aux input on front panel for monitor test generator input • Horizontal and vertical delays for pulse cross displays with unique 3X magnification feature for detailed analysis of the vertical interval • Split screen (A + B) display • Automatic or manual degaussing

The microprocessor auto setup facility rapidly and accurately calibrates gray scale and white and black levels. With the NTSC or PAL decoder option, chroma gain and phase are also set automatically.

PESA's DG5250 monitor test generator is used for the auto setup function. It is 1 RU high x 1/2 RU wide and has a capacity of up to 64 patterns. It includes a TTL level RS-232 serial link and 2 composite (NTSC) outputs so it can be plugged into the front of the monitors. Software drivers are integral to the BM4420/4414 monitors to accept Minolta W2150 and Thoma TMF3 color analyzers. A second RS-232 serial link is provided to accept a variety of standard analyzers.

Calibration from a previously set up BM4400 Series monitor can be transferred simply to other monitors via the serial link from the DG5520 (NTSC) or DG6250 (PAL) monitor test generators.

Precision plug-in NTSC or PAL composite decoder option provides low distortion and a full bandwidth luminance output with minimal chroma crawl and ringing on vertical picture details. An analog comb filter based on current feedback filters and 1H delay are used. An active notch filter, with virtually no ringing, provides exceptionally high performance.

Unique direct acting controls and monitor memory for settings. Key switches are used for commonly selected functions. Single on-screen menus are used for other functions to minimize keystrokes. User settings can be stored in non-volatile memories and recalled at will.

BM4414 14" monitor \$4345.00
BM4420 20" monitor. \$4500.00

Options for the VDA24, VDA12, VDA 12D
Latch kit accessory \$ 55.00
Rackmount adaptor kit for unthreaded racks \$10.00
5-fan intake assembly \$714.00
5-fan exhaust assembly \$714.00
PS 150 door mount redundant power supply \$847.00
PS500 external power supply \$1167.00
PS500 dual external power supply \$1770.00
Power distribution panel \$688.00
Power cable for power distribution panel \$36.00
Power jumper cable/VDA to VDA \$25.00
Air baffle plate \$10.00

GRAPHIC DESIGN WORKSTATION/ DIGITAL VIDEO EFFECTS

PINNACLE
SYSTEMS

3000E Graphic Design Video WorkStation

The Graphic Design WorkStation integrates full-color paint and 3-D modeling in a system configured especially for graphic designers and artists. The excellent price/performance characteristics of the 3000E make it possible for designers and artists working with limited budgets to perform up to their full potential.

3000E: Full-Color Paint Capability With "Painter"

- 16.7 million colors • Continuous pan and zoom • Cut and paste, stencil, mask • Airbrush • Custom brushes • Perspective and rotation of cutouts or full-screen images • Embossing of text, shapes and masks with selectable depth, angle, intensity • Color dithering • Pattern brushes and pattern fills • 22 high quality vector-based fonts, including special symbols • Mosaics capability to save palettes, patterns, stencils, cutouts, custom brushes • 32-bit paint capability and full-color image capture from any video source. The 3000E's Painter features wash capability

3000E: 3-D Modeling With "Sculptor"

- 3-D modeling is simplified with Sculptor's menu-based, tablet-driven modeling capabilities • Once a model is formed, Sculptor's powerful object editor permits fine sculpting by allowing addition or deletion of points, edges, facets • Encoder and decoder are included • Modeling with lines, primitives, extrusions, surfaces of revolution, spirals • High-speed rendering • Multiple view ports • 19 light sources with independent control of color and position • Texture mapping • Flat, smooth, Gouraud, Phong shading • Reflection mapping • Variable transparency of solids and textures • Cross-sectional modeling • Automatic wireframe outline • Anti-aliased object intersections • Up to 16,000 polygons in a model • Resolution: 768 x 484 pixels • Maximum output resolution: 4K x 4K

3000E: "Animation"

- Keyframe accurate animation choreography with automatic in-betweening • "Camera" position (viewer vantage point) animation • Animation of each light source • Real time color or wireframe animation preview • Field or frame animation (user selectable) • Metamorphosis • Hierarchical grouping/ungrouping • Drill, intersect functions • Output to tape or hard disk • Internal serial machine control is included

3000E Graphic Design WorkStation

- Includes Video WorkStation chassis; Painter full-color 32-bit paint system; Sculptor 3-D modeling system; Animation; vector-based anti-aliased multiple font package; digitizing tablet; pen with cancel button; keyboard; paint memory; 3-D memory; 95M byte hard disk drive; AGP-3 accelerated central processor with accelerated floating point processor; Video WorkStation integration software \$43,990.00

Options

3000E-10 Expandable to Digital Effects

- Variable axis smooth compressions and expansions • Full manipulation of live, frozen, cropped or bordered images • Automatic flips and tumbles • Pre-programmed transitions • Posterization, tinting, mosaics • Multi-image and multi-freeze • Effect acceleration and deceleration • User-definable effect sequencing • Adds real time digital effects and montage capability to 3000E WorkStation (requires 2100 Series control panel) \$4,990.00

3000E-20 Expandable to FreezeFile™ Image Storage

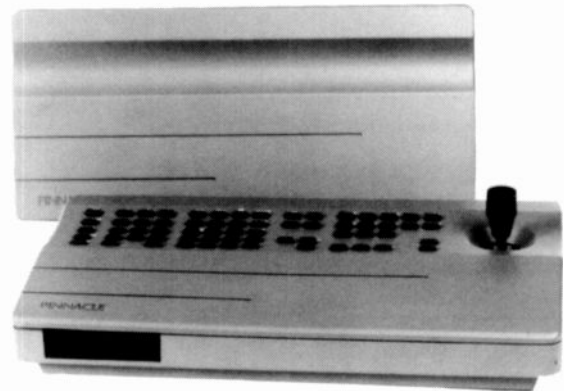
- Standard capacity: 55 frames or 110 fields. Larger capacities optional • Image recall: 0.7 seconds • Stack sequencing of stills • Stores key signal along with video • Once a graphic is complete, it can be digitally transferred to FreezeFile with no image degradation \$4,990.00

i860 RapidRender Option

- Provides faster rendering time, from 12 to 20 times faster than a 386 CPU \$9,000.00

Prizm Video WorkStation: 3-D Software-Based Digital Effects

- Includes Video WorkStation chassis; control panel; alphanumeric keyboard; 3-D effects manipulations with warps, curvilinear effects and page turns; palette functions; advanced sequencing capability with sophisticated sequence motion path (TCBW) control and unique time line functions;



Prizm Video WorkStation

- linear key output; high resolution menu driven user interface • Full bandwidth 4:2:2:4 image processing with luminance sampling at 13.5MHz • Remote control with GPI, RS-232 and RS-422 • Standard input is YUV/RGB switchable and YUV output • Designed for future expansion • Menu monitor sold separately \$26,990.00

Composite Option

- Adds composite input/output • Built-in input A/B switcher switches sources within a sequence • Built-in downstream linear keyer/mixer provides keying over background video \$1,990.00

3-D Montage Option

- 3-D multi-layering creates collages • Digital trails with sparkles, motion blur and "slinkies" • Dynamic drop shadows add depth to image motion \$6,990.00

Still Store Option

- Integrates a 200M byte still store to digitally freeze and store up to 400 images • Integrates with digital effects to allow still image layering • Easy still access via name, number or memo • Requires 3-D Montage option \$4,990.00

"Flying" Linear Key Option

- Includes the ability to manipulate keyed characters and graphic logos • Full bandwidth (8-bit) linear key processing \$3,990.00

DVEator Option

- Blends the artistry of 3-D modeled animation with the power of real time digital effects • Effects include Toroids, Cylinders, Spheres, Exploding and Folding Cubes, Shards, Surface Extrusions, Intersecting Planes, "Bevelled Edge" Picture Framing, "Shattering" Tiles and more • A whole generation of page turns and page rolls can be created in just 1 pass • Other features include Variable Light Sources, Intensity Variations, Shadows and Flares • A set of pre-programmed effects is included \$15,990.00

DVEator Creation Kit

- For users who want to create their own DVEator sequences • The creation kit lets you PO model shapes off line • Requires PC with memory expansion and Vista board • Can also be used with any standard 3000 series \$9,990.00

Additional Disk Drive — Fixed

- The Prizm Video Workstation can accept up to 8 drives • Each additional fixed drive adds 200M bytes of memory and increases the still store capacity by up to 400 images. \$3,990.00

Additional Disk Drive — Removable

- Removable disk drive adds 44M bytes of memory with a capacity to store up to 80 images • Removable diskettes are easily interchanged, allowing users to create their own libraries • Includes 1 diskette \$3,990.00

44M Byte Removable Disk Cartridge

- For use with removable disk drives \$190.00

Dual Channel Combiner

- Simultaneously manipulates real time video images from 2 Video WorkStations \$4,590.00

VGA-Compatible Menu Monitor

- 13" screen size. \$690.00



PORTA-BRACE®

K and H Products, Ltd.

Porta-Brace® Video Recorder Cases

Designed to provide custom-fitted protection in the field while allowing immediate access to controls, connections, and batteries through weather-protected openings.

Your choice of our heavy-duty contoured suede leather strap HB-40 or 2" webbed strap HB-20 is supplied with purchase of recorder case. Comes with sewn-on front pockets for cassettes, batteries, mics, etc., two white balance cards (one removable). "Piggin Strings™" available for organizing cables.

Model	Recorder Carried	List
C-50	Sony BVU-50	\$185.00
C-110	Sony BVU-110	\$185.00
C-150	Sony BVU-150	\$185.00
C-8800	Sony VO-8800	\$185.00
C-6800	Sony VO-6800	\$185.00
C-BVW-35	Sony BVW-35/Ampex CVR-35	\$185.00
C-7400	Panasonic AG-7400	\$173.00
C-4900	JVC CR-4900U, CR-4700, PR-4800E, Panasonic NV-9450	\$185.00
C-6200	JVC BR-6200U	\$185.00

Other and newer models available—check with your supplier.
IMPORTANT: Please designate HB-20 or HB-40 when ordering.

VB-10 Video Belt	\$15.00
Wireless, and all-purpose accessory pouches	from \$17.00

Porta-Brace® Monitor Cases

Protection and glare reduction guard with adjustable pedestal, also easy access to battery, switches, controls and cable connections.

Lightweight Field Monitors (stays in protective case)

MO-VA500 Sony VA500 Beta Playback adapter (may be attached to MO-8020 case)	\$ 70.00
MO-8020 Sony PVM-8020/BVM-8021 8" Monitor	\$130.00
MO-CT500 Panasonic CT-500 5" Monitor	\$130.00
MO-22U JVC TM22U/44U/41U	\$130.00
MO-5863 Leader LVM-5863A Wave Form/Monitor	\$130.00

Large Portable Monitors (remove from case to use)

MO-AG500 Panasonic AG-500 10" Monitor/Player	\$141.00
MO-AG560 Panasonic Monitor/Player	\$141.00
MO-1328 Panasonic PVM 1328	\$141.00
MO-AG-513 Panasonic AG-513	\$141.00
MO-PVM-749 Panasonic PVM-749	\$141.00
MO-1342Q Sony PVM 1271Q, 1342Q, 1340Q	\$141.00
MO-E8010 Sony EVM 8010 Monitor/Player	\$141.00
MO-R9U JVC TM-R9U	\$141.00
MO-130 Panasonic CT-130 13" Monitor	\$141.00

Heavy-duty shoulder strap included, firm grip hardwood handle, great lightweight transport case.

Tripod Mummy Case

A new sort of case for professional tripods with fluid heads from Porta-Brace®. A soft, lightweight, thickly padded Cordura® Case that is waterproof and durable. There are pockets for many accessories; handles, tripod platforms, fish poles and mics. Also will carry a lighting kit with light stands. Comes with maple wooden handle and shoulder strap.

TM (length in folded position)	\$237.00
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Porta-Brace® Run Bags (now in 3 sizes)

Why should a run bag be cluttered? Speed is necessary, so be organized, find those spares and extras in a hurry.

RB-1 Size: 7"W x 9½"H x 21"L	\$120.00
RB-2 Size: 7"W x 9½"H x 18"L	\$125.00
RB-3 Size: 7"W x 9½"H x 25"L	\$130.00

Porta-Brace® "Grip"

Versatile, heavy-duty carts for studio or field use, now with two 4" swivel front wheels. Optional light stands, tripod quivers, and carry-all cases available

from \$657.00	
Porta-Brace® Waist Belt Production Pack	
Basic Pack includes waist belt w/quick-release buckle and two multi-pocketed, general-purpose pouches, other specialized pouches can be added. (Designed for BETACAM users and others.)	
BP-2	\$112.00

Porta-Brace® Rain Covers

Protection against dust as well as moisture damage with this tailored rain cover for individual three-tube cameras.

RAIN COVERS for all popular three-tube cameras. Specify camera model number. For stand alone cameras only.
RC (No. your camera) from \$142.00

Porta-Brace Rain Slicker

Newly developed Rain Slicker is a light weight cover for camcorders and is at home on the shoulder or a tripod. It provides dedicated protection as it covers the entire camcorder, top to bottom. All controls are accessible through covered zippered opening.

RS () for camcorders only	\$180.00
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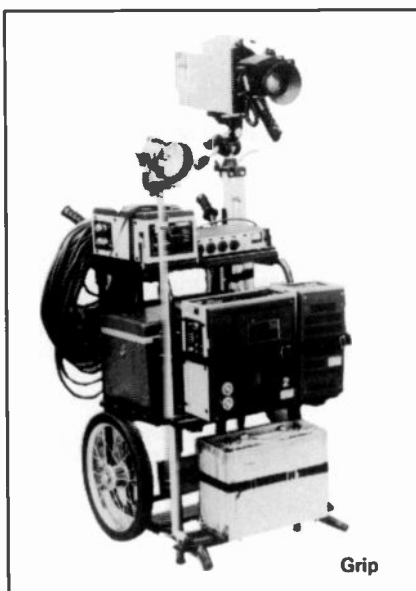
Porta-Brace® Carry-On Camera Case

This camera case has been designed to meet FAA suggestions for carry-on luggage: 9" x 14" x 32" for underseat storage; 10" x 14" x 36" for overhead. The Carry-On still offers protection from bumps, dust, rain and snow while in transit. \$288.00

Porta-Brace® Audio Cases

All access openings are weather-protected, with pockets for cassettes, batteries, mics, etc., a shoulder strap and waist belt is included.
AR-4.2, Nagra 4.2, IV.S. \$219.00

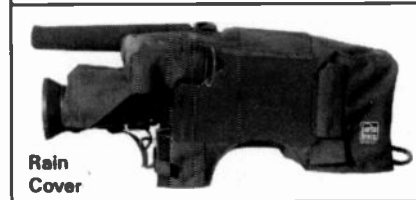
VIDEO CARTS/CASES



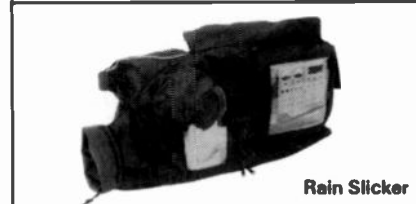
Grip



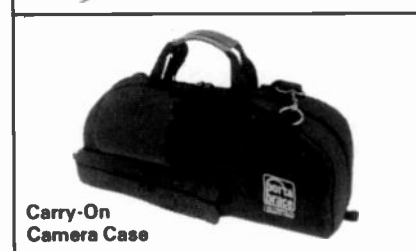
Waist Belt Production Pack



Rain Cover



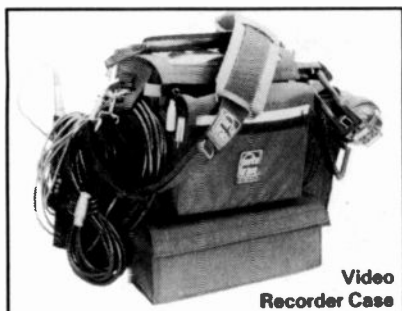
Rain Slicker



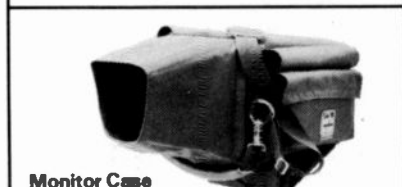
Carry-On Camera Case



Nagra 4.2



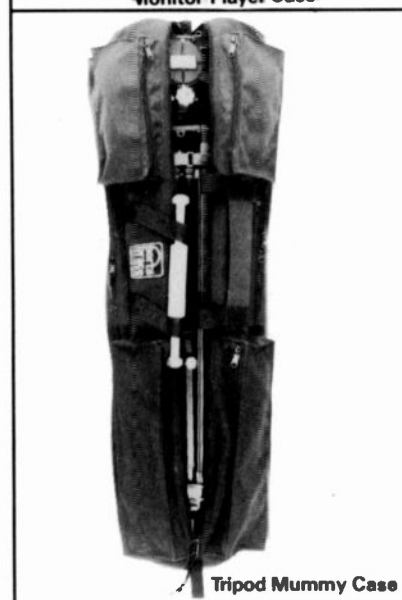
Video Recorder Case



Monitor Case



Monitor/Player Case



Tripod Mummy Case



Run Bags

VIDEO CASES



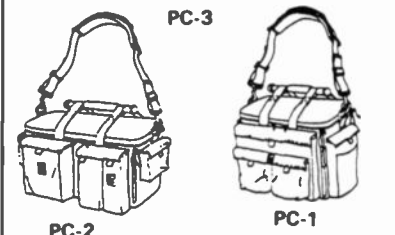
PORTA-BRACE®
K and H Products, Ltd.



Shoulder Case
Everyday protection



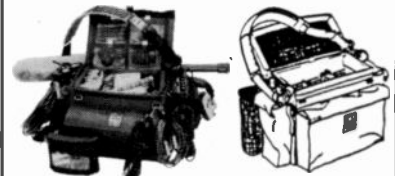
Shoulder Case
Rainy Day Protection
Stored in Pocket



PC-3

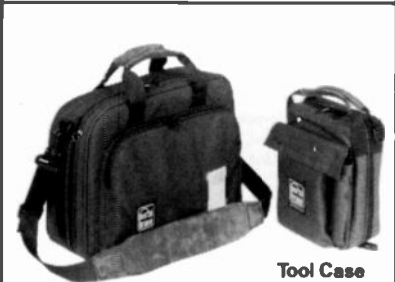
PC-2

PC-1



PC-101

PC-202



Tech Case

Tool Case

Porta-Brace® Shoulder Cases w/Rain-Top for Camcorders.

Full-time Shoulder Case provides protection against bumps, scrapes, dust, heat and cold on your shoulder or off.

NEW FEATURE ADDED with the lightweight pop-out Rain-Top which is sewn to the main body so it can't be lost or left behind. (Stuff it into the slim side pocket when the sun shines.)

When ordering be sure to send camera model number...recorder model number...and battery style. \$292.00

Porta-Brace® CamCorder Special Camera Case

With the advent of the professional Hi8 camcorders, this case provides padded protection as well as ample room to carry cassettes, batteries and handle grip inside, with pockets on the outside for papers, notes and window pocket for identification.

\$175.00

Porta-Brace® Director Case

Room for Producer/Director tools of the trade plus a detachable SLR or small video camera bag to take for candid shots.

DC-1 \$155.00

Porta-Brace® Production Cases

Large Capacity Organizer Cases

Heavy-Duty Shoulder Strap Included

PC-1 one divider, five outside pockets, two mesh pockets \$295.00

PC-2 two dividers, five outside pockets, six see-through mesh pockets \$322.00

PC-3 seven outside pockets, three dividers, two extra end handles (for two-person carry), nine see-through mesh pockets. \$345.00

Medium Capacity Organizer Cases

Heavy-Duty Shoulder Strap Included

PC-101 Audio Case, one divider, one clip-on pouch, four see-through mesh pockets, three outside pockets \$185.00

PC-202 Lights and tapes case, one divider, one clip-on pouch, one see-through mesh pocket, five outside pockets \$178.00

Porta-Brace® Tech Case (2 sizes)

This newly designed carrying case is a versatile over-the-shoulder bag designed for engineers, technicians, reporters and other video professionals. This case can be used as a combination personal bag and service equipment bag.

TC-1 Dimensions 4"W x 11"H x 15"L \$148.00

TC-2 Dimensions 5½"W x 12"H x 17"L \$182.00

Porta-Brace® Tool Kit Case

As a companion to fit into the Tech Case, a small optional Engineer's Tool Kit Case is available.

TC-T Dimensions 2½"W x 9"H x 6½"L \$70.00

Porta-Brace® Quick-Draw Camera Case

This professional camera case is a convenient way to carry and protect your camcorder on the ground, in your car and in the air. With its hard-shell construction and aluminum viewfinder guard, this padded nylon case means lightweight security for your camera. Heavy-duty Shoulder Strap included.

Check for models available \$298.00 and \$305.00

Porta-Brace® Sack Pack

This new production case from Porta-Brace® is a very basic carry case for paraphernalia of all kinds and is available in three sizes. It is as easy to use as a shopping bag, with the quality of a Porta-Brace® production case, with cinching cord security.

SP-1 10"W x 14"H x 15"L \$70.00

SP-2 11"W x 16"H x 17"L \$75.00

SP-3 12"W x 18"H x 19"L \$80.00

Porta-Brace® Production Vest

Porta-Brace has designed this Vest especially for ENG, EFP photographers. Pockets are provided for cassettes, batteries, cables, microphones and accessories. Provisions are made for attaching other optional Porta-Brace accessory pockets. The Vests are a generous cut for wearing over heavy clothing.

VP-1 Sizes S, M, L, XTall \$185.00

Porta-Brace® Camera Strap

This strap is designed for use with camcorders and cameras. Use clips supplied by Sony, for cameras with loops, feed strap thru loop for secure hook-up or request 1" snap hooks to provide quick release.

HB-20CAM \$38.00 HB-40CAM \$38.00

Porta-Brace® Lightning Case

Soft-shell, padded, carrying case for ENG, EFP lighting outfits. Will carry lights, stands, barn doors completely assembled. Rigid protective compartment for filters, scrims, gels, and bulbs. Carries umbrellas, reflectors, clamps several tota lights and other lighting accessories. Accommodates two lights fully assembled.

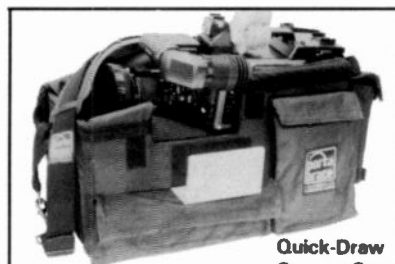
LC-1 7"H x 10"W x 42"L \$260.00

LC-2 10"H x 12"W x 47"L \$275.00

Porta-Brace Light Pack (now in 3 sizes)

This pack for lighting equipment is compact, yet carries just about any combination of lighting gear needed for ENG or EFP production work. A unique stack system of compartments with zippered-hinged doors, provide speedy access to lights, barndoors, stands, umbrellas, gels, gel frames, reflectors, cables and clamps. Designed to carry by hand or as a hands free back pack, this case will get all your lighting equipment to the job comfortably and efficiently.

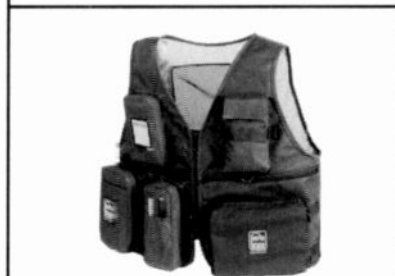
LP-1 . . . \$260.00 LP-2 . . . \$275.00 LP-3 . . . \$295.00



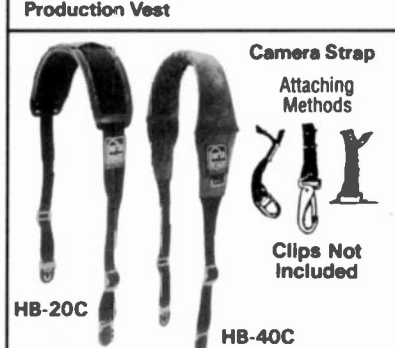
Quick-Draw Camera Case



Sack Pack



Production Vest



Camera Strap
Attaching Methods

Clips Not Included

HB-20C

HB-40C



Light Pack

Lightning Case

Prices and Specifications Subject to Change Without Notice.

BPI PORTA-PATTERN®

TEST CHARTS

Test Chart System

The PORTA-PATTERN Test Chart System is a convenient, portable 9" x 12" chart package for studio or field use. The system has been designed to offer maximum versatility and protection for the test charts, thus providing faster, easier camera set-up and alignment.

The lightweight, self-standing aluminum Chart Holder provides 3-point positional alignment. A spirit level is an integral part of the unit's design for horizontal alignment accuracy. Optional Microphone and Light Stand Mounting Adaptors allow the system to be stand mounted with the same alignment capabilities.

The system contains 1 each Resolution, Linearity, Registration and Logarithmic Reflectance Charts. The charts are mounted in recessed, high-impact plastic frames for chart surface protection. Charts are placed in order of usage. After use the front chart can be reversed so all chart surfaces are protected.

001-10	4-Chart System, including 001-24, -25, -26, -27 charts	\$419.00
001-10E	4-Chart System, including 001-24, -25, -26, -44 charts	.429.00
001-15	Microphone Stand Adaptor	.42.00
001-16	Light Stand Adaptor	.47.00
001-17	Aluminum Frame Assembly complete w/o adaptors	.259.00
001-20	Dual System Carrying Case	.105.00
001-21	Single Chart Carrying Case	.75.00
001-24	Resolution Chart	.95.00
001-25	Linearity (Bell) Chart	.95.00
001-26	Registration Chart	.95.00
001-27	9-Step Log Chip Chart	.125.00
001-30	BBC Zone Plate Chart 525-Line	.190.00
001-31	BBC Zone Plate Chart 625-Line	.190.00
001-32	Multi-Burst Chart	.95.00
001-33	Window Chart	.95.00
001-34	Chess Board Chart	.95.00
001-35	Reverse Registration Chart	.95.00
001-36	BBC #61P Flesh Tone Reference Chart	.199.00
001-38	CCIR Linearity Bell Chart	.95.00
001-39	Auto-Registration Chart	.95.00
001-42	Line Resolution Chart	.95.00
001-44	11-Step Log Chip Chart	.140.00
001-45	Depth of Modulation Chart Revision 1984	.95.00
001-48	BBC #62 High-Saturation Color Bar Chart	.229.00
001-49	Lens Back Focus Chart	.95.00
001-50	Concentric Resolution Chart for CCD Camera Applications	.119.00
001-51	Radial Resolution Chart for CCD Camera Applications	.119.00

Electronic Field Production (EFP) 3-Chart System

In order to provide a greater range of available test patterns in a package better adapted to the portability of EFP camera systems, PORTA-PATTERN has developed a 3-Chart System which will accept any combination of 3 charts presently available in the PORTA-PATTERN catalog.

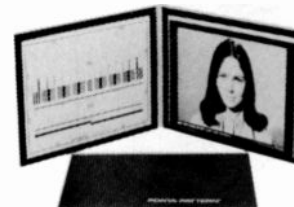
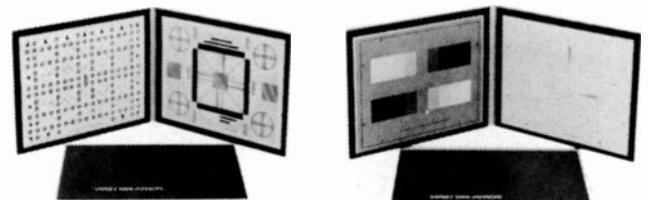
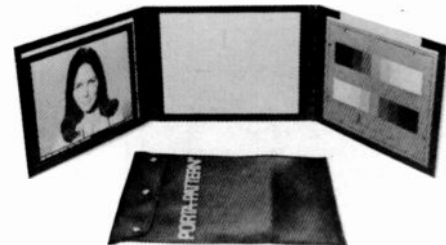
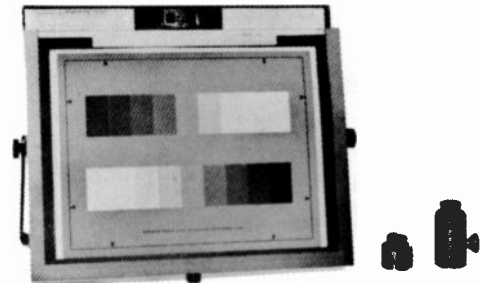
The system consists of 3 protective plastic frames, similar to those used for all individual PORTA-PATTERN Test Charts, uniquely hinged end-to-end, which allows the frames to be folded upon themselves, thus providing complete surface protection for all 3 charts and, when closed, takes up no more space than a single PORTA-PATTERN Test Chart.

The entire system is held closed by a Velcro™ closure system and a vinyl coated nylon case is included to provide a complete 3-Chart System in a package 15" H x 18" W x 1 1/2" thick.

014-10	EFP 3-Chart System with 3 Black and White Geometric Test Patterns, including case	\$295.00
014-11	EFP 3-Chart System with 2 Black and White Geometric and 1 9-Step Log Chip Chart, including case	\$330.00
014-12	EFP 3-Chart System with 1 Black and White Geometric, 1 Log Chip and 1 of either Color Bar, BBC #61P Flesh Tone or Pulse Bar Chart	\$385.00

DUOCHART™ Systems

The PORTA-PATTERN DUOCHART System is a lightweight, durable portable video test chart package in the convenient PORTA-PATTERN 9" x 12" image size. Each chart is recess-mounted on lightweight, heavy-duty expanded PVC Foamex™ and hinged to fold face-to-face when not in use. Black Velcro provides a light and dirt seal when the system is closed. Each system includes a black vinyl case for carrying and storage. There are 3 DUOCHART systems to provide the right information for set-up and evaluation.



(A) Resolution/Linearity. This system contains the standard Resolution and Linearity Charts. The Resolution Image is designed as a standard reference for measuring and evaluating overall camera resolution as well as testing for camera streaking, ringing, interlace and aspect ratio. The Linearity Image is designed for measuring and adjusting scan linearity. The image is a matrix of circles that provides reference when combined with the proper electronically generated grating signal.

(B) Registration/Log Gray Scale. This system contains the standard Registration and Log Gray Scale Charts. The Registration Image is designed for adjustment of scan timing (registration) in multiple tube color cameras. The Log Gray Scale contains 2 rows of 9 paint chips each, providing the range of reflectance from TV white (80%) to TV black (3%), scaled in increments to approximate the transfer characteristics of the color picture tube.

(C) Multi-Burst/Flesh Tone Reference. This system contains the Multi-Burst Chart and the BBC #61P Color Flesh Tone Chart. The Multi-Burst Image is a dual range grouping of bursts. The full scan range is from 1MHz to 8MHz in 1MHz steps. The half scan range is from 0.5MHz to 4MHz in 0.5MHz steps. The bursts are spaced by a solid black bar for separation of burst information on a waveform monitor. The BBC #61P Color Flesh Tone Image has been developed to provide a standard color reference for matching and evaluating cameras after normal color balance is achieved. The image is manufactured in close cooperation with the Research Department of the BBC with advanced electronic color separation to assure spectral characteristics and long lasting chromaticity.

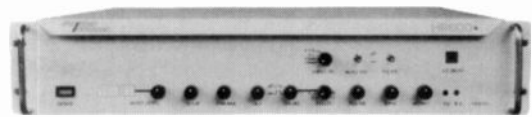
020-10	Resolution/Linearity	\$165.00
020-11	Registration/9-Step Log Chip	.205.00
020-12	Multi-Burst/BBC #61P Flesh Tone Reference	.235.00
020-13	Registration/11-Step Log Chip	.215.00

TBCs/SYNCHRONIZERS



7.5MHz Series Time Base Corrector and Synchronizer

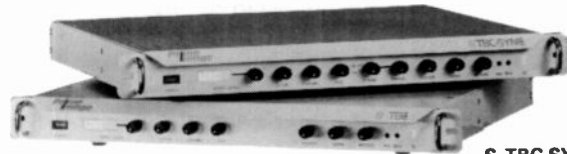
• Designed for broadcast and cable systems true wideband applications • Available both with and without digital effects • Variable noise reduction up to 20dB • Flat response out to 7.5MHz • Allow passage of VITS and VIRS as well as closed caption data and transcode between all popular composite and component VCR formats



HR600 +

HR600 + Series High Resolution Multiformat Transcoders

• Over 600 lines of resolution • 7.5MHz bandwidth • Available with and without digital effects • True component Y/C, Y/688, Y/R-Y/B-Y and composite—in and out • Transcodes between Y/C, Y/688, Y/R-Y/B-Y and composite—all outputs available with any input type • Time base corrects: 1/2" and 3/4" VCRs (Betacam, Betacam SP, MII, U-Matic, U-Matic SP, S-VHS, ED Beta) • Corrected outputs conform to EIA RS-170A and may be referenced to external genlock sources



S TBC SYNC

S Series Time Base Correctors/Synchronizers for S-VHS and ED Beta 1/2" and 3/4" VCRs

• Available with and without digital effects for true component processing • All S series products work with Y/C (S-VHS) input and output; composite input and output and transcode between Y/C and composite • Corrected outputs conform to EIA RA-170A and may be referenced to external genlock sources • True component processing

NTSC Composite Series for 1/2" and 3/4" VCRs

• Full 8-bit composite time base correctors and synchronizers, with and without digital effects • Dynamic tracking • Drop-out corrector • 3.58 feedback • Excellent freeze frame capabilities • All of these products are designed to work with NTSC composite input and output • Corrected outputs conform to EIA RS-170A and may be referenced to external genlock sources

Wideband Down Link

700	7.5MHz without effects	\$ 7,950.00
701	7.5MHz with effects	8,950.00
705	7.5MHz TBC composite only	6,950.00
710	7.5MHz Synchronizer with limited effects	10,950.00
711	7.5MHz Synchronizer with full effects	11,950.00
750	7.5MHz Synchronizer composite only	8,950.00
RGB	Option RGB In/Out	1,500.00

Multi-Format Transcoders

800	HR600+ without effects (High Res.)	\$5,950.00
801	HR600+ with effects (High Res.)	6,950.00
810	HR600+ Freeze Frame (High Res.) limited effects	8,750.00
811	HR600+ Freeze Frame (High Res.) full effects	9,750.00
RGB	Option RGB In/Out	1,500.00

Y/C Component

150S	S TBC+ without effects	\$3,590.00
100S	S TBC+ with effects	4,590.00
250S	S TBC SYNC+ limited effects	5,590.00
200S	S TBC SYNC+ full effects	6,590.00

Basic Functions

50	TBC/Freeze	\$2,995.00
50S	TBC/Freeze with "S" option (S495)	3,490.00
25	TBC/Timer	1,995.00
25S	TBC/Timer with "S" option (S495)	2,490.00

Standard

150	TBC+ without effects	\$2,990.00
100	TBC+ with effects	3,990.00
250	TBC SYNC+ limited effects	4,990.00
200	TBC SYNC+ full effects	5,990.00

	20dB Variable Noise Reduction	Composite NTSC for 3/4" and 1/2" VCRs	Transcode	Y/C (S-Video, S-VHS and ED Beta)	Y/688 (U-Matic, U-Matic SP and Hi-8)	Y/R-Y/B-Y (Betacam, Betacam SP and MII)	Full Frame Synchronizer	Time Base Corrector	Dynamic Tracking	8 Bit Samples (Chroma and Luma)	Hot Switch Input	Freeze: Frame, Field 1 or Field 2	Strobe: Field or Frame, Variable Rate	Digital Effects: Posterize, Sepia, Mosaic	3.58 Feedback and DOC
700	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
701	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
705	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
710	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
711	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
750	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
800	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
801	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
810	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
811	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
150S	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
100S	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
250S	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
200S	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
50	•	•	•	•	•	•	•	•	•	•	•	FLD	•	•	•
50S	•	•	•	•	•	•	•	•	•	•	•	FLD	•	•	•
25	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
25S	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
100	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
250	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
200	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

All products work with 525 line NTSC composite in and out and transcode to and from all signals indicated.

Clean Cut/EFX Compact A/V Production Switcher

- 4 channels are time base corrected and synchronized
 - Input non-synchronous sources, output RS-170A sync
 - 4 stereo audio-follow-video switching inputs standard
 - Built-in digital effects—single channel effects, dual channel transitions
 - Option "S" provides 4 additional S-VHS type inputs with S output and transcoding between composite and S-VHS
- The Clean Cut/EFX is a low-cost, high-performance, compact switcher for video production projects. This switcher offers extremely easy operation and quality video handling. All channels are time base corrected and synchronized, allowing for input of up to 4 non-synchronous sources, such as cameras, free running VCRs, character generators, or satellite feeds, with internal locking of all sources to RS-170A sync for broadcast quality output. Also included as standard are 4 stereo audio-follow-video switching inputs. Plus, the Clean Cut/EFX has built-in digital effects which can be applied to a single channel or used in transitions between channels. Single channel effects include field/frame freeze and strobe, mosaic, posterization and sepia. Transition effects include variable-rate wipes with 15 patterns (forward and reverse), vertical "pull-over" transitions, fade-to-black and a unique "peek-through" digital dissolve where pixels of the new video gradually replace those of the prior source.

Specifications

Video Interface

- **Inputs:** 4 composite, 1.0V p-p, 75 ohm, BNC
- **Outputs:** 1 composite/program, 1.0V p-p, 75 ohm, BNC; 1 composite/preview, 1.0V p-p, 75 ohm, BNC
- **Genlock In:** High impedance, looping, 2 BNCs (300mV sync)
- **V-Out:** 1 BNC, 1.0V p-p, 75 ohm

Video Performance

- **Window:** > 525 lines
- **Bandwidth:** 4.2MHz (composite)
- **S/N Ratio:** 58dB
- **Differential Phase:** 1.5°
- **Differential Gain:** 1.5%
- **K-Factor:** 3%
- **Sampling:** 8-bit Luma; 8-bit Chroma
- **Residual Time Base Error:** ± 15ns

Video Effects

- **Between Channel:** 15 wipe patterns; border on/off (2 sizes); vertical "Pull-on" and "Pull-off" (V-lock inputs for optimum results, V-out provided); normal or reverse (wipes/pulls); "Peek-Thru" pixels to next picture; 4 transitions (poster, mosaic, fade-to-black, cuts); midpoint "hold" (transitions/wipes); selectable effects/transitions rate (1/2 to 2 sec.); GPI #1: transition, GPI #2: freeze/strobe
- **Single Channel:** Freeze frame/Field 1 or 2; variable strobe; variable posterization; variable sepia; variable mosaic; N.O. or N.C. contact closure switch selectable

Audio Interface

- **Inputs:** 4 stereo, RCA connectors
- **Outputs:** 1 stereo/program, RCA connectors; 1 stereo/preview, RCA connectors

Audio Performance

- Audio-follow-video or breakaway
- **Frequency Response:** 20Hz to 20kHz
- **S/N Ratio:** 80dB



Clean Cut/EFX



accESS

Operational Controls and Indicators

- **Power Switch (on/off):** 2-position rear panel
- **Video Level (preset switch):** ± 3dB
- **Color Level (preset switch):** + 3 to -60dB
- **Setup Level (preset switch):** ± 10 IRE units
- **Hue (preset switch):** ± 45°
- **Video Level Indicator:** 7 LEDs (4 yellow, 1 green, 2 red)
- **Genlock Indicator:** LED (green)
- **Bypass Switch:** Push-on/push-off (may be bypassed to input #1)
- **Horizontal Phase Adjust:** ± 1µsec, front panel trimpot
- **Burst Phase Adjust:** > 360° front panel trimpot

Clean Cut/EFX \$5,850.00

"S" Option: Adds 4 S inputs, 1 S output and transcodes any S or composite input to S or composite output

accESS Electronic Still Store

- On-line (hard disk) 75 frames/150 fields
- Video control panel (5" x 6" x 1"): sequence generate/recall; proc. amp control; I/O type select; store; recall
- In and out transcoding types: composite; Y/3.58; Y/R-Y/B-Y; RGB
- All types in and out
- 19" rackmountable
- Access time: normal mode < 1.5 sec.; turbo mode < 0.4 sec.
- Backup (removable disk) 2 frames/4 fields
- Accepts—non time base corrected/non synchronized inputs
- Multiple preprogrammable sequences
- Digital sampling—4:2:2
- Size: 7"H x 19"W x 17"D
- Power: 110VAC, 200W max.
- Available in NTSC and PAL

500 accESS \$10,950.00

Options

- 50ESS On-line (hard disk) 350 frames/700 fields \$1,350.00
- 51ESS Backup (removable tape cartridge) 80 frames/160 fields 1,250.00
- 52ESS Library control system TBA*

*To Be Announced

VIDEO PRODUCTION EQUIPMENT



408 Colorbar Generator

• SMPTE colorbar generator with 8-character ID positionable within the active area • 64 characters, numbers and symbols available for each of the 8 character positions • Field programmable via internally mounted DIP switches • ID flashing or constant • 1 blackburst output • 1000Hz audio tone • 1 3/4" H x 19" W x 12" D • Rackmount • 117VAC

408 \$1895.00

424 Colorbar Generator

• Same as 408 except 24-character identification

424 \$1995.00

CB2440 Vertical Interval Identifier

• 24-character front panel programmable vertical interval identifier • Stores up to 40 different 24-character IDs • ID appears over SMPTE colorbars during setup and drops into the VBI of program feed when the bars are dropped • Stereo 1000Hz audio tone • 2 blackburst outputs • 1 SMPTE bar output without ID • 1 3/4" H x 19" W x 16" D • Rackmount • 117VAC

CB2440 \$3695.00

7700 Portable Colorbar/Blackburst Generator With ID

• Fully self-contained split-field colorbar generator featuring an 8-character DIP switch programmable ID • Can operate for more than 14 hours from 8 internal double-A alkaline batteries or will accept an external 9-15VDC • Flip-top case allows quick access to the batteries and ID switches • Can toggle between colorbars or blackburst at the touch of a switch • Also provided is a 1000Hz tone generator

7700 \$1395.00

2048 Message Generator

• Message generator with front panel LCD 2-line readout • Full system control via RS-232 port or keyboard • Uses AT type keyboard (not included) • Stores over 6300 characters in up to 99 messages, with a maximum individual message length of 255 characters • Sequences up to 10 messages • Automatic crawl of messages longer than the 24-character display window • Full user control of display placement on-screen • Relay bypassing on power-down • 1 3/4" H x 19" W x 12" D • Rackmount • 115VAC

2048 \$1995.00

2400 Video Identifier

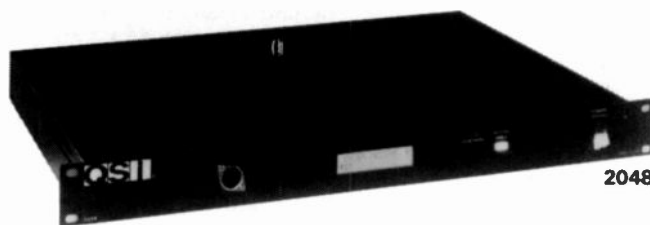
• 24-character video identifier • Designed for identifying satellite video uplinks, with 10-digit telephone point of contact programmable from front panel • 12 internally programmable alphanumeric characters for FCC license number and user identification and a 2-digit user number controlled from the front panel • ID appears in active picture area over user furnished video in setup mode • ID can be deleted or switched to the VBI during program transmission • 1 3/4" H x 19" W x 12" D • Rackmount • 117VAC

2400 \$1995.00

6331 Multiple ID

• RS-232 controlled • Microprocessor operated system produces independent IDs on 6 video sources • Each ID may consist of up to 31 characters per line and up to 3 lines of characters • Vertical position and size are individually adjustable • Requires computer/terminal or QSI 2048 for control • Relay bypass on each video channel on power-loss • 1 3/4" H x 19" W x 16" D • Rackmount • 117VAC

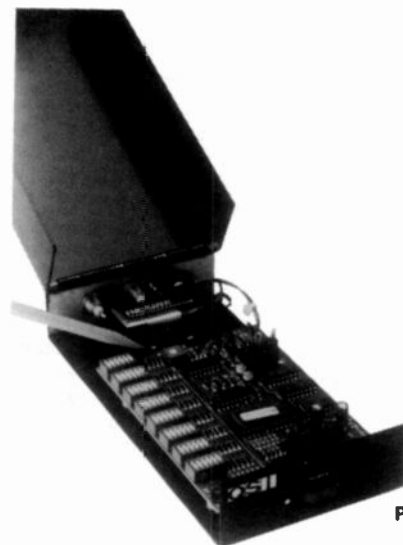
6331 TBA*



2048



2400



PCID-864

PCID-864 Portable Identifier

• Portable (ENG) camera identifier with 8 characters • Internal selection for active picture area or VBI display • 32-hour operation from 9V alkaline battery, or operates from external DC • Belt/pocket clip • Active area/vertical interval display • Lightweight flip-top case • External floating power supply 12-20VDC or 8-15VAC

PCID-864 \$625.00

VSID-24 Video Source Identifier

• Remote control of active/VBI display • Remote display delete • Remote display flash • 1 rack high • 1 to 24-character display • Field changeable characters • Digital vertical positioning • Display flashing or constant

VSID-24 \$1695.00

* To Be Announced

1500 Stereo Demodulator

• 155 channels in broadcast and CATV bands • Full system power-down memory • Fast channel change • Last tuned channel memories • Stereo, mono and SAP balanced audio • 2 RS-232 control modes • 1 rack high

1500\$1995.00



1500

2000 Stereo Demodulator/Processor

• 155 channels covering broadcast and CATV bands • Full sync, burst and blanking replacement • Stereo, mono and SAP balanced audio • Front panel phasing and SAP balanced controls • 2 RS-232 remote control modes • CCD Y/C separation with front panel chroma and luminance control • Fast pushbutton channel selection • Full system power-down memory • Last tuned channel memories • 1 rack high

2000\$3495.00



3000

3000 Safe Area Generator

• Generates 6 different safe area patterns (per SMPTE RP 27.3) plus 2 cross-hatch patterns over user's video • Front panel adjustable marker level, plus pushbutton pattern selection and marker delete • Relay bypassing on power-down • 1 3/4" H x 19" W x 12" D • Rackmount • 115VAC

3000\$995.00

3100 Portable Safe Area Generator

• Easy pushbutton selection of 4 built-in patterns, front panel pattern intensity adjustment from black to white, Hi-Z looping input and separate monitor output • Drawing only 80mA, operates for hours from most 10-15VDC battery systems found in field production, making it ideal for remote shoots • 1 4/5" H x 8" W x 5 3/8" D

3100\$695.00



3100

5400 Sync Processor

• Sync processor with full sync, burst and blanking replacement • Line-by-line selectable replacement in the VBI of either field • Front panel controls for video gain, burst gain, burst phase, horizontal phase and setup • Automatic bypass on loss of lock • 1 3/4" H x 19" W x 12" D • Rackmount • 115VAC

5400\$1995.00



VT-7

5700 Automatic Video Switchover

• Automatic video switchover switches to auxiliary source on program loss, low amplitude or excessive noise • Front panel indication of input and output states • Local/remote override to either program or auxiliary source • Adjustable hang and hold times • Adjustable noise and amplitude windows • Defeatable alarm on program loss • Relay bypass (program to output) on power-down • 1 3/4" H x 19" W x 12" D • Rackmount • 115VAC

5700\$1795.00

VT-7 Video Leader Countdown Generator

• 10-second video leader countdown generator • 7-segment character in 8 user selectable sizes or expanding incrementally in size as countdown progresses from 10 seconds to 2 seconds • 400Hz audio tone as each second passes, then 200Hz tone at 2-second mark • Rear panel remote • 1 3/4" H x 19" W x 12" D • Rackmount • 115VAC

VT-7.....\$1595.00

6100 Microwave AGC Meter

• Produces variable length, vertical interval single white line in response to microwave receiver's AGC output • Loop-through input picks up AGC flag • Selectable vertical interval flag line for multiple hops • 117VAC • 1 4/5" H x 8 1/2" W x 5 3/8" D

6100\$695.00

6X1 VDA Video Distribution Amplifier

• 1 in by 6 out utility video distribution amplifier with front panel controls for gain and equalization • Very transparent • Input is loopthrough • Gain is adjustable from less than unity to +10dB • Equalization for up to 1000' RG-59U • Output isolation 40dB • 2" H x 4 1/2" W x 4 1/2" D • Desktop enclosure • 117VAC

6X1 VDA\$350.00

COMPUTER PROMPTER SYSTEMS



QCP Mark I Computerprompter™ Program

• IBM PC, XT and AT compatibility • True variable-speed, bi-directional, smooth scrolling • 4 fonts: 2 full upper- and lowercase fonts as well as 2 all uppercase fonts • Proportional spacing—for the most easy-to-read prompter copy • Comprehensive Word Processor for text creation and last-minute changes. Highlights: Automatic Wrap, dynamic Insert and Delete Modes, Transfer Text, Search-for Text and more • Compatibility with any PC-DOS ASCII file. Use your own word processor and QCP Mark I will prompt the text by employing its unique "Convert" mode. Additionally, Convert enables you to prompt any ASCII file sent via telephone lines and other transmission schemes • Easy-to-understand menu of special functions, displaying such choices as: Character Size, All Upper-Or-Lower-Case, Eight Character and Background Colors, Position of Speaker Arrow and more • Unlimited use of Special Markers to pinpoint specific areas of text to jump to • Text Underlining and Coloration to highlight any section of script • Large selection of international characters. The QCP Mark I is multilingual, allowing you to prompt such languages as Spanish, French, German, Italian and Portuguese • Printing in 3 convenient formats. Also, with a single keystroke, the program will automatically paginate your text so that pages end only between sentences • Compatibility with both floppy and hard disk drive systems. Once "booted up," the entire QCP Mark I is loaded in and you may remove the program disk • Thorough PC-DOS disk functions, available without having to leave the program. They include: Format and Copy Disk, Copy, Erase and Rename File

QCP Mark I is an innovative computerprompter program offering multi-purpose applications. It fully answers today's prompting requirements in news, public speaking, commercials or corporate television.

The QCP Mark I Computerprompter program allows you to compose a prompter text on an IBM compatible computer. Crisp, clean letters are displayed on a monochrome or color prompter monitor giving a speaker exceptional legibility of prompter text.



QCP Mark I

QCP Mark I Includes:

- 1 QCP Mark I Computer Software Program
- 1 Pro Sentinel
- 1 VGA Card with 256 RAM-Composite Out
- 1 Variable Speed Script Control
- 1 Instruction Manual \$4975.00

VPS-500 II Computerprompter

• Word processing • Clear, crisp copy • Quick access to all copy • Memory up to 1 hour, 45 minutes • Optional printer for hard copy • Smooth scrolling • Variable speed control • Various colors, underlining • Positive or negative display

The VPS-500 II is a fully self-contained program, written entirely in super fast machine code. It sets up, automatically, in 25 seconds flat. Everything you'll need to do your work is stored right inside the computer.

The VPS-500 II creates, edits, saves, erases and prompts to an astounding 1 hour and 45 minutes.

What's more, it can assemble as many as 32 separate text files for prompting. Plus keep you informed of where they are with an easy-to-read run order list.

You can also highlight points and separate speakers with 10 color combinations and a handy underlining feature.

The VPS-500 II can provide you with immediate hard copy printouts of your prompter text, complete with emphasis and underlining indications. And, in 3 convenient styles: Prompt, Script, Draft.



VPS-500 II

VPS-500 II Includes:

- 1 Computer Keyboard
- 1 Disk Drive
- 1 VPS-500 II Computer Software Program
- 1 Variable Speed Script Control
- 1 Interconnecting Cable
- 1 Instruction Manual
- 1 IBM Download Software and Cable
- 1 Equipment Case \$4200.00

Orion SE Teleproduction Titling Systems

• Anti-aliased characters • 5ns effective resolution • Real time operation • 256 levels of transparency • 30M byte hard drive • 72 anti-aliased fonts standard • Disk-loadable fonts • Font caching • On-screen status display • Full page directories • Keyboard macros • Adjustable safe title area indicators • International character sets with accents • Automatic page sequences • On-air functions suited for live broadcast • Character overstrike • Reveal by character, word or row • 16.7 million colors • Color spreads • Rolls, multi-line crawls, reveals, flash—all at 99 speeds • Fade with user-defined rate • Built-in downstream linear keyer • Broadcast quality encoder • Y/C output standard (S-Video) • Linear key output standard • Built-in sync generator • Keyboard controlled horizontal and subcarrier phase adjustment • Clock with count up/down • Custom engraved keyboard • 500K bytes of RAM memory—expandable to 2M bytes • 32-bit central processor • Adjustable tabs and tab position indicators • Pages stored on hard disk or floppy • NTSC, PAL, PAL-M • Proprietary hardware including custom integrated circuits

ORISE-SF \$15,995.00

ORISE-SF/FEC With Logo Capture (ORISE-LC), Page Effects (ORISE-EFX), Fontmaker (ORISE-FM) and 500K byte RAM memory upgrade (ORI-RAM) 18,995.00

Options

ORISE-LC Monochrome Logo Capture, includes plug-in board and firmware. Requires ORI-RAM, 500K byte RAM memory upgrade \$2,095.00

ORISE-CVA Component video adaptor RGB or YUV (Y, R-Y, B-Y) video output adaptor board 595.00

ORISE-FM Fontmaker for user definition of font attributes from master typefaces using the Orion system off-line to render the typeface variations for addition to your standard Orion library of anti-aliased fonts. Includes 6 standard Orion typeface styles in high-resolution vector format. Requires ORISE-RAM \$1,350.00

ORISE-EFX Page Effects, dynamic, real time page transitions including horizontal and vertical wipe, pushes, tumbles, flips, rotations, climb, fall and sparkle 850.00

ORISE-RAM RAM memory upgrade, 500K byte. Required for Logo Capture (ORISE-LC) and Fontmaker (ORISE-FM) options 450.00



Orion SE

ORISE-FD Factory installed second disk drive, 3.5", 1.4M byte, floppy disk drive installed at factory at time of initial shipment \$695.00

ORI-RKA Remote keyboard adaptor for remote operation of single keyboard up to 1000' from chassis. Includes 100' of cable and rackmount ears (1 R.U.). For longer cable order ORI-RKACC. Note: Maximum of 1 local and 1 remote keyboard per system unit. \$1,295.00

ORI-RKACC Remote keyboard adaptor custom cable. Length up to 1000'. Allows ORI-RKA to be up to 1000' from chassis. ft./1.00

ORISE-KBD Additional remote keyboard, English standard. . .495.00

LCK-ORI International language keycap conversion kit. Keycaps and keycap changing tool 250.00

Delta Series Text and Image Generators

• 32-bit frame buffer(s) with 4:4:4 processing throughout • Sync/genlock/encoder, provides RGB, encoded and key outputs • Internal linear downstream keyer/fader • 3-button mouse • Single 3.5" high density floppy disk drive • 4M byte central processing unit. Expandable to 64M byte • Heavy-duty power supply • 7 high backplane ensures room for future hardware options • 40M byte internal hard disk drive • Proprietary digital ASIC compositors • Rackmountable chassis with integral rack ears (6 R.U.) • Local keyboard, English (standard), max. length 6' • Installation and operation manual • Optional integrated networking connection for Delta-to-Delta communications • Optional upgrades allow easy expansion to a Delta SX within the same chassis • 5 standard Delta master typefaces included in all models: American Typewriter, Bauhaus Medium, Bookman Medium, Futura Medium, New Helvetica Medium

DELTA LE Fully compatible with all Delta pages and images. The single output channel provides RGB or YUV outputs, encoded and key signals along with an internal downstream keyer. Will not support Logo Compose or Video Touch Up options \$29,995.00

DELTA LX Incorporates all the features of the Delta LE with the inclusion of next page buffering for wipes, pushes and dissolves between pages. Will not support Logo Compose or Video Touch Up options. \$34,995.00

DELTA SE Full featured dual channel/single user Delta with digital composite options between Preview and Program channels. Allows both channels to be digitally composited. Comes with 4M byte additional RAM for 8M byte RAM total and 10 additional typefaces. Supports all options \$44,995.00



Delta

DELTA SX Incorporates all the features of the Delta SE with the following enhancements: DLT-CC Delta analog RGBA camera capture, 12M byte total central processing unit RAM memory, 160M byte hard disk drive, DLT-LC Delta Logo Compose software \$54,995.00

TELEPRODUCTION TITLERS



QCG-38 Teleproduction Titling Generator

- Resolution of 25ns at 32 scan lines
- Instant sizing—8 to 64 scan line heights plus incremental extend/condense for both resident face styles—keyboard accessed
- 512 colors—easy RGB palette selection of background and character colors
- True proportional spacing—upper and lower case, 2 faces
- Edge selection—full surround border, 8 colors row selectable per page
- Easy edit—real time composition and editing capability—Quanta's exclusive text editing package
- Roll—260 rows, 9 speeds plus pause, edit in roll compose, roll to fixed title
- Crawl—260 rows, 9 speeds plus pause, edit in crawl compose
- Automatic page sequencing—random or sequential, date/time generator for real time sequences—dwell time selectable 1/4 to 99 seconds per page
- Manual page sequencing—random or sequential, forward or reverse, 0 second dwell time
- Built-in 3 1/2" disk drive—400 pages—second drive optional
- Built-in full terminal complement—sync/genlock RS-170, NTSC or PAL encoder full studio timing
- Graphic blocks/graphic separators—variable size and color
- Real time clock and date generator
- Full battery backup
- RS-232 data I/O port—optional
- Real time professional teleproduction titling system for use in broadcast or non-broadcast applications



QCG-38

Fully self-contained, the QCG-38 provides for either stand-alone operation or may be integrated into a full television production studio. The proportionally spaced typeface styles provide over 40 resident fonts per face style instantly on-line with Quanta's exclusive instant sizing. Ease of operation, real time functions and dependability make the QCG-38 a versatile, multi-feature low-cost character generator.

QCG-38/DD/RS Dual disk drives \$6,995.00

Note: The QCG-38 series is available with French, French QWERTY, German-Nordic, or Spanish-Portuguese keyboards.

QCG-500 Professional Teleproduction Graphics and Titling System

- Rackmount electronics chassis
- Single scanline FONT-FLEX™ instant sizing in single scan line increments
- 16.7 million color palette
- Styles at 64 and 32 scanlines
- Color menu allows positive color matching and key-in of RGB values
- Rackmount kit and slides
- Easy edit
- Built-in sync/genlock and encoder
- Full studio timing for simple system integration
- Base resolution of 29ns
- Single 3 1/2" disk drive
- Optional second disk drive
- 28 face library disk
- Remote keyboard
- NTSC or PAL

The QCG-500 is a fully disk loadable, broadcast quality character generator and graphics system designed for cost effective teleproduction titling and text efficiency.

A powerful software intensive system, the QCG-500 offers real time speed and convenience. No slow, time consuming menu selections are required—all functions are immediately accessible from the keyboard and happen as the operator commands them.

A low profile remote keyboard accesses the rackmounted electronics with built-in 3 1/2" disk. The entire electronics chassis requires only 7" of vertical rack space.

Graphics enhancement accessories provide for a full paint system and digital effects, all conveniently controlled from the QCG-500 tri-level keyboard permitting interaction between text, paint or effects operations.



QCG-500

QCG-500/DD Dual drives \$10,500.00

QCG-500/SD/IHD Single 3 1/2" disk drive and 20M byte hard disk with embedded SCSI. Includes program boot from hard disk \$11,500.00

QCG-500/DD/RGB Same as QCG-500/DD with one 3/4" rackmount, RGB/NTSC encoder \$12,500.00



ALL CHANNEL MESSAGE SYSTEM/ TELEPRODUCTION TITLERS

ACM-1 All Channel Message System

The All Channel Message (ACM) System greatly expands the viewer communication power of a cable television system. ACM can place a static or crawling video message over the normal programming of any or all channels, at any time. It can interrupt programs with full-page text messages. Messages can be the same or different. The ACM system consists of an IBM® AT compatible computer, with ACM software that controls 1 or more ACM headend "chassis." Each ACM chassis contains 4 channels of switching and messaging in a 1³/₄" standard rackmount configuration. Each channel contains 2 video inputs and can title over either input or act as a stand-alone character generator. Switching is stereo audio-follow-video. Each channel contains contact closure for external device control. System control is remotable.

- Multi-channel message display and switching for cable operators
- Syndex message and/or program switching
- Community emergency alert or preparedness
- Pay-per-view promotions on affiliated or selected channels—right up to show time
- Local sports scores, stock quotes, game results and graphic cable system I.D.s displayed on topical channels

ACM-1 Requires either DTU-10M or DTU-10C.
System control can be remotable . . . \$3300.00



ACM-1

DTU-10M Data Transfer Unit

Desktop IBM AT compatible computer, 19" rackmount chassis, separate keyboard, monochrome monitor, 640K RAM, 1.44M byte floppy 3¹/₂" drive, 30M byte hard drive, printer port for ACM control. Includes ACM-DTU software for switching schedules, text generation, video screen modes, event logs and external machine control commands. Will control up to 31 ACM chassis or 124 channels . . . \$3995.00



QCG-34

DTU-10S Data Transfer Unit Software

ACM control with customer provided computer . . . \$2000.00



MG-100/PLUS

QCG-34 Teleproduction Titling Generator

Fully self-contained, the QCG-34 provides for either stand-alone operation or may be integrated into a full television production studio. The proportionally spaced typeface styles provide 48 sizes per face style instantly on-line with Quanta's exclusive instant sizing.

- Instant sizing—8 to 64 scan line heights plus incremental extend/condense for face styles—keyboard accessed
- 512 colors—easy RGB palette selection of background and character colors
- True proportional spacing—upper and lower case, 4 styles
- 48 sizes per face
- 25ns at 32 scan lines horizontal resolution
- Edge selection—full surround border, 8 colors row selectable per page
- Easy edit—real time composition and editing capability—Quanta's exclusive text editing package
- Roll—260 rows, 9 speeds plus pause, edit in roll compose, roll to fixed title
- Crawl—260 rows, 9 speeds plus pause, edit in crawl compose
- Automatic page sequencing—random or sequential, date/time generator for real time sequences—dwell time selectable 1/4 to 99 seconds per page
- Manual page sequencing—random or sequential, forward or reverse, 0 second dwell time
- Built-in 3¹/₂" disk drive—400 pages—second drive optional
- Built-in full terminal complement—sync/genlock RS-170, NTSC or PAL encoder full studio timing
- Graphic blocks/graphic separators—variable size and color
- Real time clock and date generator
- Full battery backup
- RS-232 data I/O port

QCG-34/SD/RS Single disk drive . . . \$5495.00
QCG-34/DD/RS Dual disk drive . . . \$5990.00

Options

DD-34/38 Second disk drive—customer installed . . . \$495.00
FD-3.5 10-pack of 3¹/₂" diskettes . . . \$150.00

Microgen MG-100/PLUS Teleproduction Titler

- 50ns horizontal resolution
- Self-contained chassis
- NTSC or PAL
- Sync/color lock
- 4 face styles, upper and lower case: Helvetica Medium with border, Rockwell Bold with border, Souvenir Light with border, Serpentine Bold with shadow
- 49-page RAM with battery backup
- Automatic page sequencing
- Full range of editing and display functions
- Roll and crawl at 9 speeds
- Complete system flexibility—upstream or downstream
- 256-color palette capability for row by row colorizing of characters or background
- Dual channel capability
- RS-232 data I/O port
- Dimensions: 4¹/₄" H x 15³/₄" W x 14³/₄" D

MG-100/PLUS-S/RS Single-channel RS-232 data I/O port . . . \$2995.00
MG-100/PLUS-D/RS Dual-channel RS-232 . . . \$3995.00

SPEAKERS/AMPLIFIERS



COMPACT HIGH POWER SPEAKER SERIES

WS-A10 Compact Speaker

- Heat resistant voice coil • 4³/₄" driver • Built-in magnetic shield
- Built-in thermal protection circuit • Heavy-duty construction • Multiple mounting possibilities • Input terminals • Power capacity: 80W
- Sensitivity: 88dB (1W/1m) • Amplitude response: 80Hz to 16kHz (-10dB) • White (WS-A10W) or black finish • Sold only in pairs

Applications for the WS-A10 include small-speaker monitoring in recording studios, on-stage keyboard and personal monitoring, distributed music systems, audio for video monitoring and many others.

WS-A10each/\$120.00

WS-A70 Compact Speaker

- 2-way design • Maximum input power: 160W • Momentary peak input: 400W • Auto gain control built-in • Constant-directional Twin Bessel Horn (120° x 120°) • Anti-magnetic design • 8" woofer • Heat resistant voice coil • White (WS-A70W) or black finish

WS-A70 \$240.00

WS-A80 Compact Speaker

- 2-way design • 8" low frequency driver • Consistent and reliable under conditions of very high input power • Constant directivity Twin Bessel Horn • Thermal protection circuit • Heavy-duty construction • Multiple mounting possibilities • Power capacity: 80W • Crossover frequency: 2.5kHz • White (WS-A80W) or black finish

Housed in a virtually indestructible molded cabinet for portable service and multiple mounting provisions, the WS-A80 is an ideal system for the working musician. Applications for the WS-A80 include on-stage monitoring, vocal PA reinforcement, distributed music systems.

WS-A80 \$280.00

WS-A200/WS-A240 Compact Speaker System

- 2-way design • Maximum input power: 250W • 12" woofer(s) • Constant-directional Twin Bessel Horn (60° x 40°) • Frequency range: 70Hz to 20kHz • 1-piece molded plastic enclosures • Unique stacking structure • White (WS-A200W/WS-A240W) or black finish

The Twin Bessel Horn features accurate control of horizontal and vertical directivity. The improved design of the open end horn reduces reflection and adds greater uniformity in regard to sound direction. This horn offers flexibility and adaptability to the use of the speaker in either the horizontal or vertical direction.

The WS-A240/WS-SP2 subwoofer system extends the low frequency response curve to 35Hz for greater impact in the bass frequencies.

WS-A200 \$590.00

WS-A240 Compact subwoofer speaker, black finish, requires WS-SP2 \$510.00

WS-SP2A Subwoofer processor (required for WS-A240) \$275.00

MODULAR SPEAKER SYSTEM

WS-A500/WS-A550 Speaker Systems

WS-A500 Modular 2-Way Mid-High Frequency

Speaker System Component

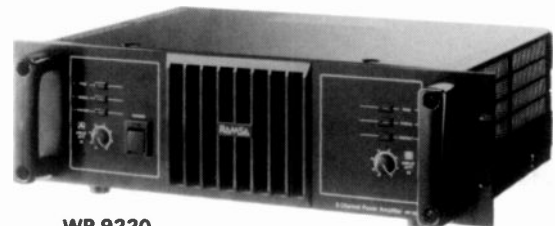
- Frequency Range: 100Hz to 20kHz • Pressure Sensitivity: 99dB, 2.83V, 3.3' • Nominal Impedance: 8 ohms • Power Capacity: 200W (continuous program); 100W (EIA RS-426-A) • Nominal Coverage: 60° (horizontal) x 40° (vertical) • Components: MF transducer: 12" dynamic; HF transducer: 1.75" dynamic; compression driver; titanium diaphragm; 60° x 40° Twin Bessel wave guide • Crossover: -6dB at 1.5kHz, 12dB/octave; acoustic outputs sum coherently in amplitude and phase within nominal system coverage; transducer over-current protection • Inputs (2): Dual (parallel-wired) 4-pin Neutrik Speakon™; Full-range: Pins 1+, 1-; Bi-amp: MF; Pins 1+, 1-; HF; 2+, 2- • Operating Mode Selector: Full-range; bi-amp: rear panel-mounted 2-position switch; 6 poles, 30A contacts; DC blocking for HF driver in bi-amp mode • Dimensions: 21⁵/₁₆" H x 15⁹/₁₆" W x 10³/₄" D • Weight: 38.5 lbs.



WS-A10



WS-A70



WP-9220

WS-A550 Modular Low Frequency

Speaker System Component

- Frequency Range: 30Hz to 100Hz • Pressure Sensitivity (half space): 91dB, 2.83V, 3.3' • Nominal Impedance: 8 ohms • Power Capacity: 400W (EIA RS-426-A) • Volume Displacement: 0.021'; equivalent to 125dB at 100Hz at 1m • Reference Efficiency: 0.83% (half space) • Component: 12" dynamic • Inputs (2): Dual (parallel-wired) 4-pin Neutrik Speakon LF+: 1-; LF-: 2- • Dimensions: 21⁵/₁₆" H x 15⁹/₁₆" W x 10³/₄" D • Weight: 36 lbs.

Note: Typical system would use 2 WS-A500s and from 4 to 8 WS-A550s. Models WS-A500 and WS-A550 are meant to be components of a system and are not meant to be used separately.

WS-A500 Gray or white finish \$1300.00

WS-A550 Gray or white finish \$680.00

Speaker Accessories

WS-AQ1W Speaker wall mount for WS-A500, WS-A550, WS-A200, WS-A240, WS-A80 and WS-A70 pair/\$170.00

WS-AQ2C Speaker ceiling mount for WS-A500, WS-A550, WS-A200, WS-A240, WS-A80 and WS-A70 pair/150.00

WS-AQ2W Speaker wall mount for WS-A10 pair/70.00

WS-AQ3C Speaker ceiling mount for WS-A10 pair/40.00

WS-AQ124 Lean-back stand for WS-A500, WS-A200 and WS-A80 \$20.00

W2-SA14 Flexible speaker mount for WS-A10 pair/150.00

W2-SA15 Mic stand speaker mount for WS-A10 \$35.00

POWER AMPLIFIERS

WP-9055/WP-9110/WP-9220/WP-9440

Power Amplifiers

- Balanced inputs • Precision input attenuators • Built-in and remote status monitoring • Multiple amplifier protection systems • Stereo/mono/bridge • Frequency response: 20Hz to 20kHz (± 0.5dB) • High slew rate • Controlled rise time • No transient intermodulation distortion • Dual voltage design • Wattage ratings at 8 ohms

WP-9055 2 x 50W, 1.75" rack space \$ 540.00

WP-9110 2 x 100W, 3.5" rack space \$699.00

WP-9220 2 x 200W, 5.25" rack space \$899.00

WP-9440 2 x 400W, 5.25" rack space \$1810.00

RECORDING AND SOUND REINFORCEMENT MIXERS

WR-8112/WR-8118

Sound Reinforcement/Recording Consoles

• PA mixer, use with up to 18 microphone and line signal inputs • 48V phantom power • Pushbutton tape input accommodation easily handles multichannel recording, overdubbing and mixdown • 3-band equalization section on each input for high, mid-range and low frequencies • Diverse metering capabilities with 12-point LED bargraph meters • Sweepable peak-dip mid-range controls • Lightweight, compact design • 4 group, 2 master and 1 mono master outputs

WR-8112 12 x 4 x 2 x 1 \$3,290.00
WR-8118 18 x 4 x 2 x 1 3,990.00

WR-8210A Recording Console

• 10 inputs, 4 group outputs for versatile multitrack recording applications • 48V phantom power • Left and right stereo outputs, 10 tape recorder sub-mix inputs • 4 LED peak reading meters • Direct outputs and access points on inputs • Stereo effects returns, group outputs and monitor controls are simple to operate • Sub-in section for tape or echo monitoring during recording and overdubbing

WR-8210A \$2,550.00

SPECIAL APPLICATION MIXER

WR-450 6 x 2 Rackmountable Audio Mixer

• Excellent mate for Panasonic video equipment • Each input has a low cut filter to help minimize low frequency noises • Monitor circuitry can also be used for studio talk-back purposes • 6 sliding fader controls mix low or high level input sources • Phono input adds RIAA equalization and can be used with mono or stereo cartridges • VU meters track the overall volume level • Unit has a monitor amplifier and front panel speaker • Completely solid-state and fits standard 19" EIA racks • Use with all mini-studio systems and microphones • 15.4 lbs.

WR-450 \$800.00

THEATER MIXING CONSOLES

WR-C900 Series Modular Mixing Consoles

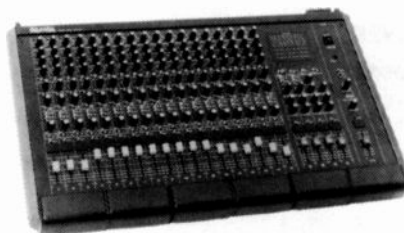
• Available in 2 compact frame sizes • Mono, stereo and submix inputs • Up to 24 matrix outputs • True Left-Center-Right panning • Pricing varies depending on frame size and modules selected • 64dB trim range • Back-grounded switches • Unity gain buffer, 6dB greater margin of stability

WR-C916SC	Small size mainframe*, SC type (16-channel frame A)	\$16,200.00
WR-C924SC	Large size mainframe*, SC type (24-channel frame A)	16,900.00
WR-C916SR	Small size mainframe*, SR type (16-channel frame B)	16,200.00
WR-C924SR	Large size mainframe*, SR type (24-channel frame B)	16,900.00

Optional Modules and Power Supply

WU-C901	Mono mic/line input module	\$2,100.00
WU-C902	Submix input module	2,300.00
WU-C904	Stereo input module	2,900.00
WU-C908	Matrix output module SC type	1,350.00
WU-C909	Matrix output module SR type	1,850.00
WU-BP901	Module blank panel (function space) for SC type	70.00
WU-BP902	Fader space blank panel for SC type (2 modules wide)	70.00
WU-BP903	Fader space blank panel for SC type (1 module wide)	60.00
UBP9000101	Module blank panel (full module size) for SR type	100.00
WU-PS80A	Power supply*	1,600.00

*Each mainframe includes (1) group/aux module, (1) master monitor module and (1) power supply (WU-PS80A). Power supply is listed separately so that a spare can be purchased if desired.



WR-8118



WR-8210A



WR-450

POST PRODUCTION MIXING CONSOLES

WR-8616 Post Production/Recording Console

• 16 x 4 x 2 x 1 • Left and right stereo outputs, XFMR balanced • Phantom mic power, at each input 48V • Meets broadcast configuration standards • Remote start-stop control for cart machines, turntables, etc. • Extensive metering facilities, 8 Gan-Graph 6 VU meters • Modular construction • Variety of modules to choose from

WR-8616 includes four standard modules (WU-8103 x 2, WU-8104, WU-8105) and separate power supply (WU-8083). Optional modules are the WU-8101, WU-8102, WU-8106 and WU-8107. . . . \$5,530.00

WU-8101	Mono mic/line input	280.00
WU-8102	Tape monitor group output	275.00
WU-8103	Master output	275.00
WU-8104	Monitor output	290.00
WU-8105	Talk-back/oscillator	170.00
WU-8106	Stereo line input	310.00
WU-8107	Basic group output	190.00
WU-8091	Blank	45.00
WU-8083	Power supply	725.00

RECORDING MIXING CONSOLES

WR-T820B Recording Console

• Extensive metering capabilities • 20 inputs and capable of 8-track and 16-track recording • Ability to simultaneously mix incoming signals with tape playback signals during overdubbing • Pushbutton selection of electronically balanced mic, line or unbalanced tape signals • 48V phantom power switchable for each channel • Mono-solo monitoring on output signals • Built-in talk-back • Oscillator

WR-T820B \$8,950.00

MIXER STANDS

WU-Z300	Mixer stand side bars for WR-8616/T820B (requires WU-Z316)	\$370.00
WU-Z316	Mixer stand cross bar for WR-8616/T820B (requires WU-Z300)	148.00

AUDIO MIXING CONSOLES/MIXERS



SOUND REINFORCEMENT MIXING CONSOLES

WR-S852/WR-S840F House and Stage Mixing Console

• House mixing configuration: WR-S852 • Stage mixing configuration: WR-S840F • Extensive RF protection • Matsushita Resistive Plastic (MRP) faders and input attenuators • Module design allows for variety of configurations • Each input features 4-band EQ, variable HP filter, phantom power, PFL, channel-on switch, more • 40 inputs • 8 bus outputs • Many modules to choose from

Standard Modules:

WU-S84 group output module; WU-S85 master output module; WU-S86 effect return module; WU-S87 monitor module; WU-S88 talk-back/oscillator module

WR-S840F 40 input 8 bus stage mixing console. Mainframe, includes 5 standard modules (WU-S84 x 8, WU-S85 x 2, WR-S86 x 2, WU-S87, WU-S88) and WU-PS80A power supply \$38,500.00

WR-S852 40 input 8 bus house console. Includes 5 standard modules (WU-S84 x 8, WU-S85 x 2, WR-S86 x 2, WU-S87, WU-S88) and WU-PS80A power supply \$36,300.00

Optional Modules and Power Supply

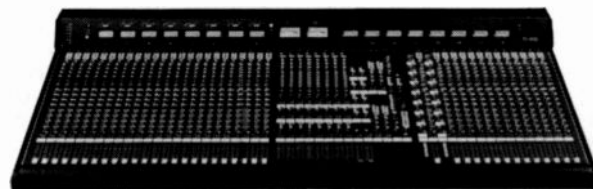
WU-S81 Mono mic/line input module \$ 585.00

WU-S82 Sub input module (2 modules wide) . . . 1,665.00

WU-S83 Monitor input module for stage monitor console 665.00

WU-S89 Blank module 70.00

WU-PS80A Power supply 1,600.00



WR-S840F



WR-S208



WR-133



WR-M10A

SOUND REINFORCEMENT MIXERS

WR-S208/WR-S212/WR-S216 Stereo Mixers

• 2 channels on each console have stereo inputs on both line and phono/recorder inputs • With the exception of the 2 inputs, all inputs are mono, electronically balanced mic/line inputs • Each model offers 3 send circuits; a pre-fader monitor foldback circuit; a post-fader effect send and a switchable pre/post-fader send for foldback monitoring of effects • 48V phantom power • Peak indicators • Solo buttons allow monitoring each channel individually • 60mm faders standard on input channels

WR-S208 2 stereo, 8 mono mic/line inputs \$1,750.00

WR-S212 2 stereo, 12 mono mic/line inputs 2,450.00

WR-S216 2 stereo, 16 mono mic/line inputs 2,850.00

WR-Q208 Rackmount adaptor for WR-S208 90.00

WR-133 Portable 8 Input/2 Output Audio Mixer

• High quality performance characteristics—extended frequency response, wide dynamic range and noise-free performance • Switchable remote broadcasts, recording or sound reinforcement modes • Can be connected to cue to echo effect unit through pre-mix outputs, and to echo effect unit through from echo and to echo • Peak-level LED indicators • 2 VU meters • Frequency response: 20Hz to 20,000Hz • Rugged construction • Rackmountable

WR-133 \$1,290.00

WR-Q51 Rackmount adaptor 87.00

WR-M10A Multiple Source Stereo Mixer

• 4 mono input circuits • 6 stereo input circuits • 2 stereo phono input circuits • I/O connector panel can be moved to the rear, top, or bottom surface • Rackmount angle fittings allow installation flexibility • Can be mounted on a standard 19" EIA rack or a wall surface • Can also be flush-mounted in the wall or on a tabletop • Main output frequency response (with output transformer): 30Hz to 20kHz, +0.5dB, -2dB • THD: 0.3% max. (+ 18dB output, 50Hz to 15kHz, main output)

WR-M10A \$900.00



DAT RECORDERS/ MICROPHONES

DIGITAL AUDIO PRODUCTS

SV-255 Portable Digital Audio Tape Recorder

• High quality • 1³/₄" H x 9" W x 5³/₈" D front to back • 3.2 lbs. • ADC digital filtering • AD converter • 64X oversampling • 48kHz recording • 44.1kHz/48kHz playback • 2.2 hour continuous recording/playback with rechargeable battery • Stereo/mono/mic LIM selector • Heavy-duty construction • XLR type mic/line inputs • 32-step random access programming • 2-way power supply accepts AC and rechargeable battery • High speed search that is 60X faster than standard record/playback rate • Automatic music track number recording • Wide range level meters with peak hold • LCD display shows track number in play, next track number, tape counter/program step, inter-track detection level, battery indication • Digital output terminal • Direct access and skip search • End search. The last recorded position is automatically detected by pressing the end search key • Auto recording mute • Easy-to-operate L/R independent rec level control • Headphone jack with level control

Standard Accessories

• Rechargeable battery pack (6V, 2AH) • Battery recharger and AC adaptor (grounded primary cord; 3-pronged secondary cord) • Carrying case and carrying strap • Digital output cable

SV-255	.....	\$2700.00
SH-DTA250	AC adaptor with battery charger	180.00
SH-DTB250	Battery pack, 6VDC, 2AH	60.00
SH-DTR250	Battery charger adaptor for SH-DTB250	70.00
SH-MC2	DC adaptor	140.00

SV-3700 PRO-DAT Recorder

• Front-panel shuttle wheel • 0.5-15X speed range • IR remote control • 4 stage, 1-bit Delta-Sigma A-to-D converters • Horizontal cassette tray • Program, absolute and time-remaining displays • Pushbutton selection of 44 1/4kHz sampling rates via either analog or digital inputs • Pushbutton fade-in and fade-out functions • Balanced inputs and outputs via XL-type connector with choice of -10dBu or +4dBm output levels • Up to 400X fast forward/rewind and search speeds to provide high speed access to any point on a 2-hour DAT tape within 27 seconds

SV-3700	.....	\$1599.00
SSE-44	Wired remote control	POR*

SV-3900 PRO-DAT Recorder

• External computer or remote control of all transport functions • 9-pin serial port can be switched to follow ES-Bus or P-2 protocols • Compatible with all editing controllers and automation systems • Full-function remote controller features a standard keypad for entering PND and Start IDs, plus all transport controls and a shuttle wheel with a speed range from 0.5X-15X play speed • A single controller can also be assigned via the keypad to address any 1 of 32 different SV-3900 machines connected • AES/EBU-format and S/P DIF digital I/O ports that carry start and skip ID within the sub-code area • Horizontal cassette tray for convenient tape loading • Program, absolute and time-remaining displays • Pushbutton selection of 44 1/4kHz sampling rates via either analog or digital inputs • 4-stage, 1-bit Delta-Sigma A-to-D converters plus quad 18-bit D-to-A converters • Balanced inputs and outputs via XL-type connectors, with switchable -10/+4dBu output levels • Up to 400X fast-forward/rewind and search speed

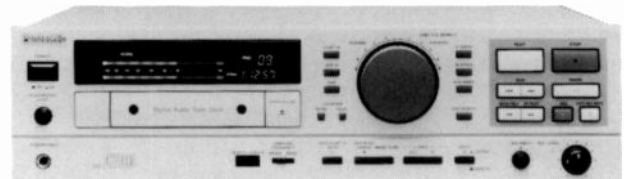
SV-3900	.....	\$2100.00
SH-MK390	Wired remote control	400.00

Digital Audio Tapes

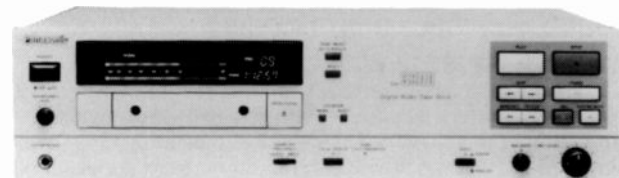
RT-R120P	Digital audio cassette tape, 120 minutes record and play	\$15.00
RT-R90P	Digital audio cassette tape, 90 minutes record and play	13.00
RT-R60P	Digital audio cassette tape, 60 minutes record and play	11.00
RT-RCLP	Cleaning tape for digital audio tape recorder	13.00



SV-255



SV-3700



SV-3900

WM-S1/WM-S2/WM-S5/WM-S10

Miniature Condenser Cardioid Microphones

• WM-S1 (50Hz-18kHz frequency response, 148dB maximum SPL) is specifically designed for use with cymbals and high-hats (with optional WM-Q01 mini-boom) and acoustic stringed instruments • WM-S2 (120Hz-15kHz frequency response, 138dB maximum SPL) is designed for brass instruments, toms and percussion • WM-S5 (70Hz-16kHz frequency response 158dB maximum SPL) is designed for use with tom and snare drums, percussion and brass instruments • WM-S10 (120Hz-15kHz frequency response, 138dB maximum SPL) is a headset-mounted microphone that allows hands-free vocals in addition to use with harmonica and flute • WM-Q01 Mini-Boom adapts to U5/8, W3/8, PF1/2 stands, is adjustable 13³/₄"-28¹/₂" • Balanced outputs (XLR connector)

WM-S1	High SPL (phantom powered only)	\$210.00
WM-S2	Batteries or phantom powered	170.00
WM-S5	High SPL (batteries or phantom powered)	280.00
WM-S10	Headset mic (batteries or phantom powered)	220.00
WM-Q01	Telescoping mini-boom (for WM-S1, WM-S2 and WM-S5)	60.00

*Price On Request

PRODUCTION SWITCHERS



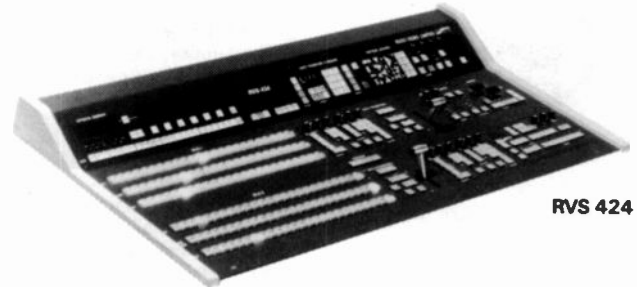
RVS 424 Production Switcher

- 24 inputs • Complete switcher set-up storage • Rotary and matrix wipe patterns • Linear keys • RGB, component and encoded chroma keys • Stores up to 50 complete effects set-ups. Separate control of MLE1, MLE2 and downstream keyer • Storage of memory and personality on 3.5" diskettes • Main panel controls assignable to four fully timed buses • Five independent auto transitions (six with DSK) • Modify button • Two completely independent pattern generators. Four user assignable buttons have access to a library of additional patterns. Pattern edges and colored borders can be hard or soft. Rate-controlled positioner gives smooth pattern movement • 12 mask generators • Either RGB or component chroma key is available for each MLE

Options

- Editor serial interface • Extended effects memory system • RGB/component chroma keyer • Chroma key switcher • Linear key border generator • Rotary, star wipe and pointer generator • Matrix wipe generator • Auxiliary buses • Safe title area generator • Redundant power supply

M424-001 \$39,950.00



RVS 424

RVS 416 Production Switcher

- Two 4-bus Multi-Level Effects (MLE) systems permit manipulation of eight sources simultaneously • Transition preview system enables the operator to see every effect or wipe before taking it, even with the switcher on the air • Program/preset buses • Six separate matte generators provide color for wipe borders, title matte and background • Expanded GPI interface function means that any editor with GPI has access to all auto transition starts as well as several of the switcher memory modes • Modify button allows the user to select many alternate modes of operation and to access useful operator aids and diagnostic routines from the control panel without the need for a separate configuration device • Video output pulse processor has sync and burst replacement • Preset black permits a two stage transition starting with the present source followed by a fade-to-black, then to the next source selected on the preset bus • Five independent auto transition units, programmable from 1 to 999 frames • Master fade-to-black • Non-sync inhibit detects non-synchronous sources and inhibits keys, wipes or dissolves, and substitutes a cut at the end of the transition. Non-sync LEDs indicate the presence of a non-synchronous source • Two independent pattern generators controlled by pushbutton selector • Wipe limit is available to stop the auto transition of any pattern at a pre-determined size • Keyer 1 features video or matte fill, internal, external or split screen key, optional RGB and encoded chroma key, key invert and key mask • Keyer 2 features video or matte fill, internal, external or character generator key, optional border controls and independent auto transition and cut buttons for additions without leaving the MLE control group • Key over enables selection of key 1 over key 2 or key 2 over key 1 within each of the MLE systems • Key memory permits key 1 and key 2 to "remember" key and softness levels, fill source, borders, mask parameters, etc., for each source on the keyer

Options

- Editor serial interface • Event memory • Pulse regenerator • Linear key border generators • RGB/encoded chroma keys • Rotary, star wipe and pointer generators • Matrix wipe generators

M416-001 Video production switcher, operator, technical and installation manuals, extender board, connector kit, mask generator on MLE1 and MLE2 10m cable \$29,950.00

RVS 210A/216A Production Switchers

- Three bus Multi-Level Effects (MLE) system lets you change foregrounds, backgrounds and titles without ever locking up the switcher • Transition Preview system enables you to see every effect or wipe before you take it, even with the switcher on the air • The Program and Preset buses operate in a flip/flop manner after a transition • Independent auto transition for fade-to-black with post-fade preview system. The fade can be stopped and reversed • GPI inputs can start each of the three auto transitions. A fourth input can be assigned from the panel to control any one of the three • Three matte generators provide color for MLE key and wipe borders, downstream key and background input • All keyers offer video or matte fill, key invert and key masking using the pattern generator • Key Memory. Both keyers "remember" key level and softness, fill, borders, etc., for each source • Pulse processor inserts fresh sync and burst at switcher output for improved signal stability • Three completely independent auto transition units, programmable from 1 to 999 frames • Modify button gives access to a wide range of useful operational and diagnostic aids as well as many ways to "personalize" the switcher • Edit button selects serial input from editing system • 12 complete switcher set-ups can be stored and recalled including key levels, patterns, matte levels, transition information, etc. Shares the pattern selector controls • Offers 53 bordered wipe patterns providing excellent effects with the wide adjustment range of the colored soft border. Pattern positioning is very smooth, thanks to the rate-controlled pattern positioner

Options

- Linear key border generator • RGB chroma key • Event memory • Editor serial interface • Pulse regenerator • Combination RGB/encoded • Chroma keyer (216A only)

RVS 210A

M210A-001 Video Production Switcher, tabletop model including 10m control cable, operator, installation and technical manuals \$9,995.00

M210A-002 Same as above except in-desk model. . . \$9,995.00

RVS 216A

M216A-001 Video Production Switcher, tabletop model including 10m control cable, operator, installation and technical manuals \$11,950.00

M216A-002 Same as above except in-desk model . . \$11,950.00

RTS SYSTEMS

A Telex Communications Company

INTERCOM SYSTEM

TW Intercom System

- Over 25 different components and accessories
- Operates in full duplex mode, simultaneous talk and listen to and from each user station

- Up to 75 user stations can be employed
- Phase III circuitry permits 12V power operation, multi-channel selection, 10 mile range and balanced line operation



BP300 Belt Pack User Station
This lightweight user station provides 2-channel operation and may be used in portable, semi-portable and fixed position applications. \$312.00



BP325 Portable User Station
This new generation 2-channel unit features user programmable operational functions. It is a stereo/mono unit with program input and call light \$340.00



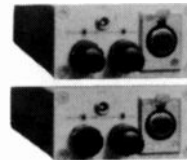
MRT327 User Station
This modular package, 2-channel station features call signaling and remote talk/off. It can be used in a portable or permanent application, as a headset or speaker station \$350.00



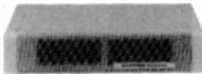
BP317 Portable User Station
This single channel belt pack is small, lightweight and easy to use with only 2 controls: headset volume and mic on/off \$195.00



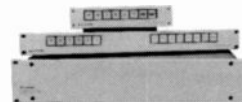
MCE325 Programmable User Station
This modular package station features user programming, 2- or 4-channel operation, headset or speaker operation, call signaling, 4-wire mode, IFB and more \$805.00



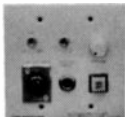
TWI222, TWI224 System Interfaces
These units are designed to provide the best possible coupling between the TW intercom system and other types of intercom and communications systems.
TWI222 \$597.00
TWI224 \$522.00



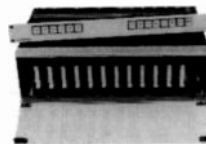
MCS325 Modular Speaker
This unique low profile loudspeaker serves as a matching package to the MRT327 and MCE325 User Stations. It can also be used with any other user station or as a program audio monitor \$128.00



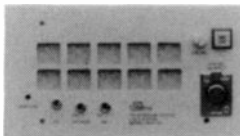
VIE306, VCP6A, VCP12A Station ISO System
These components provide control, switching and interface (4-wire or 2-wire) functions for private communications between 3 control stations and 6 user stations.
VIE306 \$3087.00
VCP6A \$1015.00
VCP12A \$1705.00



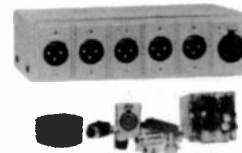
WM300 Wall Mount User Station
This 2-channel, headset user station fits into a 2-gang electrical box or can be installed in a desk top as a low profile console mount station . . \$394.00



CIF612, VCP12B Station ISO System
These components provide control, switching and interface (4-wire only) functions for private communications between 6 control stations and 12 user stations. *POR*



WMS300 Wall Mount Speaker Station
Designed to fit into a standard 4-gang electrical box, this station augments headset/handset operation with a loudspeaker for monitoring the line. \$590.00



TW5W Splitter
A completely passive 1 x 5 connector splitter assembly \$106.00
CPK62 Circuit Card Kit
A small-size user station plug-in circuit (CC62) is provided with all external controls and connectors. . . . \$139.00



SAP612 Source Align Panel
This multiple switch assembly assigns any 1 of 6 intercom channels and/or 2 program audio channels to 12 separate intercom 2-channel user stations \$750.00



SAP1626 Source Assignment
This multiple switch assembly assigns any 1 of 12 intercom channels and/or 3 program audio channels to 26 separate intercom 2-channel user stations. \$2950.00



PS15 Power Supply
A single PS15 (2 channels) can power 6 to 30 user stations, depending on model and combinations. Typically, a combination of 15 headset and speaker stations can be powered from a single PS15 \$350.00



PS31 Power Supply
A single PS31 can power approximately 30 user stations on any combination of 3 powered output channels. A program audio input can be added to any 1 of the 3 channels. . . . \$1175.00

*Price On Request

MASTER STATION INTERCOM

RTS SYSTEMS
A Telex Communications Company

SERIES 800

802 Master Station

The 802 Master Station is a sophisticated microprocessor-assisted intercommunications control station capable of providing 22 independent signal paths operating in up to 6 separate modes. It offers an array of features including intercom, squawk, IFB/SA, station-isolate and signaling. An intelligent combination of hardware and software programmability allows the user to conveniently structure an individualized operating format. The 802 does not require space consuming central electronics, yet it features a sensible front panel layout, unique momentary/latching action buttons, individual channel listen level controls, and stereo headset source assignment.

Microprocessor-Assisted

The 802 utilizes a powerful Z80 type microprocessor to control the selection and operation of multiple functions and capabilities. For example, front panel switch functions may be user programmed to meet changing needs and requirements, or electronic switching circuitry may be instantly reprogrammed. In fact, almost all circuitry and functions may be programmed for specific conditions. This refined firmware package offers immense capabilities via the standard EPROM. In addition, special firmware can be created for unique applications.

Smart Features

Each 802 can operate independently and may be employed as a single unit or used in multiples, depending on the application. A wide range of functions is incorporated into a single, compact rackmount package. Standard and optional features may be combined to configure each station to user specifications. These features include 2-wire conference-line intercom with separate talk/listen switching, 1-way announce/page functions, IFB (program interrupt), squawk address (dedicated-line intercom), station-isolate (video-iso), program monitoring and multi-source audio selection for mono or stereo headset. 6 programmable, non-committed relays can be activated by any 1 or combination of front panel switches.

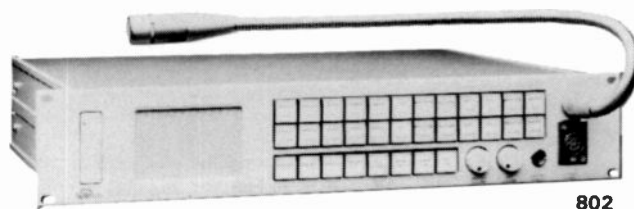
Programmable signaling circuitry (call lights) may be incorporated as an option for use in conference-line or dedicated-line operations. These call lights may be augmented by a chime signal. A memory circuit holds the flashing call signal for a predetermined time or until answered.

Each individual channel of the 802 can operate in either a 2- or 4-wire balanced line mode, making it easy to couple to external equipment such as other intercom systems, radiotelephones, telephone circuits and communications lines. Flexible design allows ample system accessibility through 19 circuit access ports.

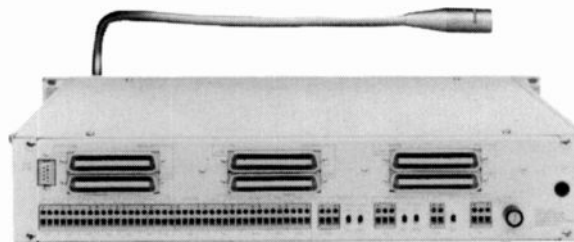
The 802 is completely self-contained, requiring no external electronics or other ancillary equipment.

Applications

The 802 is powerful and versatile enough for every intercommunications application. In the entertainment industry, teleproduction, broadcast and theater users appreciate the sensible controls, quick set-up and programmability. The 802's adaptability, non-volatile user memory and presets are perfect for industrial applications such as high level security operations, oil production communications, large scale research teams, aerospace command centers and airport control towers.



802



802 Rear Panel

All front panel switches have dual level illumination and large easy-to-read interchangeable legends. The switches also feature a unique momentary/latching action; the microprocessor continually senses the position of each switch and determines whether to make a temporary or permanent latch. As a result, every switch can operate in either a momentary or latching mode. Infrequently used controls are placed on a hidden yet easily accessible front panel pullout adjustment board. These controls include listen assignment switches for the stereo headset and loudspeaker, trim pots for individual channel listen levels, headset and panel microphone gains, and switch illumination intensity. The 802 is compatible with dynamic and carbon microphone headsets as well as "plantronics" type mini headsets. A front panel mounted gooseneck microphone may be used in conjunction with the loudspeaker for headset-free operation.

Options

802-A1	Option base	\$ 350.00
802-B3	Talk, channels 7-12	495.00
802-C2	4-wire receive, channels 1-6	315.00
802-C3	4-wire receive, channels 7-12	315.00
802-D2	Call signal, channels 1-6	315.00
802-D3	Call signal, channels 7-12	315.00
802-E1	Chime signal	100.00
802-F1	Squawk/dedicated address, 6 channels	575.00
802-F5	Squawk/dedicated address, additional 4 channels	560.00
802-G1	IFB/4001 emulate	275.00
802-G5	IFB/4002 emulate	275.00
802-H1	ISO/VCP6A emulate	185.00
802-H5	ISO/VCP12A emulate	185.00
802-FS	Master station field spare parts kit	1350.00
802-DS	Master station depot spare parts kit	1600.00
EPROMS	Master station updated software	250.00

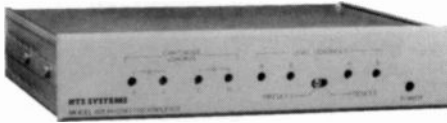
Note: Option A1 is required for options D, E, F, G, H.
Option E1 requires options D2 or D3.
Option F5 requires option F1.

RTS SYSTEMS

A Telex Communications Company

PROFESSIONAL AUDIO PRODUCTS

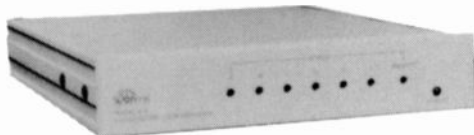
SERIES 400 PROFESSIONAL AUDIO PRODUCTS



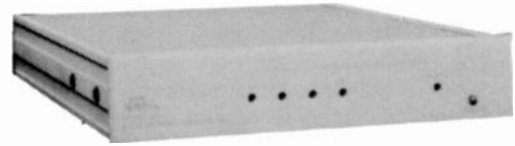
405 Professional Phono Preamplifier
High performance 2-channel phono preamplifier designed for use in demanding professional applications. It features adjustable cartridge termination, 2 selectable sets of level controls, 2 output formats and a switchable rumble filter \$470.00



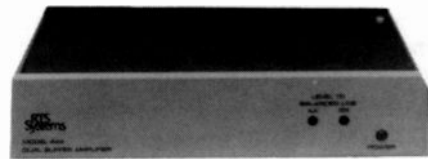
410 10W Modular Amplifier
Single-channel monophonic 10W audiopower amplifier designed to power loudspeakers and headphones. It offers a sensible, cost-effective, high-performance alternative to a 2-channel amplifier in almost all monophonic applications \$395.00



416 Distribution Amplifier
High performance 1 x 6 audio distribution amplifier with a single electronically-balanced input and 6 transformer-balanced outputs \$695.00



424 Distribution Amplifier
High performance 1 x 4 audio distribution amplifier with a single electronically-balanced input and 4 transformer balanced outputs \$485.00



444 Dual 2-Channel Buffer Amplifier
Dual 2-channel audio buffer amplifier designed especially to interface professional "balanced, line-level" equipment with various types of industrial semi-pro consumer high fidelity equipment \$395.00



465 Microphone Preamplifier
Single channel, wideband microphone preamplifier designed for professional use in broadcast operations, television production, sound reinforcement, commercial and industrial applications. \$535.00



Series 2500 Amplifier System

Consists of a series of high performance audio amplifiers and other associated circuitry items that are designed to be part of a versatile card frame system. Up to eight plug-in circuit cards and 2 power supplies can fit into the 3 rack unit frame.

Specifications common to 2500 Amplifiers are: + 28dBm into 600 ohm loads from 30Hz to 20kHz all outputs driven; + 32dBV maximum input level; SNR > 100dB; input CMRR typ 75dB at 50Hz; 4μsec rise time; maximum phase shift + 22.5° at 20Hz, -22.5° at 20kHz; output source impedances of 80 ohms or less.

2501 Card Frame Assembly

Consists of the basic card cage housing and related components: rear rackmount supports, strain relief bars, front cover, and interconnect housings and crimp terminals \$595.00

2503 Extender Card Assembly

Designed to allow any 1 of the 2500 amplifier circuit cards to extend out from the card frame for servicing or adjustment \$200.00

2505 Power Supply Assembly

Designed to work in the 2501 Card Frame assembly. It is a dual output unregulated power supply with nominal output voltages of ± 28V and a maximum output current of 2A. \$430.00

2510 1 x 6 Audio Distribution Amplifier

High-performance audio distribution amplifier with a single electronically-balanced input and 6 amplifier/transformer-balanced outputs \$565.00

2512 Stereo 1 x 6 Audio Distribution Amplifier

Can be used as a single 1 x 12 or a dual 1 x 6 distribution amplifier. Optional remote gain VCA circuitry is available. \$485.00

2514 Quad Line Amplifier

Can be used as 4 discrete amplifiers or 2 stereo pairs. Optional remote gain VCA circuitry is available. \$550.00

2516 Quad Buffer Amplifier

4-channel audio buffer amplifier designed especially to interface professional "balanced, line-level" equipment with various types of industrial, semi-pro and consumer high-fidelity equipment \$575.00

2522 Universal Relay Card

Comprises 10 individual DPDT relays with buffered logic inputs. \$350.00

2524 Dual 8 x 1 Summing Amplifier

Dual 8 x 1 audio summing amplifier with 16 actively balanced inputs and 2 actively balanced outputs \$395.00

2528 Dual Microphone Preamplifier

Designed to eliminate the problems caused by long cable runs at microphone level \$650.00

CAMERA SUPPORT EQUIPMENT



Combi Pedestal

- Studio and field operation • Compact, modular set-up • Long-time wheel alignment of casters based on overload protection at each wheel case and after half a cycle of the steering wheel, all casters are aligned again • Double-wheeled casters with plained treads • Center column is supported with a low pressure pneumatic system. A hand pump which is attached to the pedestal can be used to make readjustments while on location • Primary filling is made with a manual compressor • Brake for the center column • Make use of the pedestal's "on air" height adjustments without attaching the dolly • On slippery or delicate surfaces clip-on rubber feet for the pedestal are taking effect • Three-legged support construction • Safety catch prevents the center column from raising. Transport-clips at the center column prevent the tripod from unfolding while being carried • Precisely steerable dolly can be changed from a one-wheel to a 3-wheel steering mode (crab and steer) • Big steering wheel and telescopic transmission • Cable guards (height is adjustable) • Overload protection within each wheel guard ensures that the casters continue to run parallel • Transport and operation lock for the dolly arms • Folding design for pedestal and dolly to ease transport, no tools required; built-in handles • Twin wheels with a 4" diameter. Option: 6" • Maximum load: 55kg • Weight: 21kg

5198 Combi Pedestal \$ 9,875.00
 5196 Combi Pedestal/154 Dolly with twin wheels of 6" (154mm) diameter. 10,395.00



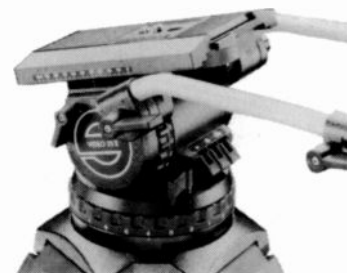
Combi Pedestal



Video 80 II



OB 2 Tripod



Video 25 II

OB 2 Tripod/OB Dolly

- Developed especially for outside broadcasting • Can be extended twice • Crank operated elevation unit • OB Dolly can have pneumatic tires of 8" diameter. As a special feature Sachtler offers an extender for the OB dolly. This extender, on the one side increases the size of the supporting base and on the other side it takes the weight off the wheels

6200 OB 2 Tripod. \$4,795.00
 7060 OB Dolly. 3,555.00
 6202 OB Elevation column 2,995.00



Video 20 II

Video 80 II Fluid Head

- OB/Studio applications • Leakproof, zero-friction fluid head • Fluid damping modules control very precisely camera/lens combinations weighing up to approx. 80kg • Damping modules guarantee grades of drag which can be reproduced exactly at all temperatures at which cameras can still be operated • Seven settings of drag for the horizontal and vertical position • Locks for the horizontal and vertical direction are working independent of the damping and counterbalancing system. They bring the camera to a stop, wherever desired, without transmitting vibrations • Maximum load: approx; 198 lbs. • Drag can be completely turned off, if one has to make sudden movements with the camera • Grades of drag: horizontally and vertically 7 each and 0 • V-shaped wedge plate is used to mount the camera to the sliding balance plate • Tilt angle: $\pm 60^\circ$

8086 Video 80 II \$8,695.00

Video 25 II ENG/EFP Fluid Head

- A medium sized ENG/EFP fluid head optimized for on location shooting combining the stability and pan and tilt comfort previously offered only by significantly larger and heavier camera supportsystems • Balancing momentum adjustable in 7 steps • Positive operational pan and tilt lock • Safety lock • 150mm ball, Mitchell intermediate tripod interface • 25kg capacity • 6.5kg

2500 Video 25 II \$5,995.00

Video 30 II EFP Fluid Head

- Heavy-duty 7 position dynamic counterbalancing system • 2 EFP pan arms • 150mm ball • 40kg capacity • 9kg • For studio and field production using small studio or O.B. cameras

3000 Video 30 II \$7,345.00

Video 16 II/17 II/ 18 II/20 II ENG/EFP Fluid Heads

- Powerful counterbalancing spring • Positive operational pan and tilt lock • Safety lock • 100mm ball • Medium sized ENG/EFP fluid heads for the ultimate in mobility • Lightweight but stable enough to accept ENG camera with EFP accessories

1600 Video 16 II 1 step on/off drag control for pan + tilt. . \$2,695.00
 1700 Video 17 II 3 step on/off drag control for pan + tilt. . 3,295.00
 1800 Video 18 II 7 step on/off drag control for pan + tilt. . 3,380.00
 2000 Video 20 II 7 step on/off drag control for pan + tilt. . 4,680.00

Sachtler Tripods

- Extremely lightweight, robust and twist-free
- Ball-ring leg clamping devices with pre-set end pressure point
- Double claws for attaching triangle or rolling triangle—or stainless steel spikes for soft ground

Tripods for Fluid Heads Video 20 II, Video 18 II, Video 17 II, Video 16 II and Panorama

Code Number		Max. Load (lbs.)	Weight (lbs.)	Height Range Min./Max. (in.)	Price
Dural Aluminum					
5182	DA 100 long	77	6	25.4/55.5	\$ 820.00
5480	DA 100 heavy-duty	175	9	25.2/53.1	1095.00
5151	DA 100 medium	77	4.8	7.9/28.3	775.00
5122	DA 100 short	88	3.3	7.0/10.6	675.00
Carbonfibre					
5382	CF 100 long	88	5	25.4/55.5	\$1265.00
5380	CF 100 heavy-duty	200	6.8	25.2/53.1	1350.00
5351	CF 100 medium	88	4	7.9/28.3	1225.00
Pro 100					
5550	Tripod extension	99	1.5	15.7	\$345.00

Tripods for Fluid Heads Video 25 II, Video 30 II

Dural Aluminum					
6192	DA 150 long	200	10.8	30.5/61	\$1180.00
6181	DA 150 medium long	200	10	25.2/52	1095.00
6157	DA 150 medium	200	7.9	8.3/31.5	1090.00
6132	DA 150 short	210	6.6	7.0/16.1	850.00
Carbonfibre					
6392	CF 150 long	210	7.7	30.5/61	\$1499.00
6381	CF 150 medium long	210	7.5	25.2/52	1399.00

Hot Pod

- Locked when folded
- Central lock for easy set-up
- Self-locking lever for camera levelling
- Pneumatically supported center column for increased rise and height
- Handy grip provided

For ENG Cameras:

The Sachtler Hot Pod with the Sachtler V 18II head.

Minimal height (up to wedge plate)	940mm
Legs fully extended	1432mm
Max. height	1892mm

For Recording Cameras:

The Sachtler Hot Pod with the Sachtler Video 20.

Minimal height (up to wedge plate)	957mm
Legs fully extended	1449mm
Max. height	1909mm

Volume, for Transport and Storage:

Hot Pod with Panorama (full length)	1003mm, ø195mm
Hot Pod with Video 20 (full length)	1020mm, ø240mm
HP 18 II Hot Pod (5185/10) with spring 22 lbs. (10kg) for use with V 18II fluid head for ENG cameras	..... \$1475.00
HP 20 II Hot Pod (5185/14) with spring 31 lbs. (14kg) for use with Video 20 fluid head for recording cameras	..... 1475.00
Hot Pod Dolly (7059)	..... 1150.00



Tripods



Hot Pod



Dolly S

Dolly S

Through the angle lock of the spinning wheel and the independent wheel brake, defined circles and precise parallel movements can be made. All wheels have cable protection which can be adjusted according to the required height. In order to save room during transportation, Dolly S is folded together and can be easily carried with its built-in handle.

7052 Dolly S \$1150.00

Spreaders

For slippery or delicate surfaces 2 different spreaders are available. Spreader SP 100/150 is suitable for all professional Sachtler tripods. Weighing less than half of the SP 100/150 universal spreader, the lightweight SP 100 spreader is developed for carbon fiber tripods CF 100 long and CF 100 medium.

For transporting purposes the spreaders are folded toward the inside and stowed away with the tripod in the carrying case.

7002 SP 100 \$350.00
7003 SP 100/150 455.00

CAMERA SUPPORT EQUIPMENT



Pedestal 14 II

- Pneumatically supported center column tripod
- Allows the camera movement to acquire a third dimension
- Air pressure in the inside of the center column can be exactly adjusted to camera's weight. Camera thus floats on an air cushion
- Center column can be locked in any position. For safe transportation, even while the center column is under pressure, a safety catch is engaged
- Center column runs on ball bearings
- Using the extendable tripod the stroke range of the center column can be adapted to shooting requirements
- Height range: Spreader 29.1" - 53.5", Dolly 34.1" - 58.7"
- Center column range: 15.7"
- Maximum load: up to 44 lbs.

4191 Pedestal 14 II \$1550.00

Video 14 II Fluid Head

- 3-step dial-in drag adjustment
- Damping can be set for 3 different drag levels but the drag can also be disengaged. A selected setting can be re-engaged at any time
- Temperature span from -40° to +60°C
- Free-wheeling for pan and tilt
- Sliding platform for center of gravity compensation
- Touch and go system quickly fastens the camera to the supporting mount
- 2 adjustable pan arms
- In order to counterbalance (while tilting the camera), 2 adjustable pull-back springs are used
- Built-in counterbalance spring tilt $\pm 60^\circ$
- Tripod interface flat base for video 14 pedestal/75mm bowl tripod
- Vertically and horizontally working brakes which when applied do not transmit vibrations to the camera
- For horizontal levelling a precise circular waterlevel is built-in
- Maximum load: approx. 33 lbs.

1400 Video 14 II \$1595.00

Dolly 14 II Rolling Triangle

- For pedestal and 75mm bowl tripod
- Heavy-duty 3.15" diameter casters
- Built-in handle
- 9.7 lbs.
- Dimensions for transporting: 75" H X 7.9" W x 24.2" L
- Maximum load: 88 lbs.

7051 Dolly 14 II \$350.00

Tripods 14

- Work with a height of 15cm off the ground up to a height of approx. 1.50m
- 75mm bowl leveling
- Black anodized aluminum construction
- Maximum load: 33 lbs.

Tripod 14 Medium

- Height range: Spreader 14: 5.9" - 31.1"; Dolly 14: 16.1" - 33.5"

Tripod 14 Long

- Height range: Spreader 14: 24.8" - 54.3"; Dolly 14: 32.8" - 59.4"

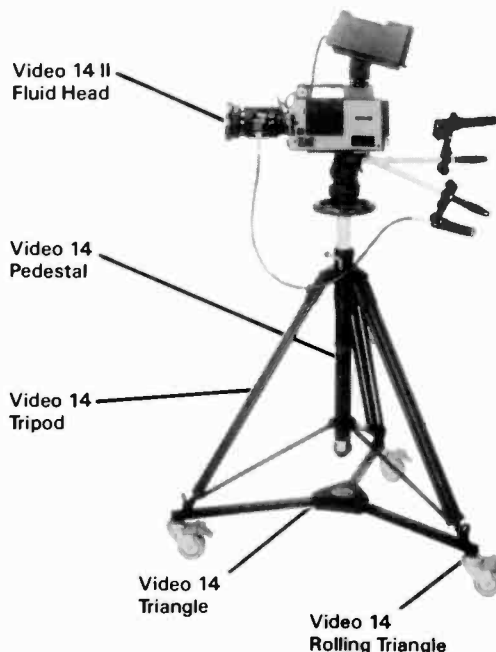
4151 Medium \$370.00

4182 Long \$390.00

Spreader 14

- For 75mm bowl tripod
- Works on slippery or delicate floors
- Light, robust and unbreakable
- For transportation purposes the spreader is simply folded up and remains attached to the tripod
- Maximum load: 88 lbs.

7001 Spreader 14 \$150.00



Video 14 II Fluid Head

Video 14 Pedestal

Video 14 Tripod

Video 14 Triangle

Video 14 Rolling Triangle



Video 14 II



Tripod 14

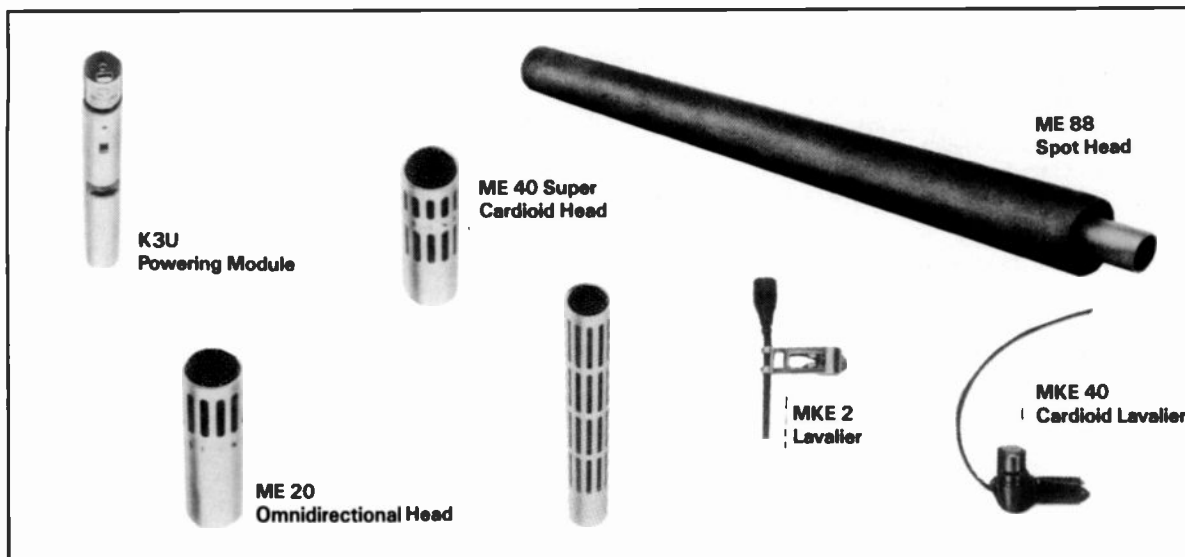
Dolly 14 II Rolling Triangle

System Packages

1410 System 14 II—Video 14 II+S14 long+SP14+Cover 14 II . . \$2309.00

1420 System 14 II Pedestal—Video 14 II+ Pedestal

14 + Dolly 14 \$3495.00



Modular Electret Microphone Systems

Separate capsules and powering modules can be combined to produce a wide variety of microphones. A single powering module plus a few capsules can provide the user with a flexibility that would otherwise require investing in a number of individual microphones. Convert quickly from one type of microphone to another by simply threading together various system components. All capsules use back-electret technology for optimum quality. Output of all powering modules is balanced, low impedance (200 ohms) and terminates in a standard 3-pin XLR type connector.

K3U Powering Module

"Universal" powering module for the system. Operates from internal 5.6V mercury battery (PX23, life approximately 600 hours) or external phantom power (12V-52V). On/off switch with LED indication of battery condition, 3-position bass rolloff switch (flat, -7dB, -20dB at 50Hz). Use with: ME20, ME40, ME80, ME88, MKE2, MKE10-3, MKE40. Black finish.

K3U\$245.00

Microphone Capsules

ME 20 Omnidirectional

Uniform pickup from all directions. Broad, smooth frequency response without any proximity effect. Low sensitivity to handling, pop and wind noise. Use with K3U. Frequency range: 50-15,000Hz. Black finish.

ME 20\$135.00

ME 40 Supercardioid

Tight directional pattern helps isolate desired source from surrounding noise and reverberation, and (in sound reinforcement) provides high gain before feedback. Use with K3U. Frequency range: 50-15,000Hz. Black finish.

ME 40\$185.00

ME 80 Short Shotgun

Combination of supercardioid at low frequencies and shotgun above 2000Hz. Excellent on-camera mic or handheld interview mic for ENG/EFP. Increased gain before feedback by using as a podium mic in sound reinforcement. Use with K3U. Frequency range: 50-15,000Hz. Black finish.

ME 80\$269.00

ME 88 Spot Shotgun

Shotgun pattern above 1000Hz and cardioid pattern at low frequencies provides highly directional pickup. Light weight prevents fatigue when using handheld. Use with K3U. Frequency

range: 50-15,000Hz. Black finish. Supplied accessory: wind-screen. Available as a spare part Z-26786.

ME 88\$350.00

Lavalier/Clip-On Microphones

MKE 2 Subminiature Omnidirectional Lavalier

Open, natural sound plus extremely small size (less than 1/4" dia., approximately 7/16" long). May also be used as a clip-on instrument mic. Stranded steel cable. Frequency Range: 40-20,000Hz. Standard color: matte black. Shipping weight: 12 oz.

MKE 2-3/
K3U Combination\$479.00
MKE 2-3 Use with K3U. 10' cable. Black\$285.00
MKE 2-3-3 Use with K3U. 10' cable. Buff\$285.00
MKE 2-PT Stripped, tinned leads. 10' cable. Black...\$255.00
MKE 2-PT-3 Stripped, tinned leads. 10' cable. Buff ..\$255.00

MKE 10-3 Omnidirectional Lavalier

Unique, button-shaped design with slip-on clothing clip and cable strain relief which automatically dresses the microphone cable behind the clothing. Gently rolled-off low frequency response plus presence boost above 4kHz produce a bright, clean sound quality, especially in environments with low-frequency ambient noise. Stranded steel cable. Use with K3U. Frequency range: 50-20,000Hz. Matte black finish. Shipping weight: 12 oz.

MKE 10-3\$289.00

MKE 40 Cardioid Lavalier

For those applications where isolation from ambient noise is needed and/or for increased gain before feedback. Also well suited as instrumental clip-on microphone, where advantages of isolation and proximity effect are desired. Swivel mount for easy positioning. Stranded steel cable. Frequency range: 50-20,000Hz. Matte black finish. Shipping weight: 12 oz.

MKE 40/K3U Combination\$510.00
MKE 40-3 Use with K3U. 10' cable\$330.00
MKE 40-PT Stripped, tinned leads. 10' cable\$305.00

MICROPHONES



SENNHEISER
ELECTRONIC CORPORATION

DIGITAL RECORDING SERIES RF CONDENSER MICROPHONES

MKH 20 P48U3 Omnidirectional Microphone

- Low distortion • Transformerless • Flat frequency response • High frequency switch (6dB boost at 10kHz) • Switchable 10dB pad to prevent overmodulation • Handles 142dB/SPL • High output level • Ideal for concert, midside (M-S) acoustic strings, brass and wind instrument recording • 20-20,000Hz frequency response • 48V phantom powering • Matte black finish • 22 oz. shipping weight • Supplied accessories: MZQ40 stand adaptor; MZW41 windscreen

MKH 20 P48U3 \$1195.00

MKH 30 P48U3 Bi-Directional (Figure Eight) Microphone

- Symmetrical bi-directional characteristic • Low distortion • Transformerless • Flat frequency response • Switchable bass attenuation (4dB at 50Hz) • Switchable 10dB pad, handles 142dB/SPL • High output level • Primarily used for live strings, up-close dialogue, mid-side (M-S) and Blumlien stereo (X-Y) recording • 40-20,000Hz frequency response • 48V phantom powering • Matte black finish • 24 oz. shipping weight • Supplied accessories: MZQ40 stand adaptor, MZW41 windscreen

MKH 30 P48U3 \$1295.00

MKH 40 P48U3 Cardioid Microphone

- Highly versatile • Low distortion • Transformerless • High output level • Transparent response • Switchable bass attenuation (4dB at 50Hz) • Pre-attenuation of 10dB to prevent overmodulation • Recommended for most situations, digital sampling, over dubbing vocals, percussive sound, acoustic guitars, piano, brass and string instruments • 40-20,000Hz frequency response • 48V phantom powering • Matte black finish • 22 oz. shipping weight • Supplied accessories: MZQ40 stand adaptor, MZW41 windscreen

MKH 40 P48U3 \$1195.00

MKH 50 P48U3 Supercardioid Microphone

- Narrower pickup pattern than cardioid • Low distortion • Transformerless • High output level • Switchable bass attenuation (4dB at 50Hz) and 10dB pad • Off-axis attenuation for better isolation makes it ideal for multi-track recording, live performances, stage overheads and orchestra pickup • 40-20,000Hz frequency response • 48V phantom powering • Matte black finish • 23 oz. shipping weight • Supplied accessories: MZQ40 stand adaptor, MZW41 windscreen

MKH 50 P48U3 \$1195.00

MKH 60 P48U3 Supercardioid/Lobe (Short Shotgun) Microphone

- Short interference tube RF condenser • Lightweight metal alloy • Transformerless • Low noise • Symmetrical capsule design • Smooth off-axis frequency response • Switchable low cut filter (5dB at 100Hz) • High frequency boost (5dB at 10kHz) and 10dB attenuation • Handles extremely high SPL (135dB) • Ideal for broadcasting, film, video, sports recording, interviewing in crowded or noisy environments and excellent for studio voiceovers • 50-20,000Hz frequency response • 48V phantom powering • Matte black finish • 23 oz. shipping weight

MKH 60 P48U3 \$1395.00

MKH 70 P48U3 Supercardioid/Lobe (Shotgun) Microphone

- Extremely lightweight, rugged, long shotgun • Low distortion • Transformerless • Low noise • Switchable presence (+5dB at 10kHz) • Low cut filter (-5dB at 50Hz) • 10dB pre-attenuation • Handles 132dB/SPL with high sensitivity and output level • Ideal for video/film studios, theatre, sporting events and nature recordings • 50-20,000Hz frequency response • 48V phantom powering • Matte black finish • 28 oz. shipping weight

MKH 70 P48U3 \$1695.00



MKH 20



MKH 70



MKH 40



MKH 60



MKH 416



MKH 816

INDUSTRY STANDARD RF CONDENSER MICROPHONES

MKH 416 P48U3 Supercardioid/Lobe (Short Shotgun) Microphone

- Transformerless, RF condenser designed as a combination of pressure gradient and interference tube microphones • Very good feedback rejection, low proximity effect, 128dB/SPL • Rugged and resistant to climate conditions • Ideal for boom, fishpole and camera mountings • A long distance microphone for recording and video/film studios • Podium or lecture microphone • Excellent for interviewing by reporters • 40-20,000Hz frequency response • 48V phantom powering • Matte black finish • 18 oz. shipping weight

MKH 416 P48U3 \$1150.00

MKH 416 TU3 Same as MKH 416 P48U3, but designed to use audio wire (A-B) powering and handles

124dB/SPL; 12V A-B powering 1150.00

MKH 816 P48U3 Ultra-Directional/Lobe (Shotgun) Microphone

- Narrow-beam pattern, transformerless RF condenser microphone • Handles 124dB/SPL and has high output voltage • Perfect for crowded news conferences, movie sets, TV stages, sporting events and nature recordings • 40-20,000Hz frequency response • 48V phantom powering • Matte black finish • 46 oz. shipping weight

MKH 816 P48U3 \$1395.00

MKH 816 TU3 Same as MKH 816 P48U3, but designed to use audio wire (A-B) powering and handles

118dB/SPL; 12V A-B powering 1395.00



**HMD 224 Enclosed Headphone/
Microphone Combination**

- Frequency response of headphones: 16-20,000Hz • Frequency response microphone: 50-12,000Hz • Dynamic transducer principle headphone drivers 200 ohms; microphone system 200 ohms
- Microphone easily adjustable • Maximum sensitivity of microphone in direction of mouth owing to distinctive "displaced" directional characteristic • Circumaural air-filled double-layer plastic air cushions form the basis of the HMD 224 headphone/microphone combination • Combination of headphones and microphone weighs 380g

HMD 224\$315.00

HMD 410-6 Headphone/Microphone Combination

- HD 410 Open-Aire® headphone combined with studio quality supercardioid microphone • Swiveling earphone system permits "1-ear" listening • Microphone boom rotates 360° to allow for left or right side positioning • Frequency response (headphone): 20-18,000Hz • Frequency response (microphone): 50-12,000Hz
- Headphone impedance: 600 ohms • Microphone impedance: 200 ohms

HMD 410-6\$295.00

HD 560 Ovation Headphones

- Neodymium ferrous magnets • Diaphragm design utilizing high grade silk • Lightweight aluminum driver coils • Circumaural cushions dampen any interfering resonance • Frequency response: 16-30,000Hz (-3dB at 1kHz) • Impedance: 300 ohms • Sensitivity (SPL at 1mW/1kHz): 94dB • Weight without cable: 8.8 oz. • Supplied with 10' steel stranded cable with 1/4" stereo phone plug

HD 560\$279.00

HD 540 Reference™ Stereo Headphones

- Frequency response: 16-25,000Hz • Nominal impedance 600 ohms per system • Open dynamic transducer principle • Novel type of diaphragm integral acoustical silk dampening and a unique ear cushion design • Virtually resonance-free transmission and exceptional transparency throughout the entire tonal spectrum, while effectively preventing standing waves between diaphragm and ear

HD 540\$199.00

HD 520 Open Stereo Headphones

- Neodymium ferrous magnet structure • Housing design prevents standing waves found in many circumaural headphones on the market • Excellent transient response and low distortion making it ideal for reproducing even the most demanding musical passages
- Frequency response: 18-22,000Hz • Impedance: 600 ohms
- Sensitivity (SPL at 1mW/1kHz): 94dB • Weight without cable: 7.5 oz. • 10' stranded steel cable with 1/4" stereo phone plug

HD 520\$169.00

HD 450 Open Stereo Headphones

- Neodymium magnets • Frequency response: 20-20,000Hz • 70 ohms impedance • Supplied with 10' stranded steel cable ending in stereo mini plug with a 1/4" phone adaptor

HD 450\$99.00



HMD 224



HMD 410



HD 450 Studio



HD 25



HD 250

HD 450 Studio Open Stereo Headphones

- Studio version of Sennheiser's HD 450 • Digitally compatible
- Frequency response: 20-20,000Hz • Ideal when high load impedance headphones are necessary • Neodymium ferrous magnets provide a stronger magnetic field than conventional magnet structures • Supplied with an attractive canvas carrying case
- Uses all field replaceable parts (including driver elements, headband, ear cushions and cable). Supplied with a durable steel stranded 10' cable terminated in a strain relief 1/4" stereo phone plug

HD 450 Studio\$109.00

HD 25 Monitoring Headphones

- Frequency response: 30-16,000Hz • Dynamic drivers in a closed supraural design • Adjustable split headband insures optimum fit for each user's taste, and a single side audio cable allows for a largely uninhibited degree of freedom • Allow 1 driver to rotate off the ear and onto the user's temple • 5 oz. • High sensitivity (105dB/mW) • Improved cushion design provides increased external noise attenuation • Aluminum driver voice coils

HD 25\$229.00

HD 250 Reference Monitor Headphones

- Designed to meet the stringent demands of the studio profession as well as the Hi-Fi connoisseur • Incorporates the same driver element technology and material as the HD 540 Reference, including an aluminum voice coil and neodymium ferrous magnet • Frequency response: 10-25,000Hz • Impedance: 600 ohms
- Sensitivity (SPL at 1mW/1kHz): 94dB • Weight without cable: 8.8 oz. • 10' stranded steel cable with 1/4" stereo phone plug

HD 250\$239.00

WIRELESS MICROPHONE SYSTEMS



SENNHEISER
ELECTRONIC CORPORATION

VHF Wireless Systems

All Sennheiser VHF wireless systems operate on 1 VHF carrier frequency between 165 and 216MHz.

VHF Camera Mount Systems

VHF 1H

Handheld transmitter system with body pac receiver for camera and/or portable use. The transmitter is a rugged, cordless, handheld condenser microphone with a supercardioid pickup pattern capable of handling high SPLs (145dB). Excellent for MCs, field broadcasts and portable interviewing applications. The system uses a slim, small and lightweight body pac receiver. Each unit is powered by 3 "AAA" batteries (approximately 5 hours). System includes: 1 SKM4031-90 handheld transmitter, 1 EK2012-90 body pac receiver. Shipping weight: 3 1/4 lbs. \$3245.00

VHF 1B

Body pac transmitter system with body pac receiver for camera mounting and/or portable use. The transmitter has a switchable audio limiter, is extremely compact, lightweight and can be easily concealed under clothing. The receiver is also slim, compact and lightweight. For use in ENG and EFP applications. Each unit is powered by 3 "AAA" batteries (approximately 4 1/2 hours). System includes: 1 SK2012-90 body pac transmitter, 1 EK2012-90 body pac receiver, 1 MKE2-2-R RD omnidirectional lavalier microphone. Shipping weight: 4 lbs. \$3920.00

VHF Diversity Systems

VHF 2H

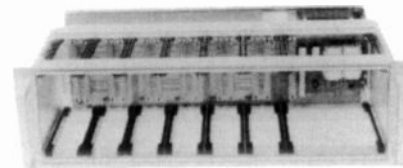
Handheld transmitter system and single frequency switching diversity receiver. The transmitter is a rugged, wireless, handheld condenser microphone designed for vocalists, MCs and interviewing where high quality is a must. The diversity receiver has adjustable balanced audio output and squelch, LED indicators for RF and AF levels and a built-in antenna splitter. Suitable for rackmounting with optional panel. System includes: 1 SKM4031-90 handheld transmitter, 1 EM2003-90 diversity receiver, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 lbs. . . . \$3651.00

VHF 2B

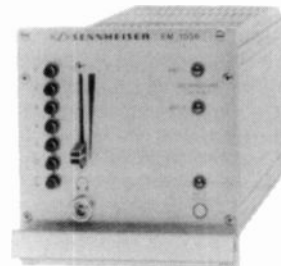
Body pac transmitter system and single frequency switching diversity receiver. The transmitter is extremely compact, lightweight and can easily be concealed under clothing or attached to a belt with a removable clip. The diversity receiver has an adjustable squelch, adjustable balanced audio output, LED indicators for RF and AF levels and built-in antenna splitter. Suitable for rackmounting with optional panel. System includes: 1 SK2012-90 body pac transmitter, 1 EM2003-90 diversity receiver, 1 MKE2-2-R RD omni lavalier microphone, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 1/4 lbs. \$4311.00

VHF 2G

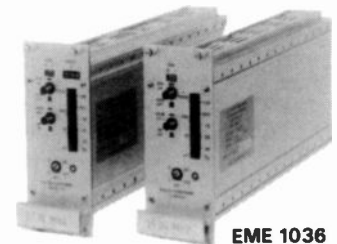
Guitar transmitter system and switching diversity receiver. System comes complete with 1/4" guitar interface cable and rugged, compact, lightweight transmitter which can be mounted on the guitar strap. The diversity receiver has adjustable squelch and adjustable audio output LED for RF and AF levels. Suitable for rackmounting with optional panel. System includes: 1 SK2012-90 body pac transmitter, 1 EM2003-90 diversity receiver, 1 GC2012-1 guitar interface cable, 1 VGP-SET ground plane antenna, 2 PLB25 antenna cables (25'). Shipping weight: 10 1/4 lbs. \$4070.00



EMC 1036



EMM 1036



EME 1036

VHF Transmitters

SKM4031-90

Single channel handheld microphone/transmitter . . \$1450.00

SK2012-90

Single channel body pac transmitter \$1750.00

VHF Receivers

EK2012-90

Portable body pac receiver (DC powered) \$1795.00

EK2003-90

Single channel diversity receiver \$1975.00

VHF Modular Rack Systems

EMC 1036

Multi-channel chassis, 19" rackmount receiver frame for up to 3 diversity channels or 6 non-diversity channels. Contains complete wiring harness, gold plated multi-pin edge connectors for modules, 6 balanced audio outputs, 2 antenna inputs, built-in antenna splitter, power supply, switchable main transformer \$3290.00

EMM 1036

Monitor module. Makes it possible to monitor AF signals from the receiver modules and completes the routing of signals. Has built-in headphone amplifier switch bank for monitoring each receiver module or the sum of all channels. LED indicator for antenna power supply and main power \$1095.00

EME 1036-90

VHF receiver module. Contains electronics for a single channel crystal controlled receiver. Diversity reception is possible by installing 2 modules with the same frequency in the adjacent slot without additional electronics. Each module has adjustable squelch, LED indicators for RF and AF levels, diversity on/off switch and frequency drift indicators \$2890.00

XA-300 VHS Recorder with HQ/Double Comb Filter

- Quartz servo controlled direct drive head cylinder and capstan
- Fine edit (automatic backspace)
- Simple record timer with auto return function
- 14-day/4-event programmable timer with automatic daily or weekly repeat function
- 3-speed recording/playback
- Voltage-synthesized 16-position 111-channel cable-compatible tuner with AFT
- Multi-function mode display (VCR status display) including 4-digit tape counter with memory function
- 15-function wireless remote control
- Automatic power on/playback/rewind/eject/power off (works for tapes with erase protective tab removed)
- Rec tab override—cassettes with the erasure protection tabs removed can be recorded in the override position
- Remote pause in/out jacks allow pause command to be looped from VCR to VCR for duplicator use
- Controls on VCR can be locked via tamperproof button on remote control

XA-300 \$430.00



XA-300



XA-305

XA-305 VHS Recorder

with Double Azimuth 4-Head Video System

- Auto repeat
- Noiseless still picture (field-still), frame advance and variable speed slow motion
- Remote pause in/out jacks allow pause command to be looped from VCR to VCR for duplicator use
- Controls on VCR can be locked via tamperproof button on remote control
- 3-wire (grounded) AC line cord
- Automatic power on/playback/rewind/eject/power off for enhanced ease of operation (works for tapes with erase protective tab removed)
- Quartz-servo controlled direct drive head cylinder and capstan
- Fine edit (automatic backspace)
- Simple record timer with auto return function—auto return function returns the tape to the start after completing the recording
- 14-day/6-event programmable timer with automatic daily or weekly repeat function
- 3-speed recording/playback
- Voltage-synthesized 16-position 111-channel cable-compatible tuner with AFT
- Multi-function mode display (VCR status display) including 4-digit tape counter with memory function
- 19-function wireless remote control

XA-305 \$450.00



XA-310

XA-310 VHS Recorder

with Double Azimuth 4-Head Video System

- BNC type video in/out connectors
- EIAJ 8-pin TV connector
- PLL (Phase-Locked Loop) 111-position 111-channel cable-compatible tuner
- Auto repeat function
- Controls on VCR can be locked via tamperproof button on remote control
- Remote pause in/out jacks allow pause command to be looped from VCR to VCR for duplicator use
- Blue screen noise elimination system eliminates noise and mutes sound in playback of unrecorded tape
- 3-wire (grounded) AC line cord
- Quartz-servo controlled direct drive head cylinder and capstan
- Fine edits (automatic backspace)
- Simple record timer with auto return function—auto return function returns the tape to the start after completing the recording
- Multi-function mode display (VCR status display) including 4-digit tape counter with memory function
- 14-day/6-event programmable timer with on screen display
- Noiseless still picture (field-still), frame advance and variable speed slow motion
- 37-function wireless remote control
- 3-speed recording/playback

XA-310 \$510.00



GZ-P21U

GZ-P21U S-VHS Compatible Color Video Printer

- High resolution
- Inputs for S-VHS, composite and RGB analog video sources
- 600 x 478 dot format
- Digital "freeze frame" memory
- Multi-image print mode allows 2, 4 or 25 reduced size images to be reproduced on a single print sheet
- Grounded (3-wire) AC power cord

GZ-P21U \$1795.00

Optional Printer Accessories

- GZ-Y100U Color Print Ink/Paper Set
Each set includes 100 sheets and ink cassette \$95.00
- GZ-Z20U Color Transparency Ink/Film Set
Each set includes 20 sheets and ink cassette \$40.00
- GZ-W100U Monochrome Print Sheets
Each set includes 100 sheets thermal paper \$20.00

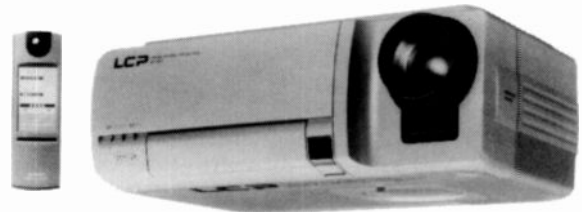
VIDEO PROJECTORS/ SCANNER/MONITORS

SHARP
FROM SHARP MINDS
COME SHARP PRODUCTS™

XV-101TWP/XV-101TGP Ceiling Mount 100" LCD Color Video Projectors

- Unique projector system separates the source beam into red, green and blue components using three 3" twin-TFT (Thin Film Transistor) Active Matrix LCD panels • High performance panels and delta pixel arrangement combine to deliver a total 268,515 pixels, achieving superb resolution and sharp contrast • High-mount type with lightweight design utilizing LCD panels • Easily mounted on the ceiling or wall with an optional mounting bracket • Built-in zoom lens lets you adjust viewing to any size from 20" to 100" according to the available space • Greatly simplified set-up eliminates tedious convergence adjustments. Simply focus once for perfect image reproduction • Remote control unit incorporates back lights to illuminate the touch panel and provides control during darkroom operation (for power on/off, input signal select, etc.) • Equipped with an S-Video (Y/C) input terminal to connect with an S-VHS VCR, and 2 RCA phono jack input terminals to connect with up to 2 video units

XV-101TWP Light gray "office white" cabinet finish \$4695.00
XV-101TGP Darker metallic gray cabinet finish 4695.00



XV-101TWP/XV-101TGP

XV-120P High-Brightness 100" Portable LCD Color Video Projector

- Utilizes 3 solid-state, convergence-free LCD panels • High-brightness, long-life metal halide lamp • Crisp and clear projected images from any viewing angle • Built-in 20" to 100" zoom lens • Standard composite and S-Video (Y/C) inputs • Extremely compact and lightweight (approx. 27 lbs.) • Built-in carrying handle

XV-120P \$4295.00



XG-50

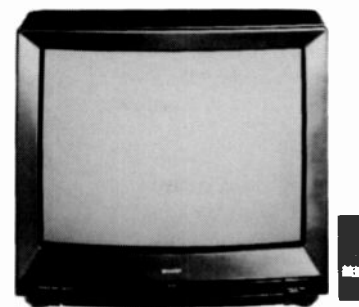
Optional Accessories for LCD Projectors

- AN-1000P 50W powered loudspeaker system \$325.00
- XG-1100CC Durable molded carrying case for XV-120P 215.00
- XG-1100SC Heavy-duty shipping case for XV-120P 390.00
- XG-1500SC Heavy-duty shipping case for XV-101TWP or XV-101TGP 430.00
- AN-LM102P Ceiling mounting bracket for use with XV-101TWP or XV-101TGP. Metallic gray finish . . . 275.00
- AN-EP101P Optional adjustable extension tube for AN-LM102P. Chrome plated finish 75.00
- AN-HM101P "Extended" ceiling mounting bracket package. Includes 1 AN-LM102P and 1 AN-EP101P 350.00
- AN-WM103WP Wall mounting bracket in light gray ("office white") finish for use with XV-101TWP projector 275.00
- AN-WM103GP Wall mounting bracket in metallic gray finish for use with XV-101TGP projector 275.00
- XS-100SPP 100" wall or ceiling mount screen 190.00
- XS-80SPP 80" wall or ceiling mount screen 115.00
- XS-100HTP 100" tripod/freestanding screen 310.00
- XS-80HTP 80" tripod/freestanding screen 240.00

XG-50 Video Scanner Presentation System

- Easily connects to video projectors and TV monitors, and allows documents and full-color photographs to be presented to a large audience • 400 TV lines resolution • 1/2" CCD with 750,000 pixels (250,000 x RGB) reproduces clear and bright images • 8X power zoom and focus lens enlarges small and hard to read print • Built-in video frame image memory • Wide size capacity, handles everything from 35mm film to B4 paper • Unique positive/negative reverse function • Composite, S-Video (Y/C) and analog RGB outputs • Flicker-less fluorescent lamp included • Dimensions: setup 26 1/2" H x 26 3/4" W x 23 3/8" D; folded 7 1/2" H x 16 1/2" W x 23 3/8" D • 22 lbs. • Included accessories: AC cord, video cable (2m RCA-RCA), audio cable (2m RCA-RCA), dust cover

XG-50 \$3995.00



XM-2701

XM-2701 (27")/XM-2001 (20") Color Monitor/Receivers

- Built-in multi-channel TV sound circuit allows reception of stereo or bilingual sound • Flat, square, tinted, high contrast picture tube reduces distortion • 209-channel cable-compatible tuner • Phase-locked loop quartz synthesized electronic tuning • On-screen digital display • Multi-function TV/VCR remote control • S-Video input connector (separated Y/C) allows connection to a video device equipped with an S-Video output connector • Video/audio output jacks • Favorite channel function • Auto search channel memory • Channel scan function • Channel flashback • Auto shut-off timer

XM-2701 600 lines resolution \$975.00
XM-2001 400 lines resolution 575.00

25RT59-P 25" Color Television

- 22-function infrared remote control • 10-key phase locked loop quartz electronic tuning • 140-channel cable-compatible tuner • LED digital channel display • Sleep timer (30/60/90 min.) • AFT • ACS • Rapid-on picture and sound • SAW filter reduces ghosts and phase distortion • Simulated woodgrain finish

25RT59-P \$695.00

XG-1100U High-Brightness Professional LCD Color Video Projector

- Compact, lightweight and ultra reliable • Built-in 20" to 100" zoom lens • Industrial type BNC video inputs, plus S-Video connector • Reverse image switch (for rear projection) • Extremely bright images, with long-life metal halide lamp • Three 3" solid state active matrix twin-TFT LCD panels

Utilizing advanced convergence-free LCD projection technology, the XG-1100 offers incomparable performance, flexibility and reliability. Weighing only 22 lbs. and with a built-in carrying handle, it is lightweight, portable and space-efficient.

With the XG-1100U's built-in 1:2 zoom lens, it is incredibly easy to vary the image size from 20" up to 100" (or more).

The XG-1100U incorporates 2 locking-type industrial BNC video inputs, plus an S-Video (Y/C) connector. These multiple inputs let you change instantly among a broad range of sources including VCRs, video disc players, TV tuners and many PCs.

With the XG-1100U, all that is necessary for rear projection is to simply press the "Reverse Image" switch. No special mirror attachment or internal modification is required.

The XG-1100U incorporates a special design metal halide lamp capable of providing extremely bright images from any viewing angle. This lamp is enormously efficient, with an average life of more than 2000 hours. An easy-change lamp module is further incorporated into the XG-1100U to ensure quick lamp replacement by a local authorized servicing dealer or service center.

The XG-1100U incorporates 3 convergence-free active matrix twin-TFT LCD panels with over 268,515 total pixels to produce a picture with superb clarity, colorimetry and definition.

XG-1100U \$4495.00

XG-1500U Professional Ceiling Mount LCD Video Projector

- Extremely small and compact ceiling mountable design • Built-in 20" to 100" zoom lens • Multiple inputs including composite, S-Video and analog RGB • Convenient reverse image switch for rear projection • Back-lit wireless remote control • Three 3" solid state active matrix twin-TFT LCD panels • High brightness, long-life metal halide lamp with easy change module

The XG-1500U incorporates advanced convergence-free LCD projection technology for incomparable performance, flexibility and reliability. Because the XG-1500U is both lightweight and space-efficient, in addition to being ceiling or wall mountable, it also may be situated on projection stands or shelves.

With the XG-1500U's built-in 1:2 zoom lens, it is incredibly easy to vary the image size from 20" up to 100" (or more).

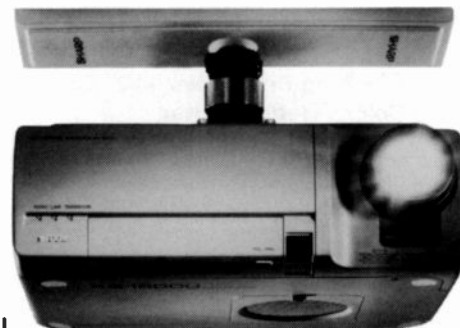
The XG-1500U includes a wide range of inputs including 2 BNC type composite video connectors, an S-Video terminal and analog (15.75kHz) RGB. These multiple inputs let you change instantly among a broad range of sources including VCRs, video disc players, TV tuners and even many PCs.

With the XG-1500U, all that is necessary for rear projection is to simply press the "Reverse Image" switch. No special mirror attachment or internal modification is required.

To simplify operation of the XG-1500U, even from across a dark room, a unique back-lit wireless remote control is included.



XG-1100U



XG-1500U

The XG-1500U incorporates 3 convergence-free active matrix twin-TFT LCD panels with over 268,515 total pixels to produce a picture with superb clarity, colorimetry and definition.

The XG-1500U incorporates a special design metal halide lamp capable of providing extremely bright images from any viewing angle. This lamp is enormously efficient, with an average life of more than 2000 hours. An easy-change lamp module is incorporated into the XG-1500U to ensure quick lamp replacement.

XG-1500U \$4895.00

Optional Accessories for XG-1100U and XG-1500U

- AN-1000P 50W powered loudspeaker system . . \$325.00
- XG-1100CC Durable molded carrying case for XG-1100U 215.00
- XG-1100SC Heavy-duty shipping case for XG-1100U 390.00
- XG-1500SC Heavy-duty shipping case for XG-1500U 430.00
- AN-LM102P Ceiling mounting bracket for XG-1500U 275.00
- AN-EP101P Optional adjustable extension tube for AN-LM102P, chrome plated finish . . . 75.00
- AN-HM101P "Extended" ceiling mounting bracket package. Includes AN-LM102P and AN-EP101P 350.00
- AN-WM103WP Wall mounting bracket for XG-1500U . . 275.00
- XS-100SPP 100" wall or ceiling mount screen . . 190.00
- XS-80SPP 80" wall or ceiling mount screen . . . 115.00
- XS-100HTP 100" tripod/freestanding screen . . . 310.00
- XS-80HTP 80" tripod/freestanding screen 240.00

PROFESSIONAL MICROPHONES



SM10A/SM12A Headset Dynamic Microphones

- Professional head-worn microphones for remote broadcasting, intercommunications systems and vocal performance for drummers and keyboard players
- Noise-cancelling, unidirectional and close-talking with a strong professional sound quality
- Lightweight dual headbands eliminate user fatigue
- Adjustable boom maintains proper mouth-to-microphone distance
- Frequency response of 50-15,000Hz

SM10A-CN Boom microphone only \$149.00
 SM12A-CN Microphone and single monitor earphone 206.00



SM10A/12A

SM57 Unidirectional Dynamic Microphone

- Slender dynamic microphone built to provide wide range reproduction of music and voice
- Exceptionally uniform and effective unidirectional pickup pattern
- Bright, clean sound
- Cartridge shock-mounted for quiet operation
- Frequency response of 40-15,000Hz

SM57-CN With 25' cable \$165.00
 SM57-LC Without cable 141.25



SM57

SM58 Unidirectional Dynamic Microphone

- Professional stage microphone, with a self-contained spherical filter to control explosive breath sounds and wind noise
- Uniform cardioid pickup pattern minimizes off-axis coloration and rejects background noise
- Effective presence rise in mid-frequencies and a fixed low-frequency rolloff to minimize boominess
- Bright, clean sound with a frequency response of 50-15,000Hz

SM58-CN With 25' cable \$205.00
 SM58-LC Without cable 181.50
 SM58S Without cable, includes on/off switch 190.75



SM58

SM77EB/SM78EB Unidirectional Dynamic Microphones

- Lightweight and rugged
- Fixed low-frequency rolloff plus a slight mid-frequency presence rise in their frequency response
- SM77 has slim styling and is effective for instrumental applications
- SM78 has superior wind and pop protection, making it well suited for vocal applications
- Black finish
- Frequency response of 50-15,000Hz

SM77EB Without cable \$130.50
 SM78EB Without cable 153.25



SM77EB



SM78EB



SM78EB

SM85 Unidirectional Condenser Microphone

- Lightweight microphone designed for handheld live vocal applications as well as broadcasting and studio recording requirements
- Controlled low-frequency rolloff minimizes handling noise and boominess
- Constructed with a lightweight, extremely tough aluminum case and a Teflon-coated all steel grille
- Elastomer "spaceframe" isolates the condenser element from virtually all mechanical vibration
- Frequency response of 50-15,000Hz

SM85 Without cable \$305.00

SM87 Supercardioid Condenser Microphone

- Similar in appearance and construction to the SM85, the SM87 features a supercardioid, rather than cardioid, pickup pattern
- Flat response means less equalization is needed, for fewer potentially troublesome response peaks
- Tighter pickup pattern results in greater gain-before-feedback and less microphone "bleed" (unwanted pickup of other voices, instruments or room noise)
- Especially useful in multiple-miking situations or single-miking in a noisy or reverberant environment
- Frequency response of 50-18,000Hz

SM87 Without cable \$329.00

SHURE®

PROFESSIONAL MICROPHONES/ ACCESSORIES

SM48 Unidirectional Dynamic Microphone

• Equipped with its own specially designed cartridge • Utilizes a highly efficient cartridge shock mount, which reduces handling and stand noise dramatically • Extremely smooth peak-free frequency response with a slight midrange presence rise for enhanced vocal intelligibility • Built-in spherical windscreen • Uniform cardioid pickup pattern greatly reduces off-axis coloration and rejects background noise to permit higher sound system gain before feedback • Non-glare gray handle finish and satin chrome grille
SM48-LC Supplied without cable only \$130.80



SM48

SM94 Unidirectional Condenser Microphone

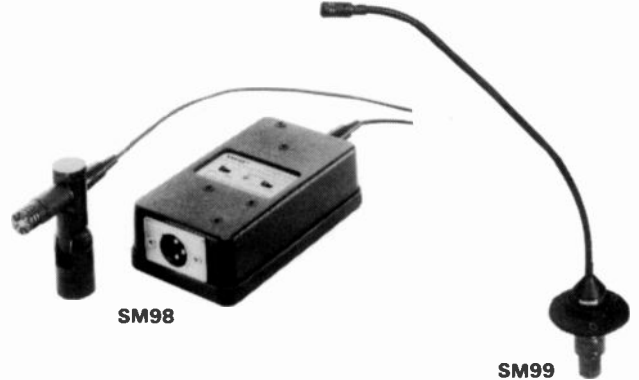
• Wide-range, smooth, flat frequency response has no presence boost or low-end rolloff, making it an ideal choice for live instrument miking or recording • Cardioid polar pattern is exceptionally smooth and uniform at all frequencies • Elastomer "space frame" shock mount makes it practically immune to handling noise, hum and RF interference • Can be used at sound pressure levels up to 141dB (800 ohm load) • May be powered by standard phantom power supplies or by an internal 1.5V AA battery • Swivel adaptor and vinyl storage bag are included
SM94-LC Supplied without cable only \$260.00



SM94

SM96 Unidirectional Condenser Microphone

• Ideal for live performance and recording, as well as general sound reinforcement systems • Smooth, even frequency response has a slight presence rise and electronically generated low-frequency rolloff for maximum vocal sound clarity • Built-in multi-stage wind and pop filter and uniform cardioid polar pattern • Elastomer "space frame" system isolates the transducer element from the roughest handling • Wide dynamic range gives it the ability to take extremely high sound pressure levels without "breaking up" • Can be powered by virtually any phantom power source, or by an internal 1.5V AA battery • Swivel adaptor and zippered vinyl storage bag are included
SM96-LC Supplied without cable only \$260.00



SM98

SM99

SM98 Miniature Musical Instrument Microphone

• Wide, extremely smooth frequency response for accurate, faithful reproduction of acoustic instruments • Nearly perfect cardioid polar pattern at all frequencies for superior source isolation • Detachable cable • Low noise preamp is powered by 2 standard 9V batteries or an 11 to 52VDC phantom supply • Battery on/off switch and a 12dB/octave low-end cutoff switch • Included is a swivel adaptor, windscreen and zippered vinyl storage bag
SM98 \$250.00

SM99 Miniature Gooseneck-Mounted Supercardioid Condenser Microphone

• Designed primarily for speech and vocal pickup • Also provides excellent reproduction of acoustic instruments • Can be surface, flange or stand mounted • Integrated preamplifier • Satin black finish • Only 7/16" diameter • 12" gooseneck flexes only over the top and bottom portions • Frequency response: 80-20,000Hz • Includes pop filter and mounting hardware
SM99 \$240.00

SM99SE Similar to SM99. Offers side exit of cable at base of gooseneck for mounting above surface on standard 5/8"-27 flange. In-line preamplifier with mounting bracket supplied \$260.00

A99SM Recessed "Shock-Stopper"™ rubber isolation mount for SM99. Supplied adaptor also permits use with SM99SE, SM98/A98-G18 \$45.00

SM98 Accessories

A98KCS	Universal horn clamp. Fully adjustable to suit any horn, built-in shock mount	\$60.00
A98G18	18" gooseneck for SM98	50.50
A98GM	Mounting flange	13.00
A98HA	Hanging adaptor for SM98	15.00
A98KC-1	Soprano saxophone clamp for SM98	18.25
A98KC-2	Alto saxophone, trumpet clamp for SM98	18.25
A98KC-3	Tenor saxophone clamp for SM98	18.25
A98KC-4	Baritone saxophone clamp for SM98	18.25
A98MK	Drum mount kit for SM98	44.00
A98PF	Pop filter and locking collar for SM98	13.50
A98SPM	Polar modifier	49.00

SM102 Series Miniature Condenser Microphones

• Designed to be hung from overhead • Permanently mounted to a slim 6" gooseneck which allows the user to aim the microphone at various angles • 30' cable connects to an included preamplifier

SM102B	Black, includes in-line (tubular) preamplifier . . .	\$230.00
SM102W	Same as above, in white	260.00
SM102PB	Black, includes wall plate preamplifier designed for permanent mounting in standard electrical wall box	215.00
SM102PW	Same as above, in white	240.00

GENERAL PURPOSE MICROPHONES



SM 11 Lavalier Microphone

Tiny, rugged, with a frequency response of 50-15,000Hz—the SM11 is the world's smallest dynamic element lavalier microphone. Less than half the size of a standard microphone connector, it is ideal for on-camera TV and motion picture applications. It has a smooth, natural sound quality that's optimized for lavalier use. Its dynamic cartridge and aluminum case are rugged and reliable with excellent humidity and heat resistance. The SM11 comes with 2 mounting options: tie bar and tie tack. A special clip secures the cable connector to the performer's belt or clothing.

SM11\$113.00

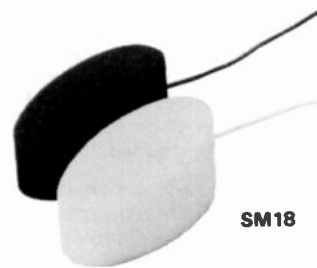


SM11

SM 18 Surface-Mounted Microphone

The SM18 is a dynamic microphone with color-coordinated foam enclosures and matching cables. The palm-size microphone "disappears" by blending into its surroundings in conference rooms, auditoriums and churches. The SM18 is ideal for use on altars or on conference tables where ordinary stand-mounted microphones might be visually distracting. The voice-range frequency response minimizes low frequency boominess and rolls off high frequencies above 10kHz, thus minimizing pickup of spurious noise from undesirable sources such as rustling papers. The SM18 offers a unique solution to the problem of sound pickup near a hard surface such as a desk, tabletop, lectern or altar. The microphone is mounted in the foam enclosure at an angle that places the cartridge about 1/8" from the hard surface. This minimizes the influence of sound reflections from the hard surface, thereby eliminating the uneven frequency and "hollow" sound which reduces intelligibility. As the reflected and direct sound waves are combined, the microphone output is increased by about 6dB. Frequency response is 150-10,000Hz.

SM18B Brown foam enclosure, 9' attached brown cable with 3-pin professional audio connector.....\$111.25
 RK205F White foam enclosure11.30



SM18



SM59

SM 59 Unidirectional Dynamic Microphone

The SM59 is widely used for distinguished TV studio productions, especially musical shows, where sound quality is a major consideration. Its wide, ultra-flat response is enhanced by a controlled low-frequency rolloff, providing a clean, natural sound for voice or instruments. In addition, the performer can control the amount of bass increase by moving toward or away from the microphone. The tightly controlled cardioid pickup pattern minimizes feedback and unwanted background noise. It's superb for miking horns, drums and vocalists. The design of the SM59 makes this microphone virtually immune to extraneous noise. Shure-patented mechano-pneumatic shock mount shields the cartridge from rumble and other mechanically transmitted noise, whether on a stand or handheld. An integral windscreens provides excellent pop protection, and a built-in humbucking coil minimizes hum due to nearby electromagnetic interference, even strong RF fields found near TV studios. These features make the SM59 the choice for permanent installations such as legislative chambers and court houses where minimum handling noise is essential. The slim profile and elegant champagne finish give the SM59 a distinctive, sleek appearance. Although it weighs less than 8 oz., the microphone is remarkably rugged.

SM59 Supplied without cable only\$236.50



SM62

SM 62 Unidirectional Dynamic Microphone

Use the SM62 wherever a high-quality compact microphone is needed—on stage, in interviews, on podiums. Less than 5" long and weighing only 4 oz., it's unobtrusive in both handheld and stand-mounted use. The SM62's flat, uncolored frequency response and uniform cardioid pickup pattern provide excellent performance as well as control of feedback and unwanted background noise. A carefully controlled low-frequency rolloff prevents the "boominess" associated with close miking. A rubber cartridge shock mount keeps handling noise low, and the integral windscreens minimizes breath pop. The SM62 is finished in durable champagne enamel and comes with a matching swivel adaptor.

SM62 Supplied without cable only\$165.50

SHURE®

TELECONFERENCING SYSTEM

ST3000 Teleconferencing System

There are only 2 components in the ST3000 System. The round audio module contains 3 unidirectional microphones and a specially designed loudspeaker. The control console houses master controls, power and connections.

Both audio and control units are compact and lightweight. You can quickly hook them into any standard analog telephone line.

The ST3000 makes top quality group communications possible in virtually any room, eliminating the need for expensive acoustic treatment.

The advanced electronic circuitry of the ST3000 also allows interactive, interruptible conversations.

We've eliminated the tinny "bottom-of-a-barrel" sound normally associated with long distance conferencing. Voices are perfectly intelligible, tones are warm and clear.

The ST3000 also automatically compensates for the difference in sound levels found when teleconferencing between 2 or more remote locations. And it automatically adjusts for different voice levels and the varying locations of participants in a room. Once volume is set, no readjustment is required.

Because of its unique integrated microphone/loudspeaker design, the ST3000 will provide superior audio performance in ordinary conference rooms and offices that previously could not be used for teleconferencing. And no acoustical room treatment is normally necessary.

To install the ST3000, place the audio module in the approximate center of the conversation area and plug into the control console mounted nearby. Then connect standard single line phone to the control console and the control console to the telephone jack and an electric outlet. In most cases, that's all there is to it. It can be ready for its first teleconference in minutes. For larger conferences, additional audio modules can be easily added.

For on the air operation of the ST3000, telephone the desired location and push "Conference" on the control console. To disconnect, simply hang up the telephone and press "Telephone" on the control console.

Both the audio module and control console fit into an optional heavy-duty carrying case. It's compact and lockable so teleconferencing capabilities can travel to important meetings out of the office. Or move the ST3000 from the regular conference room into an executive office whenever it's necessary.

When any of 3 lighted "mute" bars on the audio console is pressed, all mics are disconnected, and a red "status" light on each bar turns on. A second press reactivates all mics and turns the "status" lights to green.

The ST3000 control console provides master control of all audio modules. "Mute" turns off the mics on all audio modules in use. "Listen Only" locks all microphones in "mute" and is ideal for long distance training sessions where actual conversation is at a minimum. "Talk Only" suppresses incoming sounds so that a presentation can be made without interruption.

The control module also contains an auxiliary input to bring an outside audio program into the conference and an auxiliary output for tape recording.

ST3000A	Complete Teleconferencing System (Oak finish)	\$5660.00
ST3000W	Complete Teleconferencing System (Walnut finish)	5660.00



ST3000



Individual Components and Optional Accessories

STC64A	Controller (Oak finish)	\$3130.00
STC64W	Controller (Walnut finish)	3130.00
STC64A-SPLB	Controller (Oak finish) with adjustable suppression	3430.00
STC64W-SPLB	Controller (Walnut finish) with adjustable suppression	3430.00
STC64A-AR	Controller (Oak finish) additional receive	3430.00
STC64W-AR	Controller (Walnut finish) additional receive	3430.00
STLM32A	Audio Module (Oak finish)	2530.00
STLM32W	Audio Module (Walnut finish)	2530.00
STLM32A-HI	Audio Module (Oak finish) High Inhibit	2700.00
STLM32W-HI	Audio Module (Walnut finish) High Inhibit	2700.00
RKC201	Controller-to-Module Cable (10')	86.00
RKC202	Controller-to-Module Cable (20')*	99.00
RKC203	Module-to-Module Cable (4')	60.00
RKC204	Module-to-Module Cable (10')	73.00
RKC205	Module-to-Module Cable (7')	69.00
RKC207	Extension Cable (25')	107.00
A300W	Carrying Case	171.00
A300S	Shipping Case	266.00
A300SM	SupraMount Audio Module Suspension System	369.00

*Replacement only — one cable included with each ST3000 System at no extra charge.

TELECONFERENCING SYSTEM

SHURE®

ST6000 Type 2 Teleconference System

The basic ST6000 Type 2 System comprises a console with remote control, wooden cabinet, up to six microphones, and up to three loudspeakers.

The heart of this teleconferencing system is housed in a single console. Once the microphone levels are set you never have to adjust them again.

Without the cabinet you can mount the ST6000 console into a standard 19" electronic equipment rack. This enables you to place it out of sight with your other electronic equipment. The simple touch of a button on the remote control unit engages the teleconferencing system. The remote also lets you control loudspeaker volume and mutes outgoing or incoming conversation.

This system successfully integrates unique microphones with a 6 input mixer and logic technology for the best sound performance possible. Without your lifting a finger, this system constantly analyzes the acoustic environment of the meeting room and automatically adjusts as audio conditions change. The ST6000 Console takes up to 6 microphones and can accommodate as many 8-channel expansion units (ST6008) as necessary for large meeting situations.

This system is completely ready to use with standard 2-wire telephone lines, dedicated 2- or 4-wire lines, or satellite links. The ST6000 System is totally compatible with audio graphic, facsimile and video systems. If your meeting requires video conferencing, this system can accept a Shure Video Switcher Interface (STV680), which is compatible with most video switchers. This provides the convenience of automatic switching of cameras.

With the use of the STB624 and the ST2AC accessories, it is possible to add a 2-wire, telephone line into your 4-wire video conference, or switch from 2-way video/satellite transmission to uplink or downlink configuration with the push of a button. All sites can achieve full duplex if one set of equipment is used, switched audio if a different mix of equipment is used.

The PA output of the system gives you the ability to provide "send and receive" audio to a large audience through a public address system. In addition, this output offers the capability of recording your teleconference.

The ST6000 System also allows for expanded capabilities including:

Chairman Override

To provide for a designated microphone to override all others.

Channel Priority

To let one microphone override another in a predetermined order.

Fillbuster Capability

To allow only one microphone on at a time.

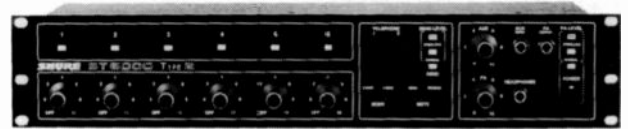
Zone Loudspeaker Muting

To prevent feedback by turning off appropriate loudspeakers as nearby microphones turn on.

Remote Channel Indicators

To give visual indication when microphones are on.

ST6000	(Type 2A) Console with Remote Control (Oak finish)	\$8200.00
ST6000	(Type 2W) Console with Remote Control (Walnut finish)	8200.00
A6000A	Console Cabinet (Oak finish)	250.00
A6000W	Console Cabinet (Walnut finish)	250.00
STM22A	Low-Profile Microphone (Oak color)	205.00
STM22W	Low-Profile Microphone (Walnut color)	205.00
STM26	Probe Microphone	205.00
STM28	Lavalier Microphone	225.00
STM30A	Low-Profile Microphone (Beige color)	170.00
STM30W	Low-Profile Microphone (Black color)	170.00
STM33A	Tri-Mic™ (Oak finish)	660.00
STM33W	Tri-Mic™ (Walnut finish)	660.00
STL72A	Table Loudspeaker (Oak finish)	160.00
STL72W	Table Loudspeaker (Walnut finish)	160.00
STL78	Wall Loudspeaker	160.00
STV680	Video Switcher Interface	1650.00
STR62A	Remote Control Accessory (Oak finish)	160.00
STR62W	Remote Control Accessory (Walnut finish)	160.00
STB624	Videoconference Network Interface (Requires an STC64—SPLB for power and telephone line interface)	2750.00
A624PS	Power supply for STB624	140.00
STC64A-SPLB	Controller (Oak finish) with adjustable suppression	3430.00
STC64W-SPLB	Controller (Walnut finish) with adjustable suppression	3430.00
ST2AC	Canceller	1640.00
ST6008	(Type 2) Eight-Channel Expansion Mixer	4000.00



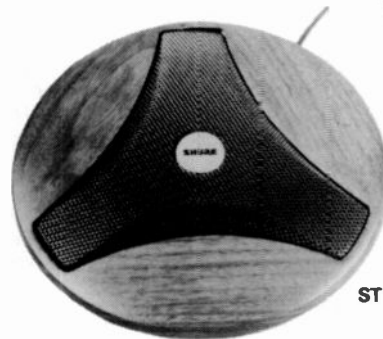
ST6000 Type 2



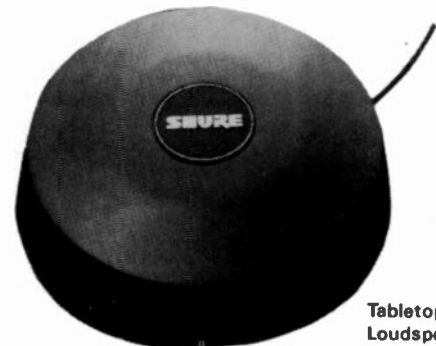
Remote Control



STM 30A



STM 33 Tri-Mic



Tabletop Loudspeaker

ST6300 Type 2 Teleconferencing System

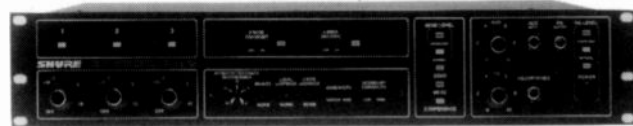
- Optimized, natural voice quality without echo, "boominess" or listener fatigue
- Reliable, quick-acting, noise-free microphone selection—automatically adjusts to changes in background room noise
- Wideband (to 15kHz), low-distortion echo reduction circuitry provides echo-free, high-fidelity teleconferencing
- Remote control with conference on/off, speaker volume and mute switches
- Frequency response modifiable for various bandwidth systems by switch or logic terminal
- Automatic level adjustment for weak far-end talkers
- No threshold settings to misadjust
- Logic inputs and outputs enhance system versatility
- Front-panel-accessible local and 4-wire loopback modes for ease in setup and checking
- Interrupt capability switch improves control in difficult conference situations
- Linking capability for as many as 200 microphones
- Accepts insertion of Shure STC64-SPLB Controller and external telephone line echo canceller to bring telephone line into videoconference
- Accepts insertion of external audio delay unit
- LED indications of system operation
- 3 microphone inputs use standard 2-conductor shielded cables and 3-pin connectors
- Front- and rear-panel PA outputs and aux inputs
- Headphone monitor jack

The ST6300 Type 2 Teleconferencing System (ST) is a complete 4-wire audio system providing high-quality, wideband (to 15kHz), echo-free speech communication in a videoconferencing environment. By automatically selecting and turning on ("gating through") the most appropriate microphone or microphones for conference room speech pickup, the reverberant sound quality, feedback problems, echo and distortion often associated with the use of conventional microphone techniques is greatly reduced. The system combines superlative acoustical design with advanced electronic signal processing to provide clear, natural and effortless teleconferencing without the typical "boomy" or "muddy" sound, echoes, difficulty in "getting through," insufficient sound levels (because of feedback or "howling") and operator errors. The system can be used in a wide variety of conference environments without complicated setup or adjustment procedures. Operation for the user is as easy as a simple desktop speakerphone, yet the capability for fully interactive conversation with high-quality sound is not sacrificed.

The resulting sound is clearer than that of conventional multi-microphone teleconferencing systems—and free of the clipped and missed words, clicks and pops, noise "pumping" and distortion often associated with similar systems. The ST6300 Type 2 operates over an extremely wide dynamic range without the possibility of threshold-setting misadjustments.

In addition, the ST6300 Type 2's echo reduction circuit virtually eliminates annoying residual echo which may be present in audio-delayed systems. This means full-duplex, echo-free satellite and compressed video conferencing can be achieved without the fidelity compromises—distortion, noise, restricted bandwidth—of many conference systems.

The ST6300 Type 2 also incorporates the necessary bridging circuitry to establish, using Shure's STC64-SPLB controller and ST2AC Cancellor, a fully interactive teleconference site



ST6300 Type 2

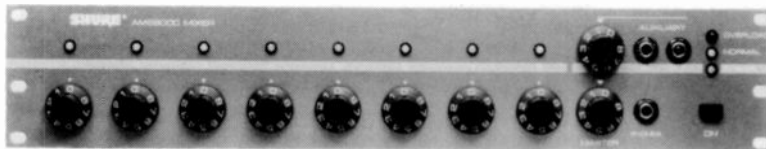
communicating with both a 4-wire video-conference link and the 2-wire public telephone network. For example, a telephone line can be brought into a 2-way satellite videoconference or be used for downlink site return audio in a 1-way broadcast satellite conference.

The ST6300 Type 2 is supplied in a 3-microphone-channel configuration housed in a single 3 1/2" rackmount package with a detachable oak-finish (STR63A) or walnut-finish (STR63W) remote control unit, screws and washers for rackmounting, and an alternate line fuse for 240V operation. In addition to microphone, loudspeaker and 3-pin XLR (transformer-balanced, 600 ohm terminated, at 0dBm level) connectors, the ST6300 Type 2 contains logic terminals for microphone gating indicators and muting control, link circuitry for expansion to as many as 200 microphones, and connectors for an ST2AC Telephone Line Echo Cancellor, telephone line audio lip-synchronization delay unit, and headphone and monitor outputs. Connection to a 2-wire telephone line is made through a STC64-SPLB Controller (not supplied) which is normally a part of the ST3000 Teleconferencing System.

ST6300 Type 2	Console	\$7130.00
A6000A	Console cabinet (oak finish)	250.00
A6000W	Console cabinet (walnut finish)	250.00
STM22A	Low-profile microphone (oak color)	210.00
STM22W	Low-profile microphone (walnut color)	210.00
STM26	Probe microphone	210.00
STM28	Lavalier microphone	235.00
STM30A	Low-profile microphone (beige color)	170.00
STM30W	Low-profile microphone (black color)	170.00
STM33A	Tri-Mic™ (oak finish)	660.00
STM33W	Tri-Mic (walnut finish)	660.00
STL72A	Table loudspeaker (oak finish)	160.00
STL72W	Table loudspeaker (walnut finish)	160.00
STL78	Wall loudspeaker	160.00
STV680	Video switcher interface	1650.00
STR63A	Remote control accessory (oak finish)	160.00
STR63W	Remote control accessory (walnut finish)	160.00
STC64A-SPLB	Controller (oak finish) with adjustable suppression	3430.00
STC64W-SPLB	Controller (walnut finish) with adjustable suppression	3430.00
ST2AC	Cancellor	1640.00
ST6008 Type 2	8-channel expansion mixer	4000.00

AUTOMATIC MICROPHONE SYSTEMS

SHURE®



AMS8000 Mixer



AMS4000 Mixer



AMS880 Video Switcher Interface



AMS Automatic Microphone System

The Automatic Microphone System (AMS) is a unique, totally integrated combination of microphone, mixer and logic technology which operates as one to provide the clearest, smoothest, most reliable automatic sound performance in the industry. Each microphone and mixer channel in the AMS contains logic circuitry. This enables every microphone to act independently in the system when turning on or turning off. Each microphone continuously analyzes its own local acoustic environment, allowing each channel to adjust itself independently as audio conditions change. Four microphone styles include the AMS22 low-profile microphone, the AMS24 Gooseneck microphone, the AMS26 Probe microphone and the AMS28 Lavalier microphone. Special capabilities available for the AMS include: Privacy or cough button, chairman muting, channel priority, filibuster capability, zone loudspeaker muting and remote channel indicators. The AMS system can be connected to a computer programmed for even more sophisticated control operations. In addition, when connected with the optional microcomputer-based AMS880 Video Switcher Interface component, the AMS will control commercially available video switchers. In doing so, television cameras will automatically follow the microphone channel activity to visually monitor prescribed areas.

Specifications

AMS4000 and AMS8000 Mixer

Frequency
Response: Aux input to outputs: 30 to 20,000Hz \pm 2dB Mic input to outputs: 70 to 20,000Hz \pm 2dB (controlled low-frequency rolloff below 50Hz)
Distortion: THD 0.35% or less, 30 to 20,000Hz at +15dBm output; IMD 0.5% or less up to +15dBm output
Operating Voltage: 105-132VAC, 50/60Hz, 20W. Can be rewired for 210-264VAC, 50/60Hz, 20W
Dimensions: 3 1/2" H x 19" W x 11 3/4" D
Weight: AMS8000: 14 lbs. 8 oz. AMS4000: 12 lbs. 13 oz.

AMS22 Low-Profile Microphone

Type: Condenser (Electret Bias)
Polar Pattern: Hemi-Cardioid
Output Level: (Open circuit voltage at 1kHz) -47dB typical (0dB = 1V/ μ bar) at AMS mixer direct output
Noise: 20dB equivalent SPL typical, A-weighted 25.5dB equivalent SPL typical, weighted per DIN 45405
Dimensions: 1 1/4" H x 3 1/2" W x 3" D
Weight: 6.1 oz. including cable

AMS24 Gooseneck Mounted Microphone

Type: Condenser (electret bias)
Polar Pattern: Cardioid
Output: (at 1000Hz) -56dB typical (0dB = 1V/ μ bar)
Noise: 27dB equivalent SPL typical; A-weighted; 32.5dB equivalent SPL typical, weighted per DIN 45405
Length: 15" Diameter: 1 1/32"
Weight: 5.6 oz.

AMS26 Probe Microphone

Type: Condenser (electret bias)
Polar Pattern: Cardioid
Output: (at 1000Hz) -54dB typical (0dB = 1V/ μ bar)
Noise: 27dB equivalent SPL typical, A-weighted; 32.5dB equivalent SPL typical, weighted per DIN 45405
Length: 5 2 1/32"; Diameter: 1 1/32"
Weight: 4.4 oz.

AMS28 Condenser Microphone

Type: Condenser (electret bias)
Polar Pattern: Cardioid (unidirectional)
Output: (at 1000Hz) open circuit voltage: 54dB typical (0dB = 1V/ μ bar)
Noise: 27.0dB equivalent SPL typical, A-weighted 32.5dB equivalent SPL typical, weighted per DIN 45405
Length: 1 3/16"; Diameter: 2 1/2"
Weight: 5.5 oz. with cable and connectors

AMS880 Video Switcher Interface

Input: Open circuit voltage +5V; resistance: 1K ohm
Output: Off resistance: > 300 megohms; On resistance: < 200 ohms
Power: External power transformer: 120VAC \pm 10%, 60Hz, 6W
Dimensions: 1 3/4" H x 19" W x 5" D
Weight: 2.5 lbs. including transformer

AMS4000	.....	\$1800.00
AMS8000	.....	2800.00
AMS22	.....	210.00
AMS24	.....	245.00
AMS26	.....	210.00
AMS28	.....	235.00
AMS880	.....	1850.00

FP410 Portable Microphone Mixer

- Reliable, quick-acting, noise-free microphone selection—automatically adjusts to changes in background room noise
- Front-panel channel gain and master controls operate as in conventional mixers
- Selectable hold time keeps microphones on during short pauses in speech
- Selectable off-attenuation control for seamless operation
- Automatic gain adjustment as additional microphones are activated
- Defeatable "Last Mic Lock-On" circuit keeps at least 1 microphone on at all times, maintains acoustic ambiance and prevents confusing background sound changes
- Wide, flat frequency response and low distortion up to +18dBm output

FP410\$1595.00

M64A Universal Stereo Preamplifier

- Permits turntables to be used with PA mixers and amplifiers without phono inputs
- Also useful as a microphone preamplifier or low-gain buffer amplifier
- Includes a 3-position slide switch for selecting Phono, Tape, or Flat frequency compensation

M64A\$130.00

M68A Microphone Mixer

- 5-channel models with 4 microphone inputs (each switchable for high or low impedance) and a high-level auxiliary input
- Both include high- or low-impedance auxiliary output
- Units can be easily connected to provide additional inputs

M68A 3-pin male XLR input connectors\$240.00

M68FCA 3-socket female XLR input connectors\$235.00

M267 Professional Mixer With Limiter

- For recording or broadcast use
- 4 low-impedance balanced inputs switchable to mic or line level
- Phantom power on each input
- Fast-acting limiter
- Built-in battery supply
- Headphone level control
- Illuminated VU meter with LED peak level indicator
- Low-cut filters and tone oscillator
- Battery check switch
- Mix bus jack
- Mic and line level outputs
- Master volume control
- 120/240VAC, 50/60Hz, 9.5W; battery power
- 2³/₄" H x 11³/₈" W x 7¹/₂" D

M267\$520.00

M268 Microphone Mixer With Phantom Power

- 5 channels
- Ideal for public address and recording applications
- Mix bus, phantom power
- Active gain controls and electronic power supply regulation
- 120VAC, 50/60Hz, 5W
- 2³/₄" H x 11³/₈" W x 7¹/₂" D

M268\$315.00

FP11 Microphone-to-Line Level Amplifier

- Portable, 1-input, 1-output
- Provides up to 84dB of gain so that microphone and auxiliary level devices can be boosted to line level
- Balanced, locking XLR input and output provide a switchable peak limiter, a peak/limiter LED indicator, aux level mini-phone jack input, powered by 1 standard 9V battery

FP11\$275.00

FP12 Headphone Bridging Amplifier

- 1-input, 2-output
- Designed to provide headphone feeds from any type of audio input
- 2 XLR in/out connectors and 2 1/4" in/out jacks
- Mic/Line input switch
- Hi-Z/Low-Z headphones switch
- Headphone level control, powered by 1 standard 9V battery

FP12\$260.00

FP16A Distribution Amplifier

- Mic/Line switchable
- 1-input, 6-output, compact, self-contained audio distribution amplifier for routing multiple audio feeds without sacrificing signal clarity
- Specially designed for field production use
- FP16A 120/240VAC or battery power, 3 x 9VDC

FP16A\$585.00

FP31 Microphone Mixer

- Designed for electronic news gathering (ENG) and electronic field production (EFP) use, including film, video and remote broadcast applications
- Measures just 6⁵/₁₆" x 5⁵/₁₆" x 1⁷/₈"
- Incorporates the features most requested by audio engineers, electronic news profes-



FP410



M267



FP31



FP51

sionals, sportscasters and film and video sound engineers

- Provides a wide, flat frequency response, low distortion and up to +18dBm output
- Built-in slate microphone for voice announcement and emergency field use
- With carrying case

FP31 Battery power\$1065.00

FP32 Stereo Microphone Mixer

- 2 transformer balanced outputs (1 for each stereo channel) and 3 inputs, each switchable for low impedance microphone or line level operation
- Stereo capability is enhanced by a concentric clutched stereo master gain control
- Built-in slate microphone and slate tone
- Built-in tone oscillator for level checks or line tests
- Built-in phantom and A-B(T) power for condenser microphones
- Phantom jack permitting use of an external microphone power supply (up to 48VDC)
- With carrying case

FP32 Battery power\$1450.00

FP42 Stereo Microphone Mixer

- Handles remote mixing jobs with its 2 outputs (1 for each stereo channel) and 4 balanced inputs, each switchable for line or mic level operation
- Each input channel also has a low-frequency rolloff switch and a center-detented stereo pan pot for convenient stereo mixing
- Concentric clutched stereo master level control
- Pull-pot cueing permits cueing or checking each input via headphones
- Can be battery or AC operated
- Mini and 1/4" stereo headphone jacks with level control included

FP42 120/240VAC or battery power\$1020.00

FP51 Compressor/Mixer for Microphone or Line Input

- 4 mic/line inputs
- Cue on each input
- Separate headphone amplifier
- 1/4" and mini headphone jacks
- Compressor and memory switch on front panel
- AC/DC powered with battery check
- Phantom power for mics
- Rackmountable
- Peak light on VU meter
- Outputs at line mic and mix bus levels

FP51\$965.00

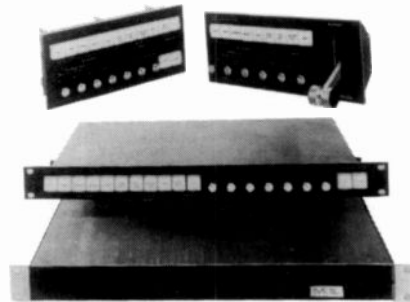
VIDEO PRODUCTION EQUIPMENT



COMPONENT VIDEO PRODUCTS

CIK-1 Component Video Keyer

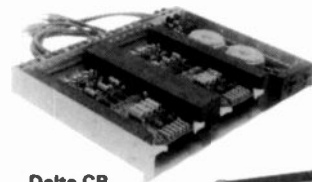
A stand-alone system that can be used by itself or to add an additional key level to an existing component video production suite. Functions on the remote panel include a key source selector which can choose any combination of the insert video's red, green, blue, luminance, chroma key and/or an external video as the source cutting the key hole. The hole can be filled with either the insert video or the CIK-1's internal colorizer. There are 3 types of remote control panels: A console mount panel with lever arm control of the transition and both rack and console mount panels which feature an auto transition system in place of the lever arm. The auto transition can also be initiated by a GPI closure from an editing system.



CIK-1

CIK-1 Systems Including Frame and Control Panel

902011YUVC	Console mount auto transition control panel	\$3195.00
902011YUVR	Rackmount auto transition control panel	3195.00
902011YUVL	Console mount lever arm control panel	3195.00
902011RGBC	Console mount auto transition control panel	3195.00
902011RGBR	Rackmount auto transition control panel	3195.00
902011RGBL	Console mount lever arm control panel	3195.00



Delta CB

Delta Series Format Converters

• Looping inputs • 3 outputs per output channel • Mounting frame will accept any combination of 1 or 2 modules in this family • Frame includes a built-in power supply with a second (backup) supply available as an option

Delta CB

502005BETA	RGB to Betacam converter module	\$595.00
502005MII	RGB to MII converter module	595.00

Delta BC

502027BETA	Beta to RGB + sync converter module	\$595.00
502027MII	MII to RGB + sync converter module	595.00

Delta Miscellaneous Modules

502007	3-channel component DA with 3 outputs per channel	\$495.00
DELTA-X	Extender module	65.00
802008/117	Delta rack frame for 2 modules 117V	595.00
802030/117	Delta tabletop frame for 1 module 117V	395.00



BOBs

Break-Out Boxes (BOBs)

BOBs allow easy connection with standard BNC cables to the component video 12-pin connectors on Betacam and MII tape machines. BOBs use a diecast aluminum box with a 24" cable and dub connector.

BOB-PB	Betacam playback	\$ 99.00
BOB-RB	Betacam record	99.00
BOB-PM	MII playback	109.00
BOB-RM	MII record	109.00

SMALL ROUTERS

Model 161 Routing Switcher

A 16 x 1 video with stereo audio follow packaged in a 1RU frame and less than 8" deep.

903135	16 x 1 VAA switcher and PS	\$995.00
803138	Local panel LED	250.00
803638	Remote panel LED*	300.00
803139	Remote panel incandescent*	400.00
803140	Serial control RS-232 or RS-422	350.00
503141	Extender module	100.00

Model 82 Routing Switcher

An 8 x 2 video with stereo audio follow packaged in a 1RU frame. This switcher gives you 2 buses for the price of 1 with a video bandwidth of 30MHz.

903149	8 x 2 VAA switcher and PS	\$1295.00
803150	Local panel, 2-bus LED	300.00
803650	Remote panel, 2-bus LED*	350.00
803654	Remote panels, 2 1-bus panels incandescent*	600.00
803140	Serial control RS-232 or RS-422	350.00
503141	Extender module	100.00

Model 44 Routing Switcher

A 4 x 4 video with stereo audio follow packaged in a 1RU frame. This small matrix router features low cost and built-in serial control. Video bandwidth is 40MHz.

903148	4 x 4 VAA switcher and PS	\$1595.00
803151	Local panel, 4-bus LED	350.00
803651	Remote panel, 4-bus LED*	400.00
503141	Extender module	100.00

Model 44C Component Video Routing Switcher

A 4 x 4 component video (RGB or YUV) packaged in a 1RU frame. This small matrix router features low cost and built-in serial control. Video bandwidth is 40MHz.

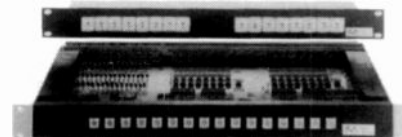
903143	4 x 4 VVV switcher and PS	\$1895.00
803151	Local panel, 4-bus LED	350.00
803651	Remote panel, 4-bus LED*	400.00
503141	Extender module	100.00

Model 5 Component Video Routing Switcher

3-channel, 5-input router designed to fill the need for a small signal selector in a component video facility. The Model 5 is a modular design with all electronics on a single plug-in circuit module. The module includes local control by means of 5 illuminated re-legendable pushbutton switches, which form part of the front panel. The router has looping inputs and 2 outputs per bus. The system is packaged in a 1RU frame including power supply.

903035	Complete series 5 system including frame, power supply and local control panel	\$1345.00
803031	Remote control panel for series 5 including 25m cable	295.00

*Includes a 15m cable



Model 161

MEDIUM SIZE ROUTERS

Series 8 and 16 Routing Switchers

The Series 8 and 16 are a line of audio, video, time code and pulse switchers. The Series 8 is limited to 8 inputs and is based on an 8 x 8 module. The Series 16 is limited to 16 inputs and is based on a 16 x 4 building block for video and pulses. Series 16 audio and time code use a 16 x 8 module. Each module is a complete switching system with input buffers, switching matrix, output amplifiers, control circuits and power supply on the same module.

Performance

The video crosspoint modules have a bandwidth of more than 40MHz. The use of multilayered boards and "T" crosspoint design results in a worst case crosstalk of 60dB at 5MHz. The audio crosspoint is a balanced high level MOS switch that is click-free and has a total system S/N ratio of > 100dB.

Packaging

The Series 8 and Series 16 are housed in 2 sizes of mounting frames: A 1RU high frame which will accept 1 switching module, and a 3RU high frame which will accept up to 6 switching modules and an optional RS-232 serial control computer.

Control

Control is via a simple but flexible multiwire party line system. Control panels can be either single bus or X-Y pushbutton types or a keypad panel. These can be used in any combination with or without the optional serial control computer, which provides an ASCII protocol RS-232 port for either a simple terminal or external computer. The serial control module features a 10-year nonvolatile crosspoint memory system that restores the system to its last setup when power is turned on.

Routing Switchers 8 and 16 Input

503001	16 x 4 video crosspoint module	..... \$1545.00
503009	16 x 8 video crosspoint module	..... 1545.00
503080	16 x 4 pulse (sync) crosspoint module	..... 1245.00
503039	Stereo 8 x 8 audio crosspoint module	..... 1545.00
503044	8 x 8 pulse (sync) crosspoint module	..... 1245.00
503008	8/16 serial control module	..... 745.00

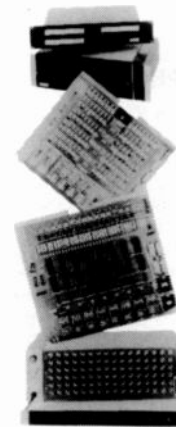
Control Panels

803522	8-button single bus control panel	..... \$350.00
803022	16-button single bus control panel	..... 550.00
803042	8 x 8 X-Y control panel (16 buttons)	..... 550.00
803005	16 x 8 X-Y control panel (24 buttons)	..... 750.00
803542	8 x 16 X-Y control panel (24 buttons)	..... 750.00
803505	16 x 16 X-Y control panel (32 buttons)	..... 950.00
803063	16 x thumbwheel panel (thumbwheel plus 16 buttons)	..... 750.00
803563	8 x thumbwheel panel (thumbwheel plus 8 buttons)	..... 550.00

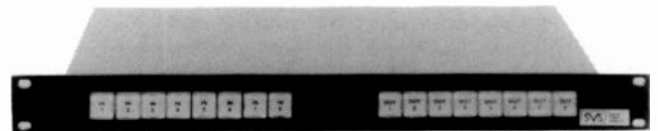
Series 8/16 Options

Order modules separately. Include 1 per power supply and provision for plug-in serial control module unless noted otherwise.

803003	1RU frame 16 x 4 video switcher, looping inputs and dual outputs, no serial control.	..... \$595.00
803019	1RU frame 8 x 8 video switcher, looping inputs and single outputs, no serial control	..... 595.00
803041-16	1RU frame 16 x 8 audio switcher, "D" connectors for inputs and outputs, dual audio outputs, no serial control	..... 595.00
803041-88	1RU frame 8 x 8 audio switcher, "D" connectors for inputs and outputs, single audio outputs, no serial control	..... 595.00
803065	1RU frame 16 x 4 video switcher, supply terminating inputs, dual outputs	..... 695.00
803064	1RU frame 8 x 8 video switcher, looping inputs, single outputs	..... 695.00
803069	1RU frame 16 x 8 audio switcher, supply, terminal strips, dual outputs	..... 695.00
803067	1RU frame 8 x 8 audio switcher, terminal strips, single outputs	..... 695.00
803006	3RU frame component video 16 x 8, terminating inputs, dual outputs	..... 1145.00
803011	3RU frame 16 x 24 video switcher, looping inputs, dual outputs	..... 1145.00
803013	3RU frame stereo 16 x 24 audio switcher, terminal strips, dual outputs	..... 1145.00
803017	3RU frame component video 8 x 16, looping inputs, single outputs	..... 1145.00



Medium
Size
Routers



Control Panel

803035	3RU frame, 1 16 x 8 video channel and up to 4 independent 16 x 8 audio channels. Terminating video inputs, dual video outputs. "D" connectors for audio, dual audio outputs	..... \$1145.00
803037	3RU frame, 1 8 x 16 video channel and up to 2 stereo 8 x 16 audio channels, looping video inputs, single video outputs. "D" connectors for audio, single audio outputs	..... \$1145.00
803061	3RU frame, up to 4 8 x 8 video channels and up to 2 stereo 8 x 8 audio channels. Terminating video inputs, single video output. "D" connectors for audio, single audio output	..... \$1145.00

Series 32 Large Routers

504003	32 x 8 video crosspoint	..... \$3495.00
504020	32 x 8 D1/D2 serial crosspoint	..... 4495.00
504021	32 x 8 pulse (sync) crosspoint	..... 2495.00
504004	32 x 16 audio crosspoint	..... 3495.00

These modules plug into several mounting frames:

804005	3RU 32 x 32 video frame with PS	..... \$1245.00
804007	3RU 32 x 32 stereo audio frame with PS	..... 1245.00
804009	3RU 32 x 16 video plus stereo audio frame with PS	..... 1245.00
804012	4RU 32 x 16 component video frame with PS	..... 1245.00

Series 32 systems require a system control module to drive the router's crosspoint modules and provide 3 serial channels. The first serial channel is an RS-485 party line up to 5000' for SVS control panels (up to 64 panels per system). The second serial channel is an RS-232 port for a simple terminal to provide overall system control and lockout assignments for all SVS panels in the system. The last port is for a host computer RS-232/RS-422

504001	System control module \$1345.00
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Control Panels

804002	Desktop keypad controller \$595.00
804011	1RU keypad controller 795.00
804014	32-button single bus controller	..... 795.00
804015	32 x 32 pushbutton X/Y controller	..... 995.00

Video and Audio Distribution Amplifiers

801014	1RU frame for 3 Series 10 video modules with PS	..... \$495.00
801015	3RU frame for 10 Series 10 video modules with PS	..... 795.00
801016	3RU frame for 10 Series 10 audio modules with PS	..... 895.00

Series 10 Modules

501011	10 output 60MHz video amplifier module	..... \$175.00
501021	10 output subcarrier distribution amplifier module	..... 195.00
501022	10 output pulse (sync) distribution amplifier module	..... 195.00
501519	10 output differential input video amplifier module	..... 225.00
501019	10 output equalizing video amplifier (1000' 8281)	..... 255.00

SYNC/DISTRIBUTION EQUIPMENT



Color System Sync, Timing and Testing Products

TSG-440 Test and Sync Generator

Master RS-170A or genlock, 8 patterns, source ID (10), count-down, real time clock, audio tone \$2395.00

TSG-375A Test Signal and Sync Generator

Stable, accurate and versatile, 24 patterns, all sync outputs plus 3 blackbursts, audio tone, countdown generator, 20 character source ID, genlock or master RS-170A operation. 1.75"H x 19"W x 17"D \$2995.00

VBP-480 Video Blanking Processor

Locks to either incoming video or external-reference. Inserts a new blanking interval with regenerated sync and burst I.A.W. RS-170A. Provides absolute SCH phase accuracy, AGC, white and black level clipping. 1.75"H x 19"W x 14"D \$1750.00

CSG-465 Master or Genlock Sync Generator

Complete RS-170A generator with additional 3 blackbursts, audio tone and selectable SMPTE bars, red field, crosshatch or safe areas outputs. 1.75"H x 19"W x 14"D \$1900.00

CGS-460 Master or Genlock Sync Generator

Same as CSG-465 except without selectable test signals. . . \$1500.00

CSG-455 Master Sync Generator

Same as CSG-465 without genlocking capability \$1600.00

CSG-450 Master Sync Generator

Basic RS-170A master sync generator \$1200.00

BTS-414 Blackburst Timing System

Genlockable with 4 independently adjustable channels. Each channel includes 1 each of: sync, subcarrier, blanking and blackburst. 1.75"H x 19"W x 14"D \$1995.00

TSG-2000 Test Signal Generator

For portable or bench applications, 4 patterns, programmable front panel, 2 audio tone outputs, 115VAC or 12VDC operation \$1150.00

SLI-2000 Source Line Identifier

For remote line monitoring, provides colorbars with I.D. when a valid source is not present. Automatically switches to source when present. 115VAC or 12VDC operation \$650.00

PPB-2000 Power Pack Box

For battery power applications of the TSG-2000 and SLI-2000. Unit holds 1 NP-1 type battery. \$150.00

Series 2100 Switching, Distribution and Timing Products

Frames

SS-2100-2 Stand-Alone Desktop Module Mounting Frame

For any 2 plug-in modules. Includes power adaptor \$250.00

SS-2100-6 Rackmount (1 RU) Module Mounting Frame

For any 6 plug-in modules. Includes power adaptor \$450.00

SS-2100-16 Rackmount (3 RU) Module Mounting Frame

For any 16 plug-in modules. Includes power supply \$650.00

Modules

VDA-2100 Wide Band Video Distribution Amplifier

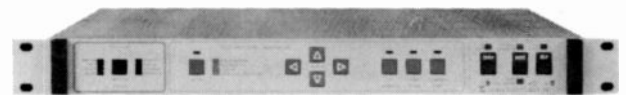
1 input/6 outputs, for any application requiring up to 80MHz of bandwidth \$325.00

VDA-2106 General Purpose Video Distribution Amplifier

1 input/6 outputs, for any application including HDTV (30MHz). \$200.00

VEQ-2105 Video Equalizing Amplifier

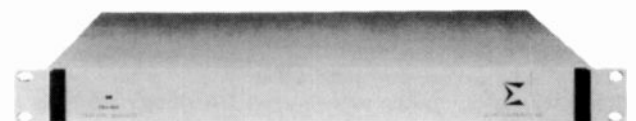
1 x 6 cable compensation for 1100' cable \$225.00



TSG-440



TSG-375A



CSG-450

ADA-2110 Audio Distribution Amplifier

1 input/6 outputs, balanced in and out, for audio and time code, 150kHz bandwidth \$200.00

VSW-2120 Video Switch Module

6 in/1 out, wideband video switch for any application up to 100MHz \$200.00

PDA-2115

1 x 6 pulse distribution amplifier. \$200.00

PSW-2124

6 x 1 pulse switch card for standard sync signals \$200.00

ASW-2122 Audio Switch Module

6 in/1 out, balanced audio, up to +24dBm, with bandwidth up to 150kHz \$200.00

SCI-2125 Switch Control Interface

Provides computer and remote (comm-line) control of switch modules. Specify RS-232 or RS-422 \$425.00

SLV-2126 Slave Control Interface

Works in conjunction with SCI-2125 to control additional frames \$100.00

BSG-2140 Black Signal Generator

Provides 3 blackburst outputs, I.A.W. RS-170A (PAL version, BSG-2141, is \$350.00) \$325.00

Controls and Accessories

RCP-2100 6-Button Control Panel

For parallel control of any 6x1 switch module \$100.00

SBC-2100 Single Bus Controller

For 6x1 coaxial "comm-line" remote control, requires SCI-2125 \$350.00

SYC-2100 System Controller

For input/output comm-line control of up to 8 6x1 switch modules, requires SCI-2125 \$425.00

RMT-2100-2 Rackmount Tray

For rackmounting 2 SS-2100-2 frames \$70.00

SBP-2102 Blank Panel

For unused space on RMT-2100-2 \$15.00

IAM-2100 Inservice Alignment Module

For alignment and service of any Series 2100 plug-in module . . \$50.00



**Series 100 Self-Contained Distribution,
Timing and Test Equipment**

VDA-100A Video Distribution Amplifier
1 input/6 output, DC coupled, 10MHz, adjustable gain, 110/
220VAC desktop or rackmount \$310.00

VDA-110 Video Distribution Amplifier, With Sync Add
1 input/4 output version of VDA-100A, with sync add capabil-
ity \$340.00

VDA-115 Video Equalizing Amplifier
Continuous adjustment of Hi and Lo response can compensate for
up to 1100' of coaxial cable. Can eliminate as much as 10V of
hum \$360.00

ADA-106 Audio Distribution Amplifier
1 input/6 output, with .01dB response to 30kHz, adjustable gain of
-8 to +23.5dB. Balanced or unbalanced in and out, ideal for
SMPTE time code \$310.00

PDA-100A Pulse Distribution Amplifier
1 input/6 output pulse regenerative DA, looping input, 110/
220VAC \$310.00

SDA-110 Phase Adjustable Subcarrier DA
Regenerative subcarrier with 2 independently adjustable (360°)
outputs \$390.00

AFV-100 Passive Audio-Follow-Video Switcher
6 inputs to 1 output switching, RCA jacks for audio . . . \$185.00

CSG-160 Color Sync Generator
Provides complete complement of RS-170 pulse outputs, plus sub-
carrier and blackburst \$800.00

SAG-100 Safe Area Generator
Superimposes safe title and safe action areas over video input. 2
outputs \$495.00

CBI-155 Color Bar/ID Generator
Provides dual outputs of SMPTE Bars, with front panel selectable
numeric display of 1 through 9, also provides audio tone . . \$695.00

BSG-100A Black Signal Generator
2 RS-170A blackburst outputs \$495.00

CGM-100A Color Genlock Module
Used to provide genlock for associated CBG-100A and BTM-100A
modules \$495.00

CBG-100A Color Bar Generator
Front panel selectable SMPTE bars, red field, crosshatch or safe
areas out. Must have BSG-100A or CGM-100A for refer-
ence. \$495.00

BTM-100A Blackburst Timing Module
Advance or delay timing adjustment of sync, subcarrier, blanking and
blackburst signals. Must have BSG-100A or CGM-100A . . \$495.00

FR3-100 Rackmount Frame
19" rackmount for up to 3 Series 100 modules, all are
4.875"W \$70.00

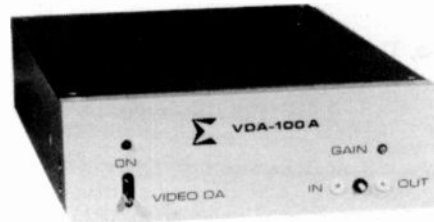
BP3-100 Blank Panel
For unused positions in FR3-100 \$16.00

Graphics Systems Products

IGM 1.0 Encoder/Sync Generator
Encodes RGB into NTSC and S-VHS (Y and C). Includes a master
RS-170A sync generator, with genlock mode and an independently
variable sync output \$2950.00

IGM 2.0 Decoder/Sync Generator/Encoder
For a complete system of decoding from NTSC or S-VHS to RGB,
synchronization of system and graphics source, then encoding
back to NTSC and S-VHS. Includes same master sync generator,
genlock and variable sync output \$3695.00

DEC 1.0 Decoder
Decodes NTSC/YC inputs into RGBS output. For graphics and
video applications \$2250.00



VDA-100A



SDA-110



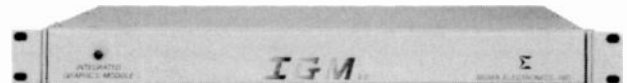
SAG-100



BSG-100A



CBG-100A



IGM 2.0

8 x 8 Routing Switcher Systems

- 2188 VO Video only with system control panel . . . \$2300.00
- 2188 AO Audio only with system control panel \$2100.00
- 2188 AV Audio and video with system control panel . . . \$3100.00
- 2188 SV Stereo and video with system control panel . . . \$4100.00
- 2188 3C RGB/component with system control panel. \$4500.00
- SBC-2188 Single bus control panel (8 x 1) \$400.00
- SYC-2188 System control panel (8 x 8) (included with each of the above systems). \$425.00

SYNC/DISTRIBUTION EQUIPMENT



SIGMA ELECTRONICS INC.

Video, Audio and Stereo-Audio Switching and Distribution

ADA-110/ADA-210 Audio Distribution Amplifiers

1 input x 10 outputs for ADA-110 and dual 1 x 10 for ADA-210; with 0.1dB response to 30kHz, gain range -8 to +23dB, balanced or unbalanced. 1.75" H x 19" W x 14.5" D

ADA-110\$405.00 ADA-210\$610.00

VAS-120/VSS-120 Passive Audio-Follow-Video Switchers

12 inputs x 1 output; unselected inputs are terminated. 1.75" H x 19" W x 14" D (VSS-120 is stereo-audio follow)

VAS-120\$275.00 VSS-120\$295.00

VAD-200/VSD-200 Video-Audio and Video-Stereo Audio DAs

One 1 x 6 video and one 1 x 6 audio DA (or 2 for stereo). 1.75" H x 19" W x 14" D

VAD-200\$650.00 VSD-200\$900.00

VDA-202/VDA-203 2-Channel or 3-Channel Video DAs

1 x 6, ideal for S-VHS or RGB/CAV applications. 1.75" H x 19" W x 14" D

VDA-202\$595.00 VDA-203\$875.00

SVX-210 Video Only Active Switcher

10 input/1 output vertical-interval switcher, 20MHz bandwidth, can be remotely controlled. 1.75" H x 14" D x 19" W\$795.00

SAV-210 Video-Audio Active Switcher

10 input/1 output vertical-interval, audio-follow or audio breakaway, can be remotely controlled. Same performance as SVX-210.\$1050.00

SSV-210 Video-Stereo Audio Active Switcher

10 input/1 output vertical-interval, stereo-audio follow or breakaway; can be remotely controlled\$1195.00

SVC-212 2-Channel Video Switcher

10 input/1 output, 20MHz bandwidth, vertical interval, can be remotely controlled, ideal for S-VHS. 3.5" H x 19" W x 14.5" D\$1350.00

SVC-213 3-Channel Video Switcher

10 input/1 output with 3 channels for any format component analog video or RGB. 20MHz. 5.25" H x 19" W x 14.5" D\$2050.00

Options

Option 2

Remote control for video only, VSR-210\$200.00
Remote control for audio/video AVR-210\$225.00

Option 3 Serial control interface\$250.00

Option 4 External Parallel Control Interface\$150.00

Option 5 Audio Input/Output Kit

Provides for bridging the input of up to 3 Series 210 switchers

Mono\$30.00 Stereo\$60.00

Option 6 Audio Looping Cable (10 inputs)\$30.00

CTG-100A Component Test Generator

4 front-panel selectable output signals: bars, reverse bars, black with pluge, and timing and amplitude pulse. Requires CGM-100A for genlock reference. 1.75" H x 4.2" W x 11" D\$695.00

CTG-115 Component Test Generator

Same as CTG-100A, except in stand-alone, no genlock version ..\$695.00

SVM-100 Sequential Video Multiplexer

Extends the function of a conventional WFM to display component video signals in either parade or overlay modes. 1.75" H x 4.875" W x 11" D\$795.00

Audio Switching Option 10 x 1 Audio Switching

For either the SVC-212 or SVC-213; specify mono or stereo

Mono\$375.00 Stereo\$750.00

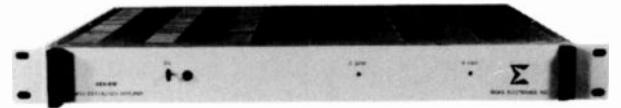
System 500 Modular Distribution, Timing and Test Equipment

FR-500 Module Mounting Frame

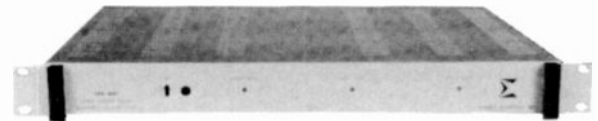
Holds 1 power supply and any combination of 10 modules. 3.5" high with hinged door. Power supply must be ordered separately\$400.00



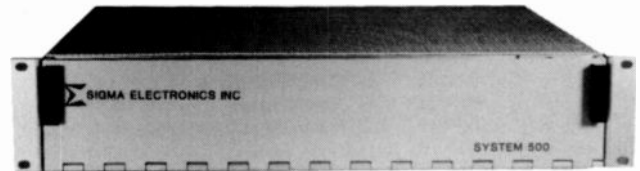
ADA-110



ADA-210



VSD-200



System 500

PS-501A Power Supply Module

Provides the necessary power for a fully loaded frame of System 500 modules. 120/240VAC operation\$150.00

VDA-510 Video Distribution Amplifier

1 input/6 output DC coupled, 10MHz, adjustable gain (Sync Add version, VDA-511, at \$250.00)\$240.00

VDA-515 Video Distribution Amplifier

Differential input, can compensate for up to 1100' of coaxial cable, 1 input/6 output\$280.00

ADA-526 Audio Distribution Amplifier

1 input/6 output, with 0.1dB to 30kHz, adjustable gain -8 to 23.5dB, balanced or unbalanced in and out.\$280.00

PDA-530 Pulse Distribution Amplifier

1 input/6 output pulse regenerative DA, 2V to 6V input with 4V out. ..\$240.00

PDA-535 Pulse Delay DA

2 sections of 2 independently adjustable stages. Can be (2) 1 x 2 or (1) 1 x 4, with delay range of 0.2 to 1.8µs\$360.00

BSG-550 Black Signal Generator

A stable source of 2 blackburst outputs (RS-170A), also provides reference for associated color bar (CBG-565) and timing (BTM-551) modules ...\$400.00

BTM-551 Blackburst Timing Module

Provides advance/delay adjustment of sync, subcarrier, blanking and blackburst; requires either BSG-550 or CGM-560\$375.00

CGM-560 Color Genlock Module

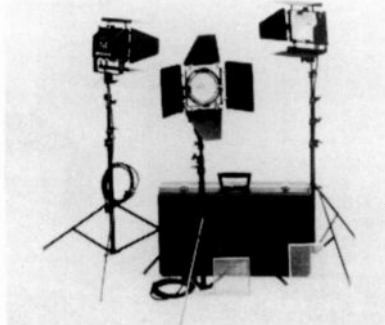
Used to genlock associated color bar (CBG-565) or blackburst timing modules (BTM-551) to an external reference\$500.00

EX-505 Extender Card

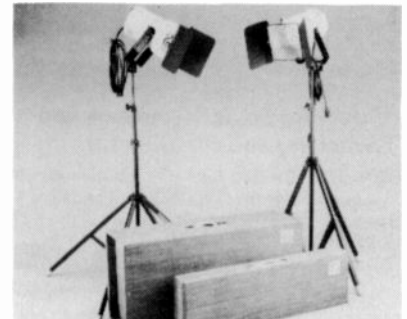
For System 500 modules\$30.00



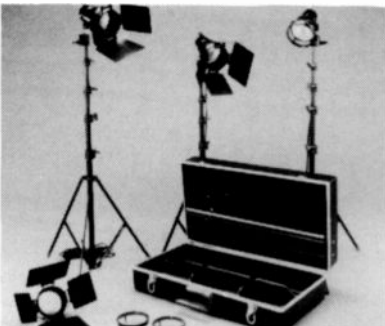
K2R-A



K50



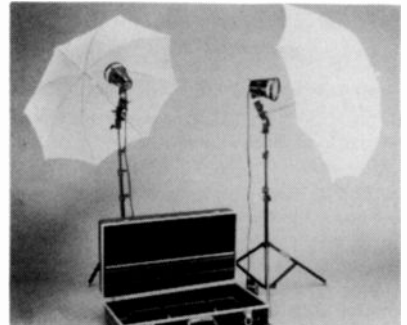
K62-A



K33-A



K63-B



K22U-A

K2R-A 1800W Quartz Location Kit

A complete location lighting kit in an attache case. The most compact 3-light kit on the market with a price to match.

3	700-SG	401110	600W quartz units
3	DYH	401928	600W 3200°K quartz lamps
3	S6R	401242	6' Steel Stands
1	634L	402202	Carrying case

Size: 18" x 12" x 6" Weight: 15 lbs.

K2R-A\$360.00

K2R-A Accessories

701	401301	Barn doors for 700 quartz unit	\$49.50
G5	401264	Gaffer Grip—portable light mount	19.00

K33-A 1800W Quartz Location Kit

A complete lighting system at a popular price; contains everything needed for professional results.

3	700-SG	401110	600W quartz units
3	DYH	401928	600W 3200°K quartz lamps
3	701	401301	Barn doors for 700 quartz units
3	SA28	401233	8' aluminum stands
1	650	402208	Carrying case

Size: 24 1/2" x 14 1/2" x 6 3/4" Weight: 17 lbs.

K33-A\$735.00

K33-A Accessory

G5	401264	Gaffer grip portable light mount	\$19.00
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K50 1800W Quartz Location Kit

Excellent versatility with professional results is offered in this 3-light kit featuring a 600W key and 2 600W broad fill lights.

1	760	401112	600W quartz key unit
2	770	401113	600W quartz broad units
3	DYH	401928	600W 3200°K quartz lamps
3	771	401325	Barn doors
2	712	401312	Single scrims
3	SA28	401233	8' aluminum stands
1	650	402208	Carrying case

Size: 24 1/2" x 14 1/2" x 6 3/4" Weight: 22 lbs.

K50\$945.00

K50 Accessories

G5	401264	Gaffer grip—portable light mount	\$19.00
712	401312	Single scrim	19.00

K63-B 1800W Quartz Location Kit

3-light kit offers excellent portability and versatility for basic photographic and video applications.

3	Q60-SG	401131	600W quartz units
3	DYS/DYV	401970	600W 3200°K quartz lamps
3	S5	401280	8' steel stands
		301470	Compac case

Size: 30 1/4" x 13 1/2" x 11"

Weight: 23 lbs., 10 oz.

K63-B\$525.00

K62-A 1200W Quartz Location Kit

Basic 2-light quartz kit permits professional results in photographic and video applications, offers room for additional light and stand to be added at a later date.

2	Q60-SG	401131	600W quartz units
2	DYS/DYV	401970	600W 3200°K quartz lamps
2		401280	8' steel stands
1		301470	Compac case

Size: 30 1/4" x 13 1/2" x 11"

Weight: 17 lbs., 1 oz.

K62-A\$365.00

K22U-A 1200W Quartz Location Kit

An excellent starter for the serious amateur photographer offers room for additional accessories.

2	700-SG	401110	600W quartz lamps
2	DYH	401928	600W 3200°K quartz lamps
2		670002	38" white umbrellas
2		670033	Combination light and umbrella mounts
2	S7	401239	6' steel stands
1	650	402208	Carrying case

Size: 24 1/2" x 14 1/2" x 6 3/4"

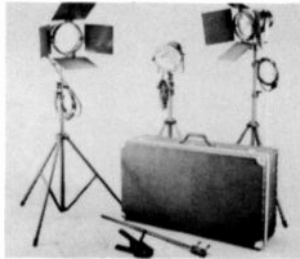
Weight: 15 lbs., 10 oz.

K22U-A\$470.00

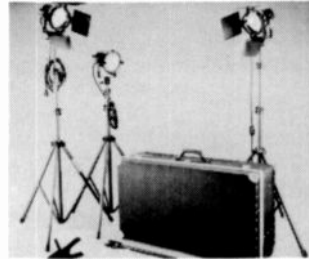
K22U-A Accessories

701	401301	Barn doors for 700 quartz unit	\$49.50
G3	401263	Gaffer grip—3/8" portable light mount	19.00

LIGHTING KITS



K71-A



K73-A



K74-A



K75-A



K76-A

K71-A 1800W Professional Focusing Quartz Location Kit

This professional quartz lighting kit features the flexibility of 3 focusing units which allow smooth transition from spot to flood.

3	710-SG	401102	600W focusing quartz lamps U.L. Listed	
3	DYH	401928	600W 3200°K quartz lamps	
2	711	401307	Barndoors	
2	712	401312	Single scrims	
3	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K71-A 29" x 18" x 8" — 28 lbs.				\$1150.00
711	401307	Barndoors	.....	49.50
712	401312	Single scrim	.....	19.00
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

K74-A 3000W Professional Quartz Location Kit

Our most powerful 3-unit lighting kit offers the versatility and flexibility of 2 1000W broad units and a 1000W focusing unit.

2	750-SG	401105	1000W quartz broad units U.L. Listed	
2	FHM	620380	1000W 3200°K quartz lamps	
2	752	401322	Single scrims	
1	720-SG	401103	1000W focusing quartz unit U.L. Listed	
1	FBY	620140	1000W 3200°K quartz lamp	
1	721	401308	Barndoors	
3	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K74-A 29" x 18" x 8" — 34 lbs.				\$1300.00
722	401316	Single scrim for 720-SG	.....	27.00
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

K72-A 1900W Professional Quartz Location Kit

This professional kit features a 600W focusing unit and 2 650W broad units.

2	740-SG	401104	650W quartz broad units U.L. Listed	
2	FBX	620050	650W 3200°K quartz lamp	
2	742	401319	Single scrims	
1	710-SG	401102	600W focusing quartz unit U.L. Listed	
1	DYH	401928	600W 3200°K quartz lamp	
1	711	401307	Barndoors	
3	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K72-A 29" x 18" x 8" — 30 lbs.				\$1200.00
712	401312	Single scrim for 710-SG	.....	19.00
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

K75-A 2500W Professional Quartz Location Kit

2 each focusing and broad units provide excellent lighting for both studio and location use in photographic and video applications.

2	740-SG	401104	650W quartz broad units U.L. Listed	
3	FBX	620050	650W 3200°K quartz lamps	
2	742	401319	Single scrims	
2	710-SG	401102	600W focusing quartz unit U.L. Listed	
3	DYH	401928	600W 3200°K quartz lamps	
2	721	401308	Barndoors	
4	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K75-A 29" x 18" x 8" — 35 lbs.				\$1575.00
712	401312	Single scrim for 710-SG	.....	19.00
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

K73-A 3000W Professional Focusing Quartz Location Kit

Extra coverage and reach are provided in this kit featuring 3 1000W focusing units.

3	720-SG	401103	1000W focusing quartz units U.L. Listed	
3	FBY	620140	1000W 3200°K quartz lamps	
2	721	401308	Barndoors	
2	722	401316	Single scrims	
3	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K73-A 29" x 18" x 8" — 32 lbs.				\$1450.00
721	401308	Barndoors	.....	59.50
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

K76-A 4000W Professional Quartz Location Kit

The pairing of 2 1000W focusing and 2 1000W broad units makes this our most versatile and powerful kit.

2	750-SG	401105	1000W quartz units U.L. Listed	
3	FHM	620380	1000W 3200°K quartz lamps	
2	752	401322	Single scrims	
2	720-SG	401103	1000W focusing quartz units U.L. Listed	
3	FBY	620140	1000W 3200°K quartz lamps	
2	721	401308	Barndoors	
2	722	401316	Single scrims	
4	S5	401280	8' steel stands	
1	675	402207	Carrying case	
1	G5	401264	Gaffer grip—portable light mount	
1	SE30	401260	30" stand extension	
K76-A 29" x 18" x 8" — 41 lbs.				\$1750.00
G5	401264	Gaffer grip—portable light mount	.....	19.00
SE30	401260	30" stand extension	.....	15.00

Business and Professional Group

DXC-537 3-HAD CCD Color Camera

- 2/3" IT (Interline Transfer) Hyper HAD™ image sensor
- 380,000 picture elements
- 62dB S/N ratio
- 700 TV lines horizontal resolution
- HAD sensor structure uses a vertical overflow drain which enables a larger light sensitive area to be used
- Use in camcorder, stand-alone or studio configurations
- High sensitivity of f/8.0 at 2000 lux
- No registration adjustments
- Virtually no registration errors
- No geometric distortion
- No electric/magnetic field interference
- High resistance to vibration and shock
- No blooming
- No comet-tails
- Variable speed electronic shutter
- Shutter speeds: off, 1/100, 1/250, 1/500, 1/1000, 1/2000 second
- "Clear Scan" function enables a precise shutter speed to be selected so that it can be matched with the computer display scanning frequency, eliminating the horizontal streak that occurs with conventional cameras
- Designed to directly dock with the PVV-1 or EVV-9000 via the pro 50-pin connector
- Quick start viewfinder
- Generator displays a safety zone and center marker in the viewfinder
- Built-in character generator
- Low power consumption
- Built-in microphone
- Zebra video level indication
- White balance, black balance and black setup can be adjusted automatically for easy operation
- SMPTE type color bars
- Gain up switch: 0, +9, +18dB
- Automatic warning system
- Automatic iris
- Genlock capability
- ABL (Automatic Black Level) function
- 2-line image enhancer
- External DC input
- Audio monitor jack
- Intercom jack
- VTR select switch

Specifications

Image Device:	IT CCD, 3-chip
Optics:	f/1.4 medium index prism system
Picture Elements:	768(H) x 493(V)
Sensing Area:	8.8 x 6.6mm (equivalent to a 2/3" pickup tube)
Built-in Filters:	1: 3200°K; 2: 5600°K + 1/4 ND; 3: 5600°K; 4: 5600°K + 1/16 ND
Lens Mount:	Bayonet mount
Signal System:	EIA standards, NTSC color system
Scanning System:	2:1 interlaced, 525 lines, 60 fields/sec.
Horizontal Frequency:	15.734kHz
Vertical Frequency:	59.94Hz
Sync System:	Internal or external with the VBS or BS signal
Horizontal Resolution:	700 TV lines
Minimum Illumination:	13 lux with f/1.8, +18dB; 7.5 lux with f/1.4, +18dB
Sensitivity:	f/8.0 at 2000 lux (3200°K, 89.9% reflectance) (typical)
Gain Selection:	0dB, +9dB, +18dB



**DXC-537
Shown Docked
to PVV-1**

Shutter Speed Selection:	Off, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec.
Clear Scan Selection:	60.4 to 101.1Hz (106 steps)
Video Output:	VBS: 1.0V p-p, sync negative; Y: 1.0V p-p, sync negative; R-Y/B-Y: 0.7V p-p; R/G/B: 1.4V p-p; Y/C: (Y) 1.0V p-p, sync negative, (C) 0.286V p-p (burst level)
S/N Ratio:	62dB (typical)
Registration:	0.05% (all zone, without lens)
Geometric Distortion:	Below measurable level
Inputs/Outputs:	Interface: DIN 50-pin; Video Out: BNC type; Lens: 12-pin; VF: DIN 8-pin; Remote: 10-pin
Power Requirements:	12VDC
Power Consumption:	9.5W (without VF/CA-537)
Operating Temperature:	+14°F to +113°F
Storage Temperature:	-4°F to +140°F
Weight:	4 lbs., 14 oz. for camera head only; 7 lbs., 11 oz. with the CA-537

DXC-537H

Dockable camera head only. Requires 1 of the following: CA-537/327/325 series adaptor, EVV-9000, BVV-5/CA-511 and lens \$6,500.00

DXC-537L

Dockable lightweight camera system with three 2/3" Hyper HAD sensor CCDs featuring on-chip lens technology. Includes: DXC-537H camera head, DXF-501 quick start viewfinder, VCT-14 tripod plate, CCZQ-A2 camera cable, LC-421 carrying case. Requires 1 of the following: CA-537/327/325 series adaptor, EVV-9000, PVV-1, BVV-5/CA-511 and lens \$7,950.00

PAC-537L

Includes: DXC-537L and CA-537 without lens (assembly required) \$8,850.00

PAC-PVW537L

Camcorder configuration consisting of DXC-537L and PVV-1. Betacam SP dockable recorder without lens (assembly required) TBA*

PAC-EVW537L

Camcorder configuration of DXC-537L and EVV-9000 without lens (assembly required) \$11,050.00

*To Be Announced

CCD CAMERAS

SONY®

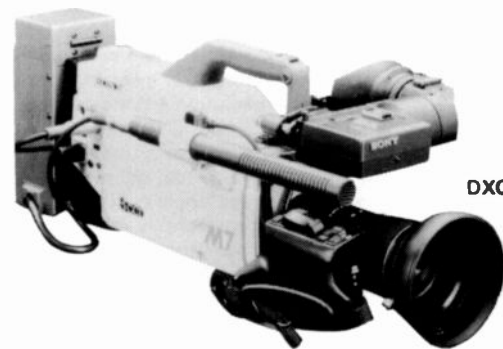
Business and Professional Group

DXC-M7 3-HAD™ CCD Color Camera

• CCD production camera • 768 HAD sensor CCDs • Horizontal resolution: > 700 lines • S/N: > 60dB • Variable electronic shutter • Linear matrix • On-line: knee, pedestal • Detail and WB adjustments • Composite and component outputs

Specifications

Image Device: Interline-transfer CCD, 3-chip
Picture Elements: 768H x 493V
Sensing Area: 8.8mm x 6.6mm (equivalent to a 2/3" pickup tube)
Built-in Filters: 1: 3200°K, 2: 5600°K + 1/4ND, 3: 5600°K, 4: 5600°K + 1/16ND
Lens Mount: Bayonet mount
Sync System: Internal or genlock
Min. Illumination: 26 lux with f/1.8, + 18dB
Sensitivity: 2000 lux with f/5.6 at 3200°K
Gain Selection: 0dB, 9dB, or 18dB
Video Outputs: Composite video: 1.0V, 75 ohms, unbal. Y/R-Y/B-Y component: Y: 1.0V, 75 ohms, unbal. R-Y, B-Y: 0.7V, 75 ohms, unbal., RGB, sync-on-green: 0.7V, 75 ohms, unbal., Y/C separate: Y: 1.0V, 75 ohms, unbal., C: Burst level 0.286V, 75 ohms, unbal.
Registration: 0.05% for Zone 1, 2, 3
Inputs/Outputs: 26-pin connector: Sony Z-type; DC In: XLR-type, male, 4-pin; Mic In: XLR-type, female, 3-pin, balanced; Genlock: BNC-type, 75 ohms, unbalanced; Video Out: BNC-type, 75 ohms, unbalanced; Lens: 12-pin; VF: 8-pin; Lens Remote: 6-pin; Remote: 10-pin; Earphone: mini-jack; Intercom: mini intercom jack
Power: 12VDC, 14W
Weight: 7 lbs., 15 oz.
Dimensions: 10.5"H x 7.5"W x 14"D



DXC-M7

DXC-M7 Includes: DXC-M7H camera head, DXF-M7 1.5" viewfinder, VCT-14 tripod adaptor, CCZQ-A2 6' cable for 14-pin VCR, LC-M7G heavy-duty case. \$12,650.00
 DXC-M7H Camera head only 11,550.00

Optional Accessories

CCU-M7 Camera Control Unit
 Up to 300 meters operation; 4 scene files; shutter speed selector; full range of control \$3,500.00
RM-M7G Handheld Remote Control
 For DXC-M7 or CCU-M7; provides remote setup with or without CCU \$800.00
CA-M7 Full Studio Adaptor for DXC-M7
 Provides adjustable safe picture and title areas and center cross; RM-M7G docking facility; enhanced tally and mechanical functions. \$1,950.00

DXC-750 3-HAD CCD Color Camera

• 2-piece design (camera head/CCU) combines flexibility and high quality into 1 system • Compact (27/8" x 3" x 43/8") and lightweight (1.32 lbs.) camera head can be installed up to 330' away from the CCU using optional CCZ-A cables • Aluminum diecast body • All functions operated from the rackmountable CCU • 768 HAD sensor CCDs provide low noise stability and resistance to environmental stresses in addition to conventional CCD features • High density CCD image sensors deliver 700 TV lines (luminance) of horizontal resolution • Improved preamplifier reduces noise-causing dark current, resulting in an excellent S/N of 60dB • High sensitivity of f/5.6 at 2000 lux (at 3200°K) • Detail level control, linear Matrix and Gamma selection for high precision color reproduction • Variable speed electronic shutter (1/600, 1/1000, 1/2000, 1/4000, or 1/10000 of a second) for motion analysis and scientific observation • Automatic or manual white/black balance with memory • Low light and gain selection status indicators on CCU • Camera head accepts bayonet mount lenses with 6-pin connectors • Genlockable for synchronization to other video systems

Specifications

Pickup Device: Interline-transfer CCD
Picture Elements: 768H x 493V
Sensing Area: 8.8mm x 6.6mm
Min. Illumination: 20 lux
Gain Selection: 0, +9, + 18dB selectable
Detail Control: Continuously variable
Linear Matrix Circuit: On/off selectable



DXC-750

Gamma Control: On/off selectable
Power: 28W
Max. Cable Length: 330'
White Balance: Auto
Black Balance: Manual: R, B (gain, pedestal)
Color Temperature: 3200°K/5600°K selectable
Color Bars: Full field
Genlock Capability: H phase and SC phase control
CCU Weight: 14.3 lbs.

Supplied Accessories

• TGR-750 title generator • ND filter • Rackmount kit
 DXC-750. \$15,500.00

Business and Professional Group

DXC-325 3-HAD™ CCD Color Camera

- 1/2" interline-transfer CCD • Integration of over 250,000 picture elements within an image sensing area that is only 6.4 x 4.8mm
- 58dB signal-to-noise ratio is maintained even in high temperatures • 530 TV lines horizontal resolution • Wide aperture ratio in the photo sensing area due to Vertical Over Flow Drain (VOFD) structure and therefore provides a high sensitivity of f/5 at 2000 lux • Virtually no registration error • No geometric distortion
- High image burning resistance • No blooming and no comet-tails
- Smear phenomenon has been considerably reduced due to the HAD sensor and the double P-well structure • Variable speed electronic shutter—shutter speeds of Off, 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. • Quick start 1.5" viewfinder (DXF-325) • Built-in character generator • 8W power consumption • Provides a 50-pin interface and can be interfaced with various adaptors • Built-in microphone • Auto white and black balance • Gain-up switch: 0, +9, +18dB • Zebra video level indication • Automatic warning system • Built-in color bar generator • Color temperature conversion filters • Automatic Black Level (ABL) function • Can be a stand-alone camera, a computer image input camera or an ITV camera



DXC-325

DXC-325H Camera head only \$4650.00
 DXC-325L Includes: DXC-325H camera head, LC-325 carrying case, CCQ-2BRS camera cable, DXF-325 viewfinder, CA-325 camera adaptor and VCT-12 tripod adaptor \$5850.00
 EVW-325L Hi8 Camcorder Configuration Without Lens. Includes: DXC-325H camera head; EVV-9000 Hi8 dockable recorder; DXF-325 viewfinder; VCT-12 tripod adaptor and LC-420 carrying case \$6950.00

DXC-327 3-HAD™ CCD Color Camera

- 700 TV lines horizontal resolution • S/N ratio of 60dB • 3 interline-transfer CCD chips featuring On-Chip-Lens (OCL) array accurately mounted on a prism optical block by Sony's spatial offset mounting technology • Over 380,000 picture elements packed within a tiny area (6.4 x 4.8mm) on each chip, corresponding to red, green and blue • HAD (Hole Accumulated Diode) sensor offers ideal colorimetry, minimizes dark current noise level and reduces vertical smear level • Wide aperture ratio in the photo sensing area due to VOFD structure • High sensitivity of f/5.6 at 2000 lux • Extremely low lag • Virtually no registration error • 2 white balance memories • No geometric distortion • High image burning resistance • No blooming or comet-tails • Variable speed electronic shutter—shutter speeds of Off, 1/100, 1/250, 1/500, 1/1000, 1/2000 sec. • Ergonomic design is well balanced for operation with the EVV-9000 Hi8 videocassette recorder • Built-in character generator • Built-in microphone • Safety zone and center marker generator • Zebra video level indication • Equipped with a 10-pin remote connector for interface with the RM-M7G remote control unit • White balance, black balance and black setup level can be adjusted automatically for easy operation • Gain-up switch: 0, +9, +18dB • Automatic warning system • Automatic iris control • Genlock capability • External microphone input connector • Built-in color bar generator • 2-line image enhancer • External DC input • Audio monitor jack • Intercom jack • VTR select switch

DXC-327H Camera head only \$5200.00
 DXC-327L Includes: DXC-327H camera head, DXF-501 viewfinder, LC-420 carrying case, CCQ-2BRS camera cable and VCT-12 tripod adaptor \$7550.00



DXC-327

CA-325 Camera Adaptor
 Stand-alone camera adaptor for DXC-325 and DXC-327 . . . \$820.00

CA-325A/325B Camera Adaptors
 CA-325A and CA-325B camera adaptors enable multiple outputs of R/G/B, composite sync, VBS, Y/C and audio signals. They are appropriate for industrial inspection, teleconferencing, computer graphics and security applications. The CA-325A has a built-in AC power unit and the CA-325B requires external DC power.
 CA-325A \$810.00
 CA-325B \$490.00

LO-32BMT 2/3" Lens Mount Adaptor
 2/3" image format lenses can be used with the DXC-327/325 via the LO-32BMT 2/3" lens mount adaptor \$580.00

MVA-40/41 1/2" Microscope Adaptor
 For scientific or industrial inspection using microscopes, 2 types of exclusively designed microscope adaptors are available.
 MVA-40 Auto or manual iris \$2500.00
 MVA-41 Manual iris, 1/2" bayonet mount 1320.00

Optional Accessories for DXC-325 and DXC-327

CA-327 Camera Adaptor

The CA-327 is a standard camera adaptor designed for the DXC-327/325. It is connected to the DXC-327/325 via a 50-pin interface. A 14-pin connector is provided to enable a single cable link to a camera control unit or various portable VTRs, including 1", 3/4" U-Matic and 1/2" format VTRs. The CA-327 also comes equipped with an S-connector and audio out connector for further operational convenience. The configuration of the DXC-327/325 with the CA-327 is appropriate for field or studio applications as a stand-alone camera or studio camera system \$900.00

CAMERA ACCESSORIES

SONY

Business and Professional Group

Fujinon Lenses (3 Pick-Up Use)

A7x7BRM	7:1 servo lens, 7-50mm, f/1.7	\$ 6,610.00
A7x7BRM/B	Same as A7x7BRM with 12-pin connector for DXC-M7 series	6,610.00
A8.5x5.5BERM/B	5.5-46.75mm wide angle zoom lens for DXC-M7 series (with 2X extender)	11,750.00
A8.5x5.5BRM/B	5.5-46.75mm wide angle zoom lens for DXC-M7 series (without extender)	11,750.00
A12x9BERM-88	12:1 servo zoom lens, 9-108mm f/1.7 with 2X extender	2,500.00
A12x10BRM	12:1 servo zoom lens, 10-120mm f/1.7 supplied with DXC-3000AK, 6-pin	1,265.00
A12x10BRM/B	12:1 servo zoom lens, 10-120mm f/1.7 supplied with DXC-3000AK, 12-pin	1,265.00
A14x8.5BERM	Fujinon 14X zoom lens with built-in 2X extender, servo iris, servo zoom and macro focus, f/1.7, 8.5-119mm; f/3.4, 17-238 (2X), 6-pin	6,900.00
A14x8.5BERM/B	Fujinon 14X zoom lens with built-in 2X extender, servo zoom and macro focus, f/1.7, 8.5-119mm; f/3.4, 17-238 (2X), 12-pin	6,900.00
A16x9.5BERM	16X servo zoom lens, 9.5-152mm f/1.8 with 2X extender, 77mm dia. filter threading, 6-pin	4,200.00
A16x9.5BERM/B	16X servo zoom lens, 9.5-152mm f/1.8 with 2X extender, 77mm dia. filter threading, 12-pin	4,200.00
A16x9.5BERM/B	16:1 servo zoom lens, 9.5-152mm f/1.8, 12-pin	1,850.00
A18x8.5BERM	18:1 zoom lens, 8.5-153mm, f/1.7	11,100.00
A18x8.5BERM/B	Same as A18x8.5BERM with 12-pin connector for DXC-M7 series	11,100.00
A3.5x6.5BRM	3.5X wide angle servo zoom lens, 6.5-22.75mm	5,275.00
VCL-1012BY	12:1 servo zoom lens, 10-120mm, f/1.7	1,265.00

Fujinon Lenses: 3 Pick-Up Use (1/2")

S16x7BRM	Hot shoe (cableless) 16:1 servo zoom lens for DXC-325/327 Series, 7-112mm, f/1.4, hot shoe, 77mm dia. filter threading	\$1,950.00
S12x7.5BRM	Hot shoe (cableless) 12:1 servo zoom lens for DXC-325/327 Series, 7.2mm filter threading, 7.5-90mm, f/1.4	1,250.00

Fujinon Lens for Teleconferencing: 3 Pick-Up Use (1/2")

S16x7BMD-D8	16:1 zoom lens, 7-112mm for DXC-325/327 Series	\$2,470.00
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Fujinon Close-Up Lenses

ECL-8072	Close-up lens for A10x10BMD-D8	\$170.00
ECL-8077	Close-up lens for A16x9.5BMD-D8	175.00
ECL-11052	Close-up lens for A4x7.5BMD-D8 and A8x12BMD-D8. 52mm thread	110.00

Remote Controls for Fujinon Lenses

FMM-6A	Focus module for A12x9BERM-88, A14x9BERM, A16x9.5BRMG and A18x8.5BERM when used with RM-S5A	\$ 180.00
LO-1011	Studio remote control kit for Fujinon Lenses: A12x9BERM-88, A16x9.5BRMG, A14x9BERM, A18x8.5BERM, VCL-1012BY (A12x10BRM)	1,000.00

Remote Controls for Fujinon Lenses (cont'd)

LO-25	Studio remote control for VCL-1012SY lens for zoom and focus	\$1,245.00
SRD52B	Hand grip for RM-S5A	750.00
RMD-20	Remote control box for A10x10BMD-D8, A16x9.5BMD-D8. Controls zoom, focus and iris	795.00
RM-S6A	EFP/Studio Rear Control Kit. Includes: CFH-1 focus handle, SRD-52B zoom grip handle, CFC-990 drive cable, ECC-1000 extension cable, MCA-1 (2 sets) handle clamps. Kit requires optional focus module (FMM-6A)	1,445.00

Extension Cables for Fujinon Lenses

ECM-025F	Between A10x10BMD-D8, A16x9.5BMD-D8 and RMD-2. 25'	\$340.00
ECM-050F	Between A10x10BMD-D8, A16x9.5BMD-D8 and RMD-2. 50'	440.00
ECM-100F	Between A10x10BMD-D8, A16x9.5BMD-D8 and RMD-2. 100'	675.00

Tamron Lens (3 Pick-Up Use)

H14x9B1	14:1 servo zoom lens, 9-126mm, f/1.8	\$1,350.00
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Canon Lenses: 3 Pick-Up Use (2/3")

J8x6B	8:1 wide angle servo zoom lens, 6-48mm, f/1.7	\$ 9,240.00
J8x6B/B	Same as J8x6B with 12-pin connector for DXC-M7 series	9,240.00
J8x6BIE	8:1 wide angle servo zoom lens, 6-48mm, f/1.7 with 2X extender	11,500.00
J8x6BIE/B	Same as J8x6BIE with 12-pin connector for DXC-M7 series	11,500.00
J12x10BKRS	f/1.7 servo zoom, servo iris, manual focus, 6-pin Canon SX6 for DXC 3000 and EDP-10F	1,260.00
J14x8/BIE/B	Same as J14x8BIE with 12-pin connector for DXC-M7 series	13,660.00
J15x9.5BIRS	9.5-143mm f/1.8 servo zoom lens with 2X extender. 12-pin connector for DXC-M7 series	4,200.00
J15x9.5BKRS	9.5-143mm f/1.8 servo zoom lens for DXC-M7 series. Same as VCL-914BYA	1,800.00
J18x8.5BIE/B	Same as J18x8.5BIE with 12-pin connector for DXC-M7 series	11,100.00

Canon Lenses for Teleconferencing: 3 Pick-Up Use (2/3")

J12x10BKTSa	12X, 10-120mm, f/1.7 remote control servo zoom lens. Requires TCR-10, TCR-20 or equivalent for operation	\$2,120.00
J15x9.5BKTSa	15X, 9.5-143mm, f/1.8 remote control servo zoom lens. Requires TCR-10, TCR-20 or equivalent for operation	2,470.00

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Canon Lenses: 3 Pick-Up Use (1/2")

PH12x7.5BKRS	Hot shoe (cableless) 12:1 servo zoom lens for DXC-325/327 Series. 7.5-90mm, f/1.4, hot shoe, 82mm dia. filter threading	\$1,365.00
PH15x7BKRS	Hot shoe (cableless) 15:1 servo zoom lens for DXC-325/327 Series. 7-105mm, f/1.4, hot shoe, 82mm dia. filter threading	1,800.00
VCL-810BX	Hot shoe (cableless) 10:1 servo zoom lens for DXC-325/327 Series. 8-80mm, f/1.4, hot shoe, 82mm dia. filter threading. Same as PH10x8BKRS	1,180.00

Canon Lenses for Teleconferencing: 3 Pick-Up Use (1/2")

PH12x7.5BKTS	Hot shoe (cableless) 12:1 zoom lens, 7.5-90mm for DXC-325/327 Series	\$2,120.00
PH15x7BKTS	Hot shoe (cableless) 15:1 zoom lens, 7-105mm for DXC-325/327 Series	2,470.00
PH15x7BIRS	Hot shoe (cableless) 12:1 zoom lens, for DXC-325/327 series. 7-105mm, f/1.4 with 2X extender	4,200.00

Canon Fixed Focal Length Lenses: 3 Pick-Up Use (2/3")

J6MM	6mm fixed focal length lens for DXC-750, DXC-M7 and DXC-3000A Series	\$7,200.00
J8MM	8mm fixed focal length lens for DXC-750, DXC-M7 and DXC-3000A Series	3,360.00
J10MM	10mm fixed focal length lens for DXC-750, DXC-M7 and DXC-3000A Series	6,400.00
J24MM	24mm fixed focal length lens for DXC-750, DXC-M7 and DXC-3000A Series	5,800.00
J35MM	35mm fixed focal length lens for DXC-750, DXC-M7 and DXC-3000A Series	5,800.00

Canon Close-Up Lenses

82CL-UP800H	Close-up lens adaptor for Canon lenses, 82mm diameter threading	\$430.00
82CL-UP1300H	Same as above	430.00

Remote Control for Canon Lenses

LO-1309	Studio remote control kit for J15x9.5B, J13x-9BIE2 and J18x8.5B	\$1,510.00
LO-26	Studio remote control kit for PH12x7.5BKRS, PH15x7BKRS	960.00
LO-27	Studio remote control kit for VCL-810BX (PH10x8BKRS)	960.00
TCR-101	Remote control box for J12x10KTS and J15x-9.5BKTS. Pushbutton control of zoom, focus, and iris with speed control	600.00
TCR-201	Remote control box for J12x10KTS and J15x-9.5BKTS. Control of zoom, focus and iris through positional servos	730.00

12 Pin Connection Cables for Canon Lenses

TCC-005M	Between J12x10KTS, J15x9.5BKTS and TCR-10/TCR-20. 5m/16.4'	\$ 240.00
TCC-010M	Between J12x10KTS, J15x9.5BKTS and TCR-10/TCR-20. 10m/32.8'	320.00
TCC-020M	Between J12x10KTS, J15x9.5BKTS and TCR-10/TCR-20. 20m/66.6'	520.00
TCC-050M	Between J12x10KTS, J15x9.5BKTS and TCR-10/TCR-20. 50m/164'	1,220.00

Other Color Camera Lenses

H6AMD3B/1	Remote control 6:1 zoom lens, 12.5-75mm, f/1.2, C-mount, requires CRD-18 (Fujinon)	\$1,010.00
H6SND43B/1	Remote control 6:1 zoom lens, 12.5-75mm, f/1.2, C-mount, with built-in ND, requires CRD-18 (Fujinon)	1,070.00

Other Color Camera Lenses (cont'd)

VCL-08Y	Wide angle lens, 8mm, f/1.4, C-mount with auto iris	\$475.00
VCL-16Y	Fixed angle lens, 16mm, f/1.4, C-mount with auto iris	395.00
VCL-1206A	6:1 zoom lens, 12.5-75mm, f/1.8, C-mount	420.00
HF16BSND41	2/3" CCTV, f/1.4-T360, 16mm. Manual focus, auto iris	180.00
HF35BSND41	2/3" CCTV, f/1.4-T360, 35mm. Manual focus, auto iris	190.00
HF48BSND41	2/3" CCTV, f/1.8-T360, 4.8mm. Manual focus, auto iris	210.00
HF8BSND41	2/3" CCTV, f/1.8-T360, 8mm. Manual focus, auto iris	200.00

Remote Controls for Other Color Camera Lenses

CC-7T	For J6x11REA and J10x11REA Canon lenses	\$580.00
CC-8T	For J6x11R and J10x11R Canon lenses	420.00
CRD-1B	For H6AMD3B and H6SND43B lenses	455.00
LRC7T	Lens remote cable for CC-7T and CC-8T	100.00

Cables

TCF-025M	Extension cable for CRD Fujinon CCTV control box	\$50.00
TCF-050M	Extension cable for CRD Fujinon CCTV control box	62.00
TCF-100M	Extension cable for CRD Fujinon CCTV control box	79.00

Nikon Servo Zoom Lenses: 3 Pick-Up Use

S13x9B1/B	9-117mm for DXC-M7 Series (with 2X extender)	\$6,800.00
S15x8.5B1/B	8.5-127.5mm with 2X extender for DXC-M7 Series	7,400.00

Nikon Accessories

RLCN1	EFP/Studio Rear Control Kit. Provides servo zoom and manual focus. Requires TF-RM2 or TF-RM3	\$1,600.00
TF-RM2	Focus control module for Nikon S13x9B1/B lens	210.00
TF-RM3	Focus control module for Nikon S15x8.5B1/B lens	210.00
TRA-1	Mounting adaptor ring, allows the use of wide angle converter and telephoto converter with S13x91/B	70.00
WFC80-85	Wide angle conversion lens (0.8X) for S13x9B1/B and S15x8.5B1/B lenses. Requires TRA-1	2,100.00

Viewfinders

DXF-M7	1.5" high quality viewfinder for DXC-M7 Series	\$ 875.00
DXF-40A	4" viewfinder, can be used as a rackmountable monitor with RMM-1800 for use with DXC-3000 Series, DXC-M3A Series, DXC-1800 Series, DXC-M7 Series and DXC-325 Series	645.00
DXF-50	5" high resolution viewfinder for use with DXC-3000 Series, DXC-M3A Series and DXC-M7 Series	1,070.00
DXF-325	1.5" Quick Start viewfinder for DXC-325 Series	580.00
DXF-501	1.5" Quick Start viewfinder for DXC-327 Series	660.00

CAMERA ACCESSORIES

SONY®

Business and Professional Group

Camera Control Units and Related Accessories

CA-325	Stand-alone camera adaptor for DXC-325 Series. Included with DXC-325K and DXC-325L packages	\$ 820.00
CCU-M3	CCU for DXC-3000/M2/M3/M3A/Mark II, DXC-M7 Series. Requires CMA-8 AC adaptor	1,650.00
CCU-M7	Full camera control unit for DXC-M7 Series, includes AC power supply. Requires optional CCZZ-A cable(s) for operation up to 1000'. Accepts optional RM-M7G miniature remote	3,500.00
CA-M3	CCU cable extension adaptor for 1000' control for DXC-3000/M2/M3/M3A/Mark II. Requires CMA-9AC adaptor and CCZ-M10/M100 cable	2,355.00
CA-M7	Studio adaptor (enclosure) for DXC-M7 Series. Adds adjustable safe picture, title, center and cursor functions plus mechanical advantages for full studio operation	1,950.00
RM-M7G	Miniature remote control for DXC-M7 Series and CCU-M7. Controls all basic functions. Also docks to CA-M7 studio adaptor, 2 meter cable supplied. Optional cables extend operation to 100m	800.00

Switcher Systems and Accessories

CRK-2000	Universal chroma keyer with RGB/composite chroma key, built-in sync generator	\$ 3,090.00
Director 2000	Contains: SEG-2000A, CRK-2000, WEX-2000, CCF-5	11,985.00
SEG-2000A	Portable color special effects generator, AC power/external DC/battery, built-in NTSC sync generator with VBS genlock, 6 video inputs	6,055.00
SEG/WEX PAC	Contains: SEG-2000A, WEX-2000, CCF-5	8,990.00
WEX-2000	Wipe pattern extender, 84 wipe patterns	3,050.00
LC-2008	Carrying case for SEG-2000A	380.00

AC Adaptors/Batteries

BC-20	Dual battery charger for BP-20/A and BP-60	\$ 210.00
BC-1WB	Battery charger for NP-1/1A/1B. Charges 4 batteries sequentially	495.00
BC-410	Battery charger for NP-1 and BP-90 Series for up to 4 NP-1s and BP-90s	895.00
BC-65AN	Battery charger for BP-65AN	90.00
BC-1000	Battery charger for six BP-20A and BP-60	615.00
BP-60	Battery for DXC-1820, DXC-1821H and CCU-1800/M3	95.00
BP-65AN	Anton Bauer 4AH NiCad battery for DXC-M3A, DXC-3000, and DXC-1820 Series. Requires optional camera adaptor and charger	410.00
CAC-21	Battery attachment for DXC-3000 for DC-8G	70.00
CMA-8A	AC adaptor for VO-6800, DXC-1820, DXC-1821H, DXC-3000, DXC-M3A Mark II	535.00

AC Adaptors/Batteries (cont'd)

CMA-9	AC adaptor for CA-M3	\$1,070.00
CMA-D1	AC adaptor for 2 AVC-D1 and DXC-101	290.00
AVC-D7/ DXC-107	Phantom power plus sync (single wire video/DC/sync)	320.00
DC-311AN	Battery adaptor bracket for BP-65AN to DXC-3000 Series and DXC-M7 Series	130.00
DC-8G	Battery adaptor for 2 NP-1A	430.00
NP-1A	NiCad battery, 1.7Ah	85.00
NP-1B	NiCad battery, 12V, 2.3Ah	85.00

Other Accessories

C-74	Shotgun type microphone	\$ 925.00
CA-325A	Docking AC adaptor for DXC-325 Series with RGB, composite, Y/C, Sync, and VBS outputs. Permits control of many camera functions with optional RM-M7G	810.00
CA-325B	Docking adaptor (12VDC only) for DXC-325 Series with RGB, composite, Y/C, Sync, and VBS outputs. Permits control of many camera functions with optional RM-M7G	490.00
CA-327	Camera adaptor for DXC-327	900.00
CAC-1	Microphone holder for DXC-M3A/MK II	50.00
CAC-4	Chest rest for DXC-325/327/M7	180.00
CAC-12	Chest rest for DXC-325/327 and BVP cameras	120.00
CAC-11A	Microphone holder for DXC-3000	120.00
DR-100	Lightweight headset for intercommunication	130.00
ECL-12L6C	Step-down cable	100.00
ECL-6L12C	Step-up cable	100.00
ECM-672	Shotgun type microphone	485.00
LC-325	Carrying case for DXC-325 Series	150.00
LC-420	Carrying case for DXC-325/327 Series	430.00
LC-420TH	Thermodyne carrying case for EVW-325/327	250.00
LC-2003	Carrying case for RMM-1800, CCU-1820, CMA-8, DXF-40	335.00
LO-32BMT	Lens mount adaptor for use of 2/3" 3 pick-up lenses (6-pin) with DXC-325/327 Series	580.00
MVA-12	Microscope attachment with C mount	705.00
MVA-31	Microscope adaptor with bayonet mount	995.00
MVA-33	High quality microscope adaptor with 2/3" bayonet mount	1,400.00
RMM-1800	19" metal rackmount for CCU-1820, CCU-M3, CMA-8, DXF-40	160.00
TGR-325	Title generator with clock, stopwatch and pointer functions for DXC-325 Series. 9 pages with maximum of 24 characters on each of the 9 lines. Color, blink, background, size and roll functions	400.00
VCT-12	Tripod adaptor for DXC-3000 Series and DXC-1820	120.00
VCT-14	Tripod adaptor for DXC-M7	200.00
VCT-M3	Tripod adaptor for DXC-M2/M3/M3A/Mark II	170.00

Betacam® SP 2000 Pro Series

PVW-2800 Recorder/Player

- More than 90 minutes of recording/playback time using L-size metal (for both recording and playback) or oxide (for playback only) cassettes
- High speed picture search provides recognizable color pictures at up to 10 times normal speed in forward and reverse (24 times in monochrome)
- 2 longitudinal audio channels with Dolby™ C-type NR (Noise Reduction) system
- Direct RS-422 9-pin interface with other RS-422 equipped Sony machines (Betacam/Betacam SP VTRs, BVU series U-Matics)
- Built-in comprehensive editing facilities
- Dynamic Motion Control with memory provides slow-motion editing capability (when used with a player VTR equipped with DT™ function)
- Built-in time base corrector with advanced high quality digital dropout compensator
- TBC remote control from an optional BVR-50
- Built-in LTC/VITC/user bits generator and reader
- Built-in character generator
- Enhanced serviceability with built-in self-diagnostics
- User friendly dial menu operation
- Y/R-Y/B-Y component signal inputs and outputs via BNC or 12-pin Betacam DUB connectors
- S-Video (Y/C separate) input/output connectors
- 7-pin U-Matic DUB output capability (option)
- Compact and lightweight (5 unit high, 19" rackmountable, approximately 55 lbs.)
- Low power consumption (130W)

PVW-2800 \$15,000.00

PVW-2600 Player

- More than 90 minutes of playback time using L-size cassettes with metal or oxide tape
- High speed picture search provides recognizable color pictures at up to 10 times normal speed in forward and reverse (24 times in monochrome)
- 2 longitudinal audio channels with Dolby C-type NR system
- Direct RS-422 9-pin interface with other RS-422 equipped Sony machines (Betacam, Betacam SP VTRs, BVU series U-Matics)
- Built-in time base corrector with advanced high quality digital dropout compensator
- TBC remote control from an optional BVR-50
- Built-in LTC/VITC/user bits reader
- Built-in character generator
- Enhanced serviceability with built-in self-diagnostics
- User friendly dial menu operation
- Y/R-Y/B-Y component signal outputs via BNC or 12-pin Betacam DUB connectors
- S-Video (Y/C separate) output connector
- 7-pin U-Matic DUB output capability (option)
- Compact and lightweight (5 unit high, 19" rackmountable, approximately 54 lbs.)
- Low power consumption (110W)

PVW-2600 \$10,000.00



PVW-2800



PVW-2600



PVW-537
(PVV-1 Docked to DXC-537)

PVW-1 Dockable Recorder

- Designed to dock directly to the DXC-537 camera to make the PVW-537 camcorder
- More than 30 minutes of recording time using S-size cassettes (metal particle tape only)
- 2 longitudinal audio channels with Dolby C-type NR system
- Luminance or CTDM viewfinder playback
- Recognizable fast forward/rewind pictures in viewfinder
- Full range of machine control provided (fast forward/rewind/play/stop/eject)
- Record review function
- Built-in LTC/VITC/user bits generator and LTC reader with external time code lock capability
- Frame accurate backspace editing without time code discontinuity at the editing points
- 8-digit display
- Built-in loudspeaker
- Digital hours meter
- Phantom power supply (+48V, CH-1/2)
- Built-in self-diagnostics with character display on TV monitor

PVW-1 \$9,000.00

SP U-MATIC RECORDERS/PLAYERS

SONY®

Business and Professional Group

BVU-950 SP U-Matic® Videocassette Recorder/Player

- Sendust heads • 340 TV lines • Type-C Dolby NR • 15kHz \pm 3dB
- 52dB S/N with Dolby NR off • 72dB with Dolby NR on • Dolby NR auto detection system • Accurate audio insert editing • BKU-901 plug-in time base corrector, optional • BKU-905 plug-in time code generator/reader, optional • Dial operation concept • Built-in editing facility • Speeds of still to 10 times high speed picture search • RS-422 serial interface (remote 1, 9-pin) • TBC remote connector • 24-pin parallel interface (remote 2, amphenol) • External TBC connection • Video/out-1/-2 two monitor output connectors • REF video in and out connectors • Self diagnostics • Digital hour meter • Anti-clog facility • 19" EIA rackmountable • Hinged and detachable front panel

Supplied Accessories

- AC power cord • VDC-5 dubbing cable (5m) • RCC-5G remote control cable (9-pin—9-pin) • Extension board (small/large) • Operation and maintenance manual

BVU-950 \$10,500.00

BVU-950 Digital Noise Reduction (DNR) Package

Includes: (1) BVU-950, (1) BKU-901A Time Base Corrector, (1) BKU-902 Noise Reducer, (1) BKU-905 Time Code Generator/Reader \$14,500.00

BVU-920 Digital Noise Reduction (DNR) Package

Includes: (1) BVU-920 SP U-Matic Videocassette Player, (1) BKU-901A Time Base Corrector, (1) BKU-902 Noise Reducer

BVU-920 Features:

- DT heads with a strain gauge sensor • 5dB improvement in AM signal-to-noise ratio • Improved response of DT head movement for playback speed change • DMC for editing • High quality SP and Dolby Type-C playback • Plug-in board options of BKU-901A Time Base Corrector and BKU-902 Digital Noise Reducer • Built-in Time Code Reader, computer controlled digital servo system • Dial Menu operation • Built-in character generator for titling and T/C burn-in • All DC motor transport • Full Bidirex control jog and shuttle • Independent audio playback level control • Video dub-out connector • Professional audio/video connectors • Remote control capability • RS-422 serial and simple 24-pin parallel • Self-diagnostics • Rackmountable; 5 rack units high

BVU-920 DNR package \$14,000.00

BVU-900 SP U-Matic Videocassette Player

- Compatible with Superior Performance (SP) or conventional U-Matic formats • Dubbing output • 340 TV lines in SP mode • Dolby type-C NR (sendust heads and playback circuitry extends frequency response to 15kHz \pm 3dB and provides an S/N ratio of 72dB, 52dB with Dolby NR switched off) • Built-in time code reader • Dial operation • Simplified circuit design • High speed picture search with jog and shuttle modes • Two remote ports: RS-422 serial interface and 24-pin parallel interface • Two monitor outputs and two video outputs • Two monitor connectors and two video connectors REF video in and out connectors • Anti-clog facility prevents tape damage and head clog • Rackmountable with optional RMM-950 rackmount kit • Hinged and detachable front panel

Supplied Accessories

- AC power cord • RCC-5G remote control cable (9-pin—9-pin) • Extension board (small/large) • Operation and maintenance manual

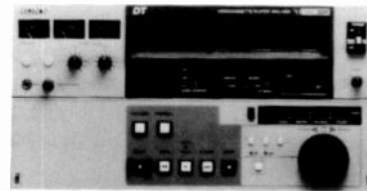
BVU-900 \$6,500.00

BVU-900 Digital Noise Reduction (DNR) Package

Includes: (1) BVU-900, (1) BKU-901A Time Base Corrector, (1) BKU-902 Noise Reducer. \$10,000.00



BVU-950



BVU-920



BVU-150

BVU-150 Portable SP U-Matic Videocassette Recorder/Player

- Two modes of record/replay: SP U-Matic mode and conventional U-Matic mode • Compact, lightweight, and rugged design • Improved picture quality employing Y/C separator, chroma enhancer, and noise canceller, etc. • SP tape activates SP mode for the highest possible video and audio quality • Video confidence playback • Backspace editing capability • External time base corrector facility • Dolby C noise reduction system • Audio mixing for recording and playback • Status and malfunction indicators

Supplied Accessories

- Carrying case • Carrying strap • Shoulder strap • Carrying handle • Level control knob • Operation and maintenance manual

BVU-150 \$6,855.00

Accessories

BKU-150 Plug-in Time Code Generator real time reader for BVU-150 SMPTE LTC/VITC \$1,155.00

BKU-901A Plug-in time base corrector, only for BVU-950/920/900 \$3,500.00

BKU-902 Plug-in digital noise reducer, connected to the BKU-901A/901, only for BVU-950/920/900 \$2,000.00

BKU-905 Plug-in time code generator/reader, can be slave locked to an external time code or the time code previously recorded during assemble editing \$1,500.00

RMM-950 Rackmount kit, permits BVU-950/920/900 to be installed in EIA standard 19" equipment racks \$280.00

BVG-1600 Time code generator, LTC/VITC generator, 8-digit LED display \$5,565.00

BVG-1500 Time code reader, readout capability of LTC/VITC and user bits \$4,280.00

Business and Professional Group

VO-8800 SP U-Matic® Portable

Videocassette Recorder/Player

• Type-C Dolby noise reduction • Separate Y/C interface with camera • Optional plug-in Time Code Generator capability with BKU-706 • Video confidence • Remaining tape time display • Continuous battery operation • Backspace editing • Picture search • 3-way warning system • Built-in RF modulator • Head-phone jack • Remote control • Self diagnostics • 13 lbs., 10 oz.

VO-8800 \$3900.00

VO-8800

PAC TC VO-8800 plus BKU-706 plug-in time code generator. \$4845.00

BKU-706 Plug-in time code generator for VO-8800. Features regeneration to external time code, drop frame/non-drop frame, free run/record run, user bits entry, reader capability. \$1200.00

CMA-8 AC adaptor for VO-8800 and camera \$535.00

LC-8800 Carrying case for VO-8800 \$285.00

AH-8800 Carrying handle for the VO-8800 \$90.00

VO-9800/VO-9850 SP U-Matic

Videocassette Recorder/Players

• Type-C Dolby noise reduction • 9-pin RS-422 serial interface • TBC connection • Jog/Shuttle dial operation $\pm x^{1/30}$ to x^8 • Dial menu operation • Dubbing connectors • Balanced audio with XLR connectors • 8-digit LED counter • Front panel can be slanted at a 0°, 30°, 60°, or 90° angle for operational convenience • 5 rack units high • 47 lbs., 2 oz.

VO-9800 Without full automatic assemble and insert editing. \$5800.00

VO-9850 With full automatic assemble and insert editing. \$8850.00

BKU-703A 33-pin editing interface board for VO-9800/9850 \$450.00

BKU-704 Time code reader for VO-9800/9850 \$1000.00

BKU-705 Time code generator/reader for VO-9850. Features regeneration to external time code, drop frame/non-drop frame, free run/record run, user bits enter. \$1300.00

VO-9600 SP U-Matic Videocassette Recorder/Player

• Type C Dolby noise reduction with auto detection • XLR connectors for balanced audio input/output • Audio dubbing on channel 1 • System versatility • Sendust Head for improved signal-to-noise ratio • TBC connection facilities • Rotary 2-head helical scan system • RS-232C interface capability • 33-pin parallel remote control interface • Real time counter • Timer operation • RF modulator • 4-unit height/rackmountable • Still picture • Quick start • Self-diagnostic functions • 7.6"H x 16.7"W x 19.3"D • 37.5 lbs.

VO-9600 \$4100.00

VP-9000 SP U-Matic Videocassette Player

• Automatic SP mode detection system • Type C Dolby noise reduction with auto detection • Sendust Head for improved signal-to-noise ratio • XLR balanced audio connectors • System versatility • TBC connection facilities • RS-232C interface capability • 33-pin parallel remote control interface • Real time counter • Timer operation • Programmed operation • RF modulator • 4-unit height/rackmountable • Still picture • Quick start • Self-diagnostic functions • 7.6"H x 16.7"W x 19.3"D • 37.5 lbs.

VP-9000 \$2950.00



VO-8800



VO-9850



VO-9600



VP-9000

U-MATIC RECORDER/PLAYERS

SONY®

Business and Professional Group

VO-5850 U-Matic Editing Videocassette Recorder/Player

- Front loading tape transport • Drum and capstan direct drive • Digital servo LSI with "Phi Square Servo" • DC motor reel servo • Sophisticated editing with full RM-450 interface • Bidirex dial search 1/30 to 5X, 15 different speeds • High speed picture search (with RM-450 and KCS tape) • LED tape timer with mark-in function • Built-in preroll editing capability • Noiseless still • Accurate editing 2 frames with 1 preview • Power supply with switching regulator, wide range of voltage, frequency and low power consumption—75W • 19" rackmountable • Loopthrough video input with 75 ohm termination switch • 2 video output connectors—BNC • Tilt-out control panel • Rotary erase heads • Vertical interval switching and framing servo • Dub-in/dub-out connector • End-of-tape automatic rewind • Auto/manual video recording level control • Audio limiter function • Random access/interactive capability

VO-5850\$6700.00



VO-5850

VO-5800 U-Matic Editing Videocassette Recorder/Player

- Designed for flexible editing, camera-to-VTR and VTR-to-VTR, with switching between sources • Bidirex search dial 1/30 to 5X normal, in either direction • Phi Square Servo with digital LSI prevents picture "whipping" at edit points • Editing interface with optional Sony RM-450 automatic editing control unit • Special editing features include backspace edits, virtually noiseless still picture, long-term pause, special framing servo and rotary erase head for cleaner edits • U-Scan ultra-high-speed picture search with optional RM-450 and KCS tape • Advanced circuitry with 2 video inputs, vertical interval switching, choice of internal or external sync and luminance dropout compensator • Audio dubbing adds new sound to previous recordings • Accurate readout of elapsed tape time in minutes and seconds, mark-in function lets you note specific tape points • Programmed operation repeats a selected segment of the tape • Random access and auto play with optional RX-353 or RX-303 auto search control units • Tracking control, skew control

VO-5800\$4500.00



VO-7630

VO-7630 U-Matic Videocassette Recorder/Player

- Same features as the VO-7600 plus: • Dub in and out connectors for high quality picture duplication • PAL and SECAM recording • PAL, SECAM and NTSC playback in low band mode • 37.5 lbs.

VO-7630\$4000.00

VO-7600 U-Matic Videocassette Recorder/Player

- Frame code and RS-232C interface capability • 33-pin parallel remote control interface • External sync • Timer operation • Optional wired/wireless remote control (RM-690 or RM-770) • Picture search • Still picture • Long pause with tape protection • Programmed operation • 4 unit high rackmountable • Digital hour meter • Self diagnostics • RF modulator • Audio dubbing on channel 1 • 7.6"H x 16.7"W x 19.4"D • 37.5 lbs.

VO-7600\$3100.00

VP-7040 U-Matic Videocassette Player

- PAL/SECAM/modified NTSC • Picture search 5X fwd/rev • Wireless/wired remote control (optional) • Still picture • LED real time counter • External sync input • Optional frame code and RS-232C capability with BKU-701 • Optional 33-pin remote control capability with BKU-702 • Self diagnostic functions • 7.6"H x 16.7"W x 19.3"D • 35.3 lbs.

VP-7040\$2540.00



VO-7600



VP-7020

VP-7020 U-Matic Videocassette Player

- Offers 2 optional plug-in external interface cards, giving the user flexibility for different applications • Without any optional plug-in interface cards the VP-7020 can be used as a stand-alone player • 2 different external remote control configurations • Using the optional BKU-701 plug-in interface card gives the machine external RS-232C computer remote control capability • Using the optional BKU-702 plug-in interface card gives the machine external 33-pin parallel remote control capability • Either of these external remote control cards can be used simultaneously with the optional handheld remote controls • 35.3 lbs.

VP-7020\$1780.00

Accessories

BKU-701	Computer interface board which reads frame code and provides an RS-232C interface for Type 7 and 9 U-Matics	.....\$ 410.00
BKU-702	33-pin parallel interface board for Type 7 and 9 U-Matics	.....520.00
IF-500	Multiple interface box, enables interfacing between Sony VO/VP, SLO, BVH BVU, BVW, BVE series	.....1365.00
RFK-634	Switchable CH3/CH4 RF modulator for Type 7 and 9 U-Matics	.....140.00

Business and Professional Group

EVW-325L Hi8 Camcorder Configuration Without Lens

• Includes: DXC-325H camera head; EVV-9000 Hi8 dockable recorder; DXF-325 viewfinder; VCT-12 tripod adaptor and LC-420 carrying case \$6950.00

EVO-9100 Hi8™ Camcorder

• Built-in 8mm time code generator/recorder • Automatic or manual white balance • Auto/manual iris • Macro • Power zoom • Variable shutter speeds 1/60, 1/100, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000 second • Detachable shoulder brace • Date, time or time code/tape counter and battery, moisture warning and videocassette mode can all be displayed on LCD window \$2950.00

EVO-9800A Hi8 Feeder/Recorder

• SMPTE compatible time code out via 9-pin remote, built-in chroma noise reducer • Time code after recording capability • U-Matic dub out • Gentle tape tension regulation system ensures longer tape life \$5200.00

EVV-9000 Hi8 Dockable Recorder

• Directly dockable with the DXC-325 camera • 400 TV lines horizontal resolution • Built-in 8mm time code generator • Y/C separate video input • PCM and AFM audio • Built-in ear speaker • Rec Review function • Warnings of Servo/Humid/Slack/Tape End/Battery/RF are indicated both on the LCD display and camera viewfinder • An alarm tone is audible either on an ear speaker or earphone • 4 lbs., 7 oz. \$3100.00
VA-90 VTR adaptor for EVV-9000 900.00

EVO-9500 Hi8 Recorder/Player

• Built-in time code generator/reader • 2-channel PCM audio • 2-channel AFM audio • Auto repeat, clean still and slow external sync \$2800.00

EVO-9700 Hi8 Recorder/Player

• Designed for ease of operation as a stand-alone desktop editing machine to meet a wide range of applications • Higher luminance FM carrier and wider frequency deviation provide 400 TV lines resolution and high quality picture • Built-in digital chrominance noise reducer (digital CNR) • Can memorize up to 99 program segments of time code data • Separate Y (luminance) and C (chrominance) signal processing from player to recorder • Built-in 8mm time code generator/reader • Video/audio insertion capability • Slow edit function • 1 monitor editing capability • Feeding capability to other VTRs • S-Video (separate Y/C) in/out connectors. \$7600.00

EVO-520 8mm Videocassette Recorder/Player

• 230 lines resolution • Auto repeat function • Preset program playback • Auto play • High durability • AC/DC operation • Picture search and clean still/reverse • Wireless/wired remote control • External sync capability • Function lock capability • Cue-in connector • Microphone input. . . \$1030.00
RM-S52 Remote control. 300.00

EVO-210K Video 8™ Portable Recorder/Player

• 3-way power operation up to 150 minutes • Playback on a single NP-22 battery • Automatic track following • Edit switch for better dubbing • Built-in insert editing with flying erase head • Recording in SP mode and playback in SP/LP mode • Supplied with RF modulator and ACP-80 battery charger. \$710.00



EVO-9800A



EVV-9000 Shown Docked to DXC-325 Camera



EVO-9700



SVP-120

EVM-8010R 8" Color Monitor/8mm VCR Combination

• 8" black face Trinitron • 230 TVL resolution • DC audio/video/headphone outputs • Audio/video inputs • 8mm format front loading VCR • Optional infrared remote control • Record SP mode • Playback SP or LP mode. \$1400.00

SVP-120 VHS Hi-Fi Player

• Double azimuth 4-head design • Tape stabilizer • VHS Hi-Fi stereo audio • Rapid access tape transport system • High speed rewind button • On-screen menu • Auto tracking • Auto repeat • Control S terminals \$470.00

SVO-140 VHS Recorder/Player

• Double azimuth 4-head design • Tape stabilizer • Rapid access tape transport system • Auto repeat • High speed rewind button • On-screen menu • Control S terminals • 8-pin TV connector. \$500.00

SVO-160 VHS Hi-Fi Recorder/Player

• All the features of the SVO-140 plus: • VHS Hi-Fi stereo audio • Key inhibit • Power on and playback • Control S (in/out), Control P (in) and Control L (in) \$660.00

VTR CONTROLLERS/ ACCESSORIES

SONY®

Business and Professional Group

RM-450 Editing Control Unit

- Interfaces between Betamax™, U-Matic®, U-Matic-SP, Betacam™ and 1" VTR formats • 33-pin and 9-pin connectors for various VTRs • Can reference off of control track (CTL), time code or relative time code (RTC) • Variable pre-roll lengths • Shuttle/jog modes • Dynamic Tracking functions (noiseless slow-motion, freeze) when VTRs with Dynamic Tracking capability • Error indicators with audible warning • Assemble or Insert editing • Split Editing (insert mode only) • Butt editing • Quick editing • Trim functions • Preview/review functions • Tape protection function prevents tape damage • Cue out connector for tally signal • 3-position synchronization selector for absolute precise editing • VTR time delay pinch learning capability (memory) • Easy data pre-setting (pre-roll, edit timing, etc.) through two DIP switches

RM-450\$2300.00

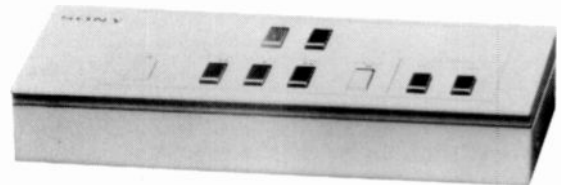


RM-450

RM-500 Remote Control Unit

- Functions: Stop, FF, Play, Rew, Pause, Rec, Dub, X5 Search Forward, X5 Search Reverse • DC operation (power supplied from VTR) • Cable length: 10' can be extended to 60'

RM-500\$275.00



RM-500

RM-555 Multi-Unit Remote Controller

- Simultaneous control with RM-500 or RM-580: Up to 5 VTRs controlled simultaneously; Up to 4 RM-555s can be connected in series for control of up to 20 VTRs • Sequential record/playback with DA-500 or VCS-500: Up to 5 VTRs can be controlled to record or play back in one sequence or in continuous sequences; Timer operation capability enables unattended operation • Individual control with VCS-500 and RM-V5: Any 1 of up to 5 VTRs can be selected with the RM-V5 for control by an RM-500, RM-580 or RM-440. VCS-500 will select appropriate video and audio outputs. RM-300 or RX-303/RX-353 can be used for random access multi-VTR operation

RM-555\$2413.00

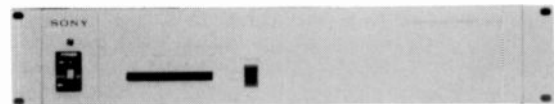


RM-555

RM-580 Remote Control Unit

- Bidirex search dial • Stop, FF, Play, Rew, Pause, Search (Bidirex Dial), Rec, Edit, Pre-Roll • LED tape timer, includes frame counts • DC operation (power supplied from VTR) • Pre-roll start jack for remote start • Cable length 10' can be extended to 60'

RM-580\$880.00



VCS-500

RM-690 Remote Control Unit

- For VO-8800, Type VII U-Matics, VP-9000, VO-9600 and BVU-150 • Handheld • Wired operation • Controls FF, Rew, Rec, Play, Pause, Stop and Search

RM-690\$155.00

RM-770 Remote Control Unit

- For VO-8800, Type VII U-Matics, VP-9000, VO-9600 and BVU-150 • Handheld • Wired or wireless operation with supplied wire and plug-in sensor • Controls FF, Rew, Rec, Play, Pause, Stop and Search

RM-770\$175.00

RM-V5 VTR Selector

- Up to 5 VTRs can be selected • 1 out of 5 selection with VCS-500 • Selection can be expanded to 1 out of 1-4 or 1 out of 5-9 using VCS-500 group selector switch • Remote cable length 10' with 20 pin connector can be extended up to 160'

RM-V5\$305.00

DA-500 Video and Audio Distribution Amplifier

- 1 video input (BNC), 2 channel audio input (RCA) and 1 dub input (7 pin) • 5 outputs of each input • Individual direct outputs of each input permit branching to additional distributors • Single input can be expanded to a maximum of 20 outputs with up to 4 DA-500s • Power requirements: 120VAC ± 10%, 20W

DA-500\$955.00

VCS-500 Video and Audio Switcher

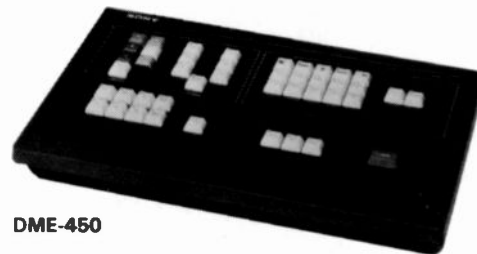
- 5 video inputs (BNC), 2 channel audio (RCA) and 2 dub-in inputs (7 pin) • 1 video output (BNC), 2 channel audio output (RCA) and dub-out (7 pin) • 1 sync input (BNC) and 5 sync outputs (BNC) for external sync-lock operation • Vertical interval switching • Interface with RM-V5 or RM-555 • Dual VCS-500s can be used for control of up to 9 inputs • Power consumption: 20W

VCS-500\$1635.00

Business and Professional Group

DME-450 Digital Multi-Effects Switcher

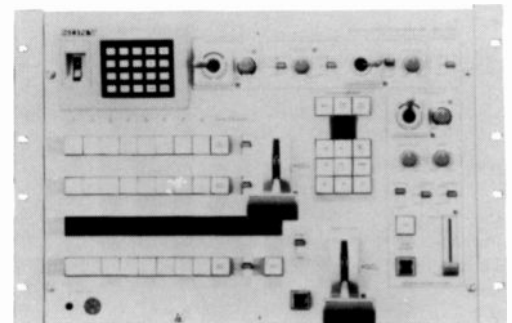
- May be used as a switcher with digital effects with an edit controller for 2 machine or A/B roll editing, or as the digital effects source for the BVS-3000 switcher series • Control panel layout designed for simple transition speed, color matte and effect pattern selection • 3 primary video inputs plus color background • 5 transition speeds • 3 sync outputs for system reference • Over 280 effects stored in ROM • Pre-assigned buttons for Flip, Tumble, Slide, Scroll and 5 wipes • Other available DME effects include mosaic, posterization, drop shadow, stream, squeeze, doors and 3-D rotations • All effects easily executed with minimum number of keystrokes • 2 built-in field memories allow use of non-time base corrected inputs such as VO-9800/9850 U-Matic VTRs • Freeze function permits A/B roll-like editing when only 2 machines are used, with an RM-450 or BVE-600 edit controller • Title function for superimposing foreground sources over background video (luminance self-keying) • DME capability may also be used with title keys • Key signal output for use with other switchers such as the BVS-3000 series or the SEG-2550A • Accepts external cue pulses such as from an RM-450 or BVE-600 for triggering effects • Serial interface included for sophisticated control from a BVS-3000 series switcher or BVE-910 editor \$9995.00



DME-450

SEG-2550A Color Special Effects Generator

- Compact and cost effective special effects generator for program production and post production • The E-File™ function, which memorizes and reproduces the setting of switches and buttons and the movement of the controls, levers and sticks, is adopted • Interface capability with the BVE-910 automatic editing control unit and an external computer • A total of 137 versatile wipe patterns • Wipe pattern modifiers such as the positioner, the border wipe, softness border edge, echo/pairing wipe and mosaic wipe are provided • Perfect interface capability with the CRK-2000 universal chroma keyer and the WEX-2000 wipe pattern extender • 8 video inputs and 4 bus lines (A, B, PGM and PST) for special effects (Mix, Wipe and External Key) • Built-in background color • Built-in downstream keyer (DSK) • Independent color generation for the DSK • Shadow and edge adjustment for the key signal • Built-in sync generator • 4 blackburst signal outputs for synchronization of video equipment • SC and H phase indicators for easy phase adjustment • 19" rackmountable • Torque adjustment of the effects levers \$9800.00



SEG-2550A

SEG-2000A Color Special Effects Generator

- A portable special effects generator for EFP applications • Can be operated by either AC or DC power • Perfect interface capability with the WEX-2000 wipe pattern extender and the CRK-2000 universal chroma keyer • Contains a sync generator • 4 blackburst outputs are provided for synchronization of video equipment • Genlock function with a VBS or BS signal • SC and H phase indicators for easy phase adjustment • Tally/intercom facility • 6 wipe patterns • Built-in background color generator • Built-in downstream keyer • Special effects (external key, mix and wipe) • 4 bus lines (A, B, PGM and PST) • Can be mounted into 19" EIA standard rack • Optional carrying case for EFP use \$6055.00



CRK-2000

WEX-2000 Wipe Pattern Extender

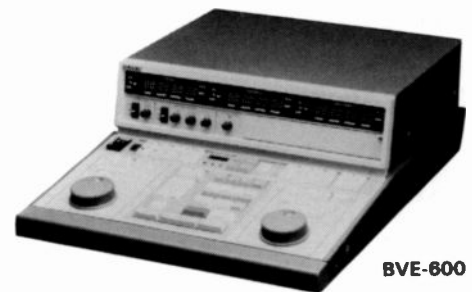
- Extends the wipe pattern versatility of the SEG-2000A and SEG-2550/2550A • Provides 84 kinds of wipe patterns with various other special effect functions such as pattern modulation, pairing wipe and symmetry, which can help you create an almost limitless number of special effects • Wipe operation versatility—Mosaic, Pattern Modulation, Pairing, Symmetry, Positioner and Border Line • AC/DC operation • Can be mounted into a 19" EIA standard rack \$3050.00

CRK-2000 Universal Chroma Keyer

- Both RGB and encoded chroma key functions • Effect amplifier, background color generator, sync generator, external key input for teletop, SC/H phase indicator for genlock • Works as a switcher (3-input) without an external SEG, and as a chroma keyer. Also, in combination with SEG-2000, SEG-2000A, SEG-2550/2550A and WEX-2000, more artistic special effects operations can be performed • RGB/line input (video 1 and 2, RGB) • Hard/natural mode • Background color generator • Sync generator • SC/H phase indicator • Can be mounted into a 19" EIA standard rack. \$3090.00

BVE-600 Automatic Edit Control Unit

- A/B roll editing with Type C, Betacam®, BVU and VO Series VTRs • Serial remote control of 3 VTRs (2 playback, 1 record) • Reads VTR time code and CTL pulses • Split audio/video edits • Automatic audio mixer control for audio/video coordination • Dynamic Motion Control with Sony Dynamic Tracking™ VTRs • Plug-in video switcher options with wipe, dissolve, superimpose • Assemble and insert edits • 2-channel audio control • Easy, 2 search dial operation for record, playback VTRs, similar to the familiar cuts-only edit units • Convenient editing with Go To, Last X and Fast Mark In features \$7700.00



BVE-600

EDIT CONTROLLER/SWITCHERS

SONY

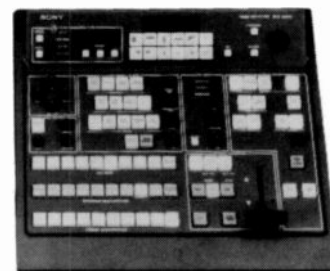
Business and Professional Group



BVE-910



BVS-3100



BVS-3200

BVE-910 Automatic Edit Controller

- A/B roll editing with up to 4 VTRs controlled simultaneously
- Compatible with Sony BVH, BVW, BVU, VO and EVO series VTRs
- Intelligent switcher control for Sony SEG-2550, BVS-3100/3200, DME-450 or Grass Valley Group Model 100/1680 protocol
- Automatic audio mixer control for up to 4 audio outputs
- Compatible with Sony VSP-A600, MXP-29 or MXP-2000 audio mixer
- Audio monitor and preview switcher control capability
- 3.5" floppy disk control
- Free assignment of recorder
- Edit decision list memory for 998 events
- On-board list management including ripple through edits
- 10 programmable macro function keys with 20 steps each
- Dynamic Motion Control with Sony Dynamic Tracking VTRs, 4 GPIs

Supplied Accessories

- Extension board for card file unit
- 8-pin keyboard cable (5m)
- 15-pin D-sub connector (male)
- AC power cord
- Operation and maintenance manual

Optional Accessories

- BKE-904 dual RS-422 VTR interface
- BKE-912A/913/915A serial switcher interfaces
- BKE-916A audio mixer interface
- BKE-9500 3.5" dual disk drive for EDL storage
- BKE-901 NTSC color framing detector
- BKE-903 cue tone generator
- CPD-121 monitor

BVE-910 \$7,875.00

BVE-910 Packages

BVE-910 PAC 1

Complete BVE-910 Package consisting of: BVE-910 Electronics and Keyboard, BKE-904 (x2), choice of BKE-912A or BKE-913A or BKE-915A, BKE-916A, CPD-121

BVE-910 PAC 1 \$12,500.00

BVE-910 PAC 2

Complete BVE-910 Package with additional list management capabilities provided by external software. Package consists of: BVE-910 Electronics and Keyboard, BKE-904 (x2), choice of BKE-912A or BKE-913A or BKE-915A, BKE-916A, CPD-121, BZE-2001 or BZE-2501

BVE-910 PAC 2 \$13,400.00

BVE-910 PAC 3

Complete BVE-910 Package with dual 3.5" disk drive unit consisting of: BVE-910 Electronics and Keyboard, BKE-904 (x2), choice of BKE-912A or BKE-913A or BKE-915A, CPD-121, BKE-9500

BVE-910 PAC 3 \$14,300.00

BVE-910 PAC 4

Complete BVE-910 Package with additional list management capabilities and dual 3.5" disk drive unit consisting of: BVE-910 Electronics and Keyboard, BKE-904 (x2), choice of BKE-912A or BKE-913A or BKE-915A, BKE-916A, CPD-121, BKE-9500, BZE-2001 or BZE-2501

BVE-910 PAC 4 \$15,200.00

BVS-3100/BVS-3200 Video Switcher Series

- Full featured production switchers for total "shooting to editing" system
- Provides maximum interface with other Sony system products
- 1 or 2 linear keyers and standard E-FILE switcher memory
- Multiple layer mix/effects architecture for both live and post production
- Linear downstream keyer (DSK)
- Master fade to black
- Linear keying provides component chroma key, key/fill selection, key mask, key priority and DSK border controls as standard
- 8 loophrough primary inputs plus black and color background
- 2 program outputs, 1 preview output
- 2 external key sources and fills for use by the M/E keyer(s)
- Chroma key input with 3 BNC connectors for both RGB and Betacam signals
- 1 composite external key mask input
- Downstream keyer features separate external key source and fill
- Built-in sync generator for peripheral equipment reference
- RS-422 interface through 9-pin D-sub connector for BVE-900/910/9000 editors
- Standard DME-450 interface through separate 9-pin D-sub connector
- General purpose interface for Auto Transition, Fade to Black and DSK
- Tally connector assignable to Primary inputs, External Key source/fills and DSK source/fill
- Auto or manual transition of background effects
- Transition rate adjustable from 0 to 999 frames in single steps
- 10 basic patterns for Wipe transitions, plus 8 matrix patterns stored in ROM
- "Flip-flop" transitions for automatic transfer of input in Preset Bus to Program Bus
- Look ahead preview function for background and key transitions
- 1 linear ME keyer (BVS-3100) and 2 independent linear M/E keyers (BVS-3200)
- Internal effects matte generators available as key fills
- Standard component video chroma keyer accepts both RGB and Betacam format signals
- Adjustable box mask and external key mask available to both M/E and downstream keyers
- Standard Border Line, Drop Shadow and Outline features on DSK
- External video and DSK matte available as key fill
- E-FILE storage of switcher settings such as matte color, border width and border softness
- Status reporting available when connected to BVE-900/910/9000 editors

Supplied Accessories

- AC power cord
 - Control panel cable (5m)
 - Extension board
- BVS-3100 \$13,000.00
- BVS-3200 Same as BVS-3100 except addition of a key bus, permitting 2 effects to be performed simultaneously, and also has a key priority function \$17,500.00

Business and Professional Group

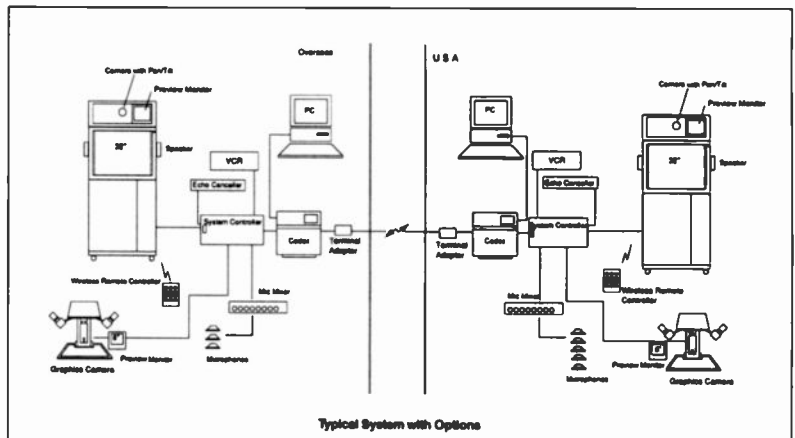


Personal Video Conference System

Personal Video Conference System

- Wireless, icon-based remote control
- Single 32" professional "Cubic" monitor for clear simultaneous viewing of people and graphic images
- Single CCD camera with pan/tilt and zoom lens, and 4 pre-set positions
- Mobile, roll-about design
- Remote, menu-driven diagnostics
- Remote control of distant locations
- "Video mail" function for remote activation of video recording for "time-shift" conferences

Designed for the executive office or small conference room, the Personal System is a complete turnkey system in a black, contemporary roll-about design. It can even operate as a "video mail system," where messages can be delivered to unattended conference systems, stored and viewed later.



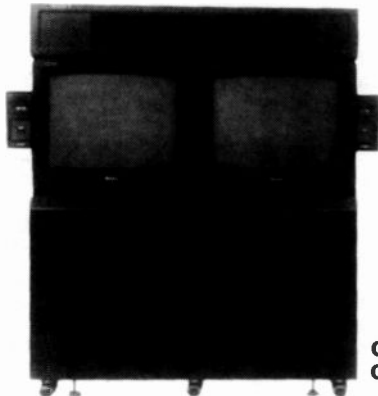
Typical System with Options

Businessman 1232/1 "Personal" System

PCS-S1200 system controller, single 32" cubic monitor, single CCD camera with pan/tilt, custom black steel cabinetry \$26,500.00
 NEC AEC-700 Echo canceller with 2 mics 9,950.00
 CLI Rembrandt II-06 Codec 36,500.00

Businessman 1232/2 Dual 32" System

PCS-S1200 system controller, dual 32" cubic monitors, single CCD camera with pan/tilt, custom black steel cabinetry \$33,750.00
 NEC AEC-700 Echo canceller with 2 mics 9,950.00
 CLI Rembrandt II-06 Codec 36,500.00

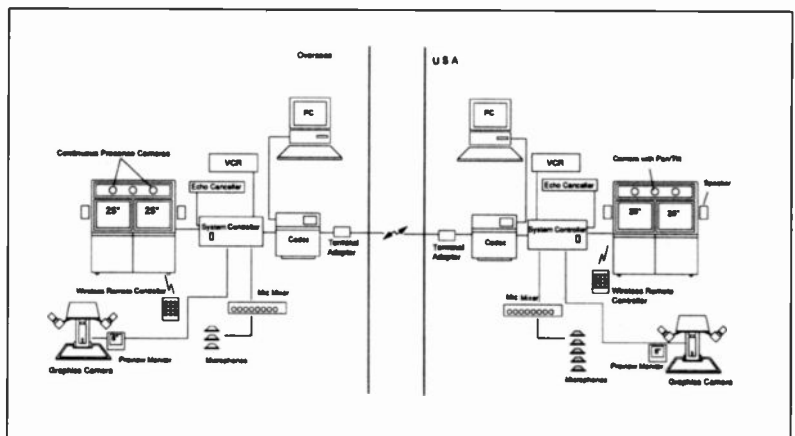


Compact Video Conference System

Compact Video Conference System

- Wireless, icon-based remote control
- "Continuous Presence" viewing for panoramic or stacked image display
- Dual 25" professional "Cubic" monitors for clear viewing of people and graphic images
- 3 CCD cameras, 1 with pan/tilt, zoom lens and 6 pre-set positions for flexible audience coverage
- Mobile, roll-about design
- Remote, menu-driven diagnostics
- The Compact System gives you all the communications power of a large conference room system in a compact, roll-about system

The Compact System is a full-featured video conference system in a black, contemporary, roll-about design. It allows both pan/tilt and "Continuous Presence" video display so that meetings with multiple participants at each location can be clearly viewed. All system functions can also be accessed through an RS-232 port. 3 CCD cameras, 1 with zoom, pan and tilt functions, provide flexibility for close-up or wide-angle subject positioning.



Businessman 1125/2 "Compact" System

PCS-S1100 system controller, dual 25" cubic monitors, 3 single CCD cameras (1 pan/tilt), custom black steel cabinetry \$49,750.00
 NEC AEC-700 Echo canceller with 2 mics 9,950.00
 CLI Rembrandt II-06 Codec 36,500.00

Businessman 1225/2 "Compact" System

PCS-S1200 system controller, dual 25" cubic monitors, single CCD camera with pan/tilt, custom black steel cabinetry \$28,500.00
 NEC AEC-700 Echo canceller with 2 mics 9,950.00
 CLI Rembrandt II-06 Codec 36,500.00

COLOR MONITORS

SONY

Business and Professional Group

PVM-1340/1341/1342Q/1344Q

13" Trinitron® Color Monitors

- 100% DC restoration • 90° I-Q decoder • SMPTE type "C" phosphors incorporated for PVM-1344Q and PVM-1342Q to match the color of most broadcast quality monitors • Super Fine Pitch™ Trinitron CRT (0.25 AG pitch) for PVM-1344Q and 1342Q • Component input for PVM-1344Q • Digital/analog RGB input for PVM-1342Q and 1341 • Beam current feedback circuit • Blue only • 2 composite video inputs • EIA B-pin/S-Video input • Metal cabinet for better durability • Built-in speaker for audio monitoring • Rackmountable with an optional kit for mounting in a 19" EIA standard rack

PVM-1340	.....\$ 785.00
PVM-1341	.....900.00
PVM-1342Q	.....1,155.00
PVM-1344Q	.....1,300.00

PVM-1380 13" Trinitron Color Monitor

- Picture tube: black face Trinitron 14", visible picture size 13" measured diagonally • Horizontal resolution: 250 TV lines at center • 25 lbs., 6 oz. • 14.4" H x 14" W x 16.1" D

PVM-1380\$399.00
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PVM-1390 13" Fine Pitch Trinitron Color Monitor

- 450 lines resolution • S-Video connector • Analog/digital RGB input allows microcomputer connection • Dual video inputs (BNC, 8-pin/S-Video) • Computer input (D-sub, 25-pin) • Sound monitoring capability • NTSC color system

PVM-1390\$615.00
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PVM-1910 19" Trinitron Color Monitor

- Line A (tuner)/Line B/VTR/RGB/CMPTR • Built-in interface for IBM-PC • Accepts analog/digital RGB • RGB loopthrough • RGB/NTSC superimposition • Comb filter select switch (comb/trap) • AFC switch (fast/slow) • Built-in speaker • Removable screen frame/shield • 63 lbs., 15 oz. • 18 1/4" H x 19 1/4" W x 21 1/4" D

PVM-1910\$860.00
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PVM-1910Q 19" Trinitron Color Monitor

- PAL/SECAM/NTSC/NTSC 4.43 switches automatically • Line A (Tuner)/Line B/VTR/RGB/CMPTR • Built-in interface for IBM-PC • Accepts analog/digital RGB • RGB loopthrough • RGB/NTSC superimposition • Comb filter select switch (comb/trap) • AFC switch (fast/slow) • Built-in speaker • Removable screen frame/shield • 63 lbs., 15 oz. • 18 1/4" H x 19 1/4" W x 21 1/4" D

PVM-1910Q\$1,355.00
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PVM-1944Q/PVM-1942Q 19" Trinitron Color Monitors

- PVM-1942Q has Line A, Line B, VTR/S-Video and analog/digital RGB inputs • PVM-1944Q has Lines A and B, VTR/S-Video and analog RGB/component inputs • SMPTE Type C phosphors • 600 lines of resolution • Internal and external synchronization • Gain and bias controls on the front panel

PVM-1944Q	.....\$2,250.00
PVM-1942Q	.....1,950.00

GVM-1300 (13")/GVM-2000 (20")

Trinitron Graphics Monitors

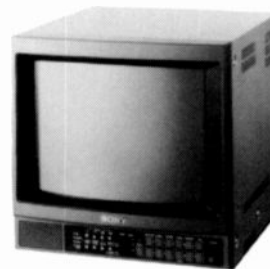
- Accept composite video from VTRs as well as high-resolution color graphics from personal computers • Operate over a wide range of horizontal and vertical synchronization frequencies, enabling users to view video images from VTRs and graphics from various types of computers on a single screen • 2 composite video inputs accommodate the various recording formats • High-resolution video image of 600 TVL (GVM-1300) and 560 TVL (GVM-2000) • 2 RGB computer inputs • Computer resolution is 720 x 480 pixels (GVM-2000) and 900 x 560 pixels (GVM-1300) • Stable automatic white balance facility • Built-in speaker for audio input and controls to adjust the horizontal and vertical shift and size

GVM-1300	.....\$1,495.00
GVM-2000	.....2,300.00

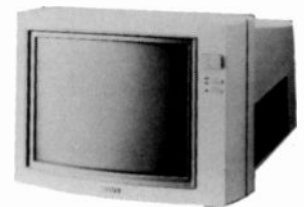
GVM-1305TS 13" Multiscan Touchscreen Monitor

- Provides automatic detection of input signal line frequency • Multiscan capability allows the monitor to automatically adjust its scanning rate to a wide variety of input signals, and to accurately display a picture on its anti-glare screen • Accepts most computer sync signals, in addition to composite video, Y/C and analog/TTL video signals • Provides multiple audio and video inputs with loopthrough, which facilitates its use in a multipurpose workstation environment • Includes ELODEV 1.4c software for interrupt-driven, RS-232C touchscreen support, along with language bindings for compilers manufactured by Borland International, Microsoft Corp. and IBM Corp.

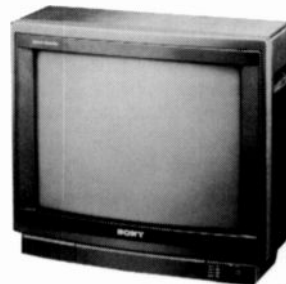
GVM-1305TS\$2,800.00
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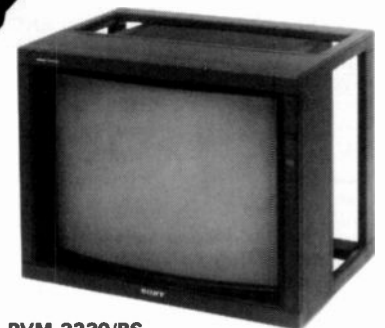
PVM-1342Q



PVM-1390



GVM-2000



PVM-3230/BS

PVM-2030/BS (20")/PVM-2530/BS (25")/PVM-3230/BS (32") Cubic Color Monitors

- 560 lines resolution • Prismatic cube shape, can be stacked both horizontally and vertically • Monitor function controls replaced by a hidden front touch panel embedded under the monitor's thin frame • 2,000 character display with RGB input • Delay line aperture control uses comb filter with notch switch • Dynamic Focus™ circuitry with electromagnetic quadrupole lens • Velocity Modulation™ scanning system continually adjusts the speed of the electron beam • Auto white balance • 3 video inputs, BNC loopthrough, B-pin VTR input and a 25-pin connector for RGB • 15W built-in stereo amplifiers (PVM-2530/BS); 5W (PVM-2030/BS) • Unswitched AC input allows other monitors or video equipment to be directly connected

PVM-2030/BS	.....\$1,185.00
PVM-2530/BS	.....1,480.00
PVM-3230/BS	.....2,650.00

SSM-2010 20" Trinitron Color Monitor

- Microblack™ high-contrast screen • Suitable for wherever you need a presentation monitor • 400 lines horizontal resolution • Audio/video inputs, audio/video outputs • Sub-panel controls

SSM-2010\$625.00
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PVM-4300 43" Trinitron Color Monitor

- Improved Definition Television (IDTV) video created from NTSC using digital frame memory • The picture comes on screen in 2 separate fields of scanning lines every 1/60 of a second • Interlace is the meshing of those 2 fields to form 1 video picture • 560 and 480 television lines of horizontal and vertical resolution, respectively • Digital noise reduction • Vertical aperture correction • 3-D comb filter • 3 composite video or Y/C inputs (with audio loopthrough) • 2 RGB analog inputs with audio • 400W power consumption • 450 lbs. • 42" H x 37" W x 31" D

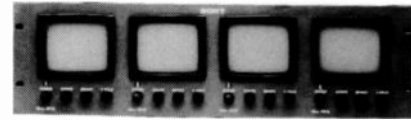
PVM-4300\$35,000.00
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Business and Professional Group

PVM-411 4" Quadruple Monochrome Monitor

- Four independently controlled 4" screens (measured diagonally)
- Fits EIA standard 19" rack • Individual unit shielding • Loophrough capability • Individual front-mounted contrast, brightness • V-hold and H-hold controls • 35 lbs., 4 oz. • 5 1/4" H x 19" W x 12 1/2" D

PVM-411 \$1540.00

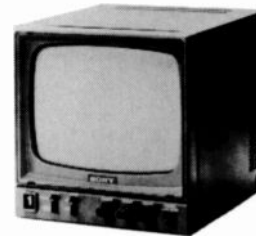


PVM-411

PVM-91/5 9" Monochrome Monitor

- Ideal for computer display • Color temperature of 9300°K • CCTV applications or studio control room monitor • 800 lines of horizontal resolution at center • Selectable scanning systems: Normal/Underscan • DC clamp switch provides a stable reference for the black level • Accepts an external sync • Loophrough BNC connectors for video and sync • Can be installed/rackmounted as a dual video monitor with the MB-504 optional mounting bracket monitor • 12 lbs., 12 oz. • 8 3/4" H x 9" W x 10" D

PVM-91/5 \$495.00



PVM-91/5

PVM-122 12" Monochrome Monitor

- 1000 lines of horizontal resolution at center • Selectable scanning systems: Normal/Underscan • DC clamp switch provides a stable reference for black level • External sync input • Selectable A/B line inputs with front switch • Loophrough BNC connectors for line, A/B and sync • Built-in speaker for audio monitoring • Tally lamp • 21 lbs., 11 oz. • 12 3/16" H x 12" W x 12 3/16" D

PVM-122 \$560.00

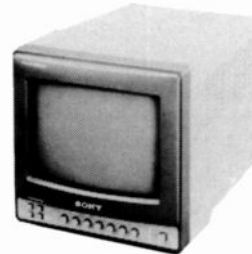


PVM-5310

PVM-5310 5" Trinitron® Triple Color Monitor

- Suitable for multiple camera/VTR monitoring • Employs a beam feedback control circuit for stabilized color reproduction • 6500°K reference color temperature • 220TVL resolution • Accepts external sync • Loophrough video and sync inputs • 19" EIA standard rackmountable • Controls include: chroma, phase, brightness and contrast • Separate power control • Automatic vertical hold control • Automatic white balance • 85W power consumption • 37 lbs., 15 oz. • 7 1/8" H x 19" W x 16 7/8" D

PVM-5310 \$2625.00



PVM-8020



PVM-8221

PVM-8020 8" Portable Color Monitor

- Microblack™ Trinitron tube • 3-way AC/DC operation • Built-in stand • Supplied hood • Push-to-lock controls • 2 video input/output • 6-pin DIN connector for optional TU-1110 TV tuner • Blue-only, normal/underscan and HV-delay

PVM-8020 \$770.00

PVM-8220 8" Trinitron Color Monitor

- Can be mounted in a 19" EIA standard rack together with a second PVM-8220 for use as a dual monitor by using the optional mounting bracket (MB-504) • Underscan, HV-delay, blue only mode select switches • Accepts an external sync • Two video inputs can be selected; Video A or Video B • Microblack Trinitron tube • Horizontal resolution: 250 TV lines at center • 16 lbs., 9 oz. • 8.6" H x 8.5" W x 12.6" D

PVM-8220 \$660.00

PVM-8221 8" Trinitron Super Fine Pitch™ Color Monitor

- Microblack Trinitron tube • High resolution of 400 TV lines at center • Can be mounted in a 19" EIA standard rack together with a second PVM-8221 for use as a dual monitor by using the optional mounting bracket (MB-504) • Underscan, HV-delay, blue only mode select switches • Accepts an external sync • Two video inputs can be selected; Video A or Video B • 16 lbs., 9 oz. • 8.6" H x 8.5" W x 12.6" D

PVM-8221 \$930.00

PVM-1220 12" Super Fine Pitch Trinitron Color Monitor

- More than 550 lines resolution • Comb filter • Three sets of video inputs (Channel A/B and TEST) • Normal/underscan selection • Interval check or horizontal and vertical separately and horizontal plus vertical (cross pulse) in delayed scanning mode • Accepts external sync • Auto/color/monochrome selection • White-balance control inside quick-access slide-out drawer • Aperture control adjusts frequency response • Front panel tally lamp • Loophrough connectors for both video and sync allow multiple bridging • EIA standard 19" rackmountable • 55 lbs., 2 oz. • 11 1/4" H x 19" W x 20 1/4" D

PVM-1220 \$2410.00

CVM-1271 12" Super Fine Pitch Trinitron Color TV Receiver/Monitor

- High resolution—more than 500 lines with video input • 10 key VHF/UHF Express Tuning™ plus sequential up/down channel selector and LED channel indicator • Line/VTR/TV input selector • Monitor/line/TV video outputs • AFC slow/fast switch • Comb filter improves picture quality—no color spill or noise distortion • Up/down volume plus sub-volume control for presetting initial sound level • Color temperature selector • 32 lbs., 2 oz. • 13 13/16" H x 13 1/2" W x 15 3/16" D

CVM-1271 \$1000.00

MB-502 Rackmount bracket 165.00

SLR-102 Slide rail 145.00

COLOR MONITORS

SONY®

Business and Professional Group

BVM-1912 19" Color Monitor

- Auto convergence and geometry adjustment • Auto setup capability (with the optional BKM-2053 probe) • Optional plug-in type decoder boards are available for viewing other TV standard systems • Component (Y, R-Y, B-Y) and RGB inputs available • Optional component (Y, R-Y, B-Y) and R, G and B outputs are available with the BKM-1440 • Stabilized color temperature is obtained by employing a beam current feedback • A picture setup switch for accurate incoming video level alignment • Up to 6dB of aperture correction at 4.5MHz and 6.5MHz, selectable • Built-in cross hatch and white signal generator (100 IRE) for easy monitor alignment • Split screen (upper half: color mode; lower half: monochrome mode) • VITC display (with optional BKM-1460) • Safe area display (with optional BKM-1470) • With the optional BKM-1480, the black level signal generator is available for easy and precise adjustment of black level settings of the monitors • Blue only mode with monochrome display for noise component evaluation • Lockable pull-out drawer • Comb filter • Over drive protection circuit • Provided with D-sub 9-pin RS-422 interface for future available remote control unit • 19" rackmountable with optional BKM-2000

BVM-1912 \$12,000.00

BVM-1910 19" Color Monitor

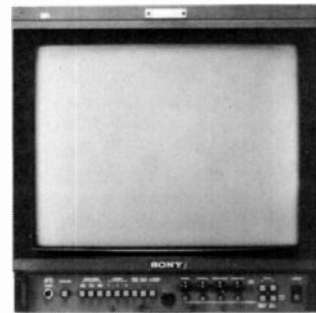
- Auto setup capability (optional BKM-2056) • By using optional decoder boards (plug-in type), a maximum of 3 TV standard systems can be selected in the drawer • Component (Y, R-Y, B-Y) and RGB input facilities are available • Stabilized color temperature • Optional component (Y, R-Y, B-Y) and R, G and B output facilities are available with the BKM-1440 • Split screen (upper half: color; lower half: monochrome) for precise picture confirmation • VITC display facility (with optional BKM-1460) • Safe area display facility (with optional BKM-1470) • Pulse cross facility provided to check the horizontal and vertical syncs simultaneously • Built-in cross hatch and white signal generator (100 IRE) • With the optional BKM-1480, the black level signal generator is available for precise adjustment of black level settings • Blue only mode with monochrome display to evaluate noise components precisely • Lockable pull-out drawer • Over drive protection circuit • Super fine pitch CRT assures a center resolution of 900 TV lines at 30fL • 19" rackmountable with the optional BKM-2000 • Precise convergence; convergence errors are less than 0.4mm at the center and 0.7mm at the edges

BVM-1910 \$7,500.00

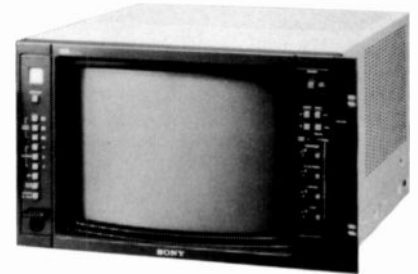
BVM-1915 19" Color Monitor

- Auto setup capability (with the optional BKM-2056) • Stabilized color temperature obtained by employing a beam current feedback • Component (Y/R-Y/B-Y) and R, G, B inputs standard • Optional decoder boards (plug-in type) available for different TV standards (NTSC, PAL, SECAM, PAL-M) • A unique picture setup switch facilitates setup level adjustments • Up to 6dB of aperture correction at 4.5MHz and 6.5MHz selectable • Pulse cross function provided to check the horizontal and vertical intervals simultaneously • Built-in cross hatch and white signal generator (100 IRE) for easy monitor alignment • Split screen operation (upper half color, lower half monochrome) for precise picture confirmation • Blue only mode with monochrome display available for easy chroma gain/phase adjustments and VTR noise observation • Optional NTSC comb filter available (BKM-1411 or BKM-1412. BKM-1412 is supplied with BVM-1915) • Optional PAL comb filter available (with BKM-1422) • 3 switchable AFC modes (Fast/Normal/Slow) • Lockable pull-out drawer • Component (Y, R-Y, B-Y) and R, G and B outputs available with the optional BKM-1440 • Optional VITC display (with BKM-1460) • Optional safe area display (with BKM-1470) • Black level signal generator (Pluge signal generator) available for easy and precise black level settings (with BKM-1480) • Serial and parallel digital 4:2:2 input capability (with optional BKM-2080) • Super fine pitch CRT assures a center resolution of 600 TV lines at 30fL • EBU standard phosphors provided to meet customer requirements • Raster size stability within 1%, from 0 to 30fL • Auto/manual degaussing • Over drive protection circuit • 19" rackmountable (with the optional BKM-2000)

BVM-1915 \$5,200.00



BVM-1912



BVM-1310



BVM-8021

BVM-1310 13" Color Monitor

- 700 TV lines center resolution at 40fL • Auto setup capability (option) • 3 TV standard systems out of the 4 TV standard NTSC, PAL, SECAM or PAL-M can be selected using the optional decoder boards (plug-in type) • Stabilized color temperature obtained by a beam control circuit • Picture setup switch for accurate alignment • Up to 6dB aperture correction at 4.5MHz and 6.5MHz selectable • Built-in cross hatch and white signal generator (100 IRE) • Built-in component (Y, R-Y, B-Y) and RGB input facility with optional output facility • Pulse cross function for simultaneous checking of horizontal and vertical sync • Provides US standard phosphors • Over drive protection circuit • Raster size stability within 1% from 0 to 40fL • Comb filter • 19" rackmountable with optional kit • Split screen (vertical only) for precise picture confirmation • VITC display facility (option) • Blue only mode with B/W display to evaluate noise component precisely • 2 lockable pull-out drawers

BVM-1310 \$5,200.00

BVM-8021 8" Portable Color Monitor

- Suitable for ENG/EPF applications • High resolution of 400 TV lines at center (composite input) • Operates with 1 or 2 NP-1A battery packs, a 12V car battery or an AC outlet • BP-90 capability with optional bracket VLC-100 • Easy connection to TV tuner unit TU-1110 series using the tuner connector • Spring loaded control knob prevents control damage • Normal scan/underscan select switch • Blue only mode switch • H/V delay function displays horizontal and vertical sync signals • Input A or input B (BNC or tuner) selectable • Built-in charger for battery pack NP-1A

BVM-8021 \$1,150.00

SONY

Business and Professional Group

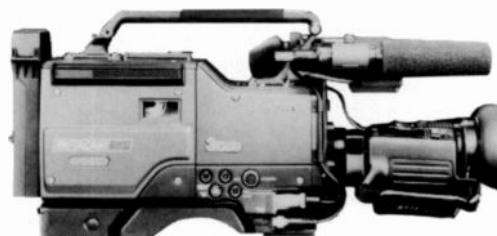
BETACAM SP CAMCORDERS/ RECORDER

BVW-400 PAC 1 Betacam SP® Camcorder

- High performance single piece (inseparable) type camcorder
- Incorporates advanced 768 FIT "Hyper HAD" sensor CCD technology in the camera section and Betacam SP recording technology in the VTR section to cover from ENG to the most complex and quality conscious EFP applications
- Effectively doubles sensitivity to f/8.0 at 2000 lux and 89.9% reflectance
- Ultra compact mechanical deck allows the smallest body in Betacam SP lineup
- Approx. 15 lbs., 7 oz. including battery, cassette and latest 13x9 lens with extender
- Low power consumption of 22W
- Up to 50 minutes of operation with a single NP-1A battery
- More than 30 minutes of recording time using the S-cassette
- 26-pin VTR interface capability with optional BKW-402 VTR Connector Unit. (Parallel component recording with the external VTR is possible.)
- Interface capability with the BVW-35 via optional CCRZ-5 cable for emergency recording needs
- Electronic shutter provided. Shutter speeds: 1/100, 1/125, 1/250, 1/500, 1/1000, 1/2000 seconds
- Full color genlock capability
- High resolution viewfinder with quick start CRT
- Center marker, safety zone marker (80% or 90%) and VTR save mode indication provided
- Viewfinder rotation function with optional BKW-401 Viewfinder Rotation Bracket
- Various automatic functions in camera section
- 2 AFM audio channels in addition to 2 longitudinal channels with Dolby C-type NR (Noise Reduction) system
- Audio confidence playback (longitudinal)
- Viewfinder playback (luminance or CTDM selectable)
- Color playback in the field with optional VA-500 Playback Adaptor
- Full range of machine control provided (Fast Forward/Rewind/Play/Stop/Eject)
- Recording review function
- Built-in LTC/VITC/User Bit generator and LTC reader with external time code lock capability
- Frame accurate back space editing
- 8-digit LCD display
- Bar graph meter for audio level and battery status
- Built-in loudspeaker
- Phantom power supply (+48V, Ch-1/2)
- External DC out for Sony wireless microphone receiver



BVW-400 PAC 1



BVW-300A PAC 1



BVV-5
Shown With
Optional VA-5

Supplied Accessories

- Tripod adaptor VCT-14 (1)
- Extension board (1)
- Rain cover (1)
- Shoulder belt (1)
- Operation and maintenance manual (1)

BVW-400 PAC 1\$45,000.00

BVW-300A PAC 1 Betacam SP Camcorder

- High performance single piece (inseparable) type camcorder
- Shares most features of BVW-400 differing only in imager type
- Incorporates 768 IT (Interline Transfer) "Hyper HAD" CCD imager with 380,000 active pixels
- 700 TV lines resolution
- Signal-to-noise ratio 62dB
- Sensitivity f/8.0 at 2000 lux
- 1.5" viewfinder with removable eyepiece
- Emergency backup capability using CCRZ-5 cable to external BVW-35 VTR
- Viewfinder playback and VTR status indications
- Small, maneuverable and low power consumption

BVW-300A PAC 1\$35,000.00

BVV-5 Betacam SP Recorder Unit

- Simultaneous playback of video and audio
- Can be operated as a combo camcorder when connected to BVP Series cameras, or as a portable recorder VTR when connected to an optional VA-5 VTR Adaptor
- 4-channel audio
- Built-in LTC, VITC, user bit generator with genlock capability
- Audio/video confidence playback
- Phantom power supply
- Built-in loudspeaker
- 8-digit LCD display
- Backspace edit
- 7 lbs., 3 oz.

BVV-5\$12,500.00

Optional Accessories

VA-5 VTR Adaptor

- When attached to the BVV-5, the BVV-5 can be operated as a stand-alone recorder
- Accepts composite or VA-5 component signals via the 26-pin connector from the camera head.....\$2,200.00

VA-500 Playback Adaptor

- When connected to the BVV-5 via a 20-pin connector, the BVV-5 can provide color playback, and it outputs either VA-500 or VHF RF signals
- Also works with BVW-400/300A/200\$2,700.00

CCD CAMERAS/BETACAM SP CAMCORDERS

SONY

Business and Professional Group

BVP-7000HS 3-CCD Portable Color Camera

- Incorporates image intensifiers capable of capturing color images in virtual darkness • Utilizes the 768 Interline-Transfer Chip Array
- When coupled with the image intensifiers, the BVP-7000HS becomes 10 times more sensitive, enabling the camera to capture color images in virtual darkness • Although designed for use in extremely low light applications, the camera yields impressive performance characteristics including horizontal resolution of 370 lines with almost no lag and a signal-to-noise ratio of 59dB • To perform as a full-function camcorder, the BVP-7000HS can be used with a Betacam SP® recorder • Ideal tool for news crews for a variety of functions including surveillance of crime scenes or capturing discreet news stories where the circumstances make it impossible to use lighting to supplement existing light sources • Use of the image-intensified camera makes it unnecessary to turn on bright lights when they would be inappropriate

BVP-7000HS \$95,000.00



BVP-7000HS

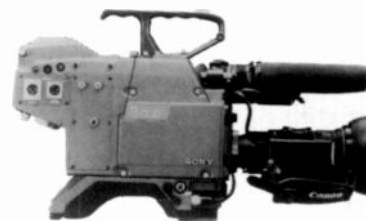


BVP-70 IS

BVP-70 IS 3-CCD Portable Color Camera

- Features the latest advancements in CCD technology • "Hyper HAD" 768 Frame Interline Transfer (FIT) CCD imager effectively doubles the camera's sensitivity to f/8.0 at 2000 lux and 89.9% reflectance • 700 TV lines resolution • No lag or burn-in, impervious to vibration and shock and not affected by magnetic or electric interference • Free from registration adjustments (0.05% registration in all zones) • Variable electronic shutter (1/100, 1/125, 1/250, 1/1000, 1/2000 second shutter speeds) captures clear images of high speed objects • Dynamic contrast control (auto knee control) extends highlight dynamic range by 600%, enabling a clear picture in high contrast environments (switchable) • Vertical smear resulting from intense highlights is eliminated by the FIT system • By immediately transferring charges at high speed from the sensor registers to second storage arrays, the FIT system leaves almost no time for any buildup of contamination that would normally result in vertical smear • The ability to handle intense highlights makes the BVP-70 excellent for EFP applications such as rock concerts and documentaries where lighting conditions can vary from extreme darkness to brightness • Automatic W/B balance system includes 2 white balance memories for each optical filter (4 positions) • Viewfinder features high resolution CRT (550 lines) with quick start-up (1.5 sec.) • Other features include video level, audio level (CH1), gain, filter position in addition to other indicators, vibration-resistance, sharp-directional microphone and 2 direction position adjustment • 2H image enhancer produces crisp pictures • Can be coupled with a Betacam SP VTR to configure a camcorder unit for EFP • Includes a microphone that electrically cancels vibration noise, allowing vibration-free recording even when the camera is combined with a Betacam® recorder unit in a difficult shooting environment • The remote control of important parameters such as shutter speed and output selection can be executed from the CCU-350 or CCU-355 camera control unit

BVP-70 IS \$37,500.00



BVP-7A



BVW-507A

BVW-507A/570 IS Betacam SP Camera/VTR Combinations

- 3-chip CCD camera/recorder unit combinations meet virtually any field production applications • Compact and lightweight (approx. 19 lbs., 13 oz. including the battery, cassette and zoom lens)
- Low power consumption (approx. 27W for BVW-507A, 28W for BVW-570 IS with viewfinder)

Supplied Accessories

- Tripod adaptor VCT-14 (1) • Extension board (1) • Extractor (1)
- Chest pad (1) • 50-pin connector cap (2) • Rain cover (1) • Microphone connector cover (1) • Handle hole cap (1) • Carrying handle (1) • Carrying case LC-555 (1) • Shoulder belt (1) • L-wrench (1) • Operation and maintenance manual (1)

BVW-507A BVP-7/BVV-5 combination for high quality ENG and EFP applications requiring high resolution \$36,500.00

BVW-570 IS BVP-70 IS/BVV-5 combination with high resolution FIT CCD to cover practically all ENG/EFP applications even in the most difficult shooting environment. \$50,000.00

BVP-7A 3-CCD Portable Color Camera

- Shares most features of BVP-70 IS except highlight handling capability is lower • Incorporates 768 IT (Interline Transfer) CCD imager with 380,000 active pixels • Sensitivity is f/8.0 at 2000 lux and 89.9% reflectance

BVP-7A \$24,000.00

Business and Professional Group

BVP-370/BVP-270 CCD Color Studio Cameras

Common Features

- Designed with many technical features and operational benefits that give the cameras the ability to meet the broadcaster's most demanding studio and field assignments
- High sensitivity (f/5.6 at 2000 lux)
- Soft detail
- S/N ratio of 62dB
- Superb color reproduction
- Unaffected by shock or vibration
- Immune to electronic or magnetic fields
- Electronic shutter provides multiple speeds from 1/100 to 1/2000 sec.
- Automatic setup of all color balance aspects and flexible file system
- In multiple-camera production applications, portable CCD cameras like Sony BVP-70, BVP-50 and BVP-7 can be easily integrated with BVP-370 or BVP-270 systems
- Choice of remote control panels (either joystick or rotary control)
- Choice of viewfinder (either color or black and white)
- Prompter video and AC power are provided at the head of each unit

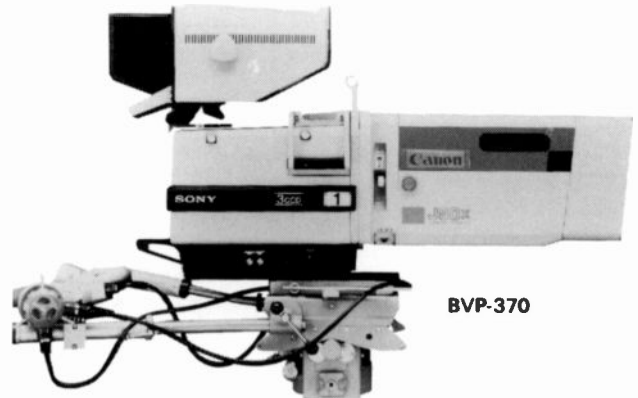
BVP-370

- 768 "FIT" CCD imager utilizes an HAD sensor, provides 700 lines of horizontal resolution and increased dynamic range
- 768 "FIT" virtually eliminates vertical smear, lag and image burn

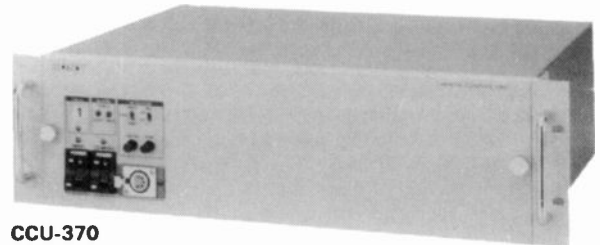
BVP-270

- 768 "IT" CCD imager
- Like the 768 "FIT," the 768 "IT" utilizes an HAD sensor for high image resolution, increased dynamic range and low dark current

BVP-370 \$59,900.00
 BVP-270 45,000.00



BVP-370

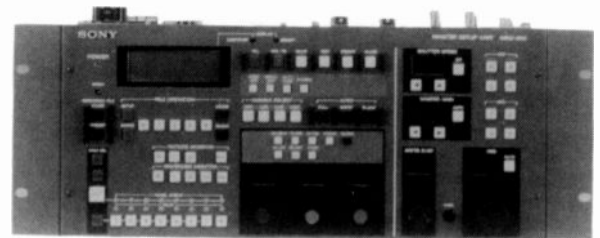


CCU-370

CCU-370 Camera Control Unit

The CCU-370 Camera Control Unit, designed for the BVP-370/270, provides wideband component (Y, R-Y, B-Y) video transmission via the triax cable and offers superior video/audio performance characteristics. An operating range of up to 3000 meters (2400 meters for return video) is possible by using the 14.5mm triax cable. Mic audio level control and intercom switching control can be executed via each 9-pin remote connector provided on the CCU rear panel. Serviceability is also improved by the adoption of integral printed circuit boards including the triax board. This unit is 19" wide, 3 rack units high and has very low power consumption.

CCU-370POR*



MSU-350

MSU-350 Master Setup Unit

The MSU-350 system consists of the MSU-350 and the VCS-350 Video Selector. 1 MSU-350 unit allows central control of up to a maximum of 8 camera/CCU units when used together with 1 VCS-350 unit. By connecting 1 more VCS-350 unit, the MSU-350 can set up a total of 15 camera/CCU units. A variety of Sony Camera Control Units including the CCU-350/355 can be controlled by this system as well as the CCU-370. These units provide easy and fast matching of cameras.

MSU-350POR*

RCP Remote Control Panels

3 types of remote video operational control panels address a wide range of production needs from the very basic to the more sophisticated. Type I (RCP-3710/3711) for simple control, Type II (RCP-3720/3721) for advanced control and Type III (RCP-3730/3731) for full function control. Each have a choice of joystick or dial type for iris/master-black control.

RCPPOR*

*Price On Request



RCP-3710



RCP-3720

VIEWFINDERS/ ACCESSORIES

SONY®

Business and Professional Group

BVF-7000AQ 7" Color Viewfinder

- Specially designed for use with BVP-360AT
- Various camera indications provided in viewfinder
- Wide range of mechanical positioning
- Dimensions and camera interface compatible with BVF-70 7" viewfinder
- High resolution from Super Fine Pitch Trinitron (0.2mm center, 0.25mm side)
- Underscan display
- RGB inputs from camera give high quality color monitoring
- Composite video input for return video display

BVF-7000AQ\$8500.00

BVF-70A 7" B/W Viewfinder

- Specially designed for use with BVP-360AT for direct camera installation
- High resolution, 800 TV lines at center
- Various camera indications provided in viewfinder
- Wide range of mechanical positioning

BVF-70A\$4950.00

BVF-50/1 5" B/W Viewfinder

- 600 TV lines resolution at center
- Adjustable center position marker with on/off switch
- Panning and tilting facility
- For all BVP series portable cameras

BVF-50/1\$2250.00

CCU-300L Camera Control Unit

- AC/DC 2-way power operation
- 600m max. power operation
- Genlock function
- Multi and mixing monitor
- Double jacks for headset

CCU-300L\$9000.00

AC-500 AC Adaptor

Supplies DC power to Sony BV-series equipment; genlock functions by means of a VBS signal; AC power cord and DC cord 2m (1-551-258-00) with XLR-4P supplied; Power Requirements: 100/120/220/240VAC adjustable, 50/60Hz; Power Consumption: 120W max.; Input/Output Terminals: Camera connector (14-pin); Video out connector (BNC type) NTSC 1V p-p, 75 ohms; Mic out connector (equivalent to XLR-3-31), Reference Output: -60dBm 600 ohms, balanced; DC out connector (equivalent to XLR-4-31), +12.3V, 7A; Ext. VBS input connector (BNC type), VBS (1V p-p) or BS, 75 ohms; 9 lbs., 8 oz.; 3.6" H x 8.5" W x 12.9" D\$620.00

BC-210 Battery Charger for BP-90A

Battery charger for BP-90A battery packs; up to 4 BP-90A batteries; AC power cord supplied; Power Requirements: 100/120/220/240VAC adjustable, 50/60Hz; Power Consumption: 70W; Output Terminals: Battery jacks (for charging x 4) 2.0A (typical); Charging Time: Approx. 2 hrs. per BP-90A; 11 lbs., 7 oz.; 3.6" H x 8.5" W x 12.4" D. . \$890.00

BC-1WA Battery Charger for NP-1A

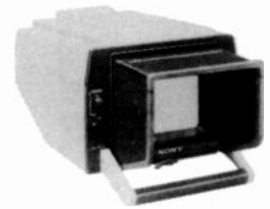
The BC-1WA is a battery charger for the NP-1A battery pack used in the Betacam; Up to 4 NP-1A batteries can be charged sequentially; Power Requirements: 120VAC ± 10%, 50/60Hz (for USA and Canada), 220 to 240VAC ± 10%, 50/60Hz (for Europe and UK); Power Consumption: 58W; Charging Time: Approx. 1 hr. (max. 2 hrs.); Rechargeable Battery: NP-1A only (per NP-1A); 5 lbs., 5 oz.; 3.1" H x 4.2" W x 10.3" D\$435.00

DC-100 Battery Case for NP-1A

Battery case for 1 NP-1A battery; specially designed for the BVV-1A Betacam recorder; Metal fitting x 2, Screw (B 3 x 6) x 2, Screw (B 4 x 6) x 2 and Lace supplied; 10 oz.; 8" H x 3.3" W x 2" D.\$265.00



BVF-7000AQ



BVF-70A



BVF-50/1



CCU-300L



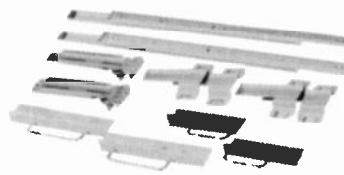
AC-500



BC-210



DC-100



RMM-100



BP-90A

DC-300 Battery Case for BP-90A

BP-90A battery case (1 BP-90A) for BVP-350 camera and CA-50/CA-3A/CA-30/CA-300 equipped cameras; 1 lb., 3 oz.; 7.3" H x 6.4" W x 1.9" D\$595.00

DC-310 Battery Case for NP-1A

Battery case for BVP series 3-tube cameras and CA-3/CA-30/CA-300 equipped cameras; Up to 2 NP-1A batteries can be carried; Holder x 1 and Screws x 1 set supplied; 1 lb., 6 oz.; 8" H x 3.5" W x 3.1" D\$550.00

RMM-100 Rackmount Kit

Can be rackmounted on a standard 19" rack or system console. For all Studio Betacam VTRs\$325.00

RMM-301 Rackmount Kit

The DCU-300 CCU adaptor and the CCU-300 can be rackmounted side by side in a standard EIA rack; 10 lbs., 6 oz.; 5.2" H x 19" W x 13" D\$175.00

BP-90A Rechargeable Battery Pack

Type of Battery: NiCad rechargeable; Voltage: 12V; Current Capacity: 3.5AH; 3 lbs., 12 oz.; 6.9" H x 4.8" W x 15.1" D\$375.00

NP-1A Rechargeable Battery Pack

Type of Battery: NiCad rechargeable; Voltage: 12V; Current Capacity: 1.5AH; 1 lb., 8 oz.; 1" H x 2.8" W x 7.3" D\$85.00

SONY

Business and Professional Group

BETACAM SP RECORDERS/PLAYERS

BVW-60 Betacam® SP Studio Player

- Maximum playback time of over 90 minutes • In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available • 160W power consumption • High speed picture search • Built-in time code reader and time base corrector • Built-in character generator and characters can be superimposed via Video Output 3 • RS-422 serial interface and 36-pin parallel interface • 59 lbs., 8 oz.; 5 rack units high

BVW-60\$25,000.00

BVW-65 Betacam SP Studio Player With Dynamic Tracking (DT)

- Maximum playback time of over 90 minutes • In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available • High speed picture search • Built-in time code reader and time base corrector • Built-in character generator and characters can be superimposed via Video Output 3 • RS-422 serial interface and 36-pin parallel interface • Dynamic motion control (DMC) playback which, when activated, will allow the BVW-65 to memorize the tape speed trajectory for noiseless playback picture within the Dynamic Tracking range of -1 to +2 times normal speed • 175W power consumption • 61 lbs., 11 oz.; 5 rack units high

BVW-65\$29,500.00

BVW-70 Betacam SP Studio Recorder/Player

- Maximum playback time of over 90 minutes • In addition to the 2 conventional longitudinal audio channels, 2 AFM audio channels are added, making a total of 4 channels available • High speed picture search • Built-in time code reader and time base corrector • Built-in character generator and characters can be superimposed via Video Output 3 • Free from color framing as long as the recording component signals are fed directly from the component signal source • RS-422 serial interface and 36-pin parallel interface • Recording capability • Built-in editing facility • 225W power consumption • 2 independent SC-H phase indicators for composite input and output • 66 lbs., 2 oz.; 5 rack units high

BVW-70\$35,000.00

BVW-D75 Betacam SP Recorder/Player

- 1 component digital video serial input (active loopthrough) and 4 component digital video serial outputs—each handles 4:2:2 component digital video signals • 4 channels of digital audio are transmitted along with the digital video signal on 1 single coaxial cable, greatly simplifying system connections and enabling long distance transmission of the digital video and audio signal with virtually no signal degradation • In addition to 4 channels of digital audio embedded in the component digital video serial interface via BNC connectors, 4 channels of digital audio inputs and outputs which conform to the AES/EBU format are provided through XLR connectors • Capable of producing a component analog monitor output (Y/R-Y/B-Y, 3 BNCs), allowing the unit to provide easy picture monitoring with the superimposed characters such as time code data • Dynamic tracking capability provides noiseless, broadcast-quality playback range of -1 to +3 times normal speed • High speed picture search provides recognizable color pictures at up to 10 times normal speed in forward and reverse • RS-422 9-pin remote interface • 36-pin parallel interface • Audio/video confidence playback • Built-in, full-scale editing functions • Sophisticated built-in time base corrector with advanced high quality digital dropout compensator, and processing controls for video, chroma setup levels, 4/C delay and system sync phase • Built-in time code generator/reader • More than 90 minutes of playing time with L-size cassette • Built-in, sophisticated self-diagnostics

BVW-D75\$32,000.00



BVW-D75



BVW-50

BVW-75 Betacam SP Studio Editing Recorder/Player

- Can be directly connected to other Betacam studio VTRs, BVE Series editors and BVH Series 1" VTRs via the RS-422 communication cable • 36-pin parallel interface • Dynamic tracking range of -1 to +2 times normal speed • Variable memory for DT editing • 4-channel audio • Capstan override $\pm 16\%$ • Time code reader/generator for LTC, VITC, U-bits • Video/audio confidence • Character display • High speed picture search • 2 independent SC-H phase indicators • Built-in TBC with remote control • Color framing • Simple audio mixing • 66 lbs.

BVW-75\$39,500.00

BVW-50 Portable Betacam SP Recorder/Player

- 90-minute recording/playback time and a 50% reduction in power consumption • Accepts L-size and S-size cassettes, achieving more than 90 minutes of recording/playback time • While power consumption has been dramatically reduced by 50% (to 18W of power in normal recording mode) features have been added • Built-in time base corrector for synchronous field playback • Continuous operation for up to 200 minutes on 1 fully charged BP-90A battery or up to 180 minutes on 2 fully charged NP-1B batteries • When used with metal particle tape cassettes, the BVW-50 conforms to the Betacam SP recording format with its wide luminance and bandwidth and high signal-to-noise-ratio • When used with oxide tape, recordings conform to the conventional Betacam format. Any existing Betacam VTR can play back metal particle tape recorded by the BVW-50 • 4 audio channels consisting of 2 longitudinal and 2 AFM channels available • Longitudinal audio provided with Dolby C-type noise reduction system • FM modulated audio simultaneously recorded with video information by rotary video head • Front loading tape mechanism • Audio/video confidence playback during recording • 9-pin remote control interface which allows connections to Betacam SP studio decks for use as an editing source VTR • Built-in time code generator/reader; time code genlock capability • Input using component or composite signals • Automatic backspace editing with instant start gives sequential recording without picture breakup at transition points • Built-in character generator • Sophisticated diagnostic system

BVW-50\$15,500.00

DIGITAL VIDEO TAPE RECORDERS

SONY

Business and Professional Group

DVR-2100 D-1 Component Digital Video Tape Recorder

The DVR-2100 is 8 rack units high, weighs 154.5 lbs. and has a power consumption of 450W. The DVR-2100 accepts small, medium and large size cassettes with a maximum recording time of 94 minutes.

The DVR-2100 offers Dynamic Tracking Heads. This feature permits broadcast-quality, variable speed playback from -1 to 2 times normal speed, including still and slow motion modes.

To integrate the DVR-2100 effectively into a component digital system, the VTR is equipped with only the digital input and output ports for video and audio. Both parallel and serial A/V digital I/O ports are provided for the DVR-2100, optimizing use of the product in both digital video interface environments. Serial operation, based on the SMPTE Draft T 14.224, provides convenient handling of digital video, audio (4 channels), digital VITC and video index information on a single, low-cost coaxial cable.

The DVR-2100 incorporates various enhanced editing functions, greatly enlarging the scope of video applications. Special editing modes are provided for animation recording, for pin-registered film-to-tape transfer and for sequential playback using 2 DVR-2100s. By using the optional BKDV-4224AD and BKDV-4224DA D-2 Signal Converters, extended signal formats such as 4:2:2:4, 4:4:4:4 and 8:4:4H or 8:4C4V can be recorded and replayed. In addition, these signal converters provide A/D and D/A interface to analog equipment.

Additional features of the DVR-2100 include: • Automatic Playback Equalization: Automatically detects and compensates for playback equalizing errors • Automatic CTL System: Eliminates the need to manually optimize tracking adjustments during normal playback and during use of the Dynamic Tracking feature • Channel Condition Checking and Logging: Capability to check the condition of each channel during normal playback and confidence playback modes for easy monitoring of audio/video channel condition • Built-In Test Signal Generator: 5 video test signals and 2 audio test signals built-in and selectable from a control panel menu

DVR-2100 \$115,000.00

DVR-20/DVR-28 D-2 Composite Digital Video Tape Recorders

The DVR-20 is a 94-minute recorder which accepts small and medium size cassettes. The DVR-28 is a 208-minute VTR which accepts small, medium and large size cassettes and is intended for the most advanced recording and editing applications.

An advanced tape transport design features Ultrasonic (US) guides which decrease the friction between the tape and guide, resulting in high response operation in jog, still and shuttle modes. An advantage of this increased responsiveness is the ability to quickly locate and precisely make in/out editing point decisions. The adoption of US guides also contributes to reducing servo lock-up times from the standby On mode.

The DVR-20/28 series incorporates digital jog sound, a feature that provides excellent quality recovery of the digital audio channels while in the jog mode. This "intelligibility" makes it possible to make speedy and precise in/out editing point decisions.

The DVR-20/28 series is capable of making true digital audio crossfades of edit points during playback, providing smooth audio transitions.

An automatic compensation system is provided for playback tracking and equalization, resulting in adjustment-free operation. The equalizing parameters are automatically adjusted to the optimum value, keeping the error rate on playback as low as possible.

The monitoring system offers channel condition monitoring and error message logger systems. When an error occurs during the recording or playback mode, the operator is alerted via an error message displayed on a diagnostics menu. This Error-Logger feature, which alleviates the need for real-time observation of the condition of the VTR, captures errors, warnings and other conditions by timecode location for later analysis and printout, if needed.

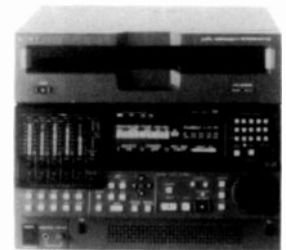
The adoption of an ultra-linear A/D video converter enables the DVR-20/28 series to provide excellent differential and integral linearity characteristics while working in an analog environment. The D-2 units also use a high resolution audio A/D converter at 20 bits/sample for all 4 digital audio channels to achieve a wide dynamic range of 105dB. Another factor contributing



DVR-2100



DVR-20



DVR-28

to the wide dynamic range of audio is the use of advanced audio signal processing circuits. ADSPs (Audio Digital Signal Processors) used in the audio signal processing block allow audio signals to be handled at a 20 bit/sampling rate.

The addition of a Multi-Loop test feature, for use in multiple generation analog dubbing, allows the operator to simulate the result of multiple generations without actually performing the edits on tape. To further enhance customer satisfaction and ease of setup and operation, Sony has incorporated Edit Tracking during preroll and Auto EQ for use during playback mode.

3 panels are available. The BKDV-200 is a simplified control panel and may be suitable for use in the commercial/program on-air transmission or for editing, fully controlled by the editor. On the other hand, the BKDV-201 is a universal control panel which provides dedicated controls for machine-to-machine editing and cue point selections.

Additional features shared by the 2 machines include: • Serial digital interface of audio and video: By installing the optional BKDV-105/205 serial digital interface board into the DVR-20/28 series, serial transmission of digital video, digital audio and vertical interval time code (VITC) signals can be carried out via the serial input/output ports. Long distance transmission of up to 200 meters for digital video and audio signals can be performed via a single coaxial cable • Dynamic Tracking Heads™: The 2 units are equipped with DT heads, which extend the high quality video applications for these recorders. Using this feature, broadcast quality video can be reproduced within the range of -1 to 3 times normal speed playback including still and slow motion • Audio Program Play: With the addition of the optional BKDV-110 audio program play board, the DVR-28 can offer broadcast quality play of all 4 digital audio channels within the range of $\pm 15\%$ normal speed in increments of 0.1%.

Rounding out the desirable features is the high serviceability of the 2 units. All 3 types of control panels can be angled or completely removed to allow quick and easy access to any electric board within the VTRs.

DVR-20 \$52,000.00
DVR-28 70,000.00

DVR-2 D-2 Digital Video Tape Recorder

• Designed primarily for electronic field production • Can be connected to the Sony BVP-70 or any other camera outfitted with 26-pin connectors, including Betacam SP® cameras • Mic and line level audio inputs • Phantom power for microphones • Backspace editing capability • Accepts both small (32 minutes of recording time) and medium cassettes (90 minutes of recording time) • High performance system, uses advanced electronic chips to provide a broadcastable picture with full error correction and error concealment • Video bandwidth of 6MHz • Video S/N ratio of 54dB • Shuttle speed at 16 times play speed • 65W power consumption • Battery life of 100 minutes

DVR-2 \$37,000.00

SONY®

1" VTRs/EDITING CONTROL SYSTEM

Business and Professional Group

BVH-3000 (Sync)/BVH-3100 (Non-Sync)

1" SMPTE Type C Format Video Tape Recorders

- Air threading technology limits tape handling to a minimum for ease of operation and tape protection
- Easy manual tape threading with wide movable guide system
- Time base corrector function supplied as a standard
- Two types of time base corrector processors available—Standard TBC Processor or High Quality TBC Processor
- High Quality TBC Processor provides a steady DT playback picture
- Self-aligning DT system for Dynamic Tracking playback within a DT range of -1 to +3 times normal playback speed
- Separate SC-H phase meters for tape SC-H phase and reference signals provided
- Serviceability improved with the sophisticated one-circuitboard/one-function design
- Full scale built-in editing facility
- Video/audio confidence playback
- Versatile system interface available for system expandability
- Two hour recording and playback
- Computer controlled servo system including sophisticated self-diagnostics
- 147 lbs., 7 oz.

Supplied Accessories

- Extension board (EX-136)
- Empty reel (R1-11VA)
- 37-pin D-sub connector
- 50-pin D-sub connector
- Phone plug adaptor
- Key ID label
- Overlay sheet (printed)
- Overlay sheet (blank)

BVH-3000 \$50,000.00
 BVH-3100 \$42,000.00



BVH-3000

BVE-9000 Editing Control System

- Can be configured in its basic form to control four VTRs, a video switcher, and an audio mixer, and then be expanded to suit customer requirements
 - Operator communicates with the system through dialogues with the CRT which keeps the operator informed of the current editing status
 - Sony VTRs, such as BVH Series 1", Betacam, BVU Series U-Matic and Component Digital VTRs, can be simultaneously controlled
 - A maximum of 27 Sony VTRs, equipped with RS-422 interfaces, a video switcher and an audio mixer can be interfaced with the BVE-9000 system
 - Standard RS-232 port dedicated for printer use
 - Two 3.5" floppy disk drives provided as standard
 - Machine control ranges from manual control (fast forward, rewind, shuttle and jog) to automatic control (preroll synchronization and audio recording)
 - Dynamic Motion Control (DMC) is standard
 - Provides full control of the main functions of the switcher in use
 - Editing can be executed on selectable time references—VITC, LTC or CTL can be used individually or in any combination
 - Synchronization is selectable from seven grades in order to execute editing under various circumstances
 - Up to six player VTRs, two auxiliary inputs and black signals can be utilized as sources to perform assemble editing or insert editing by using Video, Audio 1, 2, 3, 4 in any combination
 - Memory capacity provides a total of 512 events as standard and is optionally expandable to 999 events. Additional comments can be added to the EDL data and stored in the memory
 - Time code, VTR operation status and the editing process can be superimposed on the sub-picture monitor or the main picture monitor to enable operators to remain informed of the BVE-9000 operations
 - Provides powerful self-diagnostics on a block basis, and board basis
 - Editing data display is available in either color or monochrome
- BVE-9000 \$15,000.00



BVE-9000

DIGITAL AUDIO TAPE RECORDERS

SONY

Business and Professional Group

PCM-7000 Series Digital Audio Tape Recorders

PCM-7000 Series DAT recorders enable high-quality digital recording on compact, easy-to-handle low-cost cassettes. This DAT Series includes 3 recorders and a wide range of options to meet the diverse needs of TV/radio broadcasting stations and post-production houses. The customer has the flexibility to choose the best combination for his particular requirements. All recorders conform to the standard DAT format, providing compatibility regardless of the brand. They are also compatible with consumer DAT recorders.

For applications ranging from audio-follow-video editing to broadcasting, multi-recorder sound effects library and simple recording/playback, the PCM-7000 Series does much more than simply provide an economical, space-saving alternative to 1/4" open-reel tape recorders. Combining flexible interfacing and external synchronization capabilities with memory start and DAT-unique high-speed search, it is also suitable for applications such as computer-controlled automation.

PCM-7050/7030

As the top-of-the-line professional DAT recorder, the PCM-7050 is designed with the first priority given to editing precision and flexibility. The PCM-7030 cost-effectively performs as the player in an editing system. When appropriate options are added, its capabilities almost match those of the PCM-7050 except in the area of editing.

The DAT editing system, composed of the PCM-7050 (with the DABK-7030/7055), PCM-7030 (with the DABK-7030/7031) and RM-D7300 editing controller, allows fully electronic editing with the convenience of memory search/rehearsal. A 16M-bit stereo digital memory controlled by a search dial enables speedy and precise determination of the edit In/Out points. Memory rehearsal can be repeated any number of times for fine adjustments of the edit points before executing automatic editing.

Each edit point can be electronically crossfaded. The crossfade time is variable in 1ms steps in a range up to 999ms. The preroll time (5-59 sec.) and postroll time (2-59 sec.) can be adjusted in 1 sec. steps.

The 1ms (1/10 frame) editing accuracy of this system is higher than that of analog splice editing. Alternatively, the high editing accuracy of this system can be combined with the crossfade capability, making spot erase possible for removing noise. In addition, editing efficiency is dramatically improved by the DAT recorder's extraordinary search speed.

RM-D7300

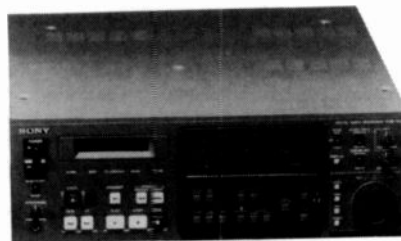
The RM-D7300 provides comprehensive editing control including audio editing, ID editing and spot erase operations of the PCM-7050. The time code address, as well as various other time parameters such as start ID, skip ID, program number and end ID, can be entered quickly using the numeric keys, while up to 100 edit or locate points can be stored in the built-in memory. When 2 PCM-7030 recorders are remote-controlled from the RM-D7300, the editing accuracy is 1 frame and crossfading is unavailable.

PCM-7010

Compatibility comes first with the PCM-7010. In addition to 44.1 and 48kHz, the PCM-7010 can record and play back the digital audio data sampled at 32kHz. It can also play tapes recorded in the long play mode of consumer DAT recorders.

With the use of the DABK-7011A/B, the PCM-7010 can be interfaced with consumer DAT recorders and CD players through unbalanced digital I/O (IEC-958) connectors. Interfacing with professional equipment is made via AES/EBU connectors. When the DABK-7011B is used, the PCM-7010 additionally offers Sony's SDIF-2 interfaces, providing the widest possible compatibility with studio digital equipment.

Given its 32kHz capability and memory start/high-speed search functions, the PCM-7010 is particularly well suited to program transmission at broadcasting stations. The wide compatibility and superior sound quality of this recorder also make it ideal for a variety of recording/playback applications. Editing can be performed at the no-signal portion between individual pieces of music, with the RM-D7200 dual remote controller providing control over 2 PCM-7010 recorders.



PCM-7050



PCM-7030



RM-D7300



PCM-7010

PCM-7000 Series Recorders

PCM-7050	Professional DAT recorder	\$ 11,500.00
PCM-7030	Time-code DAT recorder . . . . .	.8,000.00
PCM-7010	Time-code DAT recorder . . . . .	.3,900.00

PCM-7000 Series Option Boards

DABK-7010	T.C. generator/reader (PCM-7010)	\$ 1,100.00
DABK-7011A	AES/EBU digital I/O (PCM-7010) . . . . .	.500.00
DABK-7011B	AES/EBU and SDIF-2 digital I/O (PCM-7010) . . . . .	.600.00
DABK-7012	Memory start (PCM-7010)	1,000.00
DABK-7013	RS-232C interface (PCM-7010) . . . . .	.500.00
DABK-7030	T.C. generator/reader (PCM-7030/7050)	1,500.00
DABK-7031	AES/EBU digital I/O (PCM-7030) . . . . .	.500.00
DABK-7032	Memory start (PCM-7030)	1,000.00
DABK-7033	RS-232C interface (PCM-7030/7050) . . . . .	.500.00
DABK-7055	Edit memory (PCM-7050)	1,500.00

PCM-7000 Series Remote Control/

Electronic Editing Units

RM-D7100	Remote controller	\$ 600.00
RM-D7200	Dual remote controller	1,500.00
RM-D7300	Editing controller (PCM-7030/7050)	4,500.00

PCM-7000 Series Rackmount Options

RMM-30	Rackmount rails	\$ 100.00
RMM-31	Rackmount adaptor . . . . .	.50.00

Business and Professional Group

MXP-290 8-Channel Audio Mixer

- Equipped with 8 mic/line inputs and 2 line outputs • Incorporates Voltage-Controlled Amplifier (VCA) in front of each channel fader for editor control of channel levels • Can be controlled from Sony BVE-900 edit controller • Improved channel crosstalk (more than 70dB at 10kHz) • 2 individual master faders for CH-1 and CH-2 PGM outputs • Preview switcher function • Various optional inputs/outputs— 2 sub inputs for extra source connection or echo/effects return, 2 external monitor inputs, 2 aux outputs for echo/effects send, 2 monitor outputs and a TB output for studio communication • Trim control for each balanced mic/line input—variable range 30dB • Built-in 3-band equalizer and low cut filter • VU meters with 15 segments of LEDs reading from -20dB to +3dB • 6 1/8" H x 19" W x 17 3/4" D • 28 lbs. 11 oz.

MXP-290 \$3820.00
 MXBK-200 Optional rackmount adaptor for the MXP-290/210. . . 103.00
 MXBK-201 Optional arm rest kit for the MXP-290/210 267.00

MXP-210 8-Channel Audio Mixer

- Compact audio mixer with 8 channel inputs and 2 channel outputs, especially suitable for audio/video production • Improved channel crosstalk (more than 70dB at 10kHz) • 2 individual master faders for CH-1 and CH-2 PGM outputs • Balanced type line inputs added • Balanced type monitor input (changed from unbalanced type of the MX-P21) • Various optional inputs/outputs— 2 sub input jacks and 2 Aux output jacks for connection to and from echo machine or reverbator; monitor output jacks for driving external monitor speaker; TB output jack for intercommunication; external monitor input jacks for return audio monitoring • Built-in 3-band graphic equalizer and low cut filter • 5 1/8" H x 19" W x 17 3/4" D • 27 lbs. 13 oz.

MXP-210 \$1995.00
 MXBK-200 Optional rackmount adaptor for the MXP-290/210. . . 103.00
 MXBK-201 Optional arm rest kit for the MXP-290/210 267.00

MX-P61VU 12-Channel Audio Mixer

- Equipped with 12 mic/line inputs and 4 line outputs • Switchable microphone power supply— +48V (phantom power) and +12V (A/B feed) • Built-in 1kHz test tone for precise level setting • Hi-cut and low-cut filters for convenient bandwidth limiting • Monitoring either through headphones or external monitor speaker system • TB output and communicate input connectors • Cascade connectors for increasing the number of inputs • Needle-type VU meters • Compact and lightweight • AC/DC operation • 5 1/8" H x 17" W x 22 1/8" D • 40 lbs. 13 oz.

MX-P61VU \$9285.00
 MX-P61PK Same as above, but with LED metering 9289.00

TC-D5PROII 2-Channel Stereo Cassette Recorder

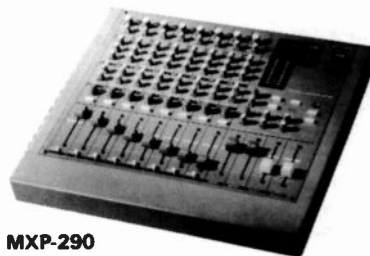
- Reliable mechanisms including a disc-drive capstan-servo tape transport with a coreless motor • Microphone inputs: Cannon connector XLR-3-31 (female) type • Approx. 5.5 hours of operation are possible with 2 "D" size alkaline batteries • Can also be operated on 12VDC with the addition of an optional AC adaptor (AC-D468) or a car battery (DCC-127A) • Employs Sony's F&F head for outstanding performance and long-term reliability • Dolby "B" noise reduction system • Twin VU meters and LED Peak level indicator • Built-in monitor speaker and earphone jack let you check your recording results immediately.

TC-D5PROII \$869.00

TCD-D10 PRO Digital Audio Recorder

- 2 hours of digital recording on a miniature DAT cassette • Weighs only 4 lbs., 7 oz. • LCD multi-display and various safety/warning systems for failsafe operation • Scan search at 100 times normal speed • Wired remote controller supplied • Headphone monitoring; built-in speaker • AC/DC operation • Limiter/mic attenuator eliminates noise caused by unexpected peaks

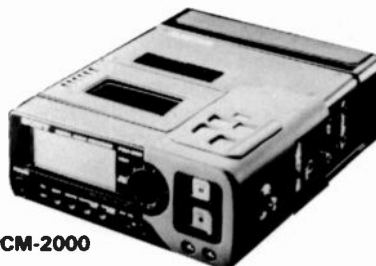
TCD-D10 PRO \$2900.00



MXP-290



TC-D5PROII



PCM-2000

PCM-2000 Portable Digital Audio Recorder

- Recording can be made at any 1 of 4 sampling frequencies: 48kHz, 44.1kHz, 44.056kHz, or 32kHz (Analog inputs are disabled when recording at the 32kHz rate) • Uses 1 of the DAT format's auxiliary longitudinal tracks for the recording and playback of SMPTE/EBU time code • External synchronizing capability • An AES/EBU digital input and output are provided for easy interface with a variety of digital studio equipment • 2X oversampling A/D, D/A converters and digital filter • Balanced, XLR-type inputs can be switched for +4dBs line or -70dBs/-50dBs/-30dBs microphone sources • Multi-function LCD and digital direct drive meter • ATF/CTL tracking system • Subcode capability • CH-1/CH-2 locking individual rec volume • Individual/tandem rec level setting

PCM-2000 \$5000.00

BVG-200 Time Code Generator

- Developed specifically for expanding the time code capabilities of the PCM-2000 • Mounted onto the bottom of the PCM-2000, this unit makes it possible to operate the PCM-2000 in perfect synchronization with a variety of time codes and word sync signals

BVG-200 \$2500.00

PCM-2500 Digital Audio Recorder

- Sampling frequencies of 44.1kHz or 48.0kHz are selectable for analog input, depending on which best suits your requirements • The 32kHz, 44.1kHz*, and 48.0kHz are ready for the digital input • Records the "start ID" in the sub-code area during both recording and playback, and its timing is available • Digital I/Os correspond to AES/EBU, SDIF-2, and S/P DIF, to allow easy interfacing with other digital equipment • 2-box construction consisting of the recorder and the interface unit which has the professional analog audio digital I/Os • Built-in error indicator, indicates the error conditions by 2 types of LEDs • Emphasis on/off • Wireless/wired remote control capability • Cue/review function makes finding specific points fast and easy • Master safe function, which helps prevent mis-erasure, is available. With this function, the recording is inhibited

*The 44.1kHz sampling frequency cannot be used through the S/P DIF
 PCM-2500 \$3550.00

MICROPHONES

SONY

Business and Professional Group

ECM-MS5 Electret Condenser Stereo Microphone

- Frequency Response: 70-20,000Hz • Sensitivity of -40dB • S/N ratio of 74dB • Dynamic range of more than 108dB • Supplied with cable and urethane windscreen • Designed primarily for ENG/EFP • Low cut switch rolls off low frequencies to achieve optimum recording by reducing unwanted noise or vibration pickup

ECM-MS5 \$1260.00

ECM-23FII Cardioid Back Electret Condenser Microphone

- Operates for more than 6,000 hours with one size "AA" battery
- Suited to professional and creative use in recording and broadcast studios as well as sound reinforcement systems

ECM-23FII \$195.00

ECM-44B Omni-Directional Lavalier Electret Condenser Microphone

- Miniature 1 1/32" x 1 9/32" 0.07 oz. microphone head • Operation on AA-size battery • Supplied holder clip and urethane wind screen

ECM-44B Black anodized finish \$205.00

ECM-55B Omni-Directional Lavalier Electret Condenser Microphone

- Omni-directional electret condenser design • Designed for miking musical instruments and voice pickup • Frequency response range of 30-18,000Hz

ECM-55B Black anodized finish \$315.00

ECM-66B Uni-Directional Lavalier Electret Microphone

- Wide-range, uni-directional back electret capsule • Clean, natural reproduction of musical instruments • Excellent isolation from the acoustic environment • Power supply includes a battery on-off switch • LED battery condition indicator • Frequency range of 70-14,000Hz

ECM-66B Black anodized finish \$349.00

ECM-77B Omni-Directional Lavalier Microphone

- Fingernail-size—5.6mm • Frequency response range of 40-20,000Hz • Enables unobtrusive miking but reduces glare • Permits intelligible voice reproduction even if the microphone is hidden inside a costume

ECM-77B Black anodized finish \$355.00

ECM-672 Unidirectional Back Electret Condenser Microphone

- Frequency range of 50-16,000Hz • Operates on one AA size battery for 3,000 hours • LED battery condition indicator • Built-in low cut filter operated by on/off switch • Supplied urethane wind screen has a stopper to prevent it from falling off the microphone

ECM-672 \$485.00

C-48 Dual Diaphragm Condenser Microphone

- Omni-directional, cardioid, and bi-directional • Selector switch
- PAD switch and low-cut switch add to the operational features
- 2-way power capability • Smooth, clear, natural sound



ECM-23FII



ECM-55B



ECM-77B

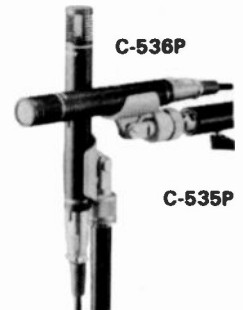
ECM-66B



C-74
Grip Optional



ECM-672



C-536P

C-535P

- Low-noise, high-gain FET preamplifier • Frequency response over a range of 30-16,000Hz • Handles a minimum of 128dB SPL without audible distortion or coloration

C-48 \$1045.00

C-76/C-74 Super Uni-Directional Gun-Type Condenser Microphones

- For use in theaters, on sound stages, in large halls, in television studios and even outdoors • Simply aimed at the sound source
- High sensitivity • Broad frequency response • Discriminate against background noise and unwanted sounds • The C-74 is shorter than the C-76 and therefore slightly more maneuverable

C-74 \$ 925.00
C-76 1025.00

C-535P/C-536P

Uni-Directional Condenser Microphones

- Inconspicuous • C-535P is designed for on-axis sound pickup
- C-536P is designed for applications requiring minimum clearance and right angle pickup • Frequency response of 30-16,000Hz
- Dynamic range of 116dB • Output impedance is 200 ohms
- Maximum sound input pressure level is 138dB • 48VDC phantom powered, equipped with a 10dB switchable pad and offer a Cannon XLR-3-12C type connector

C-535P/C-536P \$495.00

Business and Professional Group

VHF Synthesized Wireless Microphone System

The VHF Synthesized Wireless Microphone System is designed to be an affordable yet equally super-performing counterpart to UHF systems. The compact, fully compatible units operate on the 200MHz TV band, offering a total of 168 potentially usable channels.

VHF COMPONENTS

Transmitters

- WRT-410** Microphone transmitter: 48 channel synthesis; cardioid, dynamic capsule; audio muting switch \$ 999.00
- WRT-420** Pack transmitter with lavalier microphone: 48 channel synthesis; Snap-On battery pack; audio muting switch 1049.00

Receivers

- WRR-410** Synthesized receiver: 168 channel synthesis; 9VDC or internal battery operation \$ 1119.00
- WRR-420** Synthesized diversity receiver: 168 channel synthesis; 9VDC operation 1919.00

Power Supply, Cases and Antenna Dividers

- AC-P210** Power supply for multiple WRR-410/420 receiver operation \$299.00
- WD-210** Antenna divider 719.00



VHF Synthesized Wireless Microphone System

Adaptors, Antennas and Rackmount

- AC-D468** DC power adaptor for single WRR-410/420 operation \$ 49.00
- AN-210** Dipole antenna 119.00
- AN-220** Shoulder antenna for WRR-410/420 119.00
- BTA-210** Betacam attachment for WRR-410/WRR-420 . . 249.00
- MB-210** 19" rack bracket 69.00

UHF Multi-Channel Wireless Microphone System

This wireless microphone system is the answer to professional demands for a wireless microphone system featuring each of the three essentials of quality, reliability and versatility. The system offers extended dynamic range and the unique "Space Diversity Reception" assures failsafe operation as well as expands the possible service area. All units in the system are not only compact but also of the convenient plug-in type. The system can thus be adapted to many different applications with utmost precision.

UHF COMPONENTS

Transmitters

- WRT-28** Miniature pack transmitter with lavalier microphone (ECM-77B) \$1549.00
- WRT-57** Microphone transmitter with back electret condenser capsule 1159.00
- WRT-67** Microphone transmitter with dynamic capsule . . 1499.00

UHF Transmitter Accessories

- AD-27** 12VDC adaptor for 500mW system \$159.00
- AN-17** Headset mount transmitting antenna 219.00
- WP-27** 500mW power amplifier 929.00

Receivers

- WRR-28** Miniature portable receiver \$2449.00
- WRR-37** Diversity receiver 4879.00



Racks, Cases and Attachments

- BTA-37** Betacam attachment for WRR-37 \$ 269.00
- PB-36** Portable base unit for six WRR-37 6179.00
- SC-38** Carrying case for 28 Series 139.00

Antenna Systems

- AN-57** Ground plane antenna \$169.00
- WB-57A** Antenna booster 949.00

Adaptors and Battery

- AC-D468** DC power supply for K-1108 \$50.00
- K-1108** DC adaptor for WRR-27/37 89.00
- 7MR9** 9.45V cell for WRT-57 7.00

VIDEO TAPE



1" High Band V-16 Series

Model	Master Carton Quantity	Price
V-16-188	5	\$ 56.77
V-16-34B	5	83.51
V-16-66B	5	122.55
V-16-96B	5	186.52
V-16-126A	4	258.01
V-16-188A	4	418.39

1" High Band V-16 Series in Shippers

V-16-34SP	5	\$ 96.16
V-16-66SP	5	134.78
V-16-96SP	5	203.67

1" High Band V1-K Series

V1-K-18BN	5	\$ 56.77
V1-K-34BN	5	83.51
V1-K-66BN	5	122.55
V1-K-96BN	5	186.52
V1-K-105BN	5	218.09
V1-K-126AN	4	258.01
V1-K-188AN	4	418.39

1" High Band V1-K Series in Shippers

V1-K-18SPN	5	\$ 70.96
V1-K-34SPN	5	96.16
V1-K-66SPN	5	134.78
V1-K-96SPN	5	203.67
V1-K-105SPN	5	234.91
V1-K-126SPN	4	281.27
V1-K-156SPN	4	333.03
V1-K-188SPN	4	433.01

1" High Definition HD-1 Series

HD-1-33SPN	5	\$226.09
HD-1-48SPN	5	344.83
HD-1-63SPN	4	471.87

1" Digital High Definition HD-1D Series

HD-1D-33SP	5	\$1544.54
HD-1D-48SP	5	2237.41
HD-1D-63SP	4	2944.66

D-1 Digital Video Master Cassettes

D1M-12 (12 Min.)	10	\$106.25
D1M-22 (22 Min.)	10	148.52
D1M-34 (34 Min.)	10	186.75
D1M-76 (76 Min.)	10	321.64
D1M-94 (94 Min.)	10	407.48

D-2 Digital Video Master Cassettes

DCS-6M Small Shell	10	\$ 41.20
DCS-12M Small Shell	10	73.21
DCS-22M Small Shell	10	102.31
DCS-32M Small Shell	10	134.63
DCM-6M Medium Shell	10	41.20
DCM-12M Medium Shell	10	73.21
DCM-22M Medium Shell	10	102.31
DCM-34M Medium Shell	10	134.63
DCM-64M Medium Shell	10	188.71
DCM-94M Medium Shell	10	285.15
DCL-126M Large Shell	10	393.79
DCL-156M Large Shell	10	466.25
DCL-188M Large Shell	10	606.22
DCL-208M Large Shell	10	627.11

D-2 Digital Video Bulk Cassettes

DCS-3MNP	10	\$29.78
DCS-6MNP	10	39.46

U-Matic BRS Series

Model	Master Carton Quantity	Price
KCS-10BRS Mini	10	\$19.84
KCS-20BRS Mini	10	21.66
KCA-10BRS	10	19.59
KCA-20BRS	10	20.82
KCA-30BRS	10	23.20
KCA-60BRS	10	32.30

U-Matic XBR Series

KCS-10XBR Mini	10	\$21.16
KCS-20XBR Mini	10	24.48
KCA-10XBR	10	22.20
KCA-20XBR	10	25.52
KCA-30XBR	10	28.70
KCA-60XBR	10	37.64

U-Matic in Shippers

KCS-20BRS-SC Mini	10	\$21.66
KCA-30BRS-SC	10	23.20
KCA-60BRS-SC	10	32.30

U-Matic SP Series

KSP-S10 Mini	10	\$22.98
KSP-S20 Mini	10	26.57
KSP-10	10	24.14
KSP-20	10	27.73
KSP-30	10	31.18
KSP-60	10	40.89

U-Matic Bulk Cassettes

KSA-5BRST	20	\$13.68
KSA-10BRST	20	14.75
KSA-15BRST	20	15.82
KSA-20BRST	20	16.93
KSA-30BRST	20	19.14
KSA-40BRST	20	23.48
KSA-50BRST	20	25.68
KSA-60BRST	20	27.89

Betacam Oxide Series

BCT-5G	50	\$12.20
BCT-10G	50	14.41
BCT-20G	50	18.36
BCT-20GSC Shipper	50	18.36
BCT-30G	50	23.36
BCT-30GSC Shipper	50	23.36
BCT-5L Large Shell	10	23.02
BCT-10L Large Shell	10	26.00
BCT-20L Large Shell	10	29.18
BCT-30GL Large Shell	10	32.14
BCT-60GL Large Shell	10	58.91
BCT-90GL Large Shell	10	77.73

Betacam Metal Particle Series

BCT-5M	50	\$ 42.45
BCT-10M	50	47.77
BCT-20M	50	53.07
BCT-20MSC Shipper	50	53.07
BCT-30M	50	58.39
BCT-30MSC Shipper	50	58.39
BCT-5ML Large Shell	10	42.45
BCT-10ML Large Shell	10	47.77
BCT-20ML Large Shell	10	53.07
BCT-30ML Large Shell	10	58.39
BCT-60ML Large Shell	10	79.64
BCT-90ML Large Shell	10	124.80

Betacam Metal Particle Bulk Cassettes

BCT-5MNP	50	\$39.91
BCT-10MNP	50	44.91
BCT-20MNP	50	49.91
BCT-30MNP	50	54.89

Betacam Oxide Bulk Cassettes

BCT-5GNP	50	\$10.55
BCT-10GNP	50	13.93
BCT-20GNP	50	17.50

Beta Bulk Cassettes

Model	Master Carton Quantity	Price
LS-125	50	\$5.63
LS-250	50	5.63
LS-370	50	6.28
LS-435	50	6.62
LS-500	50	6.87
LS-530	50	7.08
LS-560	50	7.73
LS-625	50	8.12
LS-750	50	8.51
LS-830	50	9.05

VHS Bulk Cassettes

TS-15S	50	\$3.45
TS-30S	50	3.88
TS-45S	50	4.47
TS-60S	50	4.99
TS-90	50	5.38
TS-105	50	6.12
TS-120	50	6.49
TS-127	50	6.76

8mm Bulk Cassettes

P6-30PHB	100	\$ 5.78
P6-60PHB	100	7.37
P6-90PHB	100	8.82
P6-105PHB	100	9.55
P6-120PHB	100	10.12
P6-135PHB	100	10.93
100EVP-CASE	100	.43

Dynamicron Series

Beta Packaged Cassettes

L500-ESB	50	\$ 8.55
L750-ESB	50	10.00
L830-ESB	50	12.00
L750-ESHGB	50	11.91
L750-ESXHFB	50	13.80
L600-PROXB	50	15.20

Professional Grade

VHS Cassettes

T-30PR	10	\$6.36
T-60PR	10	7.11
T-120PR	10	7.50

Broadcast Grade Professional

VHS Cassettes

T-30BA	10	\$ 9.77
T-60BA	10	11.09
T-120BA	10	13.02

Premier Grade Series

Professional VHS Cassettes

T-30PM	10	\$ 8.64
T-60PM	10	9.95
T-120PM	10	11.89

Hi8mm Professional Packaged Cassettes

P6-30HMPX	50	\$14.28
P6-60HMPX	50	20.42
P6-120HMPX	50	27.68

ED Beta Video Cassettes

EL-250	50	\$32.84
EL-500	50	45.46

1/2" Reel-to-Reel

V-30H	48	\$21.57
V-32	12	37.91
V-35	48	18.52

Series 200 Delta Mixing Consoles

• Individual output connectors on each module • Can be specified with any combination of input modules—standard, deluxe, stereo and dual line—within any of the 4 frame sizes (8, 16, 24 or 32 channels) • Both the standard and deluxe inputs incorporate the proprietary padless microphone amplifier, with a single control providing a sensitivity range of -2dBu to -70dBu • Both modules feature a patented active panpot design which generates precise stereo imaging and allows the safe use of group outputs as individual mono sends • The advanced EQ featured on the deluxe input modules include HF (12kHz) and LF (60Hz hybrid peak/shelf) sections, which are capable of accurately controlling high and low frequency content without reducing headroom or increasing loudspeaker distortion • Sweeppable Hi Mid and Lo Mid sections give precise control over the vital midrange bands, together covering 150Hz to 10kHz • The stereo input module offers an RIAA preamp option on the 'B' inputs for direct input from magnetic phono cartridges, as well as the facility to provide either stereo line sources (for broadcast and A/V) or stereo effects returns (for PA or studio recording) • Illuminated switches provide clear status indication • 20 segment wide-range bar graph meters display either the group outputs or lower return levels • Removable scribble strips which conceal individual modules' fixing screws

Series 200 Delta Standard

8 channel console	\$3,690.00
8 channel rackmount console	3,690.00
16 channel console	5,450.00
24 channel console	7,150.00
32 channel console	9,100.00

Series 200 Delta Deluxe

8 channel console with SEQ	\$ 4,290.00
8 channel rackmount console with SEQ	4,290.00
16 channel console with SEQ	6,650.00
24 channel console with SEQ	8,950.00
32 channel console with SEQ	11,500.00

Delta AVE Mixing Console

Configured to interface with virtually any type of edit controller, the Delta AVE offers a variety of modules and frame sizes to suit all applications. When stereo modules are needed, the stereo option frame must be specified.

The Delta AVE shares all the features of the 200 Delta. This includes the Active Pan Pot design, ensuring greater isolation between left and right buses. An advanced EQ is complemented by exceptionally low noise and crosstalk performance. The simplicity of the modular construction enables you to specify a console with any combination of standard Delta or AVE modules. This flexibility allows the console to be tailored to suit your application, whether it be A-B roll, ENG or the sophistication of the full D2 format.

With Delta AVE, automatic control of audio is further enhanced by the Depth fader. This controls the extent to which the edit controller can attenuate the signal by presetting the maximum fade depth from your audio console. To avoid unnecessary degradation of the audio signal, high quality, industry standard DBX VCAs are used in the main signal paths.

With the possibilities of direct control, eavesdrop or automatic triggering of preset audio effects, the Delta AVE is designed for creative, quality conscious video editing. The additional capabilities of the serial interface have been extended with an independent audio switcher that can be triggered locally or from GPIs, with its own variable crossfade type and duration.

Delta AVE incorporates sophisticated solid-state controls, which when supported by the edit controller switch between listening to the stereo master output and the replay signal from the video recorder.

4 illuminated switches on the master module indicate the current control status—whether the console is under AVE control, the output is dimmed (either locally or automatically by the edit controller) and the monitor source selection (record or playback).



Series 200

Delta AVE Mono Consoles

8 mono inputs	\$ 6,900.00
8 mono inputs in rackmount	6,900.00
16 mono inputs	11,500.00
24 mono inputs	15,250.00

Delta AVE Stereo Consoles

8 stereo inputs	\$ 8,325.00
8 stereo inputs in rackmount	8,325.00
16 stereo inputs	14,350.00
24, includes 8 stereo inputs and 16 mono inputs	16,675.00

Delta 8 Mixing Console

Designed for both 8 and 16 track recording, Delta 8 offers a compact, high performance package for home recording, broadcast and post production facilities.

The circuitry design gives exceptionally low crosstalk and distortion figures, making the Delta 8 the ideal choice for studios using digital recording formats.

The classic split format is completely modular and offers 8 groups with a choice of 20, 28 or 36 input channels. Mono input facilities include 6 independent auxiliary sends, 4-band sweep EQ as well as a direct output facility—enabling any signal to be recorded directly to tape.

Comprehensive Master module facilities include 2 2-track returns for use with stereo machines and 2 control room monitor speaker outputs for selecting between main and nearfield speakers.

The multitrack tape returns are normalised to both the monitor section and the channel line inputs, enabling the 16 monitor returns to be used as extra inputs during mixdown.

Delta Monitor Mixing Console

Delta Monitor uses a single-piece steel frame for reliability. The unique padless mic amp design yields advanced performance specifications at maximum and normal operating gains, while low noise summing and proven grounding techniques give further assurance of technical excellence.

Available in 3 frame sizes (with 24, 32 or 40 input channels), Delta Monitor gives access to a total of 12 sends; 10 monitor feeds and a stereo send which can serve as a monitor mix for the engineer, a feed for sidefill speakers or as another pair of monitor buses.

The 4-band equalizer with 2 swept mid-bands provides a powerful tool for tailoring individual inputs, with further refinements made possible with both the high pass filter and phase reverse facilities.

Delta Monitor has 2 variable notch filters fitted to each output, with a "panic" dim switch for inserting a pad across the monitor output so any feedback can be handled with precision and easeTBA*

*To Be Announced

CASES

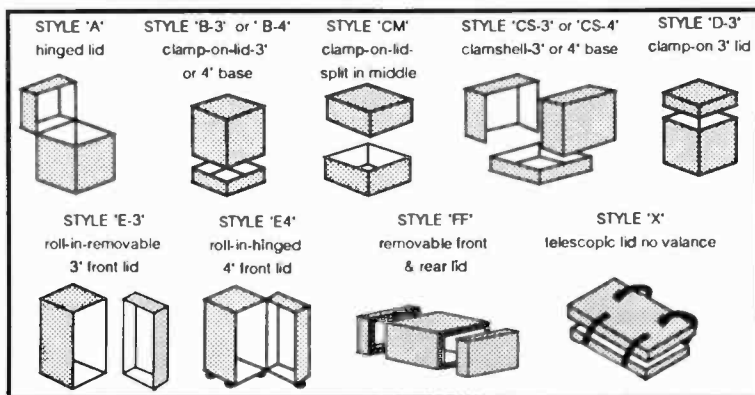


Star Cases

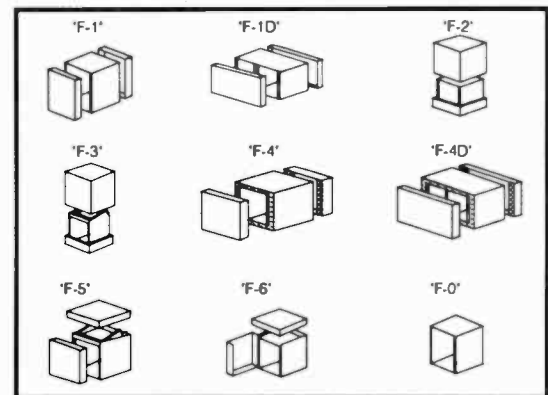
STARCASE specializes in both customized case exteriors as well as customized case interiors. We can cradle and protect even the most fragile equipment. We work with numerous densities and grades of polyester and polyethylene foams, anti-statics, cubed foams, special cotton and synthetic material lining, hidden compartments, roll-out desk surfaces, roll-in ramps, and special partitioning devices for all types of audio, video, and computer magnetic media. Where permissible by design, all interior treatments and customizations are available on all STARCASE types.



CLOSURE STYLES



RACK STYLES



STARCASE TYPE	PLYWOOD THICKNESS	MEANS OF TRANSPORT	STYLES AVAILABLE	ATA* COMPLIANCE	COLOR CHOICES**
ULTRA STAR	1/2"	AIR & SURFACE	All closure & rack-mount styles shown	YES	1-10
SUPER STAR	1/4"	AIR & SURFACE	All closure & rack-mount styles shown	YES	1-10
ATA STAR (3/8")	3/8"	AIR & SURFACE	All closure & rack-mount styles shown	YES	1-3
ATA STAR (1/4")	1/4"	AIR & SURFACE	All closure & rack-mount styles shown	YES	1-10
CARRY STAR	1/8"	SURFACE	All closure & rack-mount styles shown	NO	1-4
EXPO STAR (1/4")	1/4"	SURFACE	Style X only	NO	1-10
EXPO STAR (1/8")	1/8"	SURFACE	Style X only	NO	1-4

* AIR TRANSPORT ASSOCIATION OF AMERICA

** 1) BLACK, 2) BLUE, 3) LIGHT GREY, 4) BOURDEAUX, 5) RED, 6) WHITE, 7) ORANGE, 8) YELLOW, 9) DARK GREY, 10) TWO-TONE

Pulsar 600W

A light, compact, open faced floodlight, it is ideally suited for remote and location work. Stand camera-mounted or handheld, the Pulsar's fiberglass "cool touch" housing is a great asset. It gives a soft edged beam with variable spread, has a rapid-turn fast focus knob and an integral heat dissipator — and slips into compact storage. Operates both 120V and 240V lamps.

lanebeam 650W

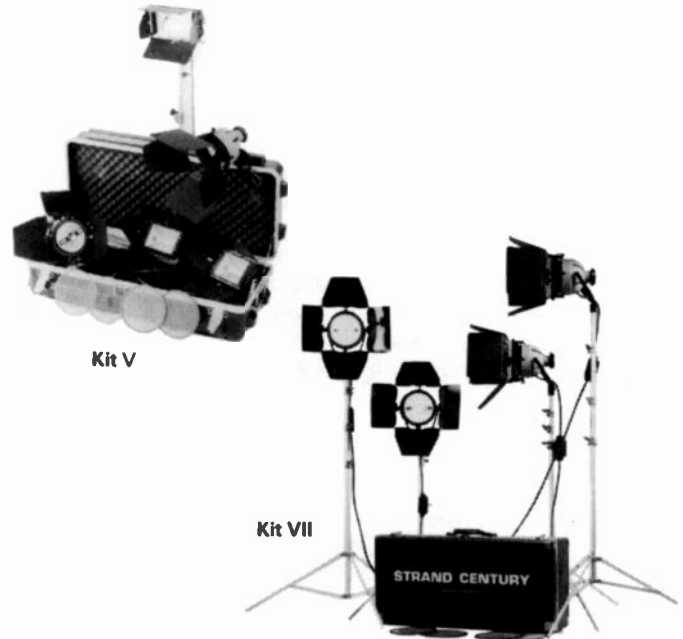
lanebeam floodlights have basic features in all sizes: They are open faced, lightweight, compact, durable and ideally suited for work in film, television and still photography. They provide a soft edged beam with variable spread and fast focus. The 650W model accepts a variety of tungsten-halogen lamps for both 120V and 240V operation.

lanebeam 1000W

The 650W and 1000W lanebeam floodlights feature molded fiberglass housing for "cool touch" operation permitting faster pack-up after shooting as well as comfortable handling. The 1000W accepts a variety of tungsten-halogen lamps and like all lanebeams has available a wide variety of accessories and both yokes for stand mounting as well as gaffer grips.

lanebeam 2000W

The largest lanebeam offered as a kit component is the 2000W which features a lightweight aluminum housing, will operate on 120V and provides a soft edged beam with variable output. It has rapid-turn fast focus knob, is equipped with yoke and stand mounting bracket and a complete range of mounting and grip equipment and accessories. Will also operate on 240V.



iadi 1000W

This unit provides high output fill light for portable and remote applications in television, film and still photography and features a one piece reflector for a wide field and smooth light distribution. The compact housing with folding, springloaded integral 4-way barndoors is ventilated for cooling and efficient operation on a wide range of tungsten-halogen lamps for both 120V and 240V operation.

Lighting Kit I (1051)

Includes:			
3-4515MP	Pulsar	1-1228	Half Single Scrim
3-1310	4-leaf Barndoor	3-DYS	600W, 75 hrs., 3200°K
1-1225	Full Double Scrim	3-1529	Stand
1-1226	Full Single Scrim	1-1977	Case
1-1227	Half Double Scrim		\$1200.00

Lighting Kit II (1052)

Includes:			
2-4501MP	lanebeam 650	1-1217	Single Scrim
2-1230	Accessory Holder	2-1535	Stand
2-1324	4-leaf Barndoor	1-1978	Case
1-1216	Double Scrim		\$1000.00

Lighting Kit III (1053)

Includes:			
3-4501MP	lanebeam 650	1-1217	Single Scrim
3-1230	Accessory Holder	3-1535	Stand
3-1324	4-leaf Barndoor	1-1978	Case
1-1216	Double Scrim		\$1460.00

Lighting Kit IV (1054)

Includes:			
2-4501MP	lanebeam 650	1-1217	Single Scrim
2-1230	Accessory Holder	2-4523	iadi Fill
2-1324	4-leaf Barndoor	4-1535	Stand
1-1216	Double Scrim	1-1978	Case
			\$1650.00

Lighting Kit V (1055)

Includes:			
2-4503MP	lanebeam 1000	3-4523	iadi Fill
2-1230	Accessory Holder	1-1963	Gaffer Grip with
2-1324	4-leaf Barndoor		5/8" stud
1-1216	Double Scrim	4-1535	Stand
1-1217	Single Scrim	1-1978	Case
			\$1875.00

Lighting Kit VI (1056)

Includes:			
4-4501MP	lanebeam 650	2-1217	Single Scrim
4-1230	Accessory Holder	4-1535	Stand
4-1324	4-leaf Barndoor	1-1978	Case
2-1216	Double Scrim		\$1800.00

Lighting Kit VII (1057)

Includes:			
4-4503MP	lanebeam 1000	2-1217	Single Scrim
4-1230	Accessory Holder	4-1535	Stand
4-1324	4-leaf Barndoor	1-1978	Case
2-1216	Double Scrim		\$1800.00

Lighting Kit VIII (1058)

Includes:			
3-4503MP	lanebeam 1000	1-1217	Single Scrim
3-1230	Accessory Holder	3-1535	Stand
3-1324	4-leaf Barndoor	1-1978	Case
1-1216	Double Scrim		\$1375.00

Lighting Kit IX (1059)

Includes:			
2-4503MP	lanebeam 1000	1-1217	Single Scrim
2-1230	Accessory Holder	2-1535	Stand
2-1324	4-leaf Barndoor	1-1979	Case
1-1216	Double Scrim		\$1000.00

Lighting Kit XI (1061)

Includes:			
2-4505MP	lanebeam 2000	1-1223	Half Double Scrim
2-1325	4-leaf Barndoor	1-1224	Half Single Scrim
1-1221	Full Double Scrim	2-1535	Stand
1-1222	Full Single Scrim	1-1979	Case
			\$1625.00

Kit Cases 1-1978 and 1-1979 Are Fitted With Casters

DIMMING



PORTABLE DIMMING SYSTEMS

CD80 Dimmer Packs with Digital Pack Control Module

Accepts DMX512, AMX192, SMX and fiber optic protocols.

8324	120V with 24 1.2kW dimmers, 24 GTL receptacles	\$8250.00
8325	120V with 24 1.2kW dimmers, 24 GP receptacles	7950.00
8326	120V with 24 1.2kW dimmers, 24 GR receptacles	8050.00
8327	120V with 24 1.2kW dimmers, terminal strip for hard wiring	7650.00
8524	120V with 12 2.4kW dimmers, two 20A GTL receptacles per dimmer, 65 lb.	4550.00
8525	120V with 12 2.4kW dimmers, two 20A GP receptacles per dimmer, 65 lb.	4550.00
8526	120V with 12 2.4kW dimmers, two 20A GR receptacles per dimmer, 65 lb.	4550.00
8527	120V with 12 2.4kW dimmers, terminal strips for hard wiring, 65 lb.	4550.00
8566	120V with six 6kW dimmers, one 50A GTL receptacle per dimmer, one 50A test outlet, 65 lb.	4950.00
8567	120V with six 6kW dimmers, one 60A GP receptacle per dimmer, one 60A test outlet, 65 lb.	4900.00
8568	120V with six 6kW dimmers, terminal strip for hard wiring, 65 lb.	4850.00
8563	120V with six 12kW dimmers, one 100A GP receptacle per dimmer, one 100A test outlet, camlock plugs, 85 lb.	4950.00
8564	120V with six 12kW dimmers, terminal strip for hard wiring, 85 lb.	5800.00

CD80 Digital Pack Control Module

For retrofit to CD80 packs (excluding 1.2kW CD80 packs) without pack modifications.

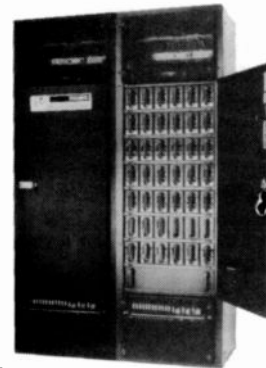
8216	For all 2.4kW CD80 packs	.P.O.A.*
8217	For all 6.0kW and 12.0kW CD80 packs	.P.O.A.*

AMX 192 Dimmer Packs

8124	120V with 12 2.4kW dimmers, two 20A GTL receptacles per dimmer, 65 lb.	\$4325.00
8125	120V with 12 2.4kW dimmers, two 20A GP receptacles per dimmer, 65 lb.	4325.00
8126	120V with 12 2.4kW dimmers, two 20A GR receptacles per dimmer, 65 lb.	4325.00
8127	120V with 12 2.4kW dimmers, terminal strips for hard wiring, 65 lb.	4325.00
8066	120V with six 6kW dimmers, one 50A GTL receptacle per dimmer, one 50A test outlet, 65 lb.	4700.00
8067	120V with six 6kW dimmers, one 60A GP receptacle per dimmer, one 60A test outlet, 65 lb.	4650.00
8068	120V with six 6kW dimmers, terminal strip for hard wiring, 65 lb.	4600.00
8063	120V with six 12kW dimmers, one 100A GP receptacle per dimmer, one 100A test outlet, camlock plugs, 85 lb.	5700.00
8064	120V with six 12kW dimmers, terminal strip for hard wiring, 85 lb.	5500.00
8224	120V with 24 1.2kW dimmers, 24 GTL receptacles	6665.00
8225	120V with 24 1.2kW dimmers, 24 GP receptacles	6425.00
8226	120V with 24 1.2kW dimmers, 24 GR receptacles	6560.00
8227	120V with 24 1.2kW dimmers, terminal strip for hard wiring	6180.00



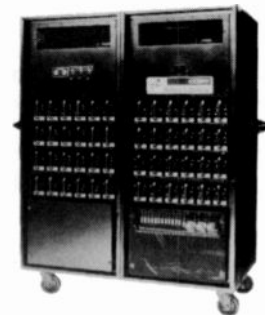
CD80 Pack



CD80 Dimmer Bank



CD80 Dimmer Module



CD80 Rolling Rack

AMX 192/0-10V (Analog) Selectable

8234	120V with 24 1.2kW dimmers, 24 GTL receptacles	\$7705.00
8235	120V with 24 1.2kW dimmers, 24 GP receptacles	7420.00
8236	120V with 24 1.2kW dimmers, 24 GR receptacles	7535.00
8237	120V with 24 1.2kW dimmers, terminal strip for hard wiring	7130.00

Also available in dimming systems are:

CD80 Dimmer Racks

Compact, reliable dimming with dual 2.4kW, single 6.0kW and 12.0kW modules .P.O.A.*

CD80 Rolling Racks

CD80 in a heavy-duty touring rack .P.O.A.*

CD80/8 Dimmers

High-performance dimmers for increased filtering of electrical noise .P.O.A.*

*Price on Application

501 Peak-RMS Compressor/Limiter

- Separate processors for both compression and peak limiting
- Balanced in/out XLR • Unbalanced in/out 1/4" • Sidechain in/out 1/4" • Stereo connect 1/4"

501\$349.00
 501 Option 01—Transformer coupled output\$389.00

511A Noise Reduction System

- No encoding required • Dynamic filter and downward expander
- Subsonic filter • Up to 30dB S/N improvement • Stereo/2-channel switch • Balanced in/out XLR • Unbalanced in/out 1/4"

511A\$599.00

525 Dual Gated Compressor/Limiter

- 2-channel or true stereo • Program controlled attack/release times • Simultaneous expansion and compression on each channel • Balanced in/out TRS 1/4" • Sidechain in/out TRS 1/4"

525\$539.00

528 Voice Processor

- Mic to line level • Preamp, de-esser, downward expander, compressor/limiter, parametric EQ/notch filter, +48 phantom power, switchable metering • Single rack space • Mic input XLR • Unbalanced in/out on 1/4" • Line level in/out on #6 barrier

528\$679.00

564 Quad Expander/Gate

- Hipass/lowpass controls for frequency conscious gating • XLR balanced inputs and outputs plus control loop/key input • 6 LED gain reduction meter per channel • Balanced inputs/outputs XLR • Control loop/key input in/out TRS 1/4"

564\$989.00

571 SPL Computer™

- Senses ambient noise, automatically adjusts levels • Music input, paging controller • Semi-automatic calibration • Sensing mic inputs XLR • Page mic XLR • Balanced/unbalanced in/out connections on #6 barrier

571\$849.00
 571S SPL computer slave\$349.00

572 SPL Computer

- Senses ambient noise, automatically adjusts levels • Uses the system's loudspeakers as input transducers for ambient noise sensing • Page mic XLR • Balanced/unbalanced in/out connections on #6 barrier

572\$699.00

A-220 Stereo Amplifier

- 20W/channel, 50W bridged • Mono, 2-channel or true stereo • .05% THD • Balanced/unbalanced inputs, XLR 1/4" • Speaker outputs on barrier strip

A-220\$349.00
 SC-1 Security cover\$30.00

SX201 Parametric EQ Preamplifier

- Studio quality • +15dB boost, -30dB cut • High headroom • Unbalanced in TS 1/4" • Balanced in/out TRS 1/4"

SX201\$279.00

SX202 Dual Microphone Preamplifier

- Variable gain with 15dB pad • Polarity switch on 1 channel • +48V phantom power • Mic inputs XLR • Outputs TRS 1/4"

SX202\$299.00

SX203 Telephone Interface

- Fast hookup • High quality audio transfer • Desk set, phone line RJ-11 modular jack • Balanced/unbalanced in/out TRS 1/4"

SX203\$389.00



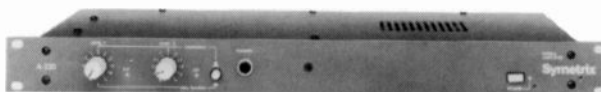
511A



528



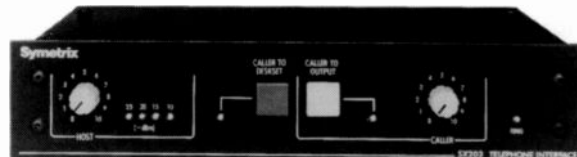
571



A-220



SX201



SX203

SX204 Headphone Amplifier

- 4 channels • Stereo operation • All headphone impedances • Balanced/unbalanced in TRS 1/4" • Outputs TS 1/4"

SX204\$299.00

SX205 Precision Audio Meter

- Displays VU or watts • Variable peak hold time • Greater than 45dB range • Stereo balanced inputs TRS 1/4" • Speaker inputs, #6 barrier

SX205\$339.00

SX206 Multi Dynamics Processor

- Versatile multi-mode operation • Exceptional sonic performance • Selectable mode at power-up • Master or slave designation • Balanced/unbalanced input TRS 1/4" • Unbalanced out TS 1/4" • Balanced out TRS 1/4" • Stereo link TRS 1/4" • Control loop TRS 1/4" (return), TS 1/4" (send)

SX206\$329.00

SX208 Stereo Compressor/Limiter

- Exceptionally low noise and distortion • Simple, straightforward operating controls • LED indicators for input level, compression and clipping • Balanced or unbalanced signal connection • UL approved power supply

SX208\$299.00

TELECOMMUNICATION EQUIPMENT

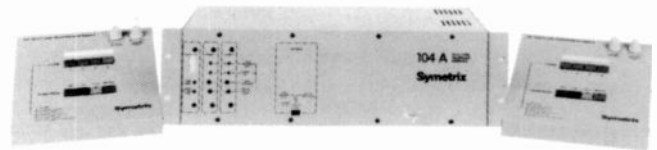
Symetrix

104A Multi-Line Telephone Interface

- Consists of 2 modules: a rackmount controller unit and a remote desk module
- Interconnection between the desk module and controller unit is via a standard 25-pair telephone cable (up to 300 feet of additional extension cable may be implemented)
- All system control is performed by the desk module
- May be used in conjunction with a user provided 2500 telephone (standard desk set) or in a "hands free" fashion
- Control functions include seize, release, transfer to hold, transfer to cue and transfer to air
- Up to 4 callers may be conferenced "on air" at once
- An output jack and gain control on the desk module provide caller monitoring via headphones or 25 ohm speaker
- Audible ring indicator in the desk module may be muted

The 104A is designed specifically for broadcast and teleconferencing applications. The 104A is essentially a stand-alone electronic telephone system which connects to up to 4 incoming telephone lines via standard RJ-11 ("modular") connectors. No additional telephone line equipment is necessary. The 104A is FCC approved and may be installed by non-technical personnel.

104A\$2395.00
 104 CTRL Extra console for 2-station operation
 of the 104A. Includes 25/25 cables495.00



104A Shown With
Optional Console

111 Adaptive Hybrid

- Up to 40dB nulling of any phone line
- Digital signal processing
- Selectable line or mic level host in, and caller out on XLR
- Telephone line, desk set on RJ-11 modular jacks
- Remote in, relays, key system and conference on #6 barrier

The 111 is a digital hybrid that "learns" signal characteristics, adapts to maintain maximum trans-hybrid loss even as conferenced lines are added and removed. May be connected directly to CO line, or used with any PBX, key, electronic key system, or any 2-wire audio line. Delivers more gain before feedback in systems where live loudspeaker monitoring is used.

111\$1695.00



111

TI-101 Single-Line Telephone Interface

- Level compatibility. Back-panel gain switches permit the TI-101 to operate with virtually any professional mixer or console
- Bandpass filtering
- Caller mute: A user provided remote contact closure mutes the caller instantly without clicks or pops
- LED clip indicators are provided
- Conference linking
- Caller equalization
- 2-band equalizer with 8dB of boost and cut at 400Hz and 2.5kHz brightens up the caller and enhances intelligibility
- Send limiter
- Receive compressor/expander

The TI-101 is designed specifically for the connection of professional audio equipment to telephone lines in broadcast and production operations. The TI-101 employs an electronic hybrid circuit which creates a maximum trans-hybrid loss, yielding effective isolation between your studio's send to the telephone line, and your caller return signal.

TI-101\$549.00



TI-101

TASCAM

TEAC Professional Division

RECORDER/REPRODUCERS

42B 2-Track Recorder/Reproducer

- Full servo system including capstan and reel motors
- Electronically-balanced +4dBm inputs/outputs
- Custom microprocessor ensures rapid yet gentle tape handling in all modes
- PLL direct drive capstan motor and non-magnetic ceramic capstan shaft
- Long-life hard permalloy heads mounted on a solid base plate
- Manual edit, dump edit and stop edit
- Front-access to all adjustment for transport and amplifier
- Precision real time tape counter

The 42B is an exceptionally versatile high-performance 2-track, 2-channel tape recorder/reproducer that uses 1/4" wide tape and operates at tape speeds of 15 ips (38cm/s) and 7 1/2 ips (19cm/s).

Designed especially for demanding production applications, including lockup to SMPTE/EBU controller/synchronizers, the 42B transport is built on an extra heavy-duty chassis that ensures stable tape motion and stable alignment despite the long hours of high speed, start-stop shuttling that are typically part of editing.

42B \$3249.00



42B



348

Series 30 Recorder/Reproducers

- Use 1/4" tape and have selectable 15 or 7 1/2 ips tape speeds
- Durable FG servo DC capstan motor and 2 slotless DC reel motors
- Microprocessor-controlled full-logic transport
- Precision digital tape counter with zero return function
- ± 12% pitch control
- Bipolar power supply for stable operation and high sound quality
- Direct-coupled amplifiers for minimum distortion
- Dump edit function
- Cueing lever
- Microphone inputs
- Input and output level controls
- Frequency response: 40Hz-22kHz, ± 3dB at 15 ips

The Series 30 Recorder/Reproducers are 3-head tape machines with 10 1/2" reel capability that are ideally suited to all music and sound production applications.

The motors and servo control systems are made for unflinching precision, power and reliability. The transport is a shining example of smooth, sure tape handling.

348 4-track, 4-channel \$2199.00
32 2-track, 2-channel \$1749.00



22-4

Series 20 Recorder/Reproducers

- The 22-4 and 22-2 use 1/4" tape and have selectable 15 or 7 1/2 ips tape speeds
- Durable FG servo DC capstan motor and 2 AC reel motors
- Memory (zero return) function on the 22-4
- ± 6% pitch control on the 22-4
- Bipolar power supply for stable operation and high sound quality
- Cueing lever on the 22-4
- The 22-2 features front-panel microphone inputs with level controls
- Input and output level controls on each channel

Both the 22-4 and 22-2 feature 3-head transports and use 7" reels of 1/4" tape, offering plenty of recording/playback time for most music and sound production applications. A choice of 15 or 7 1/2 ips tape speeds lets you make the choice between maximum time or maximum sound quality.

22-4 4-track, 4-channel \$1699.00
22-2 2-track, 2-channel \$1099.00

BR-20T 1/4", 2-Track Recorder/Reproducer With Center-Track Time Code

- Ideally suited for 2-track mastering and audio-for-video applications
- Servo-controlled motors for accurate transport response, gentle tape handling while under SMPTE outboard control, gapless and seamless punch in/out for transparent editing, independent reel size selection for handling dissimilar reel sizes and separate record functions for the left and right channels
- Equipped with an in-line coincident center track time code head configuration, material recorded on the BR-20T can also be blade-edited because there are no additional compensating delay circuits or offsets

BR-20T \$2999.00



BR-20

BR-20 1/4" 2-Track Recorder/Reproducer

- Specially designed for use in radio broadcast production facilities
- +4dBm XLR balanced half-track, equipped with built-in rackmounts, has a highly-functional shuttle control by using a combination of Edit and FFWD/REW ("Quick Cue") that provides for smooth and accurate cue and review
- NAB/IEC equalization and 250/320 operating levels can be adjusted from the front panel via convenient switches while a self-contained speaker allows for monitoring of production material
- Independent left/right record function for monitoring on 1 track while recording voiceovers and overdubs in synchronization on the other track
- The use of dissimilar tape reels, including spot reels, is not a problem as a result of its independent left/right reel size select switches. Through the accessory I port, the BR-20 has fader start capability that can activate or stop the broadcast deck from the production console

BR-20 \$2399.00

MIXERS

TASCAM
TEAC Professional Division

M-06/M-06ST Compact Mixers

M-06

- 6 input channel stereo mixer
- Effects system includes an effect output and stereo returns
- Phono input on channels 5 and 6
- Mic inputs for each channel accept a wide signal range from microphone, instrument and audio components
- Access send/receive jacks on channels 5 and 6
- Hi and Low EQ on each channel
- 2 M-06s can be stacked to double inputs

M-06ST

- 6 stereo input channels (channels 1 and 2 have stereo phono inputs for direct connection of record players, while channels 3-6 have stereo line inputs)
- Mic inputs on each channel accept a wide range of signals from microphones, musical instruments and audio equipment
- Stereo Aux inputs with level control provide an extra stereo input
- Insert patch points on channels 5 and 6
- Cue send level controls on each channel
- Balance controls

The M-06 and M-06ST offer an excellent blend of simplicity, flexibility and affordability. The M-06 is a 6-in/2-out design, while the M-06ST features 6 stereo input channels feeding stereo outputs. When you need a convenient, high-performance small mixer for keyboard mixing, PA or recording applications, the M-06 is the ideal choice. For discos, commercial sound installations or other applications which require mixing and processing of a number of stereo sources—including instruments with stereo outputs—the M-06ST can make the job smooth and simple.

M-06 \$369.00
M-06ST \$499.00

M-106 6-In/4 PGM Out Mixer

- $\pm 15V$ bipolar power supply provides extra headroom and optimum circuit stability
- All 6 input channels feature microphone and line input connectors
- 4 phono inputs for use in A/V production or club applications
- Trim and pad controls on each input provide broad level matching from -70 to +4dB
- 2-band shelving EQ on each channel allow up to 15dB boost or cut at 10kHz and 100Hz
- 2 auxiliary mix systems (Aux and Eff) with effect return
- Monitor select switches provide convenient monitor access to all buses
- Phones output delivers 1.5W of power per channel, and can also be used to directly drive a small pair of speakers

In spite of its compact exterior, the M-106 is a remarkably flexible mixing system. In fact, it functions like 5 mixers in 1 with its main mix, monitor mix, auxiliary mix, effects mix and return mix. This approach to mixer design allows the M-106 to adapt easily to an extremely wide range of applications, giving the operator maximum flexibility at the same time. It offers comprehensive input and output facilities—including direct phono inputs, a convenient, practical layout, and solid construction that means stubborn reliability even under demanding on-the-road conditions.

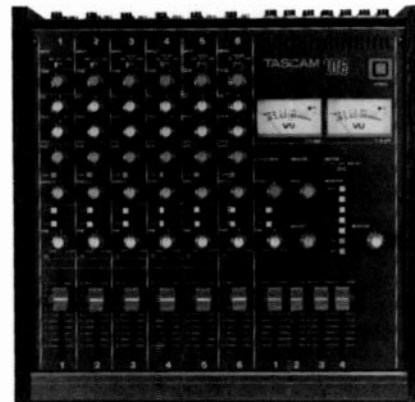
M-106 \$699.00

MM-1 Midi-Equipped Keyboard Mixer

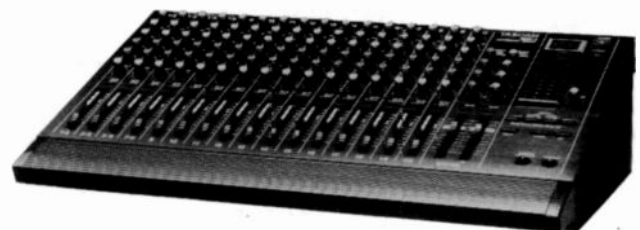
- 4 stereo input channels
- 16 mono input channels
- 4 effect sends
- 4 stereo effect returns
- Mic level inputs on all channels
- MIDI controlled muting



M-06ST



M-106



MM-1

- Direct outputs for optimum flexibility in multichannel recording and patching options
- 4 effect sends allow individual contouring of different inputs
- Can be used rackmounted or tabletop

For live applications, MIDI muting is controllable through switches on a master keyboard or a footswitch.

The MM-1 also features 3-segment LED input meters for easy trim setting and tracking of input assignments. Mic level inputs on all channels provide easy line level matching for quieter operation and maximum input flexibility. -10dB RCA output jacks allow connection of the MM-1 as the MIDI expander to recording products such as the TASCAM 238 and 388 without special adaptors or level-matching problems.

Solo function lets you focus on 1 instrument to adjust its sound without changing or muting other channels individually.

MM-1 \$1099.00

112 4-Track 2-Channel Stereo Cassette Deck

- High stability transport using diecast and precision machined parts
- Dolby HX Pro for enhanced high frequencies
- Dolby B and C noise reduction
- Cue and review functions to monitor during fast wind modes
- High slew-rate IC electronics

112 2-head, high stability, w/rack ears \$679.00
 112B Same as 112 w/balanced XLR inputs and outputs . . 749.00
 112R 3-head, auto reverse, w/rack ears 859.00



112

122 MK II Studio Cassette Deck

- Three head (Cobalt Amorphous)
- Cue and review function
- Dolby HX Pro
- Dolby B, C
- Zero return, stop/play and cue point stop/rewind loop functions
- Standard speed 1 7/8 ips
- Tape run time counter and index mode
- XLR + 4 RCA -10 connectors
- Weight: 19 lbs.

122 MK II \$1099.00



122 MK II

133B Stereo Plus Cue Cassette Recorder/Reproducer with Auto Present Features

Recorder Features:

- + 4 balanced XLR/-10 unbalanced inputs and outputs
- Two speeds: 1 7/8-3 3/4 ips
- Dolby NR System
- Simul-sync recording or multitrack recording

Auto Present Features:

- Cue pulse generates a 25Hz tone on the cue channel (does not affect the projector operations but triggers the auto present)
- Automatic shutoff or rewind at cue tone

133B \$1349.00



133B

102/103 Stereo Mastering Cassette Decks

- Dolby HX Pro
- Auto tape type automatically adjusts recording electronics to any standard tape formulation
- A Rec/Mute auto spacer puts a four second space between songs
- Electronic tape counter with real time display
- Auto monitor function switches for flawless matching of record levels to tape levels, and Dolby B and C noise reduction systems
- Both units include bi-polar power supply and direct-coupled circuitry
- Proprietary Permalloy record/playback heads

102 2-head design \$299.00
 103 3-head design 449.00

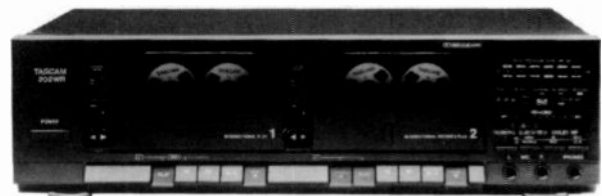


102

202WR Double Stereo Cassette Deck

- Records demo tapes compatible with any standard Hi-Fi cassette player
- Sync dubbing capability allows both decks to start simultaneously at the touch of a record button
- A unique sync reverse capability allows and adjusts for varying tape lengths
- Capable of both normal and high speed dubbing
- A rotary head reverse system provides accurate azimuth correction for continuous bi-directional playback and recording

202WR \$329.00



202WR

COMPACT DISC PLAYERS/ DIGITAL RECORDER

TASCAM

TEAC Professional Division

CD-301 Compact Disc Player

- Balanced XLR and unbalanced RCA audio outputs
- Hard-wired 10-key remote control • 20-program memory • Single-play function • Link function • Center-drawer design • Standard 19" rackmountable • Weight: 11 1/8 lbs. • Dimensions: 4 3/8" H x 19" W x 10 1/16" D
- Ideal for use in studio, radio and disco environments

CD-301 \$549.00



CD-301 CD Player

CD-401 Compact Disc Player

- 18-bit 4-times oversampling in conjunction with our Zero Distortion (ZD) circuitry to provide excellent sonic characteristics • Employs a digital output section with on/off switching • 10-key direct entry of track and index numbers provides instant easy access to tracks • Optional remote can be operated wired or wireless • XLR balanced outputs • Rackmount chassis • Accessory jack for remote start

CD-401 \$799.00

RC-401 Remote control unit 75.00



CD-401 CD Player and RC-401 Remote

CD-701 Compact Disc Player/ RC-701 Multi-Player Control Unit

- Integrates instant start-up, automatic cueing and error-free tracking to provide production and broadcast professionals with ultimate precision performance and no dead air • CD-701 CD Player/RC-701 Control Unit combination features an auto cue function, event play, link play, and an optional BU-1 RAM buffer which enables immediate play performance • By doing away with rise time, the RAM buffer enables continuous looping between any 2 points • The CD-701 and the RC-701 were specifically designed to complement each other and to form the basis of an exceptionally powerful professional CD reproduction system aimed at broadcast and audio production applications • In order to eliminate tracking errors common to other CD players, the CD-701 features a unique clamping system which uses a rigid free disc clamping device to ensure precise disc rotation and faultless tracking • ZD circuits provide full CD sound while guaranteeing minimal noise occurrence • The CD-701 features oversampling digital filters, 16-bit D/A converters and an internally switchable monitor-mode line output • 98dB S/N • Frequency response of 20Hz-20kHz ± 0.5dB • Total harmonic distortion is 0.008% • The player unit measures 8 7/16" x 4 3/4" x 19 3/8" and weighs 20.9 lbs. • RC-701 Control Unit controls up to 4 CD player units • The control unit features ± 6% pitch control with frame-accurate search using an easy-to-handle dial or numeric keys • The RC-701 is 4-event programmable, measures 14 9/16" x 4 3/8" x 9 7/8" and weighs 11 1/8 lbs.

CD-701 Compact disc player \$2199.00

RC-7 Remote control unit 199.00

RC-701 Multi-player control unit 1249.00

BU-1 Ram buffer 399.00

PW-5CD Connection cable 100.00



CD-701 CD Player and
RC-701 Multi-Player Control Unit



DA-30 Digital Audio Recorder

DA-30 Digital Audio Recorder

- Analog to digital converters use Delta-Sigma modulation and 64-times oversampling • S/N ratio in excess of 94dB • AES/EBU digital I/O • Full-function programmable remote control • Start ID positioning • Headroom margin display • +4dBm balanced inputs and outputs plus -10dBV unbalanced inputs and outputs • Ability to interact with other professional digital equipment via the AES/EBU interface • 48kHz, 44.1kHz and 32kHz sampling frequencies

DA-30 \$1499.00

PVC-Model 6 Programmable Video Controller

The Model 6 is microprocessor-based and can be programmed for up to 100 memory locations with 7-day operation per location. It can be programmed for single or dual channel operation. VCR or video sources can be routed to either or both outputs. The Model 6 is capable of switching mono or stereo audio and is compatible with stereo TV or for use in bilingual applications that use separate audio tracks for different languages. The Model 6 has a Video Sensing Circuit (VSC) that constantly monitors the signal from the source. Whenever the VSC detects a loss of signal the character generator is switched to the appropriate channel. The Model 6 allows for single or dual CG inputs with stereo audio for each input.

The Model 6 incorporates a 2-line LCD display for information. When programming, the operator is lead through the steps by a series of on-screen prompts. Programming is so easy that virtually anyone can enter commands with little or no instruction. Adding, deleting or editing a program is simple and fast. If a mistake is made, correction can be done instantly.

If control of switching or changing of program needs to be done remotely, an RS-232 interface is standard. A complete PC remote program is available for the PVC-Model 6.

You have the option of restricting access to your PVC-Model 6. Access is an operator programmable function.

PVC-Model 6 \$5150.00

Expander

The Expander is designed as a companion unit for and operates in conjunction with the Model 6, for use in applications that require additional machine control or additional audio and video sources.

The Expander allows for the control of up to 16 VCRs and with the included software upgrade increases the events per day from 100 to 500 with 7 days of programming for each event. Audio and video can be routed to A, B or A and B outputs, both of which have defaults back to character generators. Signals can also be routed to the Preview output; there is no automatic default assigned to this output.

Remote interface software is available for remote RS-232 control of all functions, both machine control and routing of signal. The remote interface software operates in an MS-DOS environment and requires VGA level graphics to operate the simulator portion of the program.

Expander \$4000.00

Auto-Play Video Controller

• Stereo audio • Programmable in minutes or seconds • Battery back-up of program and clocks • On-screen programming with prompts • Printer port • RS-232 interface • Programmable GPI • 7-day programming

The Auto-Play is designed to automate the control of VCRs for playback in applications where no more than 2 VCRs and 1 additional default source is used. The same technology that is incorporated in the Model 6 is used in this fully automated controller.

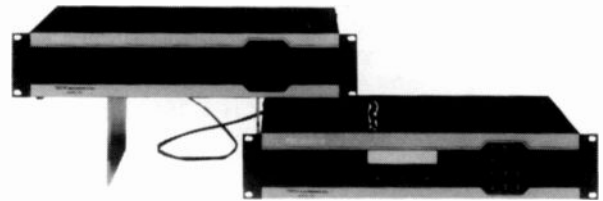
The internal clock is used to control all VCR functions, allowing for programming of up to 700 events per week. All switching of video and audio signals is automatic without additional commands from the user. The video signal is switched in the vertical interval with audio following video.

A special Video Sensing Circuit (VSC) is used to monitor the source signal from the VCR and if sync is not present or at improper levels the VSC automatically switches back to the default input. The Auto-Play will control most industrial grade VCR functions, including record.

Auto-Play \$1495.00

Automator Video Controller

The Automator is a general purpose controller which has applications in the video, security and exhibit fields. Although primarily designed for VCR control, the unit can control other devices with optional accessories. In addition to programmed commands based on time, the Automator



PVC-Model 6



Auto-Play



Automator

tor accepts inputs in the form of contact closures or DTMF tones. The Automator is a console device with an LCD display and 4 prompt keys. All connections are made in the rear of the unit. Programming and manual control is accomplished through the prompt keys, an optional keypad or computer interface.

Automator \$495.00

Auto-Spot Video Controller

The Auto-Spot is a single channel, single VCR controller with internal switcher designed for commercial insertion. VCR control is activated by a signal from the assigned network. The VCR is synced to the network and the internal switcher switches in the vertical interval referenced to the network.

The switcher also monitors the VCR signal and if the vertical sync level falls below 1/2 volt the Auto-Spot will automatically default back to the network. Logging and verification are stored in internal RAM. Memory has internal battery backup, thus reducing power outage problems. Logging and verification can be routed to the printer port or to the RS-232 environment.

The front mounted LCD readout displays the operating status, which is constantly updated by the microprocessor. Pre-roll time can be selected by the operator, thus allowing the Auto-Spot to easily interface with most commercially available VCRs and networks. Equipment and software are compatible with Ad Systems products.

Auto-Spot TBA *

VDS Video Detector Switcher

The VDS is a 2-input, 1-output video switcher with built-in video detection. The video detection circuit monitors the primary video signal and automatically switches it to the output whenever proper sync level is present. After switching, the VDS continues to monitor the primary input, and whenever the sync level falls below the preset level the VDS automatically switches back to the default input. Front mounted LED indicates when default is switched to output.

VDS \$195.00

* To Be Announced

VIDEO DUPLICATION/ REMOTE CONTROL/SELECTOR/ DISTRIBUTOR/SWITCHER

TECH ELECTRONICS, INC.

DubMaster™ Remote Control

The DubMaster is an easy and cost-effective way to control VCRs in a video duplication system. The DubMaster can control a master playback deck and as many recorders as desired. Any remote controllable VCR can be used with the DubMaster.

The DubMaster has a built-in serial port for use with JVC and Panasonic models with a serial control option. In this case, the control cables and rack boxes are not needed.

The timer feature eliminates the need to manually stop the VCRs when the recording is completed. By setting the desired recording time, you may leave the system unattended and the DubMaster will automatically stop or rewind the VCRs at the end of the recording time. The DubMaster can also be programmed to power down the system.

To prevent accidental or unauthorized use of the control buttons during recording, a lockout feature may be used to disable all controls. The master power switch also has a safety feature to prevent accidentally turning power off during a recording.

Installation is quick and easy. The master control unit connects to the first rack box with a single cable. Additional rack boxes are then daisy-chained with a single cable. Control cables connect the VCRs to the rack box. All cables are modular telephone-type which plug in—no tools needed.

Serial port connection is even easier. A single audio cable connects the DubMaster to the first recorder, then looped through all other recorders.

DubMaster \$1195.00
Rack Box RB-12 Controls 12 VCRs 495.00
Control Cable 1 for each VCR—including source 75.00

SRS-1 Source and Recorder Selector

The SRS-1 is a 19" rackmountable selector that provides the user with the ability to select 1 of 4 possible source machines and route the control signal to any or all of the 6 groups of copy decks.

The SRS-1 control panel is divided into 2 distinct areas. The first group of switches controls the selection of the source machine. The LEDs on switches indicate which source machine is being controlled and signal is being routed to the recorders. Selection of a different source machine is as easy as pressing a button. The DubMaster then controls the various functions (rewind, stop, play, fast forward and pause).

The second group of buttons controls a recorder or bank of recorders that are to be enabled. The operator can choose any 1 or up to all 6 of the banks of recorders to be activated. This then allows the operator control of the various banks of recorders through the "recorders" control section on the DubMaster.

With the SRS-1 the operator can intermix serial, infrared or parallel control machines. Output connections are provided for 6 serial ports and 6 parallel ports; both groups are switched by the common buttons on the front of the SRS-1. Loophrough is also provided on the signal output to allow for additional recorder selection.

SRS-1 \$495.00

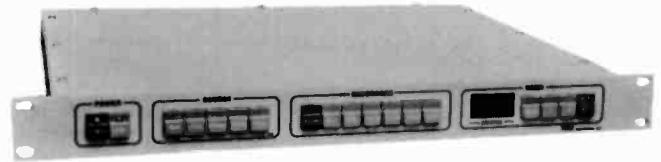
DVA-12 Audio/Video Distributor

The DVA-12 is designed for use in a duplication facility for the distribution of stereo audio and video signal.

The DVA-12 is designed in a self-contained 19" rackmount enclosure. Standard connections for video and audio distribution makes the DVA-12 quick and easy to install. Audio connectors are standard RCA phono while the video connections are standard BNC type. The DVA-12 can be used to terminate or bridge video or audio (mono or stereo). Use of multiple DVA-12 can provide video and audio signal for large duplication facilities as your needs increase.

Video level is preset at unity gain and is adjustable with 1V p-p input from .7V to 2V. The audio is preset for Zero VU in/Zero VU out/unity and adjustable to a +6dB increase.

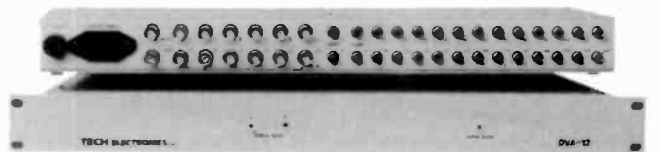
DVA-12 \$699.00



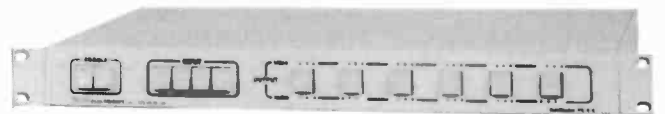
DubMaster



SRS-1



DVA-12



RS-4X6

RS-4X6 Routing Switcher

The RS-4X6 is a routing switcher for audio and video signal. Designed to allow the operator a full matrix of video and audio signal routing. 1 of up to 4 video and audio signals can be routed in combination or separately to up to 6 outputs. This routing switcher is extremely easy to operate and all routes are clearly indicated by LEDs.

Specifications

Audio Switcher

Distortion: .03%
S/N: -75dB
Crosstalk: > -65dB
Bandwidth: 20Hz-40kHz
Input Imp.: 10K min.
Output Imp.: 200 ohms

Video Switcher

Diff. Gain: < 1%
Diff. Phase: < .5°
Crosstalk: > -50dB
S/N: -70dB
Bandwidth: 10Hz-10MHz
Input Imp.: > 100K loophrough
Output Imp.: 75 ohms
Power: 120VAC at 15W

RS-4X6 \$1495.00

Tech Commander RGB-200 Computer Display Routing System

- For use in instructor-led computer classrooms
 - Image transfer; instructor-to-student, student-to-instructor, student-to-student
 - Output to large screen from any computer in the class
 - Instructors using the system can instantly send computer generated text, graphics and sound directly to student workstations for demonstration
 - Provides instructors with ability to monitor student work in progress
 - More than 100MHz bandwidth per RGB video component; workstation compatible
 - RS-232 interface for custom software applications
 - Instructor call with audible tone
 - Can be configured to allow students to request assistance
 - Expandable up to 64 student computers
 - Instructor override of student keyboard, mouse and/or digitizer
 - Modified bus configuration
 - 4-line LCD display shows status, help menus in English
 - All-digital control
 - Fully integrated 2-way intercom
 - Real-time transmission of full-motion video or animated graphics at full resolution/color with audio follow
 - Student screen blanking and keyboard lockout
 - No LAN required
 - Works with any software or application
 - No software drivers to install; no RAM or disk space needed
- Tech Commander RGB-200 **POR***



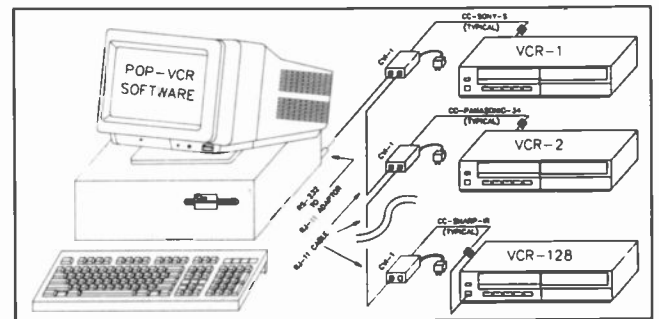
Tech Commander RGB-200

CVI Computer-VCR Interface

The CVI interface module is designed to allow computer remote control of any industrial grade VCR that has external control capabilities. Communications (ASCII) from the computer's RS-232 port are translated by the CVI and with the use of standard TECH Electronic CC control cables functions are remotely controlled by the computer keyboard.

Each CVI is addressable with up to 128 different addresses assignable by the end user. Multiple machines may be assigned the same address if the user needs the machines to work in groups.

CVI \$125.00



CVI

ProFlex-S1 Video Projector Remote Control

The ProFlex-S1 is designed to enhance versatility of Sony® video projectors by providing multiple input source selection as well as full control of all projector functions. The ProFlex-S1 can easily be integrated with wired and wireless remote control systems.

The ProFlex-S1 directly interfaces to most existing Sony video projectors, allowing remote control of picture, power, blue mode and volume as well as selecting input source.

Input selection includes 4 RGBS and 4 composite video. 2 of the composite selections can be switched to either composite video or S-VHS. Projector outputs are standard RGBS and 14-pin (standard Sony projector cable). The projector control 'memory' will retain the last setting even if power to the system is interrupted.

Additional flexibility is provided through remote input, allowing the ProFlex-S1 to be controlled remotely by most remote control systems. An audio connector allows for control of an audio switch and will provide audio-follow-video control.

Directly compatible with the following models: VPH-600, 722, 1020, 1030, 1031, 1040, 1041, 1042, 2020 and 2030 video projectors. S-VHS compatible with 1041Q, 1041QM, 1042Q and 1042QM.

Control cables are available to replace CCQ.

ProFlex-S1 \$1495.00

*Price On Request



ProFlex-S1

TURNTABLES/CD PLAYERS/ CASSETTE DECKS

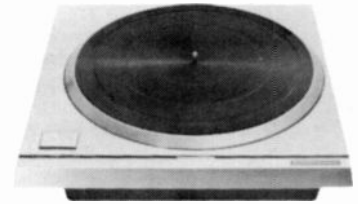
Technics

SP-10MK2A Turntable

- Quartz control provides virtually perfect speed accuracy (no more than $\pm 0.002\%$ deviation) • Direct drive system uses no belts, idlers or other speed reduction mechanisms, resulting in very low rumble, very low wow and flutter • Elaborate servo system provides enormous torque: start-up time is 0.25 second (25° rotation) from standstill to $33\frac{1}{3}$ rpm • Electromechanical braking system brings platter to dead stop in 0.3 second from $33\frac{1}{3}$ rpm • Heavy (6.4 lb.) platter, rubber-damped both on top and underside to resist vibration • High moment of inertia (130 lb.-in.²) plus enormous torque result in high immunity to load-caused fluctuation — 0% speed change with up to 4.3 lb.-in. load drag • Separately-housed power supply • Quartz-controlled stroboscope for 3 speeds: $33\frac{1}{3}$, 45 and 78.26 rpm • Includes remote control for start/stop

SP-10MK2A\$1399.95
SH-10B7 Base for SP-10MK2A\$499.95

SP-10MK2A



SL-1200MK2 Turntable

- Quartz direct drive disco type manual turntable with tonearm • $33\frac{1}{3}$ and 45 rpm speeds • All quartz-locked variable slide type pitch control ($\pm 8\%$) • Quick start-up and quick braking • Wow and flutter 0.025% WRMS • Pop-up stylus illuminator • Strobe illuminator • Gimbal-suspension tonearm with variable height adjustment • Brushless DC motor • Aluminum diecast cabinet • Anti-resonant visco-elastic main base

SL-1200MK2\$549.95



SL-1200MK2

SL-P1200 Compact Disc Player

- Twin class AA circuitry • Dual high-speed D/A converter • High resolution digital filter • Separate power supply for digital and analog • Serial transfer of digital data • Select audio circuit parts • Tri-layer base construction • Double insulation helps prevent structural vibrations • FF1 fine focus single beam system • 2-speed search dial cueing • Precision pitch control • 20-selection random access programming • Multi-mode repeat • Auto space for convenient tape editing • Music matrix • Elapsed time indication

SL-P1200\$1499.95



SL-P1200

SL-P1300 Professional Cueing Compact Disc Player

- 8X (352.8kHz) oversampling digital filter • 4 digital-to-analog converters (2 per channel) • 18-bit high resolution signal processing • A-B repeat • $\pm 8\%$ pitch control • Optical and electrical digital outputs • Rocker switch for precise mixing control • Can be cued via direct entry of CD time code • Balanced outputs • Wired remote control terminal on back panel for connection of momentary or sustained contact remote triggers • 10-key pad allows direct access by time code or track • Operator can preview in-point and then recall it • Auto-Cue automatically positions laser pickup at the first sound of a track • Analog and digital circuits have separate power supplies, including transformers • High resolution laser pickup • Skip-keys • 2-speed audible search buttons • Track repeat • Disc repeat • Program repeat • Head-
phone output with level control • Line output via unbalanced (phono) pin connectors or balanced (XLR) connectors • Balanced output: +8dBm • Sub-code output • 6.7" H x 16.9" W x 14.8" D • Infrared wireless remote control • Full-function FL display includes $\frac{1}{10}$ sec. time indication • Cue search

SL-P1300\$1799.95



RS-BR465

SV-DA 10 Digital Audio Tape Deck

- MASH 1-bit A/D and D/A converters • Shuttle search dial • High speed search at up to 400 times normal tape speed • Digital fade-in and fade-out • Post recording end marker, start ID, program number and skip ID • Rewriteable absolute time code and program numbers • 37-key wireless remote control • Serial copy management system • Optical digital input

SV-DA10\$999.95

RS-TR555 Double Quick-Reverse Cassette Deck

- Dolby HX Pro headroom extension • 3 noise reduction systems — dbx, Dolby B and C • 2-motor drive • Dual-range FL peak level meters • Simultaneous parallel recording • 3-hour series recording • 24-hour series playback • High-speed editing • Synchro start/stop and auto rec./mute • Full remote control capability

RS-TR555\$439.95

RS-BR465 Quick Auto-Reverse Cassette Deck

- Dolby HX Pro headroom extension • Dolby B and C noise reduction systems • 2-motor drive • Bias fine adjustment • CD synchro editing • Peak-hold FL meters • Electronic counter with memory stop • Auto-
matic rec./mute • Full remote control capability

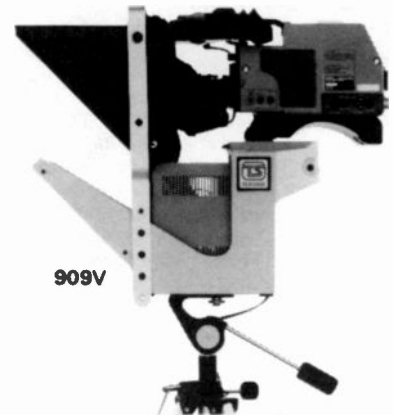
RS-BR465\$229.95



909 Prompter System

- Uses a variety of material for on-camera prompts • State-of-the-art controls • Compact, rugged design • Aluminum casting • Uses script paper in any format • Lets your talent see what the camera sees • Pans and tilts as smoothly as a studio camera • Provides individually-buffered NTSC video outputs • Switches between normal and reverse video text displays • Adjustable video enhancer • Suited to EFP and ENG

The 909 is a prompter designed specifically to work with your portable video camera. Other prompting systems, designed for heavy studio cameras, have front-mounted imaging monitors that must be counter-weighted. The result is a clumsy system that doesn't lend itself to smooth camera work and is time-consuming to set up. The 909 eliminates these problems with a totally different design.



909V

909T Text Transport

The 909T provides for 2 NTSC inputs: 1 for the text camera and 1 for your portable camera, with instant switching between cameras. Script feed stops when the talent or operator switches to the auxiliary video feed. When the script is recalled, it continues where it left off, at the exact speed it was moving before the switch.

The 909T uses a pulse frequency modulation circuit to give you precise 1-touch control of script speed forward and backward. A bargraph display indicates scroll-ready status, direction of movement and speed. Once your script assistant has established the best speed for the talent, that precise speed can be used every time. Scrolling speed and video-input switching can also be controlled by means of a plug-in remote controller.



909C

909T Text Transport

- 1-909T Text Transport
 - 1-Handheld remote control
 - 1-3' BNC cable \$2295.00
- Price does not include the CCTV camera. Use a Panasonic WV-1410 with a 16mm manual iris lens (or equivalent). For 220V (50Hz) or 12VDC operation add \$500.00.

909V Video Prompter

The 909V camera viewing unit mounts on any standard-mount field or studio tripod and accepts any portable camera. It holds the prompting monitor below the camera, so that both are balanced over the tripod head. Tekskil uses folded optics—a surface-reflectance mirror and a 70/30 beamsplitter—to bring the prompts up in front of the lens.

909V Video Prompter

- 1-909V Video Prompter
 - 1-50' BNC cable \$1795.00
- Price does not include the 9" monitor. Use a Panasonic TR-930 monitor or equivalent. Studio configuration may require a 45° lens adaptor for the focus cable.



909T

909C Computer Prompter

The 909C lets you compose, edit and play back scripts anywhere in a case small enough to fit under an airplane seat. It has a 128K memory, a display, a keyboard and its own microprocessing system built in. The 909C comes with its own 12V power source and takes a live feed from the camera or any output from the switcher and lets you see it on the prompt monitor. The talent can also use it via remote control.

909C Computer Prompter

- 1-909C Computer Prompter
 - 1-Carrying case
 - 1-IBM PC compatible keyboard
 - 1-128K high capacity text file cartridge
 - 2-Handheld remote controls \$6450.00
- Price does not include the Tekskil Field Keyboard (\$173.00) or the Tekskil 12VDC power supply (\$339.00). Add \$276.00 for each additional 128K high capacity cartridge and \$139.00 for each additional 32K personal text file cartridge.

Speak Easy Speech Prompter

- Allows the speaker to maintain eye contact and yet have the comfort of having a complete script available at all times—which is totally invisible to the audience • Fully integrated unit • Heads up display (HUD) technology • Rugged, lightweight construction (15 lbs. total weight) • Composite video input (looping with 75 ohm termination) • State-of-the-art projection technology • Automatic NTSC/PAL sensing and selection • Operates on 110/220VAC and 12VDC. \$4795.00

ValuPrompt Computer Prompter

- Specifically designed to meet the needs and budget of smaller in-house video production facilities • Sister product to the 909C computer prompter • Fully dedicated prompting microprocessor with built-in firmware • No software to buy and no computer experience required to operate • Edit, revise and prompt at the touch of a button • No-risk, solid-state storage cartridges for your scripts . . . \$2395.00

TEST EQUIPMENT

Tektronix®
The best and the brightest.

1710B Waveform Monitor

- Burst phase indicator • Low power consumption • Dual filter display
- Half rack width • Bright CRT display • Internal graticule • DC operation
- Available in NTSC and PAL standards

The 1710B Waveform Monitor provides all of the commonly used display modes. In addition, the 1710B adds relative burst phase indication and dual filter display. All of this in a cost effective package for the user who wants high quality at a low price. These monitors are mechanically compatible and retrofit into an existing system that uses half rack width, 5 1/4" waveform monitors.

Because of its extreme light weight, low power consumption, and DC operation (field installable kit) the 1710B is ideal for field production, mobile operations, and any other application where space, power consumption and/or portability are prime considerations.

The relative burst phase between inputs is displayed on the LED bar graph. The center green LEDs indicate the two signals are phase matched. The yellow ones warn the phase is slipping out of an acceptable range. Finally, the red LEDs flag an unacceptable amount of phasing error. This feature allows one instrument to do the complete job of timing and phasing in a basic television system.

The dual filter display allows the user to view both the complete video signal and the luminance information at the same time using just one instrument. This eliminates the need for switching back and forth between filters and makes the instrument easier to operate. Ideal for camera setup.

1710B NTSC	\$1745.00
1711B PAL	1745.00
Opt. 74 Substitute P4 white phosphor on CRT	100.00

1720/1725 Vectorscopes

1730/1735 Waveform Monitors

- Complete line select • Simultaneous Channel A & B display • Dual filter display • 1-button front panel recall • Differential phase and gain measurement • Stereo audio phase measurement • RGB/YRGB display capability • Vector center dot clamping • Parallax-free internal graticules • Portable DC power and battery available • Remote control capability

These versatile instruments are lightweight, half-rack width, and have bright CRTs for comprehensive video signal monitoring. Both instruments exceed normal monitoring capabilities. Their unique features make them even more powerful when operated in tandem. Each monitor has its own advanced feature set and the proven 1700 Series family performance to provide more monitor for the money.

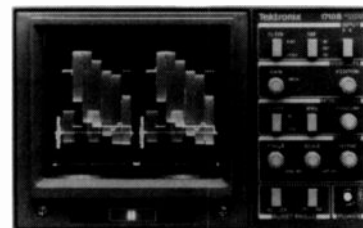
In addition to being ideal for camera control units and video tape recorders, these instruments can be equipped with cabinet and field upgrades allowing them to operate from a 12VDC source for portable operation. They can be used with the Tektronix BP1 or other 12V supply. Coupling this DC operation with their light weight (about 9 lbs., including cabinet), low power consumption, and compact size make these instruments well suited for use on a portable production cart.

Internal front panel presets, RGB/YRGB enable, along with front panel recall/setup can be accessed through the Waveform Monitor Remote Connector.

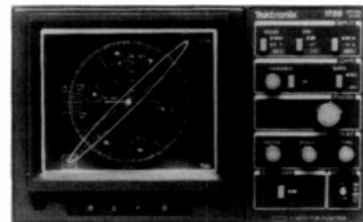
1720 Vectorscope (NTSC)	\$2250.00
1725 Vectorscope (NTSC/PAL)	3200.00
1730 Waveform monitor (NTSC)	2250.00
1735 Waveform monitor (NTSC/PAL)	2450.00
Opt. 74 Substitute P4 white phosphor on CRT	100.00

1730 D Digital Waveform Monitor

- 2 analog composite inputs • 2 serial digital composite inputs • 1 parallel digital composite input • Passive loopthrough for serial inputs
- Precision analog display of digital input • Full time DAC output
- Serial digital bit stream EYE Pattern display • Error detection and handling display mode (EDH) • Displays D-2 servo waveforms



1710B



1720

The 1730 D functions as a standard waveform monitor, with direct digital inputs for serial and parallel composite signals. Additionally it has 2 analog inputs for composite video signals and input for an external reference.

The 1730 D also offers an analog output derived from a precision 10-bit D to A converter (DAC). This full time DAC output operates for the serial or parallel digital inputs and can be used as an alternative to other digital video equipment's DAC circuits.

The 1730 D offers the additional benefit of digital video testing via serial composite digital inputs. These wideband, high return loss loopthroughs allow the instrument to "tap" and monitor a 143M byte/sec. (177M byte/sec. PAL) Serial Composite Digital link. The 1730 D also offers an EYE Pattern display of the serial input. This provides an indication of the analog performance of the digital channel. The EYE display is formed by equivalent time sampling. A wideband sample-and-hold takes "snap shots" of the data stream's voltage at particular instants in time and displays these values against a calibrated time axis. This allows observation of the amplitude, rise time and jitter of the serial bit stream. InterSymbol Interference (ISI) caused by bandwidth loss and improper cable termination is clearly seen, a useful tool when installing and troubleshooting serial systems.

The 1730 D includes a unique method for checking serial path integrity. This mode provides an error detection scheme when used with the TSG-170D digital video generator. The Error Detection and Handling (EDH) operation is based on the instrument calculating a check-word for the received digital video, then comparing this with the check-word sent from the generator. Further, in-service error rate monitoring is possible when used with picture sources that comply with the proposed EDH standard.

Parallel digital or serial digital inputs can be paraded side by side with an analog input on the CRT's display.

The 1730 D, when used with a 1720 vectorscope, offers an uncompromising solution to video system testing and monitoring.

1730 D NTSC	\$3200.00
1731 D PAL	3200.00
Opt. 74 Substitute P4 white phosphor on CRT	100.00

1700F07 Utility Drawer

- Provides a tidy solution for accessory storage needs • Over 1/3 of a cubic foot of storage space and fits in an unused side of the 1700F05 side-by-side rack adaptor • Can keep tools, cables, patch cords, terminators or office supplies handy, but out of the way • For installation in a remote van, a thumbscrew holds the drawer securely shut, preventing any untimely accidental openings

1700F07	\$150.00
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1740 Series

Waveform/Vector Monitors

- 2 instruments in 1 • Optional DC power capability
- Bright CRT display • R-Y (V-axis) mode • VITS monitoring
- RGB/YRGB display capability • Remote control capability
- Available in NTSC, PAL and PAL-M

Similar to 528A and 1420 Series products, the 1740 Series provides all the basic waveform monitoring and vectorscope functions, but in a single, compact package. In addition, the 1740 Series adds DC power operation (optionally), single line vertical interval display which is internally preset, an R-Y sweep mode for differential phase measurements, remote control of waveform vector mode for differential phase measurements, remote control of waveform/vector mode and most of the front panel sweep and vertical amplifier response functions.

The 1740's half-rack width package allows easy installation where space and power requirements are important considerations. The 1740 is mechanically compatible with 528A, 602, 1420 and 1750 Series instruments.

Typical applications include video signal monitoring in VTR bridges, camera control units, production switcher consoles, and in mobile vans and field productions.

The bright CRT display permits use of the 1740 Series in high ambient light conditions, such as those encountered in field production applications. Brightness remains high in the 1 μ s and 0.5 μ s magnified sweep speeds, thus enhancing the 1740's use in system phasing applications. The internal waveform graticule and the external vector graticule are independently illuminated.

These instruments are configured for rackmounting and are shipped without cases or covers. Order appropriate options or optional accessories to configure for bench or portable use.

1740 NTSC	.....	\$3970.00
1741 PAL	.....	3970.00
1742 PAL-M	.....	4370.00
Opt. 05 Internal waveform graticule, external vector graticule	.....	60.00
Opt. 07 Adds DC power operation capability, must be installed during manufacture.	.....	200.00
Opt. 16 D-2 90/100Hz sweep	.....	NC
Opt. 74 P4 white CRT phosphor	.....	100.00

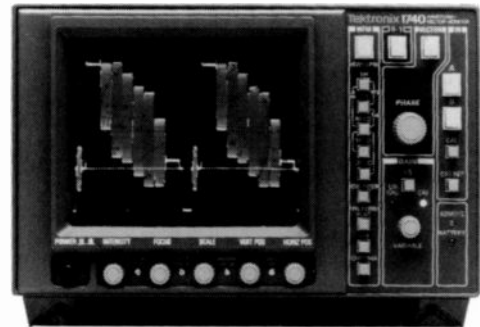
1750 Series

Waveform/Vector Monitors

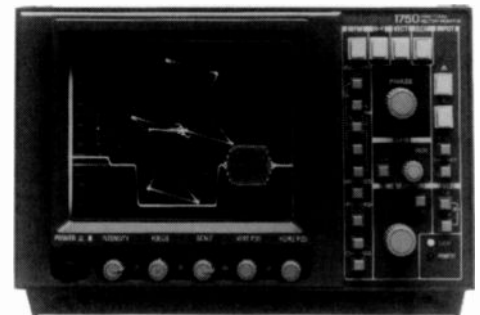
- 2 instruments in 1 • SCH phase and color framing • R-Y (V-axis) mode • RGB/YRGB mode • Remote control capability

The 1750 Series offers comprehensive monitoring and measurement of television signals, including SCH phase and color framing, in one compact unit. While similar in appearance to the 1740 instruments, the 1750 has enhanced performance in each of its operating modes.

The unique SCH phase display presents horizontal sync timing relative to reference subcarrier (burst) for verification of signal format and color framing. This mode enables easy



1740



1750

analysis and monitoring of these important characteristics of the television signal, a task which previously required complex techniques, highly skilled operators and/or additional instrumentation. The 1750's SCH phase and color frame displays are derived from the standard composite signals. No extra pulses or added signal details are required.

The 1750's SCH capability makes it particularly valuable in production and editing environments where maintenance of SCH phase and color frame are critical considerations. Applications include VTR bridges, camera control units, switcher consoles, master control, mobile and field production units, and in maintenance operations supporting any of these areas.

The 1750's half-rack package allows easy installation in environments where space and power requirements are important considerations. The 1750 is mechanically compatible with 528A, 602, 1420 and 1740 Series instruments.

The waveform mode vertical response is controlled by selectable flat, chroma and luminance (IRE) filters. A back-porch slow clamp is controllable from the front panel. An internal jumper reprograms the clamp timing for sync tip operation.

1750 NTSC	.....	\$5900.00
1751 PAL	.....	5900.00
Opt. 74 P4 white CRT phosphor	.....	100.00

TEST EQUIPMENT

Tektronix
The best and the brightest.

TSG-100 Test Signal Generator

- Transmission test signal set (option 01) • 8-bit digital generation
- Conforms to RS-170A timing specifications • 1kHz audio tone • H or V rate scope trigger signal • DC power operation

The TSG-100 is an NTSC test signal generator ideally suited for the maintenance and alignment of video equipment in most television environments.

The 8-bit digital test signal generator ensures conformance to RS-170A timing specifications while providing good, long-term signal stability.

The test signal matrix consists of equal segments of NTC 7 composite, NTC 7 combination, color bars, sin x/x and 50% flat field. This matrix is intended for use with automated measurement sets such as the VM700 Video Measurement Set.

A front panel scope trigger output is provided for service applications. Horizontal or vertical repetition rate is front panel selectable.

The TSG-100 includes a 1kHz audio tone generator for continuity and level checks. Level of the tone is user adjustable over a 0 to +8dBu range. The level 0dBu is equivalent to 0dBm in a 600 ohm environment. Output is on a rear panel XLR connector.

TSG-100 \$1250.00



TSG-100



TSG-120

TSG-120 Test Signal Generator

- Tailored for service applications • Supports S-VHS, Hi8 and NTSC formats • Y/C, NTSC and S-connector outputs • 2 channels of audio tone with channel 1 identification • Blackburst output (option)

The TSG-120 is a Y/C, NTSC test signal generator tailored for the servicing of S-VHS, Hi8, NTSC and monochrome 525/60 video equipment. The 10-bit digital signal generation and internal architecture allow generation of signals with the accuracy and stability until now available only in higher cost generators.

With the TSG-120, you get all the signals you need to test levels, linearity, frequency response, phase response, clamp performance, chrominance noise, picture monitor alignment and more.

For servicing convenience, the TSG-120 provides the NTSC and Y/C outputs simultaneously, with the Y/C outputs available on BNC connectors and the standard 4-pin S-connector. 2 channels of 1kHz audio tone are provided on balanced XLR outputs. These phase locked tones are easily identified with the selectable ID pulse in channel 1.

TSG-120 \$1750.00



TSG-130

TSG-130 Multiformat Test Signal Generator

- Tailored for service applications • Supports Betacam®, MII, S-VHS, Hi8 and NTSC formats • Y, BY, RY or YC, NTSC and S-connector outputs • 2 channels of audio tone with channel 1 identification • Blackburst output (option)

The TSG-130 is a multiformat test signal generator tailored for the testing and servicing of Betacam, MII, S-VHS, Hi8, NTSC and monochrome 525/60 video equipment. The 10-bit digital signal generation and internal architecture allow generation of signals with the accuracy and stability until now available only in higher cost generators.

With the TSG-130, you get all the signals you need to test video levels, linearity, frequency response, phase response, clamp performance, chrominance noise, picture monitor alignment, inter-channel timing and more.

For convenience in servicing S-VHS VCRs, the TSG-130 provides the NTSC and Y/C outputs simultaneously, with the Y/C outputs available both from BNC connectors and the standard 4-pin S-connector. 2 channels of 1kHz audio tone are provided on balanced XLR outputs. These phase locked tones are easily identified with the selectable ID pulse in channel 1.

A dedicated blackburst output is available as an option. This output is recommended for the service bench where an external reference signal is required for equipment fault diagnosis and adjustment.

TSG-130 \$2500.00
Option 02 Adds a dedicated blackburst output 300.00



TSG-170A

TSG-170A Test Signal Generator

- Simple, effective test signal complement • RS-170A sync pulse generator with digital genlock • Separate timing controls for sync and test signals • Tape leader countdown

The accuracy and long term stability of the TSG-170A test signals are enhanced by its precision digital to analog converter. Each converter is automatically laser trimmed to 12-bit accuracy. Color bar blanking width is 10.6µs to facilitate verification of proper blanking throughout the system.

The TSG-170A sync generator's stable color standard and digital genlock make it ideal for either master generator or slave operation. All outputs are correctly SC-H phased, even if the TSG-170A is locked to an improperly SC-H phased reference input. The digital genlock calculates sync timing and subcarrier phase to properly identify color framing of the input reference signal. The TSG-170A automatically senses composite video or 3.58MHz subcarrier reference inputs and in the absence of a reference input signal automatically switches to its own internal reference.

TSG-170A \$4995.00
Option 1 Adds separate SMPTE bars output with 12-character ID, audio tone output and tape leader countdown 1000.00

TSG-170D Digital Composite Generator

- Digital and NTSC analog test signal outputs • Digital and analog audio tone outputs • RS-170A blackburst output for master SPG application • Genlock with output timing offset • 12-character identification • Tape leader countdown

The TSG-170D uses 10-bit digital test signal generation conforming to the Proposed American National Standard for digital encoding of composite video signals (System M/NTSC). The test signal digital output is a 10-bit parallel interface clocked at 4fsc.

Character ID and tape leader countdown functions are available on both the digital and analog test signal outputs.

The TSG-170D provides a stable RS-170A blackburst output for equipment synchronization. Correct SCH phase is maintained in both internal reference and genlock operation. The digital genlock maintains proper color framing irrespective of reference signal SCH phase. In the absence of an external reference, the TSG-170D automatically switches to its own internal reference.

Front panel controls are provided for phasing TSG-170D outputs relative to the genlock source. Non-volatile memory storage of up to 4 different timing offsets is provided for applications where the picture source output is delegated to different locations.

The parallel and serial audio tone generators produce 20 and 24-bit digital streams, respectively, each representing a sine wave reference signal. Frequency of the reference signal is 800Hz or 1kHz, user selectable. The parallel digital data output is a byte-wide serial interface clocked at 768kHz. The serial digital data is output in the AES/EBU serial format.

The analog tone output frequency will be the same as that selected for the digital tone outputs. Amplitude is adjustable over a 0 to +8dBu range.

Remote selection of internal/external reference, ID preset, genlock timing preset and test signal is provided.

TSG-170D\$5600.00

TSG-300 Component Television Generator

- 10-bit digital signal generation • Bowtie • Coring • Valid ramp • Shallow ramp • User configurable controls • Digital genlock

While the EBU and SMPTE are setting standards for component video, there is already a large base of installed component equipment using many different operating levels. The TSG-300 bridges this gap between formal and de-facto standards, providing signals in SMPTE/EBU standard formats as well as previously existing component formats. Signal formats supported by the TSG-300 are Y, B-Y, R-Y (Y,Pb,Pr; SMPTE/EBU), GBR, Betacam and MII. The TSG-300 also supports both 525/60 and 625/50 systems by either internal jumper selection or remote control.

TSG-300\$6500.00

TSG-370 Television Generator

- Simultaneous and independent component and composite test signal outputs • 10-bit signal generation in all channels • Test signals for routine maintenance and post production operations • High stability, correctly SCH phased internal sync generator • Blackburst (6 outputs), comp sync and comp blanking outputs • Full color genlock • Betacam®/NTSC and MII/NTSC versions

The TSG-370 is a test signal and sync generator designed for the operation and maintenance of facilities working in analog component and NTSC formats. The fully independent test signal generators provide continuous component and composite color bars as well as a stable, accurate reference black for post production operations. The test signal set is designed to satisfy routine equipment setup and maintenance requirements.

TSG-370\$4800.00



TSG-170D



TSG-300



TSG-422

TSG-422 Digital Component Generator

- Conforms to CCIR recommendation 601, SMPTE RP 125 and EBU Tech. 3246-E • 4:2:2 format • 8-bit signal generation • Digital test signal outputs • Separate Y, B-Y, R-Y clock outputs • 525/60 and 625/50 operation • NTSC or PAL blackburst outputs • Genlock to 525/60 or 625/50

The TSG-422 signal generator is 8-bit in all channels and is clocked at 13.5MHz for the luminance channel and 6.75MHz for the color difference channels. Color difference samples are co-sited with the odd numbered luminance samples.

The TSG-422 signal complement contains general purpose signals plus those tailored specifically to the 4:2:2 environment.

The ramp signal extends 5% below blanking and 5% above peak white to provide indication of clipping. The limit ramp provides signal information to test the maximum dynamic range of the system, levels 1 through 254, in an 8-bit system.

Shallow ramp, shallow ramp matrix and light blue shallow ramp are provided for measurement of quantization noise and the detection of rounding and truncation errors.

The co-siting signal provides a 1 sample wide, peak white pulse on each horizontal scan line. The luminance channel peak occurs on an odd sample and is coincident with the like pulses in the color difference channels. This signal is intended to provide an easy means of verifying correct luminance and color difference sample positioning in both the digital and analog domains.

The blanking marker's signal provides peak white words at the beginning and end of both digital and analog blanking. Analog blanking widths comply to CCIR and RS-170A recommendations. This signal is useful in determining that proper blanking width is maintained throughout the system.

The digital gray signal sets the luminance channel to word 127 and the color difference channel to word 128. This sets up a high/low sequence on each of the parallel interface lines, providing a high frequency signal for testing of the transmission medium.

The TSG-422 also provides facilities for time offsetting the clock and data information. This is useful in verifying receiver performance. In addition, the frequency of the 27MHz interface clock may be shifted by 200Hz in either direction. This provides a means for testing phase lock loops in clock regeneration circuits.

2 separate digital test signal outputs are provided.

Separate outputs of each clock signal are also provided. These outputs are useful in demultiplexing the digital test signal data for conversion to analog for further analysis.

TSG-422\$5500.00

TEST EQUIPMENT

Tektronix®
The best and the brightest.

SPG-170A Sync Generator

- Digitally generated RS-170A blackburst
- Digital genlock
- High stability subcarrier
- Flexible pulse outputs
- Pulse timing independent of black
- Remote control timing presets
- Remote control ID presets

This microprocessor-based system calculates genlock input burst phase and sync timing to control output timing and color framing. When no input signal is present, it switches to an internal oscillator. This high stability crystal oscillator, enclosed in a constant temperature oven, ensures long term frequency accuracy.

SPG-170A\$3300.00
Option 1 SMPTE bars with ID and audio tone1000.00



SPG-170A



ECO-170A

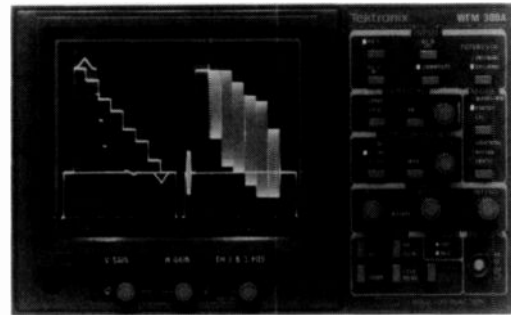
ECO-170A Synchronous Changeover

- Automatic sync changeover
- Clean electronic switching
- Unique fault detection system
- 8 channels
- Manual override
- Remote control with fault indicators

The ECO-170A provides transparent, automatic selection of sync sources. Front panel controls allow simple access to changeover functions. A 2-level front panel lockout protects these controls in critical master sync systems.

The ECO-170A employs electronic sync transfer to ensure uninterrupted sync for critical production and on-air operations. Unlike other sync changeovers, the ECO-170A uses relay switching only for bypass in case of power failure. Manual sync source selection provides a means for periodic verification of changeover and backup sync generator operation.

ECO-170A\$2000.00



WFM300A

WFM300A Component/Composite Waveform Monitor

- Component and composite waveform display
- Menu selectable electronic graticules
- Lightning display for equipment setup and monitoring
- Bowtie display for system timing
- Menu selectable component format options
- Menu selected 625/50 or 525/60 configuration
- Separate GBR and composite picture monitor outputs
- Color gamut violation indication
- Front panel user recalls for fast operation
- UL, CSA, ANSI, IEC and FCC approved

The WFM300A is designed specifically for signal evaluation and equipment alignment in production suites using RGB, Betacam® or MII component formats. In addition, composite (NTSC or PAL) waveforms existing in the facility may be monitored with the WFM300A and composite vectors displayed on a companion 1720 Series composite vectorscope.

The WFM300A provides a full set of component monitoring features. Its innovative and unique lightning display allows accurate adjustment of component equipment to replay Betacam or MII format tapes without a requirement for special test signals. Off-tape color bars provide all necessary information to quickly set the playback recorder setup, video gain, chroma and Y/C delay for accurate reproduction. All of these recorder adjustments are accomplished while viewing 1 convenient, easy-to-interpret display. Electronic graticules for the various component formats used throughout the world are selected from an on-screen menu.

The traditional parade display of the 3 component signals provides side-by-side comparison. In addition, any combination of the 3 signals can be overlaid for accurate comparison. A composite signal may also be compared to the component luminance signal. 3 sweep rates (1 line, 2 lines and 2 fields) are provided. Both horizontal and vertical magnification can be applied for detailed inspection of the signals being observed.

A component vector mode, useful for estimating color hue and saturation values, provides a familiar color bar vector display of color difference signals.

WFM300A\$3900.00
Option 05 Delete color shutter180.00



1780R

1780R Video Measurement Set

- Full bandwidth analog video processing
- Precision waveform and vector measurements
- Polar SCH presentation, with calibration mode
- 4 loopthrough video input channels
- Front panel probe input
- Component or composite waveform evaluation
- Measurement-grade time and voltage cursors
- Precision differential phase/differential gain measurements even with noisy signals
- Stereo audio phase and amplitude display
- Digital control of all functions
- Touch screen user interface
- User definable semi-automatic setups
- Full function RS-232/RS-422 remote control
- Available for either NTSC or PAL standards

The 1780R offers features for precise evaluation of studio and transmission performance. This multi-function instrument is a wide bandwidth, multi-input waveform/vector/SCH measurement package.

The advantages of separate waveform and vector instruments are provided in a single rack wide, 5 1/4" high package. In addition, specific measurements take advantage of the 1780R shared waveform monitor and vectorscope internal processing. Separate, optimized waveform and vector display CRTs allow simultaneous monitoring of several video parameters. Routine and specialized video evaluation is easily and quickly performed in this full function measurement instrument.

1780R\$9900.00
Option 74 P4 white CRT phosphor (2 CRTs)200.00



TELEPAK soft carrying cases provide the best in video equipment protection. Designed and constructed for the video professional—in-house or in the field—TELEPAK offers a complete line of products to satisfy virtually any requirement.

TELEPAK soft cases are made of durable water- and stain-repellent nylon packcloth for the best defense against dust and weather.

Resilient high-density foam padding throughout each bag provides superior shock absorbency, life and durability.

Quality components (webbing, zippers, buckles and velcro) meet or exceed today's standards.

TELEPAK soft cases, designed to "custom fit" your gear, offer the ultimate in carrying comfort and equipment protection.

Designed by video professionals for video professionals, only TELEPAK soft carrying cases give you what you want and need from a bag: workable, reliable, comfortable, portable protection for your equipment. Protect your investment with the best—TELEPAK.



MONITOR PAKS

- T-22 JVC TM-21/41 monitor pak \$ 90.00
- T-80 Sony EVM-8010, BVM-8021, PVM-8020 monitor pak 8 1/2" H x 9" W x 14" D. 125.00
- T-80HC Sony EVM-8010, BVM-8021, PVM-8020 ATA hard case 250.00
- T-AGM Panasonic AG-500, AG-550, AG-560 monitor pak 125.00
- T-AG Panasonic AG-513 13" monitor pak. 150.00

CAMERA PAKS

- T-CAM X-LG Extra large universal carrying case 13" H x 28 1/2" W x 9" D \$200.00
- T-CAM LG Large universal carrying case for Betacam cameras 200.00
- T-CAM SM Small universal carrying case for cameras . . . 200.00
- T-CAM Mini Mini universal carrying case for camcorders, small cameras 140.00



BROADCAST VCR PAKS

- T-10 Sony BVU-100, VO-3800 \$ 185.00
- T-11 Sony BVU-110 185.00
- T-15 Sony BVU-150 185.00
- T-50 Sony BVU-50 185.00
- T-20 Sony BVU-20, Thompson VT-625, Bosch BCB-20, CVR-201 185.00
- T-25 Sony BVW-21/25, Thompson VT-624/626, Bosch BCB-21/25 185.00
- T-35 Sony BVW-35 Betacam SP portable recorder/player 185.00
- T-DVR-2 Sony portable DVR-2 recorder 195.00

3/4" U-MATIC VCR PAKS

- T-44 JVC CR-4400, Panasonic NV-9400, Hitachi SV-340 \$ 185.00
- T-47 JVC CR-4700U/4900U, Panasonic NV-9450. 185.00
- T-48 Sony VO-4800 185.00
- T-68 Sony VO-6800 185.00
- T-88 Sony VO-8800 185.00

VHS/BETA/Hi8 VCR PAKS

- T-34 Sony SLO-340 \$ 185.00
- T-62 JVC BR-6200 185.00
- T-74 Panasonic AG-7400 185.00
- T-84 Panasonic NV-8420. 185.00
- T-VL-S100 Hitachi VL-S100 S-VHS Hi-Fi 185.00
- T-EVV-9000 Sony EVV-9000 docked to the DXC-325 . . . 185.00



METALIZED CAMERA RAINCOVERS

Lightweight metalized textiles for high shielding effectiveness. These conductive fabrics are ideal for solving electromagnetic compatibility problems and protecting sensitive data.

- T-RAIN I RFI Sony DXC-M3A, DXC-3000, BVP-330/A, BVP-150, Hitachi SK-81/91/97, FP-21/22/Z31, JVC KY-310U, others, raincover metalized \$450.00
- T-RAIN II RFI RCA TK-76/86, others, metalized 450.00
- T-RAIN III RFI Sony Betacam BVW-1, 3A, 30, 105, 505, Hitachi FP-C2, Ampex CVR-200, 300, others, metalized 450.00
- T-RAIN IV RFI Panasonic AG-150/155/160/180, others, metalized 350.00
- T-RAIN V RFI Panasonic AG-450 camcorder, others, raincover metalized 350.00
- T-RAIN VI RFI Sony EVO-9100 8mm video camera, metalized 350.00

CASES



CAMERA RAINCOVERS

- T-RAIN 1 Sony DXC-M3A, DXC-3000, BVP-330/A, BVP-150, Hitachi SK-81/91/97, FP-21/22/Z31, JVC KY-310U, others \$60.00
- T-RAIN 2 RCA TK-76/86, others \$60.00
- T-RAIN 3 Sony Betacam BVW-1, 3A, 30, 105, 505, Hitachi FP-C2, Ampex CVR-200, 300, others .60.00
- T-RAIN 4 Panasonic AG-150/155/160/180, others60.00
- T-RAIN 5 Panasonic AG-450 camcorder, others60.00
- T-RAIN 6 Sony EVO-9100 8mm video camera60.00



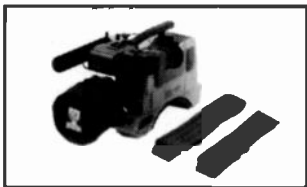
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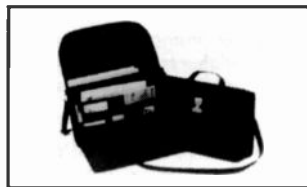
T-HIP



T-HIP



T-LENS and T-STRAP



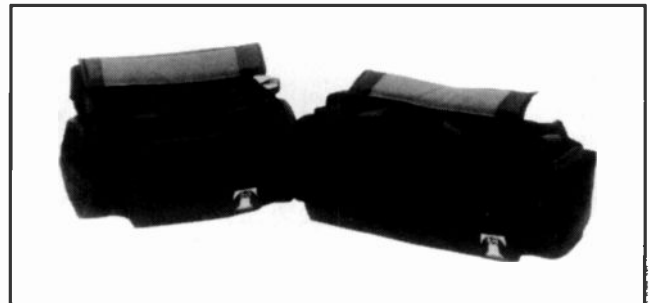
T-BRIEF

VCA PAK ACCESSORIES

- T-POK 1 Small pocket, accessory pak \$ 20.00
- T-POK 2 Large pocket, accessory pak 20.00
- T-STRAP Padded shoulder strap (side pak to back pack conversion).20.00
- T-HIP Hip pak for accessories and batteries90.00
- T-LENS Lens cover20.00
- T-LENS-P Lens pak with belt loop holder25.00
- T-BRIEF Producer/director/soft brief organizer110.00

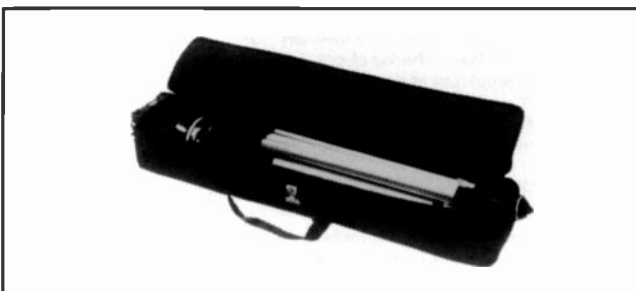
SPECIALTY PAKS

- T-GAF Grip/gaffer pak \$120.00
- T-MINIGAF Mini grip/gaffer pak90.00
- T-UCP LG Large universal carrying case (cutout foam) . .134.00
- T-UCP SM Small universal carrying case (cutout foam) . .120.00
- T-MM Comprehensive MM-3100 mic mixer case . . .65.00
- TV540UP-A Sharp portable VCR with LCD color monitor compartment for Anchor speaker, tapes and cords150.00
- T-V101TU Sharp high-mount 101" LCD projector155.00
- T-XV100P Sharp Vision XV-100P solid-state video projection system150.00
- T-XV100PHC Sharp Vision XV-100P ATA shipper hard case . .310.00
- T-TRIPOD-M Tripod carrying pak for medium size tripods . .140.00
- T-TRIPOD-L Tripod carrying pak for large size tripods . . .160.00



T-MINIGAF

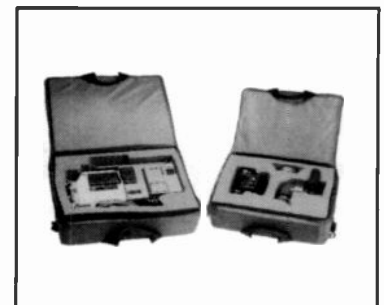
T-GAF



T-TRIPOD



T-XV 100P
23"H x 9³/₄" W x 10¹/₂" D



T-UCP Large 5¹/₂" H x 22¹/₂" W x 16¹/₂" D
T-UCP Small 5¹/₂" H x 19" W x 14" D

Telescript, Inc.

PROMPTING SYSTEMS

TV Studio Monitor Prompting Systems (MPS)

IBM & Compatibles Computer Program
Controller and EGA Boards, Master Disk,
10 Pushbutton Controller, Cables, Manual

-or-

Commodore C-64 Computer Program
ROM Cartridge, Master Disk, 10 Pushbutton
Controller, Cables, Manual

-or-

Telecue Transport including Script Feed Assembly

-or-

Telescriptor Transport including Table with Casters

Remote hand control and 25' ext. cable, Vidicon camera with mounting
plate, Int. 2-1, 12.5mm f/1.8 1" format lens (all included with Telecue or
Telescriptor)

One 17" Monitor Prompter
1 Monitor Lensview Assembly
1 Monitor Mount Assembly
12" Workstation Monitor (Computer programs only)

Package Price	1MPS	2MPS
With IBM and Compatibles PGM	\$4840.00	\$6340.00
With Commodore 64 PGM	3140.00	4840.00
With Telecue	4540.00	6240.00
With Telescriptor	4940.00	6640.00

Note: The 2MPS includes 2 of each of: 17" Monitor Prompters, Monitor Lens-
views and Mount Assemblies. The Telepod may be substituted for the
Monitor Mount Assembly for an additional \$90.00.

Lightweight One Monitor Prompting System (MPS)

Includes 12" Monitor/Prompter, G/S, Monitor Lensview Assembly, Monitor
Mount Assembly and 12" Workstation Monitor

With IBM and Compatibles PGM	\$4190.00
With Commodore 64 PGM	2790.00

Product Costs

IBM and Compatibles Program

Controller and EGA Boards, Master Disk,
10 Pushbutton Controller, Cables, Manual \$ 2830.00

C-64 Program

ROM Cartridge, Master Disk, 10 Pushbutton
Controller, Cables, Manual 1330.00

Transfer Program IBM to C-64 via RS-232 160.00

Telecue with HC, 25' Ext. Cable and Script Assembly 2390.00

Telescriptor with HC and 25' Cable 2890.00

Table with Casters (Telescriptor) 90.00

Dual Control with HC Features (Telecue)

2 Stop-Start Foot Pedals, Ext. Cables 310.00

Contrast Enhancer (Blk./Wh.-Wh./Blk.)

In-Outdoor for Vidicon Cameras 410.00

Monitor Lensview (LV) Assembly

with Beamsplitter, Amb. Light Mask 285.00-395.00

Monitor Mount Assembly with Counterbalancing

Plate, Riser Block, M/P Mount,
Counterweight, and Hardware 365.00-475.00

Monitor Prompter (M/P) 17" Studio 1090.00

Monitor Prompter (M/P) 17" P/S 790.00

Monitor Prompter (M/P) 12" Studio 670.00

Workstation Monitor 220.00

Beamsplitters 30/70 or 40/60 with 2nd

surface Low Refl. Coatings 115.00-215.00

Counterweights (Pb) and Hardware 35.00-85.00

Telepod (Off Camera M/P support)

Head, Adj. Pedestal, Base-Casters, Brackets
for LV or Direct M/P Viewing 520.00

Low Boy adaptor plate and counterweights 240.00

Telepod for 12" M/P Support. Lightweight. Tripod

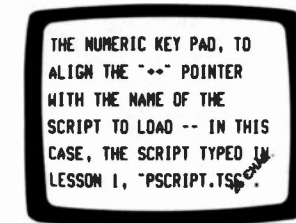
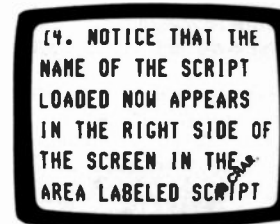
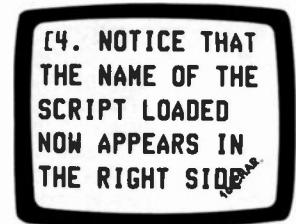
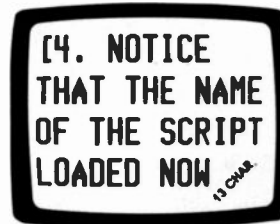
in lieu of Base-Casters 400.00

Mirror View for Public Speaking. Housing,

Grained Panels, 3 Tiered Clutch Tubes,
Beamsplitter Clamp Assembly and B'str. "The
Presidential System" 570.00

Fluid Head, 50 lb. capacity, 2 Pro Handles,
Leveling Adaptor for Center Post. Air Lift

Tripod with "Sticks-Lock" Wheels. Low Boy
and High Boy Positioning 2490.00



Computer prompting program for the IBM and compatibles with infi-
nitely variable smooth scrolling, instant reformatting and 4 pushbutton
fonts—upper and lower case

Monitor Prompting Systems for Public Speaking

The "Presidential System," MPS for Public Speaking, has become the ulti-
mate tool for delivering a cohesive, dynamic speech. Hand scripted
speeches, at times, result in head bobbing for note and page referrals,
rambling subject discourses and disinterested audiences.

Two Monitor Prompting System (MPS) for Public Speaking

Telecue with HC and 25' Cable with
Vidicon Camera and Mounting Plate
Int. 2-1, 12.5mm f/8 1" Format Lens or
IBM and Compatibles Computer Program or
Commodore 64 Computer Program

Two 17" Monitor Prompters (M/P)
2 Mirror Views for Public Speaking
(Including Housing for M/P, Panels, Adj. Bstr.
Holder and Bstr.)

Work Station Monitor
4 Coax Cables 1-50', 1-25', 1-10', 1-5'

With Telecue Transport	\$5630.00
With IBM and Compatibles Program	5790.00
With Commodore 64 Program	4290.00

Optional Equipment

Video Blanking Control 2-position or 4-position \$ 75.00-125.00

Contrast Enhancer provides enhancement plus
Video Rev. (white/black/shades of gray). Necessary
in super bright areas/out of doors. Only required
with Vidicon Cameras 410.00

Lightweight Carrying Cases—Foam lined, handles,
latches, 2" wide straps. Fiberglass covered
plywood 155.00-255.00

23" Monitor Prompters—For placement in key areas
for walk-about type speaking or group viewing 950.00

Convertible Mode—Monitor/Prompters
Public Speaking Monitor/Prompters (M/Ps),
can be ordered in the Convertible Mode for use,
as well, in a TV studio operation at an additional
cost of 300.00

WIRELESS MICROPHONE SYSTEMS

TELEX

TELEX COMMUNICATIONS, INC.

Single Antenna—Economy Systems—165-185MHz

FMR-25 Lapel Microphone System
Includes: WT-25 Transmitter w/attached lapel mic, FMR-25 Receiver 70731-XXX\$465.00

FMR-25 Lapel Microphone System
Includes: WT-25/60 Transmitter w/attached WLM-60 Unidirectional Lapel Mic, FMR-25 Receiver 70738-XXX\$465.00

FMR-25 Aerobics System
Includes: Belt Pouch, WT-25/23 Transmitter w/attached PH-23 Headband Mic, FMR-25 Receiver 70729-XXX\$540.00

FMR-25G Guitar Instrument System
Includes: WT-25G Transmitter, FMR-25G Receiver 70742-XXX\$395.00

FMR-25 Handheld Microphone System
Includes: HT-100/10 Mic/Transmitter, FMR-25 Receiver 70732-XXX ..\$600.00



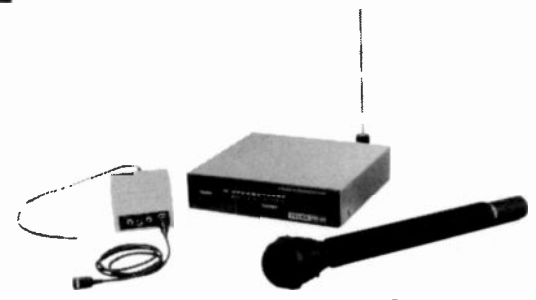
FMR-25 Wireless Microphone System

Pos-i-Phase™ True Diversity—Economy Systems—165-185MHz

FMR-25TD Lapel Microphone System
Includes: WT-25 Transmitter w/attached lapel mic, FMR-25TD True Diversity Receiver 70733-XXX\$600.00

FMR-25TD Lapel Microphone System
Includes: WT-25/60 Transmitter w/attached WLM-60 Unidirectional Lapel Mic, FMR-25TD Receiver 70739-XXX\$600.00

FMR-25TD Handheld Microphone System
Includes: HT-100/10 Mic/Transmitter, FMR-25TD True Diversity Receiver 70734-XXX\$735.00



FMR-50 Wireless Microphone System

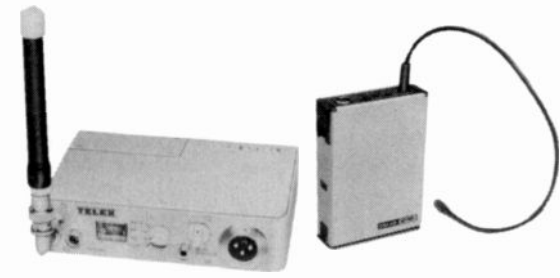
Single Antenna—Pro-Sound Systems—150-216MHz

FMR-50 Lapel Microphone System
Includes: WT-50 Transmitter, FMR-50 Receiver, WLM-50 Lapel Microphone 64381-XXX\$810.00

FMR-50 Handheld Condenser Microphone System
Includes: HT-100/10 Mic/Transmitter, FMR-50 Receiver 70774-XXX. . .\$810.00

FMR-50 Handheld Dynamic Microphone System
Includes: HT-100/11 Mic/Transmitter, FMR-50 Receiver 70775-XXX. . .\$810.00

FMR-50 Headworn Microphone System
Includes: PH-21 Headworn Microphone, WT-50 Transmitter, FMR-50 Receiver 64373-XXX\$845.00



ENG Wireless Microphone System

Pos-i-Phase True Diversity—Pro-Sound Systems—165-216MHz

FMR-2 Lapel System, Includes:
FMR-2 Receiver 64213-XXX
WT-200 Transmitter 64182-XXX
WLM-200 Mic 63852-001
System Total \$1450.00

FMR-2 Economy Lapel System, Includes:
FMR-2 Receiver 64213-XXX
WT-50 Transmitter 64229-XXX
WLM-50 Microphone 64277-000
System Total \$1160.00

FMR-2 (TE-10) ProStar Handheld System, Includes:
FMR-2 Receiver 64213-XXX
HT-100/10 Handheld Mic/Transmitter 70680-XXX
System Total \$1160.00

FMR-2 (TD-11) ProStar Handheld System, Includes:
FMR-2 Receiver 64213-XXX
HT-100/11 Handheld Mic/Transmitter 70681-XXX
System Total \$1160.00

FMR-2 Headworn Mic System, Includes:
FMR-2 Receiver 64213-XXX
WT-200 Transmitter 64182-XXX
PH-22 Headworn Mic 64327-002
System Total \$1445.00

Pos-i-Phase True Diversity—Professional Broadcast Systems—165-216MHz

FMR-4 Lapel System, Includes:
FMR-4 Receiver 70270-XXX
WT-400 Transmitter 70279-XXX
WLM-200 Mic 63852-001
System Total \$2815.00

FMR-4 (HT-400/TE-10) ProStar Handheld System, Includes:
FMR-4 Receiver 70270-XXX
HT-400/10 Handheld Mic/Transmitter 70331-XXX
System Total \$2770.00

FMR-4 (HT-400/SM-58) ProStar Handheld System, Includes:
FMR-4 Receiver 70270-XXX
HT-400/58 Handheld Mic/Transmitter 70332-XXX
System Total \$2880.00

FMR-4 (HT-400/SM-87) ProStar Handheld System, Includes:
FMR-4 Receiver 70270-XXX
HT-400/87 Handheld Mic/Transmitter 70333-XXX
System Total \$3000.00

Portable Single Antenna—Professional Broadcast Systems—165-216MHz

ENG-4 Lapel System, Includes:
ENG-4 Portable Receiver 64490-XXX
WT-400 Transmitter 70279-XXX
WLM-200 Mic 63852-001
System Total \$2545.00

ENG-4 HT-400/TE-10 ProStar Handheld System, Includes:
ENG-4 Portable Receiver 64490-XXX
HT-400/10 Handheld Mic/Transmitter 70331-XXX
System Total \$2500.00

ENG-4 HT-400/SM-58 ProStar Handheld System, Includes:
ENG-4 Portable Receiver 64490-XXX
HT-400/58 Handheld Mic/Transmitter 70332-XXX
System Total \$2610.00

ENG-4 HT-400/SM-87 ProStar Handheld System, Includes:
ENG-4 Portable Receiver 64490-XXX
HT-400/87 Handheld Mic/Transmitter 70333-XXX
System Total \$2730.00

*The last three digits in the transmitter and receiver catalog number will be determined by the frequency that is selected. Full line accessories available.

TELEX COMMUNICATIONS, INC.

PROFESSIONAL HEADPHONES

Model	Description	Impedance in Ohms	Cord Length	Plug Type	Catalog Number	Price
Full Cushion Mono						
PH-7	Dynamic Dual	600	5'	1/4"	64437-013	\$110.00
PH-11	Dynamic Single	600	5'	1/4"	64438-009	75.50
Lightweight Mono						
PH-36	Lightweight Dual	600	6'	1/4"	64353-000	57.75
HTW-2	Twinset Dual	500	5'	1/4"	03775-000	51.50
HMV-2	Monoset Stethoscope	125	5'	1/4"	18183-000	36.75
HMY-2	Monoset Stethoscope	2000	5'	1/4"	18184-000	36.75
HFR-91	Tele-Fi Under Chin	15	5'	1/4"	18135-000	24.15
HFW-91	Tele-Fi Under Chin	500	5'	1/4"	18135-005	24.15
HFY-91	Tele-Fi Under Chin	2000	5'	1/4"	18135-009	24.15



PH-7

Full Cushion Stereo						
PH-6	Dynamic Dual	600/side	15'	1/4"	64437-012	138.60
Lightweight Stereo						
PH-35	Dynamic Dual	300/side	6.5'	1/4"	64359-000	57.75



PH-35

PROFESSIONAL HEADSETS

Broadcast and Announcers Headsets (With Push-to-Cough Switch)

Full Cushion (Mic 150/200 Ohms)						
PH-91	Dynamic Dual/Omnidirectional	300/side	9'	None	64390-004	\$205.00
PH-92	Dynamic Dual/Omnidirectional	600/side	9'	None	64390-005	248.75
PH-93	Dynamic Dual/Omni With Condenser	300/side	9'	None	64390-002	289.00
PH-94	Dynamic Dual/Unidirectional	300/side	9'	None	64390-007	231.00
Lightweight (Mic 150/200 Ohms)						
PH-24	Dynamic Dual Noise-Cancelling Condenser	150	9'	None	64356-000	231.00
PH-25	Dynamic Binaural/Omni With Condenser	300	9'	A3M/1/4"	70425-000	267.75

INTERCOM HEADSETS

Dynamic Intercom Headsets With Dynamic Noise-Cancelling Microphone (Plug Compatible With Audiocom/Radiocom, Clear Com and Other Intercom Systems)

Full Cushion						
PH-1	Single	150	6'	A4F	64438-005	\$120.00
PH-2	Dual	150	6'	A4F	64437-006	147.00
PH-3	Binaural	150	6'	A5F	64437-007	155.00
Lightweight						
PH-4	Dual	150	6'	A4F	70340-000	135.00
PH-5	Binaural	300/side	6'	A5F	70350-000	140.00
PH-8	Single	150	6'	A4F	70415-001	150.00
Hearing Protectors						
HD-3A	Dual 21dB NRR	150	6'	A4F	63700-011	147.00
PH-10	Dual "ProAir" 24dB NRR	150	6'	A4F	70470-003	220.00
PH-16	"ProAir" Under Helmet 24dB NRR	150	6'	A4F	70770-003	236.00



PH-91

Dynamic Intercom Headsets With Dynamic Noise-Cancelling Microphone (Plug Compatible With RTS Intercom Systems)

Full Cushion						
PH-1R	Single	150	6'	A4M	64438-019	\$120.00
PH-2R	Dual	150	6'	A4M	64437-023	147.00
PH-3R	Binaural	300/side	6'	A5M	64437-024	155.00
Lightweight						
PH-4R	Dual	150	6'	A4M	70340-008	135.00
PH-5R	Binaural	300/side	6'	A5M	70350-002	140.00
PH-8R	Single	150	6'	A4M	70415-009	150.00
Hearing Protectors						
PH-10R	Dual "ProAir"	150	6'	A4M	70470-017	220.00



PH-24

Amplified Dynamic (For Use With David Clark Intercom Systems and Other Carbon Type Camera Systems)

Full Cushion						
NPH-1	Single	50	6'	1/4"	64438-006	\$120.00
NPH-2	Dual	50	6'	1/4"	64437-008	147.00
Hearing Protectors						
NPH-9	Single "ProAir"	50	6'	1/4"	70470-004	190.00
NPH-10	Dual "ProAir"	50	6'	1/4"	70470-005	220.00

Video Camera Intercom Headsets (For Use With Sony, JVC, Panasonic Cameras With 50 Ohm Carbon Microphone)

PH-45	Dynamic Dual	600	5'	(2) 1/4"	64437-001	\$137.80
PH-78	Dynamic Single	600	5'	(2) 1/4"	64438-002	126.00
PH-81	Magnetic Single	275	6'	None	64438-004	126.00
PH-83	Magnetic Single With PTT	275	6'	None	64438-003	141.75
PH-85	Magnetic Dual	275/625	6'	None	64437-005	199.50
PH-87	Magnetic Dual With PTT	275/625	6'	None	64437-004	225.75

Professional Communications Headsets (With Noise-Cancelling Microphone 150 Ohms)

Full Cushion						
PH-61	Dynamic Dual	600	5'	(2) 1/4"	64437-002	\$141.75
PH-75	Dynamic Single	600	5'	(2) 1/4"	64438-001	126.00
Lightweight						
PH-62	Dynamic Binaural	300/side	5'	None	70362-000	120.75



PH-45

INTERCOM SYSTEM

TELEX®

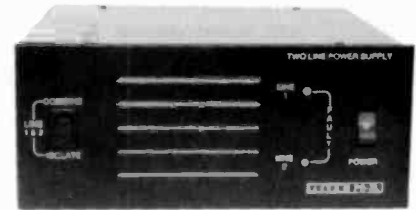
TELEX COMMUNICATIONS, INC.

Audiocom Headset/Intercom System

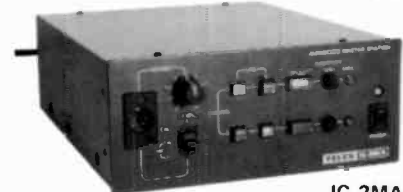
Audiocom is a headset intercom system consisting of modular components that can be connected with conventional wiring to form a simple party line communication system or a more sophisticated network using "director controlled" multi-channel configurations.

Audiocom Cabled System Components

Model #	Description	Catalog #	Price
Power Supplies			
PS-1F	1-Channel, flush mount	92890-000	\$ 160.00
PS-2L	2-Channel with combine/isolate feature	96167-000	340.00
Master Stations			
IC-2MAX	2-Channel with IFB and stage announce	96461-000	710.00
IC-4M	4-Channel with IFB and stage announce	96185-000	860.00
IC-4R	4-Channel remote with stage announce	96190-000	600.00
Programmable Station Controller			
IC-4SX	12-Channel matrix controller, for IC-4M or IC-4R	96210-000	710.00
Remote Belt Pack Stations			
BP-1	1-Channel with call light and mic kill. Compatible with unbalanced systems	96600-001	199.00
BP-2	2-Channel with call light and mic kill. Compatible with unbalanced systems	96600-000	269.00
IC-1B	1-Channel, circuit board only	90906-148	95.00
IC-1/LS	1-Channel with call light, metal case	92850-004	210.00
IC-2A	2-Channel with call light, metal case	96118-000	280.00
IC-2B	2-Channel binaural with call light, metal case	96099-000	310.00
Remote Stations, Flush Mount			
IC-1F/LS	1-Channel flush mount with call light	92860-004	185.00
IC-2AF	2-Channel flush mount with call light	96129-000	225.00
Remote Speaker Stations			
IC-SR	Speaker only, for IC-4M, IC-4R, BTR-200 and IC-2 MAX	96225-000	130.00
IC-2S	2-Channel portable with mic and call light	90480-001	335.00
IC-2SF	2-Channel flush mount with mic and call light	90480-000	280.00
IC-2SP	2-Channel portable with PTT, mic, headset input, gooseneck input and call light. Compatible with balanced/unbalanced systems	96550-000	495.00
IC-2SPF	2-Channel flush mount with PTT, mic, headset input, gooseneck input and call light. Compatible with balanced/unbalanced systems	96544-000	420.00
Interface and Accessories			
CCB-1	Interface Telex balanced line to Clearcom unbalanced line	96230-000	100.00
IF-1	Interface to 2, 3 or 4 wire systems w/holding coil for telephone systems	94400-000	595.00
I-B/U	Interface cable to connect IC-2SP to unbalanced systems	96566-000	50.00
Wall Plates (Passive Junction Plate Without Electronics)			
WP-1	Wall plate, 1-channel (XLR-3)	96136-000	19.00
WP-2	Same as above, with 1-channel/2-channel switch	96136-001	25.00
WP-3	Wall plate, 2-channel (XLR-6 Neutrik)	96136-002	25.00
Rackmount Kits			
RM-11	Single rack, fits PS-2L, IC-2MAX, IC-4M, IC-4R, IC-4SX, IC-SR and IF-1	94398-000	40.00
RM-12	Dual rack, fits same as above	92793-000	31.40
RM-13	Single rack for metal belt packs	96125-000	52.00
RM-14	Rack for IC-2SP	92793-003	30.00
Ticket Booth Security Intercom System			
IC-W1	Window mount unit w/lt separate power supply	96500-002	395.00
IC-W2	Window mount unit with separate power supply and VOX control	96500-001	425.00
Microphones and Handsets			
HS-6A	Handset with cradle	96145-000	90.00
HM-100	Hand microphone, noise cancelling	60837-032	65.00
GM-E	Condenser gooseneck mic for IC-4M, IC-4R, IC-2MAX, IC-2SP and IC-2SPF	96212-000	105.00
Road Case			
DC-100	Calzone road case	59806-000	325.00
Headsets			
Lightweight			
PH-8	Lightweight, single sided headset with coil cord	70415-001	\$ 150.00
PH-4	Lightweight, dual sided headset	70340-000	135.00
PH-5	Binaural, dual sided for IC-2B	70350-000	140.00
Full Cushion			
PH-1	Single sided headset	64438-005	120.00
PH-2	Dual sided headset	64437-006	147.00
PH-3	Binaural, dual sided for IC-2B	64437-007	155.00
CC-1	Cushion cover sock for above	35772-000	3.75
Noise Protection			
HD-3A	Noise attenuation, dual sided	63700-011	147.00
PH-10	High noise attenuation, dual sided	70470-003	220.00



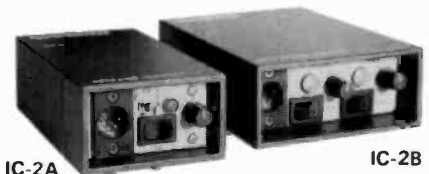
PS-2L



IC-2MAX



IC-4M

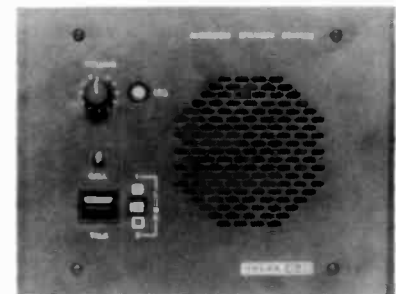


IC-2A

IC-2B



IC-2A/F



IC-2SF



TELEX COMMUNICATIONS, INC.

CASSETTE DUPLICATORS

Copyette™ 1 & 1 Series II Cassette Duplicator

- Half track, two channel • Copies tape at 30 ips (76cm/s) • Both sides of a C-60 cassette can be completed in less than 20 min. • Makes one copy at a time • 1 AC motor drive • Resettable circuit breaker • Patented drive mechanism (Pat. #4,447,836) • End of tape sensing circuit for automatic operation • Track select—allows the user to choose between copying of a tape or copying both sides at once • Frequency response: 50Hz-10kHz • Signal-to-noise ratio: 45dB • Power consumption: 20W max. • Dimensions: 4 1/4" H x 14 3/4" W x 10" D • Weight: 12 lbs.

96250-000 Copyette 1 & 1 \$419.00
 59860-000 Dust cover for all Copyettes 7.25

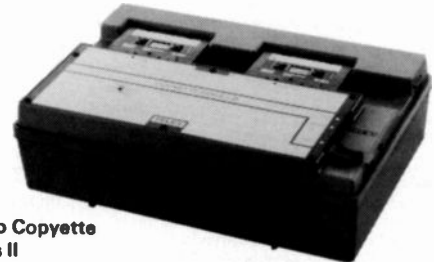


Copyette 1 & 1 Series II

Stereo Copyette Series II Cassette Duplicator

- Quarter track, four channel • Play only in original position • Record only in copy position • Copy speed: 21 ips (53cm/s) • Frequency response: 50Hz-10kHz • Signal-to-noise ratio: 45dB • Power consumption: 20W max. • Dimensions: 4 1/4" H x 14 3/4" W x 10" D • Weight: 12 lbs.

96275-000 Stereo Copyette \$735.00



Stereo Copyette Series II

Copyette 1 & 3 Cassette Duplicator

- Half track, two channel • Makes three copies at a time • DC servo drive motor • Resettable circuit breaker • Patented drive mechanism • Detachable cover • Lighted indicators for each operating function • Single button activates the entire sequence of operation • Copy speed: 30 ips (76cm/s) • Frequency response: 50Hz-10kHz • Signal-to-noise ratio: 45dB • Power consumption: 50W max. • Dimensions: 4 1/4" H x 14 3/4" W x 10" D • Weight: 15 lbs.

92713-011 Copyette 1 & 3 \$1099.00



Copyette 1 & 3

Cassette Bulk Eraser

- Requires no electrical power • Simply push cassette through eraser slot to erase all previous recordings

90625-000 Cassette Bulk Eraser \$20.00



Bulk Eraser

U.L. Approved

U.L. Listed

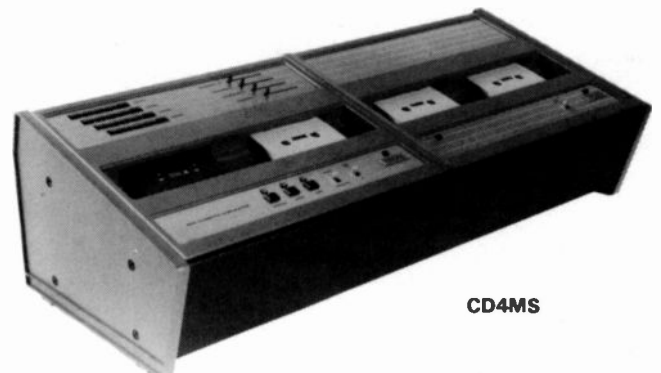
CD Series Cassette Duplicators

- Available in mono and stereo versions • Two cassette "slave" units allow expansion • Function control panel • Audio level indicators with slide control • Original and copy cassette position • Precision tape guides • Automatic/manual mode switch • End-of-tape motion sensing • Peak LED indicators • Track select • Tilted working surface • 40-10,000Hz frequency response • 30 ips (76cm/s) tape speed (60Hz line input)

1/4 Track — 4 Channel (Stereo)
 94474-001 CD4M Master station with one cassette . . . \$1425.00
 94475-000 CD4S Two position slave unit 1270.00
 94706-001 CD4MS Master station with three cassette positions 2615.00

1/2 Track — 2 Channel (Monaural)
 94471-001 CD2M Master station with one cassette position \$1070.00
 94472-000 CD2S Two position slave unit 1000.00
 94706-000 CD2MS Master station with three cassette positions 1840.00

Dust Covers for CD Duplicators
 59842-000 Fits CD2M, CD4M, CD2S and CD4S . . \$10.00
 59842-001 Fits CD2MS and CD4MS 13.00

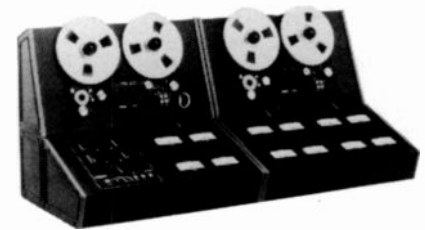
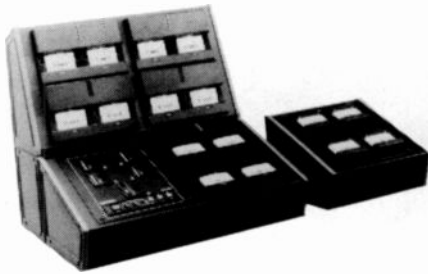


CD4MS

TAPE DUPLICATING SYSTEMS

TELEX®

TELEX COMMUNICATIONS, INC.



6120 Tape Duplicating System Complete Systems

Cassette to Cassette Systems

Standard Series with XL Life Heads—16X Speed

Half Track, Two Channel		
Complete three slave system	93900-101	\$ 4,503.00
Complete seven slave system*	93900-107	7,960.00
Complete eleven slave system*	93900-113	11,224.00

Quarter Track, Four Channel

Complete three slave system	93900-100	\$ 5,273.00
Complete seven slave system*	93900-106	9,301.00
Complete eleven slave system*	93900-112	13,136.00

Pro Series (XLP) with XL Life Heads—8X Speed

Half Track, Two Channel		
Complete three slave system	93900-201	4,568.00
Complete seven slave system*	93900-207	8,086.00
Complete eleven slave system*	93900-213	11,411.00

Quarter Track, Four Channel

Complete three slave system	93900-200	\$ 5,328.00
Complete seven slave system*	93900-206	9,416.00
Complete eleven slave system*	93900-212	13,311.00

* If second console is to be mounted vertically, you must order a base console (93785-00), see accessories.

Reel and Cassette to Cassette

Standard Series with XL Life Heads—16X Speed

Half Track, Two Channel		
Complete three slave system**	93900-119	\$ 7,945.00
Complete seven slave system**	93900-125	11,402.00
Complete eleven slave system**	93900-131	14,666.00

Quarter Track, Four Channel

Complete three slave system**	93900-118	\$ 8,880.00
Complete seven slave system**	93900-124	12,908.00
Complete eleven slave system**	93900-130	16,743.00

Pro Series (XLP) with XLP Life Heads—8X Speed

Half Track, Two Channel		
Complete three slave system**	93900-219	\$ 8,010.00
Complete seven slave system**	93900-225	11,528.00
Complete eleven slave system**	93900-231	14,853.00

Quarter Track, Four Channel

Complete three slave system**	93900-218	\$ 8,935.00
Complete seven slave system**	93900-224	13,023.00
Complete eleven slave system**	93900-230	16,918.00

Reel to Reel

Standard Series—16X Speed

Half Track, Two Channel		
Complete one reel slave system	93900-137	\$ 8,334.00
Complete two reel slave system	93900-143	11,711.00

Quarter Track, Four Channel

Complete one reel slave system	93900-136	\$ 9,536.00
Complete two slave system	93900-142	12,431.00

Components

Standard Series With XL Life Heads—16X Speed

Half Track, Two Channel		
Open Reel Master**	92774-001	\$3,065.00
Open Reel Slave**	92774-005	3,065.00
Cassette Master/Slave Module (3 slaves)	94629-101	3,150.00
Cassette Slave Module (4 slaves)	94629-105	3,264.00
2 Channel Control Module	94628-102	1,160.00
2 Channel Expansion Module*	94649-002	665.00

Quarter Track, Four Channel

Open Reel Master**	92774-000	\$3,230.00
Open Reel Slave**	92774-004	3,230.00
Cassette Master/Slave Module (3 slaves)	94629-100	3,695.00
Cassette Slave Module (4 slaves)	94629-104	3,835.00
4 Channel Control Module	94628-100	1,385.00
4 Channel Expansion Module*	94649-000	735.00

Pro Series (XLP) With XL Life Heads—8X Speed

Half Track, Two Channel

Open Reel Master**	92774-201	\$3,065.00
Open reel slave**	92774-205	3,065.00
Cassette master/slave module (3 slaves)	94629-201	3,215.00
Cassette slave module (4 slaves)	94629-205	3,325.00
2 channel control module	94628-202	1,160.00
2 channel expansion module*	94649-002	665.00

Quarter Track, Four Channel

Open reel master**	92774-200	\$3,230.00
Open reel slave**	92774-204	3,230.00
Cassette master/slave module (3 slaves)	94629-200	3,750.00
Cassette slave module (4 slaves)	94629-204	3,895.00
4 Channel control module	94628-200	1,385.00
4 Channel expansion module*	94649-000	735.00

Rewind Modules

4 position rewind module with console	94640-000	\$425.00
4 position rewind module without console	94639-000	325.00

Consoles and Accessories

Reel slave extension cable (required for reel slaves nos. 4 and 5)	93796-000	\$ 31.50
Reel console	94630-001	215.00
Control/cassette console	94630-000	193.00
Base console, 10.5" (267mm)	93785-000	162.00
Base console, expander kit (see note)	93785-001	97.00
Rewind console	94634-000	103.00
Dust cover (lower unit only)	93792-000	12.50
Dust cover (upper and lower)	93792-001	18.50
Polishing tape, individual rolls	93780-000	7.00
Polishing tape, case of 48 rolls	93780-001	331.00
Clear leader, 1200' (366m) roll	51814-028	14.00

Note: Base console expander kit required if reel slaves are placed horizontally in front of vertical consoles.

* System expansion module required for systems with more than 2 reel slaves (max 5 reel slaves) and/or more than 11 cassette slave positions (23 positions max.)

** Only cassette masters and slave modules are supplied with XL Life heads.

Mini-Rack™ Cases

The Mini-Rack, a line of instant access, shock-mounted cases, offer all the protection of Thermodyne's popular Shok-Stop™ cases as well as the convenience of the Rack-Pack™. Mini-Rack has eliminated 5" of case height and 20% of the weight from the standard Rack-Pack design for critical space and weight requirements, yet still offers accessibility and protection.

The Mini-Rack has the standard 19" EIA rack width and 20" rack depth, but the case dimensions have been reduced 5" in width and 5" in height by redesigning the shock-mount system to attach the rack frame directly to the inside of the case. The space between the rack and the inside of the case has been reduced and the Mini-Rack has eliminated the high profile exterior shock mounts of the Rack-Pack, replacing them with low profile shock-mounts.

Like the Shok-Stop and Rack-Pack cases, Mini-Rack is available in a variety of sizes, from 5.37" to 24.625" rack height and 8.75" to 18" case height. Mini-Rack has all the standard Thermodyne features, including: inner rack frame with EIA-RETMA hole pattern in front and rear rails, recessed latches and handles, interlocking ribs for ease of stacking, and watertight gasket construction. All Thermodyne cases are corrosion and fungus resistant. A number of optional items can be specified, including: shock mounts for unusual weight, extra T-bar supports, anodized outer valances, removable casters and custom colors.


Mini-Rack

Shok-Stop Cases

Made of high density polyethylene, the Shok-Stop case acts as a shock absorber. When an impact occurs, the case accepts all of the force. The slight shock that reaches the interior is instantly overcome by the foam, which can be custom-fitted to the exact dimensions of your equipment.

Carefully engineered channels and corner bumpers on every Shok-Stop case are designed to deliver maximum protection in high-stress conditions. Hardware includes spring-loaded handles which fit tightly during shipping, and recessed hinges and latches that are field-replaceable if necessary. By using non-invasive hardware attachment and pressure relief valves, Shok-Stop cases can be ordered completely water-tight or vapor-tight, depending upon requirements. Shok-Stop cases offer electromagnetic interference (EMI) shielding and can be panel-mounted.

Shok-Stop cases can be ordered empty, with a solid foam core, or Thermodyne can custom cut the foam to the customer's specifications. Shok-Stop is available in a variety of shapes and sizes, from 8.0" to 89.0" in length. The standard color is gun-metal gray, but custom colors are available at no additional charge. Thermodyne stocks the most common standard sizes in inventory for quick response to orders. Like all Thermodyne cases, Shok-Stop cases are corrosion and fungus resistant and are available with a variety of options, including: anodized outer valances, automatic pressure relief valve, removable casters and lift rings.


Shok-Stop

Rack-Pack Cases

Rack-Pack transportation/operating cases now combine permanent mounting in a standard 19" rack with easy equipment access. These instant-access, shock-mounted cases offer all the protection of Shok-Stop cases and increased accessibility.

Available in sizes from 5.37" rack height and 13.75" case height to 36.875" rack height and 45.25" case height, Rack-Pack features: inner rack frame with EIA-RETMA hole pattern in front and rear rails, recessed latches and handles, interlocking ribs for stacking and watertight gasket construction. Like other Thermodyne cases, Rack-Pack is corrosion and fungus resistant, high-density polyethylene.

When timing is critical, Rack-Pack allows you to set up and operate equipment in minutes, rather than hours. The equipment can be stacked and pre-wired in place, and you need only remove the front and back covers for immediate access. Every case features recessed ribbing for shock absorption and elastometric shock-mounts for vibration protection. The inner rack is constructed of 6061-T-5 aluminum for durability and light weight and all latches and handles are mounted firmly without intrusive fasteners.


Rack-Pack

If your equipment requires access by means of slides, they are available by special order. This makes on-site maintenance or repairs easier and quicker. Rack-Pack cases are made to your specifications without expensive alterations: standard 19" rack width, 20" depth, and holes drilled to EIA-RETMA hole patterns, and rack heights to your specification from 5.37" to 36.875". Rack-Pack cases can stack on interlocking ribs to form a modular workstation that is secure in any environment.

Thermodyne has over 200 standard Shok-Stop cases: 16 standard Rack-Pack sizes, 11 standard Mini-Rack sizes and a growing library of inner foam liner cutting specs. Every Shok-Stop, Rack-Pack and Mini-Rack case meets or exceeds the toughest military specifications including ATA300-CAT 1, MIL-C-4150 and MIL-T-21200, and constructed of high-density polyethylene for flexibility and shock absorbency.

FILTERS/LENS ACCESSORIES



4 pt. 2mm Grid



6 pt. 2mm Grid



8 pt. 2mm Grid

Star Effect Filters



Polarizing Filters

Star Effect Filters

Create dazzling seascapes or sparkling chandeliers and candles. Highest quality engraved filters can be used individually or in combination to achieve desired effect. Supplied in direct screw-in, square and rectangular sizes. The designation 1mm, 2mm, 3mm, 4mm grid denotes the space between the engraved lines on the filter that create the Star Effect.

4 pt. in Rotating Mount 1, 2, 3 or 4mm
6 or 8 pt. in Rotating Mount 2, 3 or 4mm
12 pt. in Rotating Mount 2, 3 or 4mm

	2 x 2	3 x 3	4 x 4
	\$ 87.50	\$ 87.50	\$ 89.50
	128.75	128.75	143.75
	132.25	132.25	148.75

Polarizing Filters

- Penetrate haze without diluting original colors
- Eliminate surface reflections
- Screw-in, rotatable type to achieve desired effect
- Available in series, square and rectangular sizes—series sizes are mounted in anodized aluminum rim clearly engraved with axis and size

Get rich blue skies in your color shots. Simply screw the SR polarizer into your lens mount and rotate it until you see the effect you want. Available screw-in sizes.

Tiffen makes a complete line of standard filters, special effect filters and lens accessories for your TV camera filter wheel or for the front of your lens.

Video Effect Filters

49mm, 52mm, 55mm, 58mm,
62mm, 67mm, 72mm, 77mm

Soft Contrast	1-5
Sofnet White	1-5
Sofnet Black	1-5
Sofnet Red	1-5
Sofnet Skintone	1-5
Double Fog	1-5
Sepia	2, 3
Low Contrast	1-5
Fog	1, 3, 5
Soft/FX™	1, 3, 5
Star 4 pt. 2mm	
Star 6 pt. 2mm	
Star 8 pt. 2mm	
Splitfield	+ 1, + 2, + 3
Color Grad®	Blue
Color Grad	Sunrise
Color Grad	ND.6
Multi-Image 49mm, 52mm, 55mm, 58mm	3P
Multi-Image 49mm, 52mm, 55mm, 58mm	3R
Multi-Image 49mm, 52mm, 55mm, 58mm	5P

Multi-Image 49mm, 52mm, 55mm, 58mm	5R
Multi-Image 49mm, 52mm, 55mm, 58mm	6R
Multi-Image 49mm, 52mm, 55mm, 58mm	6L
Multi-Image 49mm, 52mm, 55mm, 58mm	6D
Clear 49mm, 82mm	
ND 0.349mm, 82mm	
ND 0.649mm, 82mm	
ND 0.949mm, 82mm	
FLD 43mm-82mm	
SR Polarizer 40.5mm-82mm	
Close-Up Lens Set, 40.5mm-82mm	
Standard Rubber Lens Shades	
40.5mm-77mm	
Wide Angle Rubber Lens Shade	
49mmWA, 52mmWA, 55mmWA, 58mmWA, 62mmWA, 67mmWA, 72mmWA, 77mmWA	
Screw-in Metal Lens Shades	
LS49mm, LS52mm, LS55mm, LS58mm, LS62mm, LS67mm, LS72mm, LS77mm	
Metal Lens Caps	
LC46mm, LC48mm, LC49mm, LC52mm, LC55mm, LC58mm, LC62mm, LC67mm, LC72mm, LC77mm	

Lens-To-Filter Directory

CANON				
Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
J8x12REA (DC)	12.5-75mm	f/1.8	72mm	
J8x8B	6-48mm	f/1.7	4 1/2"	95SSLR-4 1/2"
J8x11	11.5-90mm	f/2.0	52mm	
J8x11	11.5-90mm	f/2.1	58mm	
J8x11R (DC)	11.5-90mm	f/2.1	72mm	
J10x8.5B	8.5-85mm	f/1.8	Series 9	72M-9
			77mm	
J10x9.5B	9-95mm	f/1.8	Series 9	77M-9
			72mm	
J10x10	10-100mm	f/2.3	Series 9	72M-9
			67mm	
J10x10B	10.5-105mm	f/1.9	Series 9	67M-9
			72mm	
J10x10IE	10.5-105mm	f/1.4	Series 9	72M-9
J10x10R (DC)	10-100mm	f/2.3	4 1/2"	113C-4 1/2"
J10x10R (DC) IE	10.5-105mm	f/1.4	Series 9	86C-9
J10x10REA (DC)	10-100mm	f/2.3	4 1/2"	113C-4 1/2"
J10x11	11.5-110mm	f/2.3	Series 9	86C-9
J10x11R (DC)	11.5-110mm	f/2.3	58mm	
J10x11REA (DC)	11.5-110mm	f/2.3	Series 9	86C-9
J13x9B	9-118mm	f/1.6	Series 9	80SSLR-9
J13x9B IE	9-118mm	f/1.6	Series 9	80SSLR-9
J13x9B IE2	9-117mm	f/1.6	Series 9	80SSLR-9
J14x8B IRS	8-112mm	f/1.7	4 1/2"	100SSLR-4 1/2"
J15x9.5B	9.5-143mm	f/1.8	Series 9	80SSLR-9
J18x9B1E2	9-162mm	f/1.7	4 1/2"	90SSLR-4 1/2"

SCHNEIDER				
Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
TV-43	8.5-125mm	f/1.7	4 1/2"	90SSLR-4 1/2"
TV-44	9-126mm	f/1.7	Series 9	77M-9
TV-45	11-130mm	f/1.4	6.6x6.6	
TV-46	8.7-260mm	f/1.4	6.6x6.6	
TV-47	18.5-560mm	f/1.4	6.6x6.6	
TV-54	6.5-91mm	f/1.4	77mm	

FUJINON				
Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
A3.5x6.5	6.5-23mm	f/1.7	72mm	
			Series 9	72M-9
A7x7RM	7-50mm	f/1.7	4 1/2"	86C-4 1/2"
A10x10RM	10-100mm	f/1.6	4 1/2"	86C-4 1/2"
A10x10.5RW-2	10.5-105mm	f/1.4	138mm	116SSLR-138mm
A10x11	11-110mm	f/1.6	67mm	
			Series 9	67M-9
A10x11RM	11-110mm	f/1.6	67mm	
			Series 9	67M-9
*A12x9BRS	9-108mm	f/1.7	72, 77mm	72M-9
			Series 9	77M-9
*A12x9BRM	9-108mm	f/1.7	72, 77mm	72M-9
			Series 9	77M-9
*A12x9CRS	9-108mm	f/1.7	72, 77mm	72M-9
			Series 9	77M-9
A12x10RM	10-120mm	f/1.9	77mm	
			Series 9	77M-9
A12x10RS	10-120mm	f/1.9	Series 9	77M-9
			72mm	
A14x9ERM	9-126mm	f/1.7	Series 9	72M-9
			77mm	
A14x9.5ERM	9.5-133mm	f/1.7	Series 9	77M-9
			72mm	
A14x10BERS	10-140mm	f/1.9	Series 9	72M-9
			72mm	
A14x10BERM	10-140mm	f/1.9	Series 9	72M-9
			72mm	
A14x10CERS	10-140mm	f/1.9	Series 9	72M-9
			72mm	
A14x10RM	10-140mm	f/1.7	Series 9	72M-9
			72mm	
A14x11ERM	11-154mm	f/2.1	Series 9	72M-9
			72mm	
A14x11ERS	11-154mm	f/2.1	Series 9	72M-9
			72mm	
A17x9ERM	9-153mm	f/1.7	4 1/2"	86C-4 1/2"
A22x12.5	12.5-275mm	f/2.0	4 1/2"	107C-4 1/2"

*With 2.2 Extender-77mm
With 2.0 Extender-72mm

Film Lenses

ANGENIEUX				
Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
6x9.5	9.5-57mm	f/1.6	Series 9	65M-9
				67SSLR-9
6x13 D1-D2	13-78mm	f/2.3	Series 9	65M-9
6x15B	15-90mm	f/2.5	Series 8	
6x20L2	20-120mm	f/2.6	138mm	122.5-138mm
6x22T11	22-132mm	f/2.6	93mm	
10x9.5	9.5-95mm	f/2.2	4 1/2"	88SSLR-4 1/2"
				86M-4 1/2"
10x12	12-120mm	f/2.2	Series 9	72M-9
				74SSLR-9
10x12B	12-120mm	f/2.8	4 1/2"	86M-4 1/2"
				88SSLR-4 1/2"
10x15B	15-150mm	f/2.8	Series 9	72M-9
				72mm
10x16T11	16-160mm	f/2.0	4 1/2"	108.5-4 1/2"
10x18T11/T12	18-180mm	f/2.8	4 1/2"	108.5-4 1/2"
10x25T11/T12	25-250mm	f/3.2	4 1/2"	108.5-4 1/2"

COOKE				
Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
Cooke Cine Varotal	25-250mm	f/4.0	138mm	124SSLR-138mm
Cooke Varo Kinetel	10.4-52mm	f/2.5	4 1/2"	83SSLR-4 1/2"
Cooke Varo Kinetel	9-50mm	f/2.2	4 1/2"	83SSLR-4 1/2"
Cooke Varo Panchro	20-60mm	f/2.8		Call for Availability
Cooke Varotal	20-100mm	f/2.8	6"	144.5SSLR-6"

ZEISS

Lens Model	Focal Length	Aperture	Filter Size	Adaptor Ring Size
Distagon	9.5mm	f/1.2	Series 9	70SSLR-9
Distagon	12mm	f/1.2	Series 9	70SSLR-9
Distagon	16mm	f/1.2	Series 9	58M-9
Distagon	16mm	f/2.0	Series 7	49F-7
Distagon	18mm	f/1.2	Series 9	72M-9
Distagon	24mm	f/2.0	Series 7	49F-7
Distagon	25mm	f/1.2	Series 9	67M-9
Planar	32mm	f/2.0	Series 7	49F-7
Planar	35mm	f/1.2	Series 9	67M-9
Planar	50mm	f/1.2	Series 9	67M-9
Planar	50mm	f/2.0	Series 7	49F-7
Planar	85mm	f/1.2	Series 9	67M-9
Planar	135mm	f/2.0	Series 9	72M-9
Vario-Sonnar	10-100mm	f/1.8	Series 9	80SSLR-9
Vario-Sonnar	10-100mm	f/2.8	Series 9	75SSLR-9

Filter Pouch (72mm-Series 9)

Holds 6 filters. Constructed of heavily padded, waterproof, DuPont Cordura nylon with veico fasteners \$20.00

Cordura Pouches

2x2	\$4.75	5x5, 138mm	\$ 9.25
3x3, Series 9 . . . . .	.8.25	5x6 . . . . .	.9.25
3x4 . . . . .	.8.25	6.6, 6.6x6.6	12.00
4x4, 4 1/2 . . . . .	.9.25	9x9	18.00
4x5.650 . . . . .	.9.25		

Viewing Filters - Color and Black/White

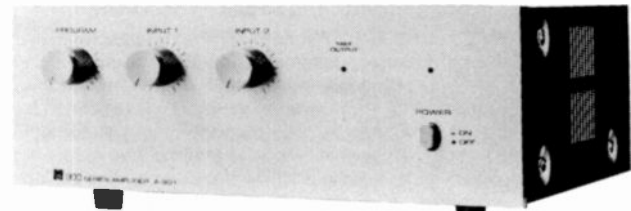
#1 Black/White Viewing Filter 90-50	\$ 18.75
#2 Color Viewing Filter ND 2.0	18.75
#3 Color Viewing Filter for Faster Films (ASA 100 and up)	18.75
#4 Process Viewing Filter (green glass)	18.75
#5 Blue Screen Viewing Filter, also for adjusting color bars on monitors without gun/blue bottom	18.75
Replacement Filters, Color or B/W . . . . .	.9.50

MIXER/POWER AMPLIFIERS



A-901A 3-Channel Mixer/Power Amplifier

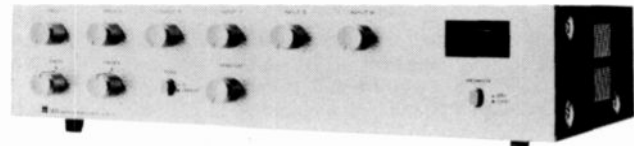
- 10WRMS output power
 - 20-20,000Hz frequency response, ± 1 dB
 - Low distortion and noise level and excellent output regulation
 - Bass and treble controls for Input #1 and Program Input
 - Muting function and protection circuitry
 - Separate output terminals for 4/8 ohms, 25/70V
 - Full range of plug-in modules
 - Portable or rackmounted type
- A-901A 10WRMS, 2 ports (less modules) \$228.00



A-901A

A-903A/906A/912A 6-Channel Mixer/Power Amplifiers

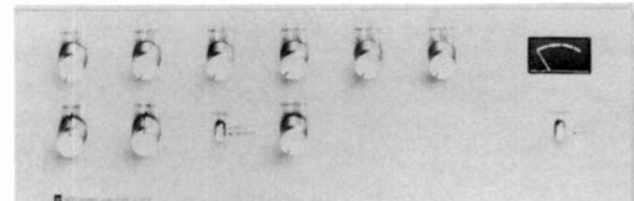
- 20-20,000Hz frequency response, ± 1 dB
 - Low distortion and noise level and excellent output regulation
 - Bass, treble and master gain controls
 - Bridging and signal processing input and output
 - Built-in protection circuitry
 - Separate output terminals for 4/8 ohms, 25/70V
 - Full range of plug-in modules
 - Portable or rackmounted type
- A-903A 30WRMS, 6 ports (less modules) \$457.00
 A-906A 60WRMS, 6 ports (less modules) 679.00
 A-912A 120WRMS, 6 ports (less modules) 809.00



A-903A

P-906A/912A/924A Power Amplifiers

- 20-20,000Hz frequency response, ± 1 dB
 - Low distortion and noise level, excellent output regulation and built-in protection circuitry
 - Full range of plug-in modules
 - High impedance direct input and an input port (edge connector) that can accept 1 module
 - Separate output terminals for 4/8 ohms, 25/70V
 - Input level switch (1000mV/100mV)
 - Portable or rackmounted type
- P-906A 60WRMS, 1 port (less modules) \$ 592.00
 P-912A 120WRMS, 1 port (less modules) 725.00
 P-924A 240WRMS, 1 port (less modules) 1298.00



A-912A

Accessories

- MB-920 Rackmount brackets (pair) for A-901A . . . \$29.00
 MB-921A Rackmount brackets (pair) for A-903A . . . 29.00
 MB-931A Rackmount brackets (pair) for A-906A, A-912A, P-906A, P-912A, P-924A 29.00
 PF-911 Perforated blank panel, 1³/₄" 19.00
 YA-910 Volume control cover (for basic units) 2.00

A-503A/A-506A/A-512A Mixer/Power Amplifiers

- Designed to bring reliable power to PA applications of all sorts in industrial plants, offices, schools, churches, etc. — anywhere there is a need for paging, announcements, intercommunications, etc.
- Simplified control layout
- 4 microphone inputs
- Record player input
- A radio tuner, tape player, chime, mixer/preamplifier, compact disc player or other high level input sources may be connected to the Aux-1, Aux-2 or Aux-3 inputs
- Inputs 3, 4 and 5 can be muted, allowing inputs 1 and 2 and Aux-3 to override them
- Remote volume control



A-512A

- Link switch provides for the insertion of signal processing equipment
 - A tape recorder may be driven from the tape output jack on the amplifier; the output is controlled at the tape recorder
 - A booster amplifier may be driven from the booster output jack
 - 24VDC operation
- A-503A 30W \$445.00
 A-506A 60W 573.00
 A-512A 120W 650.00
 U-51 Microphone input module 68.00
 U-52 Line matching transformer 33.00
 MB-21B2 Rackmount brackets, black 29.00
 PF-511 Perforated panel, 1³/₄", black 19.00

900 SERIES MODULES

Microphone Modules: LoZ, Balanced, 200 Ohm, Phantom Power, Gain Control and Lo/Hi Filters

Each module has been precisely designed to cover its specific function. Through the use of these modules, your amplifier becomes a custom-made unit to exactly fit your sound needs. Various types of connectors are provided with each module to facilitate matching it to the equipment with which it is to be used. Microphone preamplifier, mag, phono preamplifier, auxiliary preamplifier, bridging transformer, line matching transformer, paging input, line output and signal generator modules are included here. They are easy to install and cover a wide variety of sound needs.

M-01F	XLR (F)	.....	\$70.00
M-01M	XLR (M)	.....	88.00
M-01P	1/4" phone jack (P)	.....	60.00
M-01S	(S)	.....	54.00
M-11S	Receive mute, select normally on or off (S)	.....	70.00
M-21S	Remote volume control (S)	.....	79.00
M-51F	Voice gate, XLR (F) (no high filter)	.....	87.00
M-51S	Voice gate (S) (no high filter)	.....	72.00
M-61F	Compressor, XLR (F)	.....	93.00
M-61S	Compressor (S)	.....	77.00

Note: Phantom power is defeatable by cutting jumper J-1 on circuit board.

Microphone Module: HiZ, Unbal., 10K Ohm

M-03P	Lo/Hi filter, gain control (P)	\$37.00
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Magnetic Phono, RIAA Equalization

R-01R	RIAA mag phono (R)	\$33.00
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Auxiliary Modules: HiZ, Unbal., 220K Ohm, GC

U-01F	XLR (F)	\$48.00
U-01P	(P)	37.00
U-01R	(R)	33.00
U-01S	(S)	.....	33.00
U-11R	Receive mute (R)	.....	46.00
U-11S	Receive mute (S)	.....	46.00
U-12S	Receive mute, adjustable attenuation (S)	.....	52.00
U-21S	Remote volume control (S)	.....	62.00
U-61S	Compressor (S)	.....	85.00

Note: The U-61S can be used as a "Master Compressor" by cutting jumper J-2.

Balanced Line Output Module

T-01S	LoZ, 600 ohm, bal. out, signal derived from mix bus, gain control (S)	\$79.00
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Note: T-01S functions only in ports 5 and 6 of the following models: M-900A, A-903A, A-906A, A-912A, W-906A and W-912A. The T-01S will not function in the A-901A.

Auxiliary Input—Balanced Line Out Module

T-02S	Unbal., 220K aux. input, 600 ohm bal. out, gain control for both input and output (for music-on-hold)	\$91.00
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Bridging Transformers: 10K Ohm, Bal. Input

B-01F	XLR (F)	\$62.00
B-01P	(P)	58.00
B-01S	(S)	50.00
B-11S	Receive mute (S)	.....	62.00

Line Matching Transformer Modules: 600 Ohm, Bal.

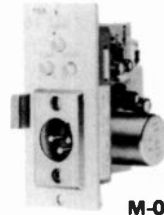
L-01F	XLR (F)	.....	\$62.00
L-01P	(P)	.....	52.00
L-01S	(S)	.....	50.00
L-11S	Receive mute (S)	.....	62.00
L-41S	Send mute (S)	.....	75.00

Note: When used with the A-901A, the L-41S must occupy port #2.

900 Series to Exes Intercom Module

I-01S	Exes Intercom System 600 ohm, line matching transformer, gain control, mute delay (S)	\$83.00
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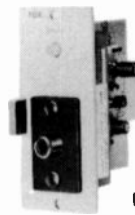
Note: I-01S module is for interface with Toa Exes Intercom Systems.



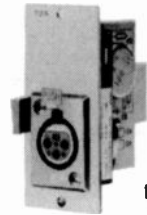
M-01



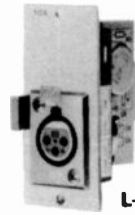
R-01R



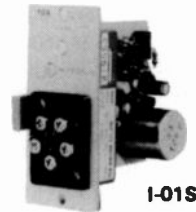
U-11



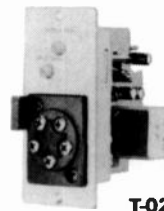
B-01



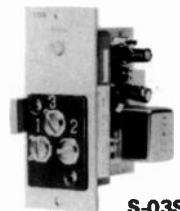
L-01



I-01S



T-02S



S-03S

Signal Generator Modules

S-01S	1kHz, sine wave, gain control (S)	.....	\$62.00
S-02S	Buzzer/yelp, gain control (S)	.....	62.00
S-03S	Chime/continuous, gain control (S)	.....	70.00

Signal Processor Module

F-01R	BBE sonic maximizer signal processor module (R)	\$118.00
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Notes

Suffix Guide: F = Female XLR; M = Male XLR; P = 1/4" Phone Jack; R = RCA Pin Jack; S = 3/8" Screw Terminal

U-61S Aux. Mod: For the U-61 to function as a "Master Compressor" between mixer and amp, cut jumper J-2. Pin 1 = Line Out and Pin 3 = Line In.

Receiver Mute: Receives closure from mute bus on unit. Closure originates either from mute plug or from L-41 module.

Send Mute: Develops its own mute closure due to signal input and sends along mute bus.

WIRELESS MICROPHONE SYSTEM



WT-840U Quad Channel Wireless Diversity Receiver Frame

The WT-840U offers the user superior performance free from dropouts, phase and multipath distortions and operational noise. The modular concept allows the WT-840U to be equipped with up to 4 user-installable channels by the simple addition of WTU-840U receiver modules.

WT-740U Dual Channel Wireless Non-Diversity Frame

The modular concept allows the WT-740U to be equipped with 2 user-installable channels by the simple addition of WTU-740U receiver modules.

WM-240U Handheld Wireless Transmitter

Supplied with a specially molded polymer diaphragm, this handheld transmitter offers optimized frequency response in a popular cardioid pickup pattern.

The tone-key circuit design delivers excellent performance that's virtually free from external interference.

Superior compander technology has been included to provide wide frequency response against a background of vanishingly low noise. Surface mount technology provides the user with 30 hours of continuous operation from 1 AA battery. The microphone body incorporates both green power on and red low battery level LEDs.

WM-340U Wireless Lavalier Mic and Bodypack Transmitter

The WM-340U weighs 2.6 oz. and offers the user over 35 hours of continuous battery life.

The tone key circuit eliminates external interference and its compander technology provides a wide dynamic range and an extremely high signal-to-noise ratio.

The electret condenser mic capsule has a cardioid pattern and has been designed to provide optimum performance when utilized in speech reinforcement systems.

The microphone body incorporates both green power on and red low battery level LEDs.

WTU-840U Diversity Receiver Module/ WTU-740U Non-Diversity Receiver Module

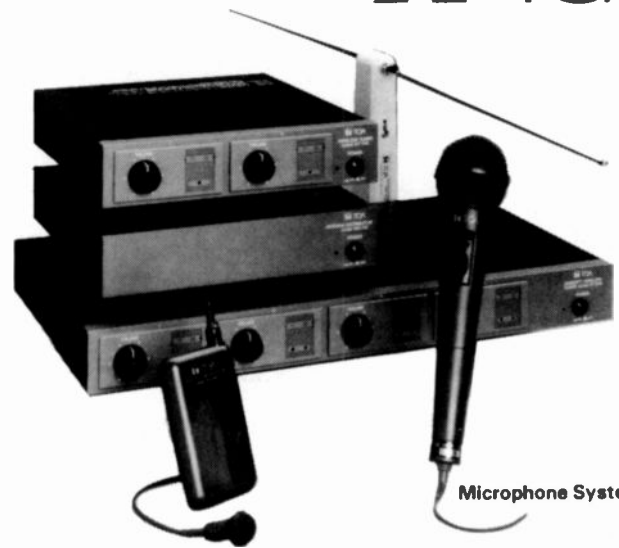
These receiver modules are the heart of our VHF high band wireless systems. These modules utilize surface mount technology and contain tone-key and compander circuits. Rejection of unwanted signals is kept to a minimum by using the latest solid-state filtering techniques.

The WTU-840U diversity module has been designed with 2 receiver sections. It instantaneously and continuously compares the 2 signals being received. It discriminates as to which is the stronger of the 2 received signals and selects this stronger signal to provide clean, distortion-free sound.

These modules provide excellent quieting, sensitivity and selectivity measurements. Ease of installation has been assured by the simplicity of their modular plug-in design.

WD-740U Wireless System Antenna Distributor

The WD-740U has been designed for use with the non-diversity wireless system. The WD-740U combines the input signal from 2 optional dipole antennas and distributes the mixed signal to 4 outputs. This ensures that multipath distortion, dropouts and operational noise are essentially eliminated. Equipped with a single power on/off switch and a power on lamp, the WD-740U provides proper signal distribution for clear, intelligible sound to be reproduced throughout the listening area.



Microphone Systems

VHF HIGH BAND WIRELESS SYSTEMS

4-Channel Capable Diversity System Configured for Single Channel Operation

System Components:

- 1 WM-240U Handheld or WM-340U Lavalier Mic/Transmitter \$1534.00
- 1 WT-840U Quad Channel Diversity Frame
- 1 WTU-840U Diversity Receiver Module
- 2 YW-460U Whip Antennas*

*(System may be purchased with 2 YW-450U Dipole Antennas in place of Whip Antennas) \$1683.00

Dual-Channel Capable Non-Diversity System Configured for Single Channel Operation

System Components:

- 1 WM-240U Handheld or WM-340U Lavalier Mic/Transmitter . . . \$979.00
- 1 WT-740U Dual Channel Receiver Frame
- 1 WTU-740U Non-Diversity Receiver Module
- 1 YW-460U Whip Antenna*

*(System may be purchased with 1 YW-450U Dipole Antenna in place of Whip Antenna) \$1054.00

Dual-Channel VHF High Band Portable Wireless Amplifier Configured for Single-Channel Operation

System Components:

- 1 WM-240U Handheld or WM-340U Lavalier Mic/Transmitter \$1321.00
- 1 WTU-740U Non-Diversity Receiver Module
- 1 WA-640 Wireless Amplifier*

*(System also may be purchased with 1 WA-640C Wireless Amplifier with a cassette option) \$1683.00

VHF High Band Wireless Components

WA-640	Dual-Channel Portable Amp.	\$ 772.00
WA-640C	Dual-Channel Portable Amp With Cassette Option	1085.00
WM-240U*	Handheld Mic/Transmitter	339.00
WM-340U*	Lavalier Mic/Body Pack Transmitter.	339.00
WT-840U	4-Channel Diversity Receiver Frame	704.00
WTU-840U*	Diversity Receiver Module	406.00
WT-740U	Dual-Channel Non-Diversity Receiver Frame	339.00
WTU-740U*	Non-Diversity Receiver Module	259.00
WD-740U	Non-Diversity Antenna Distribution Amplifier	350.00
YW-450U	Powered Dipole Antenna Booster	118.00
YW-451	Outdoor, Splash-proof Cover for YW-450U	108.00
YW-452	Microphone Stand Mounting Hardware for YW-450U	39.00
YW-460U	Whip Antenna	43.00
IT-437	Balancing Transformer.	12.00

*Add Suffix 1 through 4 for the required frequency (1 = 169.445; 2 = 170.245; 3 = 171.045; 4 = 171.905)

D/Vision™ Motion Video Editor

- Easy-to-use graphical user interface (GUI)
- Simple VCR-like controls
- Precise, frame-by-frame editing (30 frames per second)
- Variable speed playback of video material
- Fully independent audio track editing
- Audio synchronization for narration, music, sound effects, etc.
- Editing from a virtually unlimited number of source (AVSS) files
- Seamless viewing of edit sequences
- FastAssembly™ creates edited AVSS in approximately real time
- Accepts stills, graphics, animation and titles from other software via the Intel standard AVSS file format
- Runs on IBM PS/2™ or PC-AT compatible with 386 under MS-DOS 3.3/4.0
- Uses Intel DVI ActionMedia™ boards and Real Time Video (RTV) compression algorithms
- Stores approximately 1 hour of video on 700M byte SCSI hard disk
- Based on proven software used to edit network television programs and Hollywood feature films

D/Vision has a GUI with simple controls that are like those on your home VCR. The "Source VCR" plays unedited material and contains icons that allow you to instantly access any frame of compressed video using scene numbers, key-word descriptions or frame numbers.

The selected video can then be played back at variable speed using a trackball as the VCR "shuttle knob." You can edit any material that can be captured into standard Intel AVSS files, including stills, animation, titles and more. (Currently, D/Vision supports Intel RTV files captured at 30 frames per second.)

At any point the video, audio or both can be "recorded" onto the "Record VCR" with the "VID" or "AUD" buttons. As each clip is added to the edit sequence, it is represented on a graphic time line.

Just by positioning the cursor, you can insert new material or play back any part of your presentation.

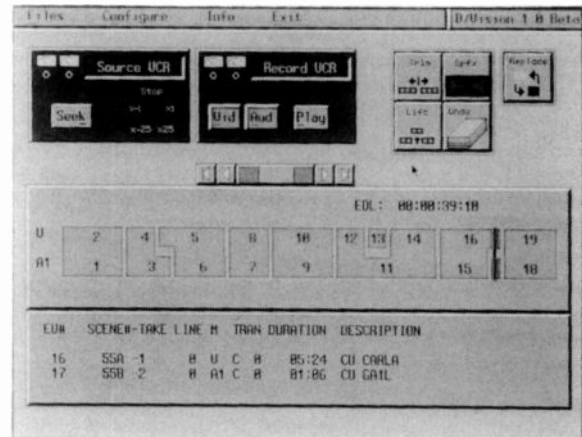
The D/Vision Trim function displays both sides of any cut (the last frame of the outgoing clip and the incoming clip's first frame). This makes it easy for you to choose exact edit points or match action.

With the Lift function you can delete, move or copy material from 1 point on the time line to any other point. D/Vision offers simple, powerful functions so you can quickly place any single frame of video or audio next to any other.

Once you've finished your editing, FastAssembly™ lets you create an edited AVSS file that can be played through an authoring package or any other application capable of playing DVI AVSS files.

D/Vision

Random access editing software package running under MS-DOS 3.3 or higher for use with Intel's ActionMedia board set. Includes manual and 5 1/4" floppy disks. \$2,975.00



D/Vision

D/Vision-PRO

Professional version. Adds second audio channel, improved variable speed control, 5 additional EDL output formats and drop-frame time code. \$4,950.00

D/Vision-The System

A turnkey system including D/Vision-PRO software, a 386-PC and VGA monitors, Intel DVI board set, 700M byte SCSI hard disk, speakers and time code reader card \$29,500.00

Intel's DVI Board Set

ActionMedia capture and delivery DVI boards for video compression and decompression. Available for IBM P/S-2 (Microchannel) and PC-AT compatibles \$4,950.00

Longitudinal Time Code Reader Board

Reads SMPTE time code during capture for EDL traceback. PC-AT compatible bus \$595.00

DVI Sync Converter

Required for DVI video to be recorded onto NTSC videotape. \$495.00

Truevision® VIDI/O

NTSC-to-RGB and RGB-to-NTSC converter box. Required for capture and NTSC video recording \$1,390.00

D/Vision Support Contract

Factory support line, free software updates. . .mo./\$75.00

D/Vision-Pro Support Contract

Factory support line, free software updates, Intel board exchange, local dealer supportmo./\$200.00

D/Vision Demo Disk

Demonstration disk for basic version. Credited toward purchase (requires DVI-equipped computer) \$95.00

Standard Coax Patching Systems

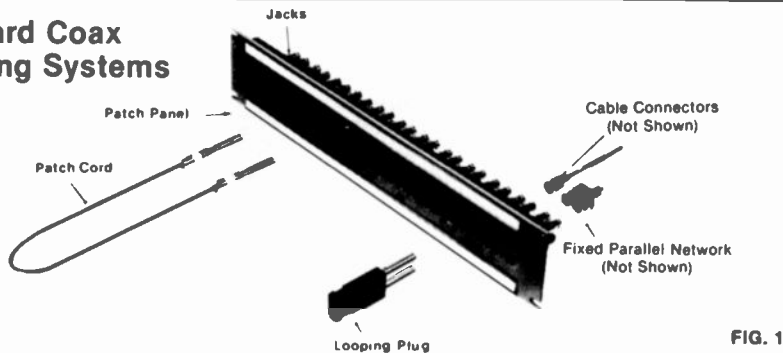


FIG. 1

Plugs & Cable Assemblies

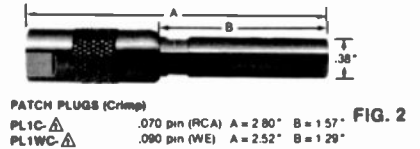


FIG. 2

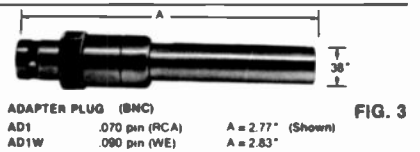


FIG. 3

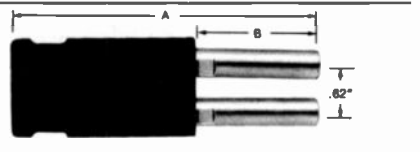


FIG. 4

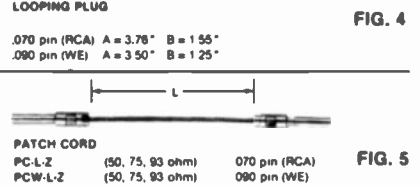
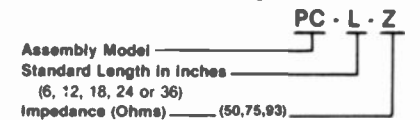


FIG. 5



FIG. 6

Cable Assemblies Ordering Information:



Jacks: Single/Dual



FIG. 7

Usable whenever cable entry is desired in place of standard connectors.



FIG. 8

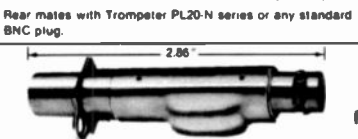


FIG. 9

Rear mates with any BNC plug. Circuit is terminated when patch plug is removed. Signal degradation increases when used above 100 MHz. See Fig. 16

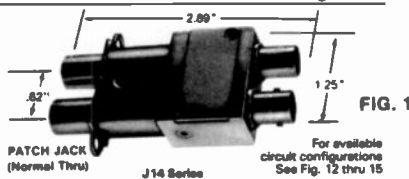


FIG. 10

For available circuit configurations See Fig. 12 thru 15

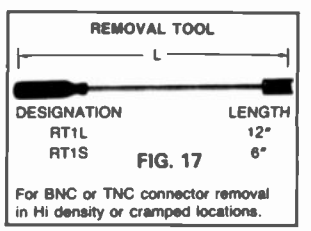
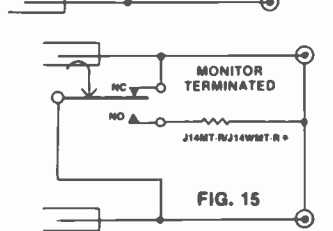
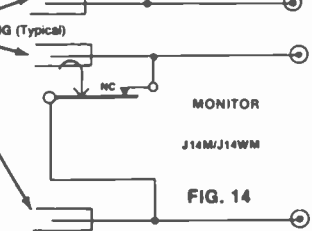
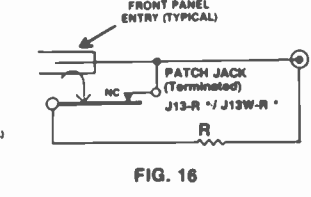
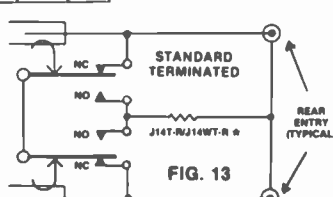
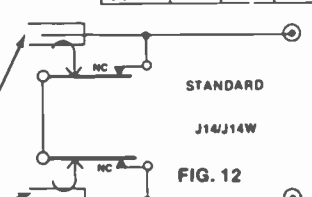
Introduction:

Trompeter Electronic's standard coax patching systems, shown on this page, provide limitless flexibility to route signals from one place to another. Two basic versions of Standard Coax Patching are available. The RCA 50 ohm with a pin size of .070" and the Western Electric (WE) 75 ohm type with a pin size of .090". Signal degradation occurs above 100 mhz. The two series are not interchangeable but can be intermixed on the same panel along with TEI's audio patch jacks and panel lites (not shown).

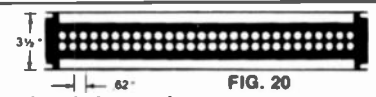
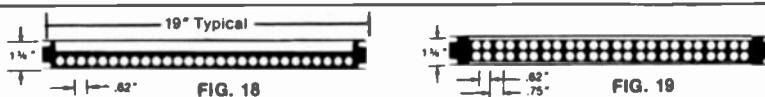
PART NO.	WESTERN ELECTRIC	FUNCTION	REAR ENTRY	PIC. FIG.	CIRCUIT FIG.
J3E-Δ	J3WE-Δ	Patch Jack, Single	Cable*	7	-
J3	J3W	Patch Jack, Single	BNC Standard TNC Available	8	-
J3D	J3WD	Patch Jack, Single	Solder Pot	Not Shown	-
J13R*	J13WR	Patch Jack, Single - Self Terminating	BNC Standard TNC Available	9	18
J13C-R*	J13WC-R	Patch Jack, Single - Self Terminating	Cable, Crimped	Not Shown	16
J14 Series	J14W Series	Patch Jack, Dual - Self Looping	Dual BNC Standard TNC Available	10	12 thru 15
J15 Series	J15W Series	Patch Jack, Dual - Prewired Parallel or No Wiring	Single - BNC, TNC or Cable	11	-

* Substitute Resistance for R (1/4 W 5%)

RES. VALUE	1	2	4	5	3
RES. CABLE	58	59	122	174	223



Patch Panels

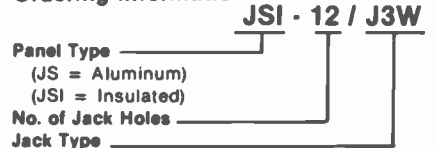


PANEL HEIGHT	NO. ROWS	FIG.	PANEL DESIGNATION AND NO. OF SINGLE JACKS ACCOMMODATED										VERTICAL SPACING				
1 3/4"	1	18	12	14	16	20	24S	26	28								
	2	19								32S	40S	48S	52S			.625	
3 1/2"	2	20				24L			28A	32A	36A	40	48	52	56	.625	

◀ Will not accept J14 or J15 Dual Jack.

Prices and Specifications Subject to Change Without Notice.

Ordering Information:



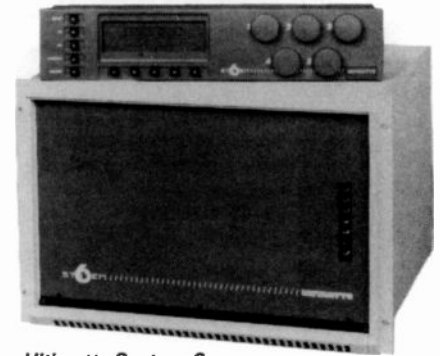
To Order Panels Only, Leave "Jack Type" Blank.

ULTIMATTE®

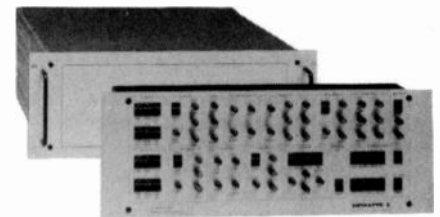
VIDEO COMPOSITING EQUIPMENT

Ultimatte Video Compositing Equipment

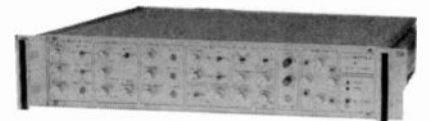
All Ultimattes can composite transparent objects, fine detail such as hair or smoke, out of focus objects, reflections and shadows. They can all matte on blue, green or red, and all permit the foreground subject to touch the backing without causing fringing or break-up in the composite. They all remove blue spill from the foreground subject while reproducing blue foreground colors. They all have a clean up control to remove unwanted shadows or defects in the backing and a black gloss control to deal with black glossy surfaces in the foreground. All have a positive matte output.



Ultimatte System-6



Ultimatte-5



Ultimatte-4



Ultimatte-300



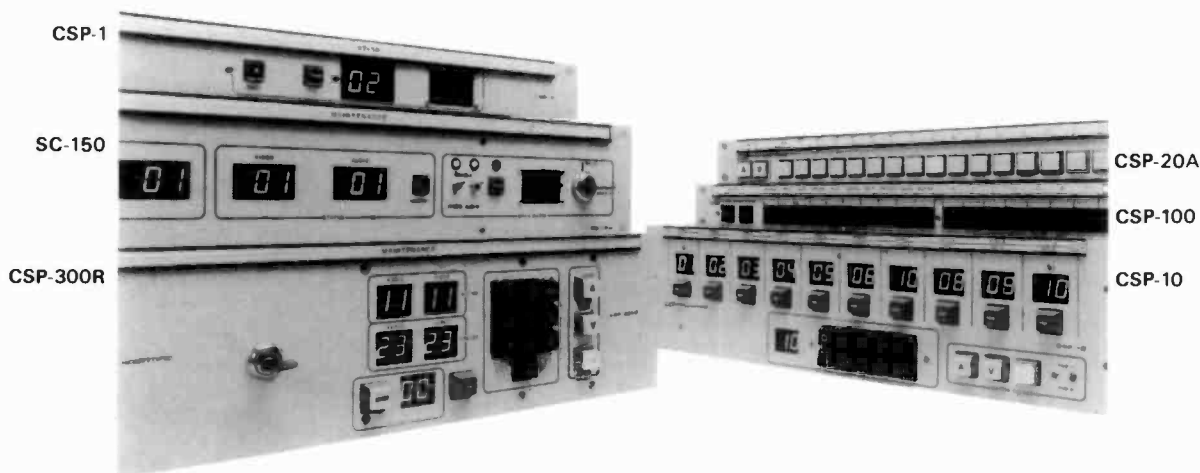
Forematte

	Ultimatte System-6	Ultimatte-5	Ultimatte-4	Ultimatte-300	Forematte
Screen Correction™	•				
SMPTE Time-Code Reader	400 Cues				
Computer Interface	RS 232 & RS 422				
FG RGB White Controls	•				
FG Saturation	To Black & White				
Black Balance Control	•				
BG RGB Black Controls	•				
BG RGB White Controls	•				
BG Saturation	To Black & White				
Window Level Control	•				
NTSC/PAL Switchable	•				
World Power Adaptability	100V to 240V				
White Logic (Matting)	•				
White Logic (Keying)	•	•	Optional		
Black Logic (Matting)	•	•	•		
Remote Control	Menu Driven	1 Incl.-Can Add 3	Optional	Kit Available	Kit Available
FG Input Requirements	RGB	RGB, Component	RGB	RGB & Encoded	RGB & Encoded
BG Inputs	RGB, Encoded	RGB, Encoded, Compon	RGB (Option), Encoded	Encoded	Encoded
Outputs	RGB	RGB, Component	RGB	Encoded	Encoded
FG Fade-In & Fade-Out	•	•	•	•	
FG Contrast Adjustments	Bi-Directional	•	•		
FG RGB Black Controls	•	•	•		
Flare Control (Gate 2)	•	•	•	•	•
Gate 3 Control	•	•			
Flare-Suppressed FG Direct				•	•
White Balance Control	•	•	•	•	•
Automated BG Level and BG Matte Adjustment	With Manual Override	With Manual Override		•	
BG Defocusing Control	•	•			
BG Field Colorizer	•	•			
Test Signal Select	•		Internal	Internal	
Separate Matte Density Adjustment for Warm and Cool Colors	•	•			
Black Gloss Control	•	•	•	•	•
Glare/Noise (Shadow) Control	Automated	•	•	Automated	Automated
Clean-Up Control	•	•	•	•	•
Glow-Input Circuit		•			
Built-In Window Generator	•	•	•		
Soft-Edge Windows	Variable	•			
Inverted Windows	•	•	•		
Reverse Windows	•	•			
External Window Input	•	•			
Negative Matte Output	•	•			
Digital Memory of Control Systems	75 Files	32 Sets of Values		One Set of Values	One Set of Values
Matte-In Polarity Switch	•	•	•		
Requires Separate Encoder	•	•			
Requires Ext. Black Burst	•	•	Matte Output Only		
Requires Ext. Sync & Blank			•		
Micro-Processor Controlled	•			•	•

Ultimatte System-6HD Includes 1 remote	\$122,000.00
Ultimatte System-6 Includes 1 remote	45,950.00
Ultimatte-5 Includes 1 remote	28,900.00
Remote for Ultimatte-5	4,500.00
Ultimatte-4	9,950.00
Ultimatte-4R Remote version, includes 10 meter cable	10,950.00
Ultimatte-4 RGB	9,950.00
Ultimatte-4R RGB Remote version, includes 10 meter cable	10,950.00
Remote for Ultimatte-4	1,595.00
Ultimatte-300	7,850.00
Remote for Ultimatte-300	375.00
Forematte	6,950.00
Remote for Forematte	375.00

NUMERIC CONTROL PANELS

USUTAH SCIENTIFIC, INC.
THE ROUTING SWITCHER PEOPLE.



Numeric Control Panels

- Loophrough coax control connection
- Wide variety of panels and mounting styles
- Continuous status readout
- Single-bus, multiple-bus and full-matrix models
- Optional encoding — permits addressing sources by name
- Audio and video select buttons for separate switching and staturing
- Simultaneous audio and video switching from different inputs (CSP-300R only)
- No custom components or proprietary software
- All keycap and write-in strip graphics provided

CPD/PL Desktop Party Line Control Panel

This panel consists of an attractive enclosure mounting a pair of lever switches for input selection plus a Take button. It connects to one of the AVS-1 or AVS-1B party lines by means of a single rear-mounted connector. The CPD/DL is battery powered thus eliminating the need for an AC power cord. The CMOS and "LS" TTL circuitry consume power only when a new input selection is made. Thus, battery life of several years can be expected in normal operation.

CSP-1 and CSP-2 Lever Switch Control and Status Panels

These panels utilize lever switches for data Preset and Take buttons for switch execution. Two-digit numeric readouts indicate crosspoint status on each assigned bus on data from the matrix refresh memory. Breakaway switching is accomplished by an Audio-Only button.

CSP-10 10 or 20 — Bus Control and Status Panel

This panel provides an inexpensive means of controlling up to 20 buses. Ten two-digit numeric indicators provide continuous status information on ten randomly assigned buses while associated Take buttons permit input selection on each bus. New input data is entered by means of a ten-key touchpad which, with associated two-digit readout, sets up input selection data prior to being switched on one or more buses. As with other numeric panels, the addition of coding PROMs and relegendable keycaps permits addressing and staturing each device by its "familiar" name.

CSP-10C

This panel provides the same features as the CSP-10, but mounts as a front panel on the matrix rack frame and includes a matrix card restraint bar (not pictured). It is most often used in remote van installations

where matrices are typically smaller and rack space is at a premium. Mounting height, including 20 x 20 AV matrix or 30 x 10 AAV matrix, is 10 1/2".

CSP-100 Group/Units Control and Status Panel

This panel, in its non-encoded form, permits addressing up to 100 inputs using two groups of buttons for Tens and Units data entry. With encoding PROMs added each two-button combination addresses a randomly assigned source. This allows the Tens buttons to be assigned group names so that, in combination with the numeric Units buttons, sources can be addressed by their familiar names (VTR-8, TBC-2, etc.). New selections within the same group require only a single keystroke allowing for rapid A/B comparisons such as camera matching. Breakaway buttons provide for separate audio and video switching and staturing. Mounting height is 1 3/4".

CSP-20A/CX-20A Button-Per-Source Panels

The CSP-20A Control and Status Panel with an associated CX-20A Expansion Panel provides button-per-source selection of from 20 to 140 inputs. Each new selection requires only a single keystroke and each button is identified by the source name printed on the label strip.

SC-150 Supervisory Control Panel

The SC-150 Panel provides separate three-digit numeric displays for video and audio staturing. Data entry for up to 160 output buses and 160 sources is by lever switches. Audio and video breakaway switches plus a status-request button are also provided. The keylock switch permits disabling the panel as to switching all buses except one bus (typically a system maintenance or quality control bus) while enabling it to momentarily status any other bus. 3 1/2" rackmount.

CSP-300R Full Matrix Control and Status Panel

This panel provides touchpad data entry and Preset and Active two-digit displays for both audio and video. Input selection data entered from the ten-key touchpad is displayed by either one or both of the preset displays until the Take button is depressed. If different data is entered for audio and video, the two matrices are each switched to their respective selected inputs when the Take button is depressed.

AVS-1B Routing Systems

- 60MHz Video Bandwidth — no obsolescence with conversion to MAC or HDTV video signals
- Sync-tip clamping of video inputs and outputs
- No control buffer cards used — worst-case failure is single 10 x 10 card
- Multi-sourced, discrete components — no proprietary circuits
- Fully reprogrammable with no downtime
- 10-year memory retention of reprogrammed data and matrix status
- Single or redundant power supplies with failure alarms
- Source/destination lockout capability
- Single-motherboard design for fully operational extender card servicing
- Up to eight individually-addressable levels
- 320 inputs/unlimited outputs maximum size per level
- Secondary combining matrices not required regardless of system size
- Automatic control card switchover with alarm — No undetected failure disasters
- Redundant "Plug-In" cooling fans
- Regenerative time code matrices
- Four user ports, RS-232 and RS-422
- Loophrough coax control panel interconnection via four isolated party lines
- Control panel source names assigned by customer — not by manufacturer
- BNC video and compression-type audio connectors — interface panels not required
- SALVO switching from computer terminal

Master Control Switching

The AVS-1B Routing Switcher is also used as the switching matrix for Utah Scientific Master Control Switchers. In this system, sources are selected by router crosspoints then processed as necessary by the master control mainframe. Some of the advantages of this approach to master control switching are:

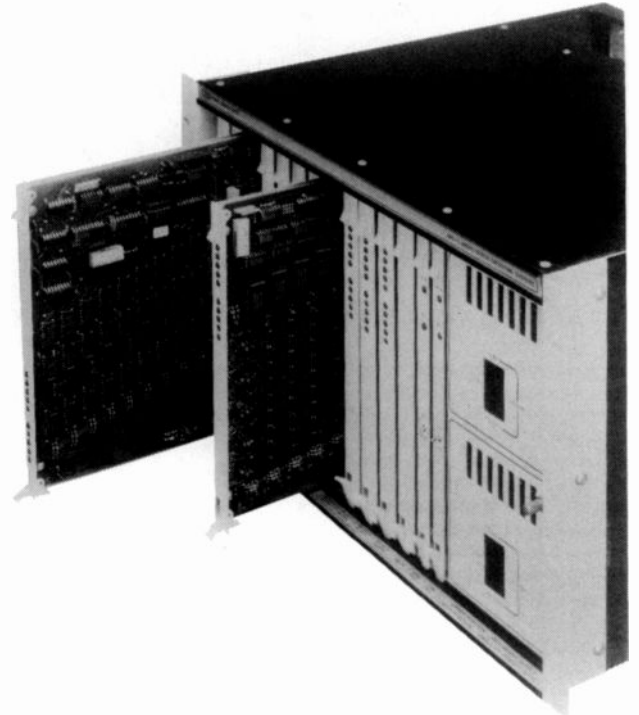
- All sources feeding the router are available to the Master Control Switcher
- System timing is greatly simplified since all sources are normally in proper time at the router inputs and the delay of a separate master control matrix needn't be accommodated
- In automated systems additional matrix buses can easily be controlled for multiple output feeds, off-line recording, etc.
- Overall system cost is significantly reduced

Integration with Machine Control

AVS-1B switching systems can be integrated with either of the two machine control systems offered by Utah Scientific. The PLMC-1 party line system can, in many instances, share the matrix party lines. Where the more sophisticated SMC-1 machine control system, with its high speed DYNABUS™ communications network, is used, interconnection with the AVS-1B party line is accomplished at the DYNABUS User Interface/Diagnostic panel. With either system, machine control assignments can either follow or be independent of A/V switches.

User Control Ports

The PL-160 Control and Memory Card furnished with each system incorporates multiple user ports to allow matrices to be controlled and/or monitored by various external devices. Two ports support RS-232 protocol and are brought out to standard RS-232 connectors on the rear panel. Another port supports RS-422 protocol while a fourth port can be internally strapped for either RS-232 or RS-422 operation.



AVS-1B

System Reprogramming

The relationship between source and destination names and their associated matrix inputs and outputs is subject to change as equipment is replaced and systems are expanded.

To alleviate this problem, Utah Scientific has incorporated reprogrammable, non-volatile memories in all its recent panel designs, with the PL-160 Control and Memory Card and the system party lines acting as the reprogramming medium.

The write-cycle time for the RAM memory used in Utah Scientific panels is typically faster, by a factor of 60,000:1, than the EPROMS used by other switcher manufacturers. This permits the reprogramming data to be interspersed with party line control commands and refreshment words. The result is system reprogramming with no downtime.

While RAM memory retention (by Lithium batteries) is typically ten years, with or without AC power applied, it is still backed up by factory-programmed PROMs that down-load into RAM if a check sum error ever occurs on panel start-up or reset.

A customer-furnished "dumb" terminal is used for reprogramming. This same terminal can be used for entering and executing SALVO switch commands and source and destination lockouts.

Power Supply Systems

Two separate power supply systems may be supplied with Utah Scientific switchers. Where space permits, one or two (for optional redundancy) diode-isolated PS-1B supplies are installed in matrix card cages. In other systems the PS-2 redundant power supply system, powering an entire rack of matrix frames, is furnished. The PS-1B system has both audible and external-contact failure alarms, while the PS-2 system offers an optional scanner/alarm panel that continuously scans 36 circuit points creating both audible and external-contact alarms while identifying the trouble source upon failure detection.

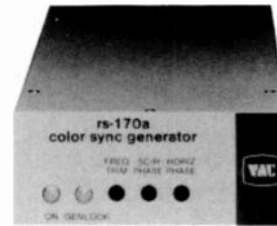
GENERATORS/ DISTRIBUTION AMPLIFIERS



BBG-2 Blackburst Generator

Incorporating a highly stable crystal controlled oscillator, the BBG-2 produces 9 technically correct RS-170A blackburst outputs for use in synchronizing various equipment in NTSC systems. Burst amplitude, sync, blanking and setup levels are internally adjustable. Up to 9 pieces of equipment may be synchronized without using additional video amplifiers or phase error inducing loopthrough connections.

BBG-2\$495.00



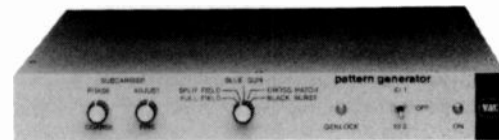
200-2

100-2 Color Sync Generator

Synchronize your system with this stable crystal controlled sync source. The 100-2 provides the NTSC signals necessary to ensure that all your equipment works together. Output signals are subcarrier, blackburst, sync, blanking and horizontal and vertical drives. To conserve space, a video or pulse distribution amplifier may be added internally, providing a ready source of sync signal distribution to multiple destinations.

100-2\$ 795.00

100-2DA With video DA1055.00



PG-2

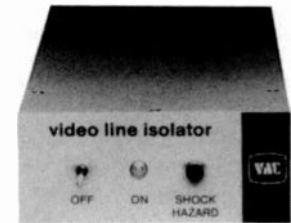
200-2 RS-170A Genlockable Color Sync Generator

This quarter-rack wide RS-170A unit provides crystal controlled synchronization signal outputs from either a free-running or genlocked source. Outputs include subcarrier, blackburst, composite sync, composite blanking, burst flag and horizontal and vertical drives for synchronization of all your color equipment.

200-2\$895.00



PDA-3



VL-2

PG-2 Color Pattern Generator

Featuring independently adjustable color vectors and a crystal controlled oscillator, the PG-2 has 8 standard test patterns, with up to 2 switchable custom IDs for each pattern. The unit may be used in either the free-running or genlocked mode, has a separate 1kHz tone output, adjustable subcarrier phase, and provides subcarrier and composite sync outputs.

PG-2\$1395.00

PG-3 Color Bar/Sync Generator

This compact quarter-rack wide RS-170A unit not only provides sync outputs, but also generates a SMPTE color bar pattern. The PG-3 is crystal controlled and may be either free-running or genlocked to the studio master source. SMPTE color bar, subcarrier, blackburst, composite sync, composite blanking burst flag and Field 1 ID are provided to enable color equipment synchronization.

PG-3\$1295.00

VL-2 Video Line Isolator

Remove ground loop generated hum bars from your system with the VL-2. Optical coupling provides 80dB of ground noise reduction and the unit can withstand up to 1500V between input ground, output ground and AC ground. A front panel lamp warns of potential shock hazards due to voltages between the 3 "grounds." Internal gain and frequency adjustments provide compensation for long cable runs. The unit is also available with an audio isolator so that both audio and video can be distributed through the same isolated path.

VL-2 Video line isolator\$340.00

VL-2A Video and audio line isolator395.00

ADA-3 Audio Distribution Amplifier

The direct coupled ADA-3 offer a single loopthrough input, adjustable gain and 6 outputs for proper distribution of your audio. The unit is available with RCA jacks or terminal blocks.

ADA-3\$360.00

CVDA-3 Clamping Video Distribution Amplifier

Featuring an adjustable clamping level to allow proper setup level and help eliminate hum bars and black level retention problems, the CVDA-3 also has a single loopthrough input, 6 outputs, adjustable gain and 30MHz bandwidth to provide excellent picture resolution.

CVDA-3\$360.00

PDA-3 Pulse Distribution Amplifier

This is a 1 in, 6 out, loopthrough input unit with adjustable output level. The PDA-3 utilizes pulse regeneration to clean up noisy pulse synchronization signals and keep the noise out of your equipment.

PDA-3\$320.00

SV/A-1 S-Video/Stereo Audio Distribution Amplifier

The SV/A-1 features wide bandwidths for both video and audio to ensure reliable distribution of your Y and C video signals and your stereo audio signals. Using standard 4-pin mini-DIN (S-Video) connectors for video and RCA jacks for audio, it provides a single 75 ohm terminated video input, 6 video outputs, your choice of 600 ohm or bridging audio input and 6 audio outputs per audio channel. Terminal blocks are available in lieu of the RCA jacks. The unit is provided in a full rack width chassis and includes installed rack mounts.

SV/A-1\$1370.00

SVDA-1 S-Video Distribution Amplifier/

YCDA-1 Y/C Distribution Amplifier

These units feature wide bandwidth for accurate distribution of your Y and C video signals. Using standard 4-pin mini-DIN (S-Video) connectors, they incorporate a single 75 ohm terminated video input and 6 video outputs. The convenient half rack width chassis is standard, with full rack width chassis available.

SVDA-1 S-Video distribution amplifier\$640.00

YCDA-1 Y/C distribution amplifier640.00



DISTRIBUTION AMPLIFIERS/ SWITCHES

VDA-2 Video Distribution Amplifier

Featuring wide bandwidth of 30MHz, it provides 6 adjustable gain outputs from a single loopthrough input.

VDA-2 \$320.00

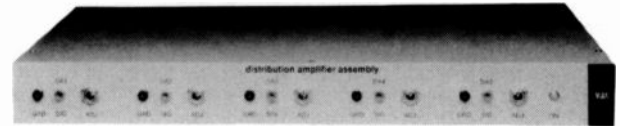


VDA-2

XB/VDA Extended Bandwidth Video Distribution Amplifier

Featuring extra wide bandwidth of 0-120MHz, this unit provides precise, accurate and reliable high resolution video distribution through 8 isolated outputs from a single video input. The user may switch between differential input and single-ended input modes of operation. Differential input mode is useful in avoiding hum and interference because the input and output grounds are isolated from each other and from the power line ground. Due to the extra wide bandwidth of this amplifier, you can use it to distribute the Channel 3 and 4 RF output signals from your VCR.

XB/VDA \$445.00



DA10-5

DA10-2/3/4/5 Distribution Amplifier Assemblies

Available with combinations of 2 to 5 discreet video, audio and pulse distribution amplifiers installed, the DA10 provides a single unit for proper distribution of your video, audio and sync signals and pulses. These full rack wide units are delivered with rackmount hardware installed.

DA10-2 2 video or pulse DAs \$ 640.00
 DA10-3 3 video or pulse DAs890.00
 DA10-4 4 video or pulse DAs1140.00
 DA10-5 5 video or pulse DAs1390.00

To Substitute Clamping Video DAs or Audio DAs:

Per clamping video DA board, add45.00
 Per audio DA board, add70.00



VS-2

AVS-1 Automatic Video Source Selector

The AVS-1 will automatically switch to alternate video and audio source feeds if main video is lost or becomes unsatisfactorily degraded. The AVS-1 also provides an alarm to alert you to the loss/poor quality of main video condition. S/N trigger levels and switching time are user adjustable. The basic unit features RCA jacks for audio, but terminal blocks are available.

AVS-1 \$1130.00

VS-2 Video Squelch

When unsatisfactory degradation or loss of main video occurs, the unit automatically switches to alert video and audio source feeds, and provides an alarm to alert you to the condition. Stereo audio, internal audio termination of the unused signal, remote control and XLR connectors are available as options. The basic unit features RCA jacks for audio, but terminal blocks are available.

VS-2 \$1130.00
 OPT-ST Stereo audio option206.00
 OPT-AT Audio terminate option103.00
 OPT-XLR XLR connectors (3- or 4-pin)52.00
 OPT-RC Remote control option206.00

Signal Alarms

Prevent unnoticed loss of signal. The VA-2 and AA-2 alarms provide both audible and visible alarms whenever the input signal is lost. The alarm continues to sound until the loss of signal condition is corrected.

AA-2 Audio signal loss alarm \$210.00
 VA-2 Video signal loss alarm210.00

Power Switches

Prolong equipment life and save energy by automatically switching off equipment when signals are no longer present, and automatically turning it back on when the signal is reapplied. Power switches are available for both audio (APS-2) and video (VPS-2) input signals. Both units feature user adjustable sensing levels and switching delays.

APS-2 Audio activated power switch \$210.00
 VPS-2 Video activated power switch210.00

VMPS-2 Video Monitor Power Switch

The VMPS-2 senses the presence or absence of acceptable video sync tip levels to automatically control monitors and other equipment. Power to this compact (4" x 3" x 1 3/4") switch is provided through a standard 3-prong power cord, and a standard 3-prong AC power outlet mounted on the end provides output power up to 7A (800W). The coax connector shields are internally factory preset, so no user adjustments are required for proper operation.

VMPS-2 \$210.00

RM Rackmount

Rackmount hardware is available in sizes to adapt VAC quarter rack wide, half rack wide, 3/4 rack wide and full rack wide units and chassis assemblies for installation into standard 19" racks. Units may be bolted together and the appropriate hardware used to install them into the rack. Equipment in the full rack wide chassis are provided with factory installed rackmount hardware at no extra charge.

RM Per rack width \$30.00

ST Scope Terminator

The Scope Terminator matches the 75 ohm impedance of coax cable to the input impedance of the typical oscilloscope by providing both 10:1 resistive and 10:1 capacitive voltage dividers when connected to an oscilloscope. This increases the frequency at which the oscilloscope input capacitance becomes significant, thereby extending the measurement accuracy from 7MHz to 70MHz when using coax cable.

ST \$49.00

WIRELESS MICROPHONE SYSTEMS



Pro Plus Professional Wireless Microphone Systems

Transmitters (150-216MHz)

77/DIII	Dynex®III pocket transmitter; includes 153A belt clip, short flexible antenna, battery, 119 audio input plug and C157 soft zippered protective case for transmitter	\$1049.00
T-81/DIII	Handheld transmitter with advanced technology, including Dynex III and Shure SM58 dynamic microphone element; includes battery, 126 mic-stand holder and C-158 soft zippered protective case	\$1199.00
T-82/DIII	Same as T-81 transmitter, but with Shure SM85 condenser microphone element; includes same accessories as T-81	1274.00
T-87/DIII	Same as T-81 transmitter, but with Shure SM87 condenser microphone element; includes same accessories as T-81	1274.00
T-88A/DIII	Same as T-81 transmitter, but with EV N/D757A dynamic microphone element; includes same accessories as T-81	1199.00

Receivers (150-216MHz)

R-33C/DIII	Miniature Dynex III portable, battery-powered receiver with "Camera Black" case; includes 9V battery, 124 "rubber-duckie" antenna with 225 right-angle adaptor, 219 audio output plug, 221 sectional antenna, 216 audio cable, soft carrying case and Velcro strips (for camera mounting)	\$1049.00
R-42A	Pro Plus diversity receiver with Dynex III (no antennas included)	3405.00
R-42AW	R-42A diversity receiver with 2 120U whip antennas	3438.00
R-42AX	R-42A diversity receiver with 2 123 heavy-duty dipole antennas (metal balun cases)	3663.00
R-42AY	R-42A diversity receiver with 2 123U high-performance dipole antennas (telescoping elements)	3603.00
66B/DIII	Dynex III portable battery-powered receiver; includes 4 9V batteries and 121BNC antenna	1092.00
67B/DIII	Dynex III portable, diversity, battery-powered receiver; includes 4 9V alkaline batteries and 2 121BNC antennas	1724.00

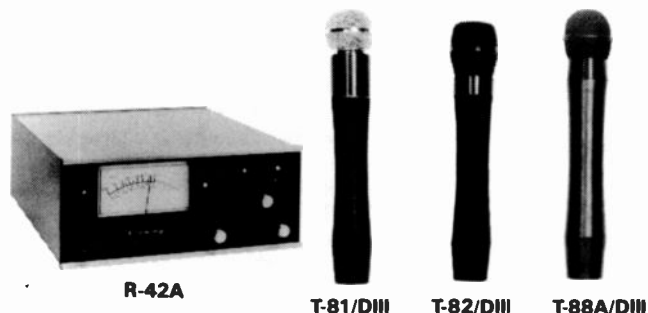
Lavalier Microphones (include 3' cable and Lemo connector to plug into 77/DIII transmitter)

113	Shure 838 miniature omnidirectional electret condenser microphone	\$144.00
LM-201	Sony ECM-44B miniature omnidirectional electret condenser microphone	195.00
LM-202	Crown GLM-100E miniature omnidirectional electret condenser microphone with windscreens, tie bar and belt clip	216.00
LM-203	Vega RSX-12 miniature unidirectional electret condenser microphone	144.00
LM-204	Sennheiser MKE-2 miniature omnidirectional electret condenser microphone	345.00

Accessories

Multicouplers and RF Line Amplifiers

M-117B	Wideband (169-216MHz) multicoupler with UHF connectors to split the RF signal from a 50-ohm antenna (such as 123) to feed 4 receivers; includes 4 155 coaxial cables and AC adaptor	\$441.00
M-217B	Same as M-117B multicoupler, but with BNC connectors	399.00
M-282	Rackmounting wideband (169-216MHz) multicoupler; splits RF signals from 2 50 ohm antennas to feed 4 diversity receivers. Includes 8 155 cables with BNC connectors.	\$1274.00



Pro 2 Wireless Microphone Systems

Pro 2 Diversity Wireless Microphone Systems

PRO 2-BPM	Bodypack system; T-37 transmitter and R-32 diversity receiver with accessories, with Shure 838 miniature omnidirectional electret mic.	\$2028.00
PRO 2-BP	Bodypack system with accessories except without mic.	1905.00
PRO 2-HE	Handheld system; T-36 transmitter and R-32 diversity receiver with accessories	2265.00
PRO 2-HN	Handheld system; T-38 transmitter and R-32 diversity receiver with accessories	2265.00

Pro 2 Receivers and Transmitters

R-32	Diversity Pro 2 receiver with Dynex II; Includes 120U whip antenna	\$1281.00
T-37DII	Dynex II bodypack transmitter; includes C-157 protective case, 9V alkaline battery, 119X miniature XLR audio input plug, wired-in flexible wire antenna, 153A heavy-duty belt clip, power on/off switch, mic on/off switch, mic level control and instruction manual	\$624.00
T-36DII	Dynex II handheld transmitter, with EV BK-1 element, 9V battery, 126 mic holder, C-158 protective case, built-in antenna and instruction manual.	984.00
T-38DII	Same as T-36 transmitter, but with EV N/D457A dynamic microphone element; includes same accessories as T-36	984.00

VX-20 Wireless Microphone Systems

VX-20 BPM	Bodypack system with lavalier microphone consisting of: T-25 transmitter and R-27 receiver with accessories and Vega LM-205X omnidirectional electret condenser mic.	\$1439.00
VX-20 BP	Bodypack system with accessories, consisting of T-25 and R-27	1349.00
VX-20 HE	Handheld system; T-28 transmitter and R-27 receiver with accessories	1547.00
VX-20 HV	Handheld system; T-29 transmitter and R-27 receiver with accessories	1547.00
R-27	Miniature portable receiver with Dynex III, includes 121BNC whip antenna, 9V battery, Velcro mounting strips, soft-zippered protective case and instruction manual	\$799.00
T-25	Dynex III bodypack transmitter; includes C-157 protective case, 9V alkaline battery, 4-pin miniature XLR (TINI "Q-G"), 153A heavy-duty clip, power on/off switch, mic on/off switch, mic gain and instruction manual	\$549.00
T-28	Dynex III handheld transmitter with EV BK-1 element, includes 9V battery, C-158 protective case, internal dipole antenna and instruction manual.	747.00
T-29	Same as T-28, but with Vega K4 cardioid condenser element, includes same accessories	747.00

"Q" Plus VHF FM Full-Duplex Beltpack Wireless Intercom Systems

"Hands-free" Continuous Communications

- Freedom from trailing cables • Easy-to-use full-duplex operation
- Simplified operator controls • Up to 6 portables per system • Ties into existing wired intercom • Reliable, low-noise, high-band VHF frequencies • Easy to install in minutes • Rugged, reliable, professional
- Crystal-clear radio communications for your application

"Q" Plus wireless intercom system provides continuous "hands-free" full-duplex communications between up to 6 remote beltpack units (portables) through a central master station. The portables are similar in size and configuration to conventional wired-intercom beltpacks.

The system is very easy to operate. For example, untrained personnel can easily use the QTR-1 portable, which has only 2 operating controls—a combined on/off and headset volume control, and a push-button audio control switch (internally programmable for push-to-mute with continuous transmit, or push-to-talk with transmitter and audio "off" until pushed).

A 168X headset (using a Beyer DT-108) plugs into the heavy-duty connector on the QTR-1. The QTR-1 also accepts Clear-Com headsets without any changes, or other headsets equipped with a 4-pin female XLR connector. Any 1 of these headsets also plugs directly into the front panel of the master station.

The QX-6 master station provides a full set of convenient controls for monitoring and troubleshooting. The master station has a "universal" intercom interface, enabling the portables to communicate with all stations on most types of wired intercom systems. Also, 2 master stations can be linked together, allowing full-duplex communications between up to 12 portables, plus operators plugged into the master stations, plus stations on connected wired intercom systems.

The "Q" Plus wireless intercom system features a single-package wireless beltpack remote, simplified operation, near-program-quality audio, improved operating range, "universal" intercom interface and 115 or 230VAC or DC operation. This price list shows complete configurations from 2-up to 6-up systems, plus prices for spare modules and accessories. The system packages include all required equipment (i.e., base-station receiver and transmitter modules, portable beltpack units, 2 9V alkaline batteries for each beltpack unit, etc.), except for headsets. A "universal" intercom interface is included as a standard feature, and no wired-intercom interface option need be specified. Frequency Range: 150-216MHz

Systems

Q+/M

2-up "Q" Plus system, consisting of 2 QTR-1 beltpack remotes. \$2,010.00

Q+/1

1-up "Q" Plus system, consisting of a QX-6 master station with 1 TQX-6 transmitter module, 1 RQX-6 receiver module and 2 121 BNC antennas, plus 1 QTR-1 beltpack remote \$4,155.00

Q+/2

2-up "Q" Plus system, consisting of a QX-6 base station with 1 TQX-6 transmitter module and 2 RQX-6 receiver modules, plus 2 QTR-1 remote beltpack units. \$5,505.00

Q+/3

3-up "Q" Plus system, consisting of a QX-6 base station with 1 TQX-6 transmitter module and 3 RQX-6 receiver modules, plus 3 QTR-1 remote beltpack units. \$6,855.00

Q+/4

4-up "Q" Plus system, consisting of a QX-6 base station with 1 TQX-6 transmitter module and 4 RQX-6 receiver modules, plus 4 QTR-1 remote beltpack units. \$8,205.00

Q+/5

5-up "Q" Plus system, consisting of a QX-6 base station with 1 TQX-6 transmitter module and 5 RQX-6 receiver modules, plus 5 QTR-1 remote beltpack units. \$9,555.00

Q+/6

6-up "Q" Plus system, consisting of a QX-6 base station with 1 TQX-6 modules, plus 6 QTR-1 remote beltpack units \$10,905.00



Remotes, Master Station, Accessories and Spare Modules

QTR-2

Spare (or non-system) beltpack remote with pushbutton audio control switch and 2 attached antennas (includes 2 9V batteries) . . \$1,005.00

QTR-2/BNC

QTR-2 with BNC connectors and RS-1 pushbutton audio control switch; requires 2 124 or 224 antennas (not included) . . . \$1,041.00

RS-1

Rocker-switch option (momentary in 1 position and locked in the other) for QTR-2 and QTR-2/BNC; duplicates push to talk or push to mute function (as selected internally) of momentary pushbutton switch normally supplied with beltpack remote \$15.00

QX-6A

Spare master station (without transmitter or receiver modules, but with 2 121BNC whip antennas and full audio interfacing circuitry) \$2,490.00

RQX-6

Spare (or add-on) receiver module for QX-6A base station (6 maximum) \$345.00

TQX-6

Spare transmitter module for QX-6A base station \$315.00

Accessories

121BNC

Spare quarter-wave whip antenna for QX-6A master station (2 required and included with QX-6A). \$15.75

124

"Rubber-duckie" antenna for QTR-2/BNC beltpack remote . . \$24.00

125

High performance telescoping dipole antenna with attached 15' cable for QX-6A base station (QX-6A uses 2 antennas), extends system range \$82.50

166X

Audio connector for QTR-2 or QTR-2/BNC beltpack remote . . \$12.00

168X

Beyer DT-108 with 166X connector installed for QTR-2 beltpack remote. \$330.00

224

Flexible (limp-wire) antenna for QTR-2/BNC beltpack remote . . \$24.00

279

AC power supply kit for QTR-2. \$114.00

281

Rechargeable battery adaptor for QTR-2 \$90.00

PAN/TILT DRIVES

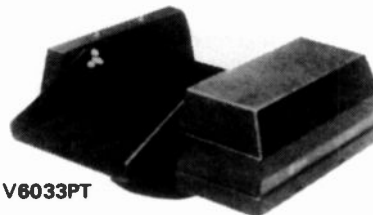


V6000PT and V6100PT Professional Pan/Tilt Drives

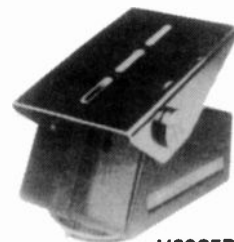
The V6000PT and V6100PT Professional Medium-Duty Variable Speed Pan/Tilt Drives are state-of-the-art units that provide exceptional accuracy in the tracking of moving objects. Close tolerance gearing assures precise control and accurate stops. Pan/tilt speeds are smoothly and automatically variable in 256 discrete steps. Constructed with sound deadening material, these units guarantee ultra quiet functioning in sound restricted environments. The V6000PT and V6100PT feature a 30 lb. load rating

The V6000PT is designed to be used with the V7000C Control. The V6100PT is used with a V7100C Control, which requires a V7700R Single-Camera Receiver at the pan/tilt location. The V7100C may be programmed with up to 99 preset positions.

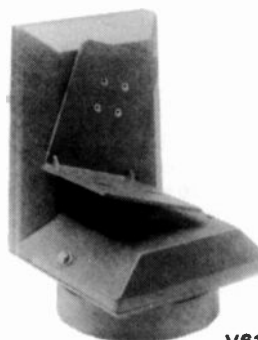
- V6000PT** 24VDC; variable speed; 30 lb. load rating; tilt range $\pm 40^\circ$, pan range 315° (maximum). Tilt speed 25° /second (maximum), pan speed 25° /second (maximum). Use with V7000C Control (2-camera capacity). For use with ENG type cameras. Unit measures 14.75" in height. \$2300.00
- V6100PT** 24VDC; variable speed; 30 lb. load rating; tilt range $\pm 40^\circ$, pan range 270° (maximum). Tilt speed 25° /second (maximum), pan speed 25° /second (maximum). Use with V7100C Control. Requires 1 V7700R Receiver per pan/tilt unit. For use with ENG type cameras. Unit measures 14.75" in height \$4145.00



V6033PT



V6035PT



V6150PT

V6033PT Low Profile Variable Speed Professional Teleconferencing Pan/Tilt Drive

The V6033PT Low Profile Variable Speed Professional Teleconferencing Pan/Tilt Drive is specifically designed to provide a low viewing angle for cameras or camcorders used in teleconferencing work. It is also useful in confined areas where space may be limited and tilting angle is not critical, so that a "head on" rather than some higher angle view is obtained. Dynamic braking and instantaneous reversing combined with a 15-lb. load rating make this an ideal light-duty professional unit. The unit can be used with cameras and camcorders incorporating motorized or auto-focus lens systems.

Mounting is by means of a round base. Tripod, wall, column or ceiling mounts are optional accessories.

The V6033PT is designed to be used with the V7100C Control and requires a receiver which should be no more than 250' from the pan/tilt location. The V7100C Control may be programmed for up to 99 preset positions and is used with a V7700R Receiver.

- V6033PT** 24VDC; variable speed; 15 lb. load rating; tilt range $+ 10^\circ$ to -20° , pan range 150° . Designed to provide low profile. Built-in feedback potentiometers \$1395.00

V6035PT Programmable Pan/Tilt Drive

The V6035PT Programmable Pan/Tilt Drive is a rugged unit specifically designed for use in teleconferencing work, so that a "head on" level of view, rather than a high angle view, is obtained for cameras or camcorders. Dynamic braking and instantaneous reversing combined with a 7.5 lb. load rating makes this an ideal professional unit. The unit can be used with cameras or camcorders incorporating motorized or auto-focus lens systems.

Mounting is by means of either a standard round base or an optional tripod mount. This pan/tilt unit may be mounted and used in an inverted position, if required.

The V6035PT is designed to be used with the V7100C Control and requires a receiver within 250' of the pan/tilt location when used. The V7100C Control may be programmed with up to 99 preset positions and is used with a V7700R Single-Camera Receiver. The V6035 may be used with the V7000C if presets are not required.

- V6035PT** 24VDC; variable speed; 10 lb. load rating; tilt range $+ 20^\circ$ to -70° , pan range 350° . Built-in feedback potentiometers \$1795.00

V6050PT and V6150PT Professional Pan/Tilt Drives

The V6050PT and V6150PT Professional Medium-Duty Variable Speed Pan/Tilt Drives are state-of-the-art units that provide accurate tracking of moving objects. Close tolerance gearing assures precise control and accurate stops. Pan/tilt speeds are smoothly and automatically variable in 256 discrete steps. Constructed with sound deadening material, these units guarantee ultra-quiet functioning in sound-restricted environments. The V6050PT and V6150PT feature a 30 lb. load rating.

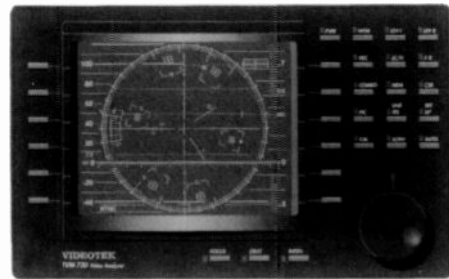
The V6050PT is designed to be used with the V7000C Control. The V6150PT is used with a V7100C Control which requires a V7700R Single-Camera Receiver at the pan/tilt location. The V7100C may be programmed with up to 99 preset positions.

- V6050PT** 24VDC; variable speed; 30 lb. load rating; tilt range $\pm 20^\circ$, pan range 315° (maximum). Tilt speed 25° /second (maximum), pan speed 25° /second (maximum). Use with V7000C Control (2-camera capacity). For use with ENG type cameras. Unit measures 12.15" in height. \$2300.00
- V6150PT** 24VDC; variable speed; 30 lb. load rating; tilt range $\pm 20^\circ$, pan range 270° (maximum). Tilt speed 25° /second (maximum), pan speed 25° /second (maximum). Use with V7100C Control. Requires 1 V7700R Receiver per pan/tilt. For use with ENG type cameras. Unit measures 12.15" in height \$4145.00



TVM-730 Composite Video Analyzer With Auto Measure

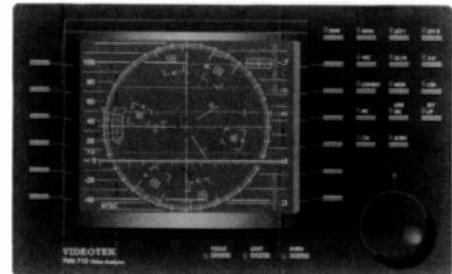
Auto measure provides graphic and text readouts for horizontal blanking measurements, frequency response, test signal parameters and many other measurements. An innovative combination of analog and digital signal processing provides the fidelity of analog resolution with the unquestionable accuracy of digital measurements. Operator defined measurement parameters can be stored in memory for instant recall and the output can be downloaded to a personal computer for storage or to generate a hard copy printout. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II gives engineers a complete range of tools, including digital line selects, quad SC/H phase displays, measurement cursors with on-screen digital readouts and a revolutionary 3-D display. 4 composite inputs and a wide variety of functions provide monitoring flexibility. 12 different functions/filters can be displayed simultaneously. Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually, paraded or simultaneously with a waveform display, allowing visual verification of the line selected or as a visual aid to select a line to observe. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computerTBA*



TVM-730



TVM-720



TVM-710

TVM-720 Component Analog/Composite Video Analyzer

Operator defined measurement parameters can be stored in memory for instant recall and the output can be downloaded to a personal computer for storage or to generate a hard copy printout. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II give engineers a complete range of tools, including digital line selects, quad SC/H phase displays and measurement cursors with on-screen digital readouts. Multiple input configurations (2 component and 2 composite or 1 component and 5 composite or 8 composite) and a wide variety of functions provide monitoring flexibility. 12 different functions/filters can be displayed simultaneously.

Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually, paraded or simultaneously with a waveform display, allowing visual verification of the line selected or as a visual aid to select a line to observe. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computer \$6750.00

with on-screen digital readouts and a revolutionary 3-D display. 4 composite inputs and a wide variety of functions provide monitoring flexibility. 12 different functions/filters can be displayed simultaneously. Waveforms can be displayed in simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Vector displays can be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. On-screen writing completely describes the display on the CRT. The picture mode displays monochrome pictures individually, paraded or simultaneously with a waveform display, allowing visual verification of the line selected or as a visual aid to select a line to observe. Remote control (RS-232/RS-422) of all functions may be accessed via a personal computer \$5995.00

TVM-710 Composite Video Analyzer

Operator defined measurement parameters can be stored in memory for instant recall and the output can be downloaded to a personal computer for storage or to generate a hard copy printout. 2 operating levels are provided. Level I lets operators display waveforms, vectors, pictures and 1 SC/H phase. Level II gives engineers a complete range of tools, including digital line selects, quad SC/H phase displays, measurement cursors

Options

- SSC-1 Single standard case \$ 48.00
- PTC-1 Portable case with handle and sunshield 145.00
- DRC-1 Double rackmount case 200.00
- DAT-3 Half rack tray for DRC-1 to mount PVS-6, PVS-6A or self-contained series distribution amplifiers 99.00
- BLK-1 Blank panel 30.00
- ADC-1 AC/DC power supply for TVM-620 (must be factory installed during manufacture) 200.00

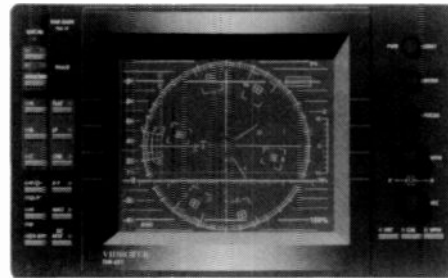
* To Be Announced

TEST EQUIPMENT



TVM-621 Combination Waveform Monitor/Vectorscope

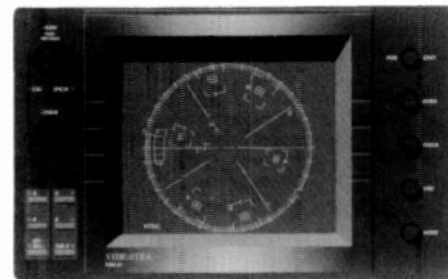
The TVM-621 is a full featured half-rack width combination waveform monitor/vectorscope which produces a variety of unique display modes. 1, 2 or 3 video signals may be observed individually or in any combination of 3 inputs. Waveforms can be displayed in either simultaneous parade modes or overlaid for comparison of timing and amplitude characteristics. Any 1 input may be displayed with simultaneous flat, low pass and chroma filters. Vector displays can also be overlaid for simultaneous observation and comparison of the phase and amplitude of up to 3 signals. 4 user defined memories permit rapid recall of frequently used modes. Diagnostic testing of the front panel controls and LEDs are built in. An R-Y mode displays the demodulated chrominance with horizontal sweep. A graticule scale is provided to aid in measuring differential phase. This display can be viewed simultaneously in the parade mode with 1 or 2 additional filter waveforms. The TVM-621 is available with an optional AC/DC power supply (ADC-1), allowing an external DC power source or battery to be input via a 4-pin XLR connector for portable field use \$3995.00



TVM-621

VSM-61 Vectorscope

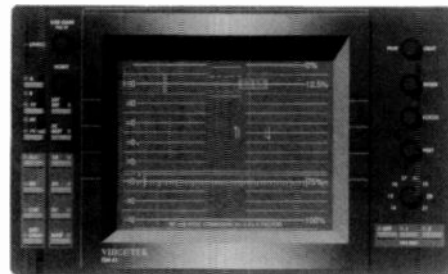
The VSM-61 is designed for convenience and ease of operation in observing the vector display of video signals at an economical price. Market proven traditional features are combined with ergonomically designed controls. Proven, reliable circuit design permits accurate measurement of differential gain and differential phase of color television signals. Selection of inputs (A, B or subcarrier A) and references (A, B or external subcarrier) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between the A and B inputs. Requiring only 3 rack units (5.25") and 1 half-rack width, the VSM-61 vectorscope may be mounted in the optional DRC-1 double rackmount case along with a TSM-51 or TSM-61 waveform monitor for complete signal monitoring \$2065.00



VSM-61

TSM-61 Waveform Monitor With Line Select

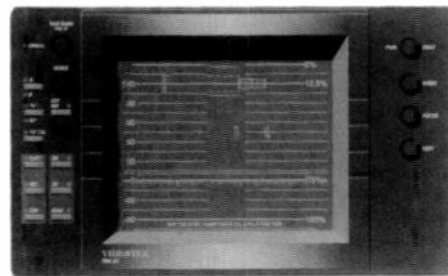
Designed for convenience and ease of operation, the TSM-61 is an excellent value in waveform monitors. Market proven traditional features are combined with ergonomically designed controls. Proven, reliable circuit design permits a variety of measurement parameters. Selection of filter response (flat, IRE, chroma or differential gain) and time base sweep (1H, 2H, 2V, 1H mag, 2H mag, 2V mag) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between A and B inputs. Line Select permits the observation of lines 14 through 21, field 1 or field 2. An auto bright-up circuit increases the intensity of the selected line for observation of VITS, VIRS or closed caption signals being displayed. Additionally, auto focus assures a clear, well defined image of the line selected, without readjustment. Requiring only 3 rack units of vertical rack space (5.25") and 1 half-rack width, the TSM-61 waveform monitor may be mounted in the optional DRC-1 double rackmount case along with a VSM-61 vectorscope for complete signal monitoring \$2065.00



TSM-61

TSM-51 Waveform Monitor

The TSM-51 offers the most commonly used waveform monitor functions at an economical price. Market proven traditional features are combined with ergonomically designed controls. Proven reliable circuit design permits a variety of measurement parameters. Selection of filter response (flat, IRE or chroma) and time base sweep (2H, 2V, 2H mag, 2V mag) are easily accomplished via tactile membrane control switches. Rapid A/B comparisons may be made by directly switching between the A and B inputs. Requiring only 3 rack units of vertical rack space (5.25") and 1 half-rack width, the TSM-51 waveform monitor may be mounted in the optional DRC-1 double rackmount case along with a VSM-61 vectorscope for complete signal monitoring \$1682.00



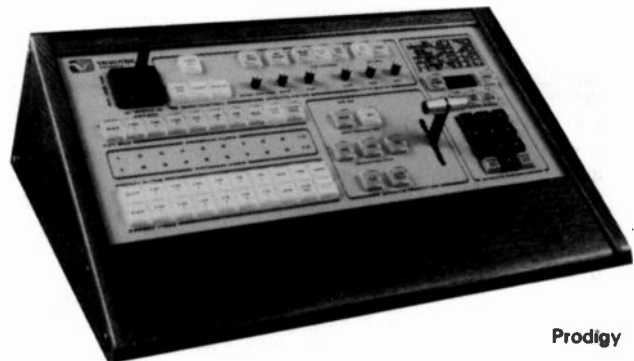
TSM-51

Options

- SSC-1 Single standard case \$ 48.00
- PTC-1 Portable case with handle and sunshield 145.00
- DRC-1 Double rackmount case 200.00
- BLK-1 Blank panel for DRC-1 30.00
- DAT-3 Half rack tray for DRC-1 to mount 2 PVS-6 or PVS-6A, stand-alone distribution amplifiers or VSG-21 color sync and test signal generator 99.00
- ADC-1 AC/DC power supply for TVM-621, TVM-621/P and TVM-621/PM (must be factory installed during manufacture) 200.00



PRODIGY SWITCHER



Prodigy

Prodigy Production Switcher

A reliable video switching and effects system follows multi-level effects with a Look Ahead Preview.

An integral stereo audio-follow-video system provides the critical link between your audio console and editing system and can even be used for master control applications. 3 standard RS-422 serial ports link Prodigy to most popular editing controllers and other intelligent devices.

8 Primary Video Inputs, Black and Color Background • Input 1 is the blackburst reference for genlock plus black • Inputs 2-9 are primary video inputs • Input 10 is the internal color background generator

Multi-level Effects System • Background transitions—cut, mix, wipe • Key transitions—cut, mix, wipe • Downstream key transitions—cut, mix • Combined background and key transitions—provides the power of a 2-mix/effect switcher

Look Ahead Preview • Displays the result of the next transition

Integrated Stereo Audio-Follow-Video System • 2-bus system—preset and program • Cut or fade between audio sources • Editor control of audio transitions • Audio hold—inhibits AFV operation

Fade-to-Black • Integrated with transition system

Blackburst System Timing Reference • System genlocks to blackburst reference signal on input 1

Blanking Processor • Provides high stability video output and masks minor timing errors between primary inputs

Linear Keying System • Allows the keyer to be adjusted to match the rise time of the key source for high quality keying

Key Memory • Automatically remembers the Key Clip and Key Gain settings for each input in both Self Key and Auto External Key modes

3 External Key Inputs • Can integrate a "wide key" character generator, digital effects system and graphics camera

Auto External Key Follow • Automatically selects External Key when primary input for which it is programmed is selected • Selects Self Key for primary inputs which do not have an External Key programmed to follow

Downstream Keyer • User programmable in and out (0 to 999 frames) • External key cut and key fill

Extensive Wipe Pattern Selection and Modifiers • 24 wipe patterns standard • Hard, soft and hard or soft bordered wipe edges with variable inside to outside softness balance • Rate controlled joystick for positioning and pattern modification • Pattern Memory System—allows editing system to select a pattern with all modifiers through standard editor interface

Programmable Effects Transition System • 100 on-line events with battery backup • Recall pre-programmed effects at the touch of a button • Effects transitions smoothly change analog control settings between the values stored in 2 ET events • Instant Replay allows Prodigy to learn the operator's actions against a real time clock • Programmed sequences for repeatability without setting the effect up in real time

Serial Editor Interface for Video and Audio • RS-422 port interfaces with most available editing systems

General Purpose Interface (GPI) • Integrates Prodigy with other devices through contact closure interface • Prodigy may be controlled from inexpensive "cuts only" editing systems • Can access memory recall • Allows external device with GPI input to be triggered by Prodigy

Specifications

VIDEO

Inputs:

- 8 loopthrough video (inputs 2-9)
- 1 loopthrough blackburst external reference (input 1)
- 3 external key; 1V p-p, composite or 0.7V p-p non-composite
- 1 downstream key with external key cut and key fill

Crosstalk:	> -60dB DC to 3.58MHz
Frequency Response:	± 0.1dB to 8MHz ± 0.5dB to 10MHz
Outputs:	2 program outputs 2 Look Ahead Preview outputs
Outputs Impedance:	75 ohms, ± 0.5% source terminated
Tilt:	< 0.5%
K Factor, 2T Pulse:	≤ 0.5%Kp
Differential Phase:	≤ 0.5° at 1V p-p, 10-90% APL
Differential Gain:	≤ 0.5% at 1V p-p, 10-90% APL
Chrominance/Luminance Inequalities:	Delay ≤ 10ns Gain ≤ 0.1dB
S/N Ratio:	> 65dB signal/RMS noise to 5MHz
Path Length Deviation:	(Between any 2 inputs) ≤ 0.5° (non-adjustable)
Mix/Effects Bus Matching:	Luminance: ≤ 0.5% gain; ≤ 3mVDC; Chrominance: ≤ 0.5% Amplitude; ≤ 0.5° Phase
Connectors:	BNC connectors
AUDIO	
Inputs:	2 audio inputs (left and right) per video input (inputs 2-10) + 24dBm maximum
Input Level:	+ 24dBm maximum
Input Impedance:	> 20K ohms balanced or 10K ohms unbalanced
Outputs:	Stereo preview and program + 24dBm maximum into 600 ohm load
Output Level:	Output source impedance ~ 100 ohms balanced ≤ 5mV
Output Impedance:	
Output DC Offset:	
Crosstalk:	> 85dB (referenced to + 24dBm) input to input
Frequency Response:	20Hz to 20kHz ± 0.5dB (Referenced to 1kHz)
Harmonic Distortion:	< 0.5% at 1kHz < 0.2% 20Hz to 20kHz
Common Mode Rejection:	40dB typical 60-20kHz, 35dB minimum 60-20kHz
Connectors:	Quick disconnect terminal strips
GENERAL	
RS-422 Serial Ports:	3 9-pin D connectors are provided on the Electronics Frame for: Control Panel port, Editor port; Spare I/O port
Control Panel Cable:	34.2' (10 meter) cable standard 9-pin D connectors
MECHANICAL	
Dimensions:	Control Panel—8.75" H x 19" W x 4.5" D Electronics Frame—5.25" H x 19" W x 18" D Control Panel—12.5 lbs. Electronics Frame—35 lbs.
Weight:	

Prodigy Composite	\$ 8,500.00
Prodigy Component	16,920.00

Options

CTC-2: Console for CTC-1 to mount RGB-1 control panel. Solid hardwood construction	\$ 150.00
RGB-1: RGB chroma keyer for Prodigy. Can be mounted in CTC-2 console extension .....	.995.00
EX-P: Extender cards for servicing electronics frame circuit boards .....	.400.00
CTC-1: Console for countertop installation of Prodigy. Solid hardwood construction .....	.200.00
EI-1: Serial editor interface .....	.995.00
SA-1: Stereo audio-follow-video .....	.1,995.00

COLOR MONITORS/ RECEIVERS



Studio-13 Professional Rackmount Color Monitor

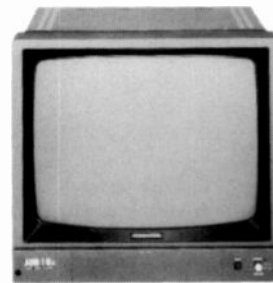
• 13" Trinitron® Plus color picture tube • 380 lines horizontal resolution • Selectable comb and notch filters • High voltage regulation • Separate H & V delay front panel adjustable • Split mode A-B display (front panel adjustable) • Automatic sync switchover to internal if external sync is lost, external sync indicator • Automatic degauss • Keyed back porch clamping • A-B-C looping video inputs • RGB video inputs • RGB gun switches • RGB background and drive controls • Tally light • Underscan • Presets—chroma/phase/brightness/contrast • ACC (Automatic Chroma Control) defeat (switchable) • Selectable time constant (H. AFC) • Monochrome select • Setup select • Aperture control • Rackmount slides • BNC connectors • Service manual • 10 1/2" H x 19" W x 19" D • 52 lbs. • Power requirements: 120VAC, 60Hz ± 10% • Power consumption: 85W average, 120W maximum \$2660.00



Studio-13

VM-13PRO 13" Professional Rackmount Color Monitor

• Raster size regulation • 260 lines horizontal resolution • Automatic degauss • Keyed back porch clamping • A-B-C inputs • RGB gun switches • RGB background and drive controls • Tally light, internal-external sync • Pulse cross • Underscan • Presets • Selectable ACC defeat for detection of chroma loss • Monochrome/color select • Setup switch • Selectable horizontal time constant (H. AFC) • Aperture control • BNC connectors • Rackmount slides • 10 1/2" H x 19" W x 19" D • 48 lbs. • Power requirements: 120VAC, 60Hz ± 10% • Power consumption: 55W average, 80W maximum \$1795.00



AVM-19s



RM-8PR

AVM-13sv 13" Color Monitor With Audio and Y-C Input

• A-B-VTR switchable inputs (composite or Y-C on B input) • 450 lines horizontal resolution • Blue gun • Keyed back porch clamping • Tally, external sync • Pulse cross • Underscan • Internal audio speaker • Comb filter • Power isolation transformer • Sharpness control \$650.00
RB-013 Rackmount kit for AVM-13sv \$42.00

AVM-19s 19" Color Monitor With Audio

• Slot mask in-line, 90° deflection CRT • Automatic degauss • Keyed back porch clamping • A-B-VTR inputs • Blue gun • Tally light • Internal-external sync selectable • Pulse cross • Underscan • External demodulator input • Internal audio speaker • 8-pin VTR cable (6") • Service manual • Switchable comb/notch filter • Power isolation transformer • B/W color switch • Sharpness control \$769.00
RB-019 Rackmount slides for AVM-19s \$87.00

RM-8 8" AC/DC Portable Color Receiver/Monitor

• TV/Line/VTR selection • 68-channel tuner • Audio • Blue gun only • 8-pin VTR connector • Looping BNC video input • Looping RCA audio input • Video and audio outputs • 12VDC adaptor into car lighter • DC restoration • Service manual \$895.00

RM Series 8" Monitors

Standard Features

• A/B/TV switchable inputs • Blue gun • AC/DC capable • 12VDC adaptor into car lighter • DC restoration • Keyed back porch clamping • Front panel controls for chroma, phase, brightness and contrast • Service manual

RM-8P

8" professional AC/DC color receiver/monitor (no rackmount) \$1035.00

RM-8PR

8" professional rackmount AC/DC color receiver/monitor \$1230.00

RM-8PRW

8" professional rackmount AC/DC color receiver/monitor with space provided for TVM-720, TVM-710, TVM-621, TSM-61, VSM-61 or TSM-51 with single standard case (SSC-1) \$1290.00

RM-8PRA

8" professional rackmount AC/DC color receiver/monitor with audio speaker panel \$1405.00

RM-8PRD

Dual 8" professional rackmount AC/DC color monitor (2 RM-8Ps with rackmount case) \$2265.00

RM-13T 13" Cable Ready Portable

Color Receiver/Monitor

• 14" H x 15 1/2" W x 16 1/2" D • 33 lbs. • Power requirements: 120VAC, 60Hz • Power consumption: 55W average, 80W maximum \$795.00

RM-13TR 13" Cable Ready Rackmount

Color Receiver/Monitor

• 15 3/4" H x 19" W x 16 1/2" D • 38 lbs. • Power requirements: 120VAC, 60Hz • Power consumption: 55W average, 80W maximum \$895.00

Options

- PC-1 Pulse cross \$175.00
- US-1 Underscan \$99.00
- DAT-3 Half rack tray for RM-8PRW without waveform monitor or vectorscope to mount 2 PVS-6 or PVS-6A, Videotek stand-alone distribution amplifiers or VSG-21 color sync and test signal generator \$ 99.00
- 220-1 110/220VAC, 50/60Hz switchable AC adaptor for RM-8 and RM-8PR \$135.00
- AB-1 A/B inputs \$120.00
- CS-1 Carrying case for 8" receiver/monitor \$200.00
- 8P-1 8-pin VTR cable (8") \$21.00
- HG-1 Hospital grade AC cord \$47.00



SYNCHRONIZERS/SYNC GENERATORS/AUDIO MONITORS

VDP-8000/VDP-8400 Frame Store Synchronizers

- Synchronizes noisy feeds from satellite, microwave, ENG, remote broadcasts and other non-synchronous sources • Proc amp controls with presets for video gain, pedestal, chroma gain and chroma phase
- Full proc amp controls in Freeze mode • Freeze enable/disable allows constant processing of the input regardless of signal quality • Hot switching • Line select • 2 video outputs • Standby video input (VDP-8400) • Selectable vertical blanking width • Individual adjustments for H phase, SC phase and SC/H phase • Horizontal and vertical picture position controls • Selectable normal/bypass operation • Remote connector • Audio steering signal to control an audio synchronizer • Can insert burst in monochrome signals • Blackburst output for use as a stand-alone sync generator • Genlock • 1 3/4" rackmountable

The VDP-8000 has a unique independent Freeze Field capability which permits the storage of 2 different fields, or 1 field without interruption of live video synchronizing. The VDP-8400 with 4 field memory can store 2 frames, or 1 frame without interruption of live video synchronizing. Stored images remain clear and sharp through the use of a 3-line digital comb filter.

VDP-8000\$4995.00
 VDP-84005995.00
 VDP-Remote Remote control panel995.00

Times Six/Times Six Plus Blackburst Generators

- 6 individual composite blackburst outputs • 6 horizontal and subcarrier phase timing adjustments • Stand-alone or genlock operation (Automatically switches to internal if external reference signal is lost)
- Genlock input loss/presence indication on front panel • Compensates for up to 1000' of cable • Automatically compensates for cable length and equipment drift (Times Six Plus) • 1 3/4" high, rackmountable

Times Six Manual\$2195.00
 Times Six Plus Manual/automatic2995.00

VSG-21 Color Sync and Test Signal Generator

- Selectable test patterns: SMPTE color bars, modulated ramp, multi-burst, 10-step unmodulated staircase, audio test tone, blackburst output (will rackmount in DAT-1)

VSG-21\$995.00

VSG-201 Color Sync Generator

- RS-170A specifications • Genlock • Genlock input subcarrier loss/presence indication on front panel • Genlock input sync loss/presence indication on front panel • 6 isolated blackburst outputs • SMPTE color bars—dual outputs • Color field 1 ID pulse output • Front panel adjustments for H phase and SC phase • Selectable vertical blanking width (lines 16-21 internal) • +4dBm 1kHz tone output, balanced or unbalanced outputs into 600 ohms • 1 3/4" high, rackmountable

VSG-201\$1995.00

BTG-100 Handheld SMPTE Color Bar Generator

- SMPTE color bar display digitally generated at 8 times subcarrier frequency • 20-character programmable source ID with memory • Lightweight and compact • DC operation with 4 AA batteries • AC operation with BTG-AC 110VAC power adaptor • Sturdy molded carrying case

BTG-100\$495.00

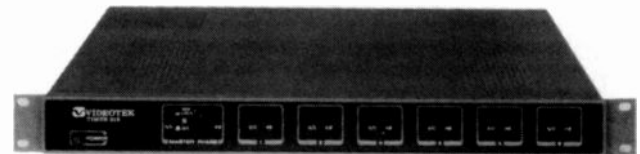
DM-141S 137-Channel Stereo Tuner/Demodulator

- Automatic/manual fine tuning • Varacter tuning/frequency synthesized channel selection • BTSC (MTS) stereo decoder output with LED pilot indicators • Balanced stereo outputs • Internal audio monitoring — 1" speaker • Random access or up/down channel selection • Front panel LED channel display • Tactile feel membrane front panel keyboard with LED feedback • Front panel antenna/cable select • Access to controls for video gain, audio gain and balance on front panel • Short-term front panel memory maintained during power loss (1 hour) • 75 ohm "F" connectors for antenna/cable inputs • 100% solid-state circuitry • 1 3/4" high, rackmountable

DM-141S\$1995.00



VDP-8000



Times Six



VSG-201



DM-141S



BTG-100

APM-8RS 8-Input Rackmount Audio Program Monitor With 4 Stereo Inputs

- Requires only 3 1/2" of vertical rack space • 8 inputs—balanced/unbalanced • Barrier strip input/output connections • Internal 3" x 5" speaker • 10W amplifier • 5m sensitivity ranges • 0dBm, 600 ohm line output • Calibrated tone output • Hi/Low input impedance select • +12VDC battery operation • Connector removable PC board for serviceability

APM-8RS\$895.00

APM-2RS Stereo Rackmount Audio Program Monitor

- Requires only 3 1/2" of vertical rack space • Stereo inputs—balanced/unbalanced • Instant verification of stereo phase • 3-pin male XLR/RCA phono jack input connections • Internal 3" x 5" speaker • 2 display sensitivity ranges • Hi/Low input impedance select • Stereo headphone jack with speaker defeat • 105VAC—132VAC RMS, 48Hz-66Hz • Low power consumption makes the APM-2RS ideal for mobile applications

APM-2RS\$493.00

ROUTING SWITCHERS



PVS-6A 6X1 Audio Follow Video Passive Switcher

• 100% passive—no power requirements • Low insertion loss • Low video/audio crosstalk • 6 video/audio (unbalanced) inputs • 1 video/audio (unbalanced) output • BNC video connectors • Barrier strip audio connection • 1 3/4" rackmount height • Can mount 3 units side by side using a Videotek DAT-1 rackmount tray

PVS-6A \$199.00

PVS-6 6X1 Passive Video Switcher

• 100% passive—no power requirements • Low insertion loss • Low video crosstalk • 6 video inputs/1 video output • 1 3/4" rackmount height • Can mount 3 units side by side using a Videotek DAT-1 rackmount tray

PVS-6 \$160.00

10X1 Routing Switcher Series with RS-422 Interface

• 10 looping video inputs • Wide bandwidth for high resolution applications (1.0dB at 40MHz) • DC restored output amplifier • High speed clamping provides excellent hum rejection • Low return loss > 55dB at 5MHz • +24dBm audio headroom • 3 audio channels per input, balanced or unbalanced • Transformer coupled audio outputs, balanced or unbalanced • 2 channel audio breakaway. Auxiliary channel can be programmed to follow video or audio breakaway • Microprocessor control with battery backup • Serial data bus for communication within the system and remote control • Data bus interconnection via RJ11C telephone connectors • System expandable horizontally to 40X1 and vertically to 30X10 • 1 3/4" rackmountable

RS-103A \$1850.00

RS-103AL Same as RS-103A but without switches. May be controlled by computer or optional RSP-4 remote switching panel \$1695.00

RS-103 10 x 1 vertical interval switcher, video only. RS-422 computer control interface \$1325.00

RS-103L Same as RS-103 but without switches. May be controlled by computer or optional RSP-4 remote switching panel \$1195.00

RSP-4 10 x 1 remote switching panel for RS-103A, RS-103AL, RS-103, RS-103L. RS-422 computer control interface \$789.00

RSP-5 10 x 1 expansion remote switching panel for RSP-4. Permits remote switching from 2 locations \$299.00

ABP-3 Audio breakout panel for RS-103A, RS-103AL. Converts audio I/O 37-pin D connectors to latching terminal blocks. Includes 3 18" 37-pin to 37-pin interconnect cables \$320.00

RS-10A 10X1 Routing Switcher Series

Audio Follow Video with Breakaway Feature

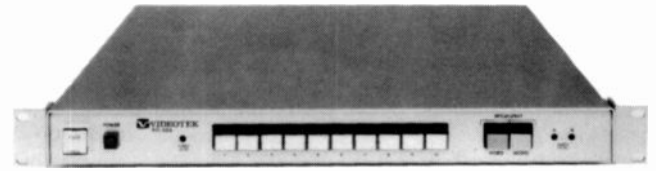
• 10 video inputs, bridging 2 video outputs • 2 audio inputs for each video channel • Video/audio latching breakaway control • Balanced/unbalanced audio inputs or outputs • Overnight channel memory • Vertical interval switching/momentary contact pushbuttons with changeable legends and "LED" audio/video indicators • 1 3/4" rackmount or freestanding with rubber feet

RS-10A \$1199.00

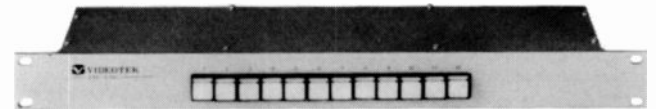
RS-10ARC Remote 10 x 1 vertical interval switcher with 2 audio channels and audio (or) video breakaway feature, includes RCT-1 Remote Connector Kit \$1760.00

RS-10ARC-L Local portion of RS-10ARC only, includes RCT-1 Remote Connector Kit \$1361.00

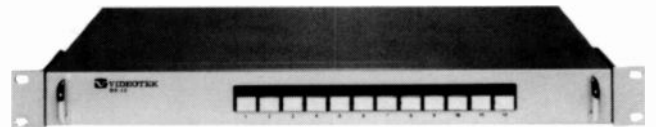
RS-10ARC-LS Same as RS-10ARC, but with switching capability at the local and remote locations, includes RCT-1 Remote Connector Kit \$2028.00



RS-10A



VIS-1201



RS-12

RS-10ARC-L-SW Local portion of RS-10ARC-LS only includes RCT-1 Remote Connector Kit \$1428.00

RSP-1 10 x 1 remote switching panel (may be added to RS-10ARC or RS-10ARC-LS to provide a second remote switching location) \$629.00

RCT-1 Remote connector kit \$36.00

CR-1 Cable for remote ft./\$.99

RSCC-1 Contact closure interface \$233.00

VIS-1201 12x1 Video Only Routing Switcher

• 12 video inputs, bridging/2 isolated video outputs • 24-hour channel memory • Vertical interval switching • Momentary contact illuminated pushbuttons with changeable legends • 1 3/4" rackmount

VIS-1201 \$439.00

RS-12 12x1 Routing Switcher Series

Video Only Routing Switcher

• Video inputs, bridging/2 video outputs • Overnight channel memory • Vertical interval switching/momentary contact pushbuttons with changeable legends and "LED" video indicators • 1 3/4" rackmount or freestanding with rubber feet

RS-12 \$1095.00

RS-12RC Remote 12x1 vertical interval switcher, video only, includes RCT-2 Remote Connector Kit \$1363.00

RS-12RC-LS Same as RS-12RC, but with switching capability at the local and remote locations, includes RCT-2 Remote Connector Kit \$1432.00

RS-12RC-L Local portion of RS-12RC only, includes RCT-2 Remote Connector Kit \$1059.00

RSP-2 12x1 video switching panel with RRK-2 Remote Rackmount Kit \$395.00

RRK-2 Remote rackmount kit \$172.00

BLK-2 Blank panel \$95.00

RCT-2 Additional remote connector kit \$39.00

CR-2 Cable for remote ft./1.22



DISTRIBUTION AMPLIFIERS

MODULAR SERIES

800 Series Distribution Amplifiers

800 Series Distribution Amplifiers are engineered to meet critical video distribution needs in all types of applications. The 800 Series is based on the TR-800 8-bay modular tray and PS-800 power supply. Up to 8 distribution amplifier modules may be mounted in the TR-800 tray, in addition to a second PS-800 power supply for backup in case of primary supply failure.

The VDA-816S is a standard video DA with 1 looping single-ended input and 6 outputs. Up to 300' of Belden 8281 may be equalized via a front card equalizer adjustment.

The VDA-816 is a precision video clamping DA with 1 looping differential or single-ended input and 6 outputs. An optional EQ-800 card may be added to the VDA-816 to allow front panel adjustment of equalization up to 1000' of Belden 8281.

TR-800 Modular DA Tray

• 8-bay modular 2 rackmount high tray • Will accept any combination of VDA-816 precision DAs or VDA-816S standard DAs • Also permits the use of a redundant backup PS-800 supply • Comes standard with a single PS-800 supply

TR-800 \$1198.00

PS-800 Redundant Power Supply

• Provides unregulated ± 16 VDC to the TR-800 rack tray • Additional PS-800 can be installed as a backup supply in case of primary supply failure

PS-800 \$261.00

EQ-800 Equalizing module for VDA-816. Equalizes up to 1000' of Belden 8281 \$65.00

EX-800 Extender card for servicing DA modules \$99.00

VDA-816 Precision Video Clamping DA Module

• Front card output level adjustment • Front card equalizer adjustment when optional EQ-800 equalizer card is employed • Can equalize up to 1000' of Belden 8281 • Switchable clamping or DC restoration • Modular plug-in card • 1 looping differential or single-ended input and 6 outputs

VDA-816 \$395.00

VDA-816S Standard Video DA Module

• Front card output level adjustment • Front card equalizer adjustment can equalize 300' of Belden 8281 cable • Modular plug-in card • 1 looping single-ended input and 6 outputs

VDA-816S \$250.00

SELF-CONTAINED SERIES

VDA-16 Video Distribution Amplifier

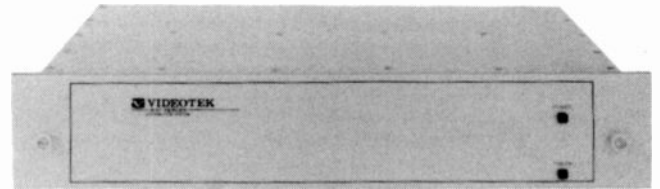
• 1 looping video input • 6 isolated video outputs • Front panel output level adjustment • Cable equalizer front panel adjustment (300' Belden 8281) • Front panel input/output test points • Front panel LED power indicator • BNC input/output connectors • Rackmountable

VDA-16 \$306.00

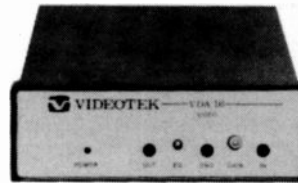
VDA-16WB Wide Band Video Distribution Amplifier

• 40MHz video bandwidth • 1 looping video input • 6 isolated video outputs • Front panel output level adjustments • Wide band cable equalization from panel to adjustment • Front panel LED power indicator • BNC input/output connectors • Rackmountable

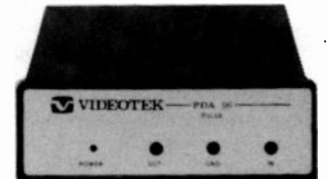
VDA-16WB \$396.00



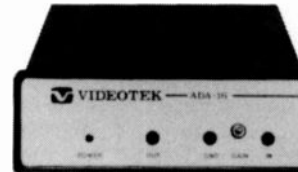
800 Series



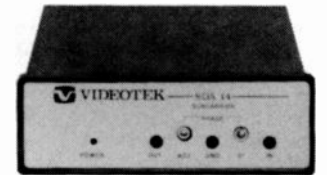
VDA-16



PDA-16



ADA-16



SDA-14

ADA-16 Audio Distribution Amplifier

• 1 balanced/unbalanced audio input • 6 balanced audio outputs • Front panel output level adjustment • Front panel input/output test points • Front panel LED power indicator • Barrier strip input/output connectors • Rackmountable

ADA-16 \$306.00

PDA-16 Pulse Distribution Amplifier

• 1 looping pulse input • 6 pulse outputs • Front panel input/output test points • Front panel LED power indicator • BNC input/output connectors • Rackmountable

PDA-16 \$342.00

SDA-14 Subcarrier Distribution Amplifier

• 1 looping subcarrier input • 4 isolated subcarrier outputs • Regeneration technique removes noise and distortion from input signal • Available for NTSC, PAL, PAL-M • Front panel 0°-360° output phase adjust with 0° preset • Front panel input/output test points • Front panel LED power indicator • BNC input/output connectors • Rackmountable

SDA-14 \$420.00

Options for All Self-Contained Distribution Amplifiers

DAT-1 Rack mount frame, accommodates 3 DAs \$89.00

DAT-2 Blank panel \$25.00

CASES



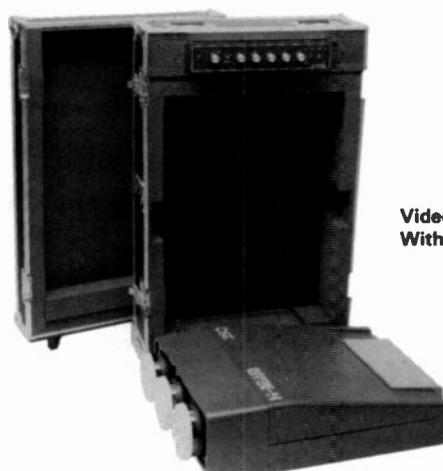
Combo Camera/VTR



Rack Cases



Stacker



Video Projector
With Controller

- Reel-to-reel system cases
- Triple stack 35mm projector cases
- Video tape recorder cases
- Video camera cases
- BB rack style cases
- Monitor (TV) cases
- Shock-mounted BB rack style cases
- Projector and screen cases
- Shock mounted broadcast racks

Wherever you look on a Viking case, you'll see superior strength and workmanship. Wood panels laminated with tough, scratch resistant ABS or stucco aluminum are supported by a double edged aluminum extrusion crimped at intervals for a permanent, non-yielding bond; a construction technique far stronger than conventional gluing, stapling or riveting.

Viking's heavy-duty valances contribute to long life and a tight fit. And all but the smallest Viking cases are equipped with heavy-duty steel recessed hardware including spring loaded handles, twist locks and corners. All Viking hardware is attached with steel rivets and backed with steel washers; your assurance of greater strength and impact resistance.



Carrylite Cases

The Carrylite is less expensive and 30% lighter than our ATA case. Carrylite is rugged...built of dependable heavy gauge ABS for exceptional strength yet still a beautiful and versatile way to carry your valuable equipment. Carrylite is adaptable in size for audio/visual, video, computers and musical instruments.

Vision™ Series System Packages

VIN-5A Vision 5 System Package Including:

- 3325-3S Vision 5 ENG fluid pan and tilt head including single pan bar and clamp assembly and 100mm ball base
- 3311-3 Single-stage ENG tripod with 100mm bowl
- 3313-3 Lightweight calibrated low-level spreader
- 3334-3 Soft, foam filled carrying case. Capacity: 18 lbs. Approximate shipping weight: 24 lbs. \$2325.00
Recommended for CCD Cameras in ENG Configuration.

VIN-5C Vision 5 System Package Including:

- 3325-3S Vision 5 ENG fluid pan and tilt head including single pan bar and clamp assembly and 100mm ball base
- 3310-3 2-stage ENG tripod with 100mm bowl
- 3313-3 Lightweight calibrated low-level spreader
- 3340-3 Soft, foam filled carrying case. Capacity: 18 lbs. Approximate shipping weight: 26 lbs. \$2960.00
Recommended for CCD Cameras in ENG Configuration.

VIN-100A Vision 10 System Package Including:

- 3321-3S Vision 10 ENG fluid pan and tilt head including single pan bar and clamp assembly and 100mm ball base
- 3311-3 Single-stage ENG tripod with 100mm bowl
- 3313-3 Lightweight calibrated low-level spreader. Capacity: 30 lbs. Approximate shipping weight: 26 lbs. \$4220.00
- VIN-100AB Same as above with 3339-3 soft carrying case \$525.00
Recommended for CCD Portable Cameras in ENG Configuration, Tube-Type ENG Cameras and Camcorders.

VIN-100C Vision 10 System Package Including:

- 3321-3S Vision 10 ENG fluid pan and tilt head including single pan bar and clamp assembly and 100mm ball base
- 3310-3 2-stage ENG tripod with 100mm bowl
- 3313-3 Lightweight calibrated low-level spreader. Capacity: 30 lbs. Approximate shipping weight: 28 lbs. \$4375.00
- VIN-100CB Same as above with 3340-3 soft carrying case . . . \$660.00
Recommended for CCD Portable Cameras in Studio Configuration, Tube-Type ENG Cameras and Camcorders.

VIN-100S Vision 10 Pedestal System Package Including:

- 3321-3S Vision 10 ENG fluid pan and tilt head including single pan bar and clamp assembly and 100mm ball base
- 3219-21 Second pan bar and clamp assembly
- 3320-3C Vision studio pedestal with self-pumping pneumatic elevation unit, track lock, cable guards and 100mm bowl. Capacity: 30 lbs. Approximate shipping weight: 52 lbs. . . \$5655.00
Recommended for CCD Portable Cameras in Studio Configuration, Tube-Type ENG Cameras and Camcorders.

VIN-200A Vision 20 EFP System Package Including:

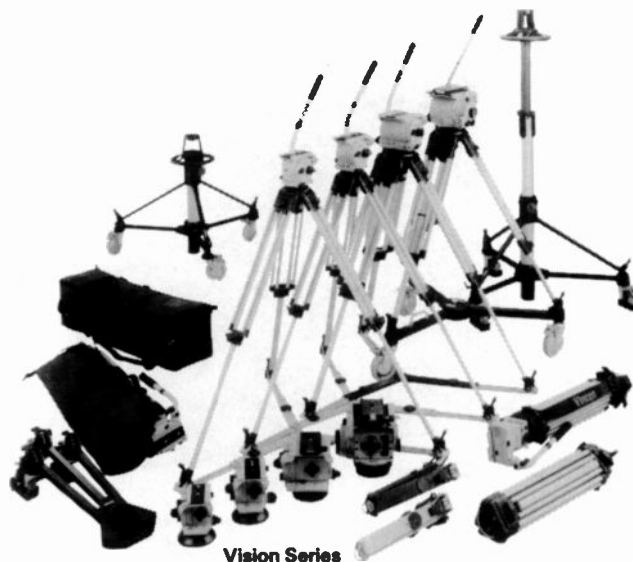
- 3322-3S Vision 20 ENG/EFP fluid pan and tilt head including single pan bar and clamp assembly and dual 100mm/150mm ball base
- 3219-31 Second 2-part pan bar and clamp assembly
- 3312-3 2-stage EFP tripod with 150mm bowl
- 3314-3 Heavy-duty flexible calibrated low-level spreader. Capacity: 55 lbs. Approximate shipping weight: 42 lbs. . . . \$6120.00
Recommended for Portable Cameras With or Without Studio Viewfinder. Will Accommodate Below Lens Teleprompter.

VIN-200B Vision 20 ENG System Package Including:

- 3322-3S Vision 20 ENG/EFP fluid pan and tilt head including single pan bar and clamp assembly and dual 100mm/150mm ball base
- 3310-3 2-stage ENG tripod with 100mm bowl
- 3314-3 Heavy-duty flexible calibrated low-level spreader. Capacity: 55 lbs. Approximate shipping weight: 38 lbs. . . . \$5800.00
Recommended for Portable Cameras With or Without Studio Viewfinder.

VIN-200S Vision 20 Studio System Package Including:

- 3322-3S Vision 20 ENG/EFP fluid pan and tilt head including single pan bar and clamp assembly and dual 100mm/150mm ball base
- 3219-31 Second 2-part pan bar and clamp assembly
- 3312-3 2-stage EFP tripod with 150mm bowl
- 3315-3 Vision folding/castoring dolly with 5" wheels. Capacity: 55 lbs. Approximate shipping weight: 65 lbs. \$6600.00



Vision Series

VIN-200SC Vision 20 Studio System Package Including:

- Same as VIN-200S, also includes cable guards for 3315 dolly. Approximate shipping weight: 68 lbs. \$6765.00
- VIN-200S and VIN-200SC are Recommended for Portable Cameras With or Without Studio Viewfinder. Will Accommodate Below Lens Teleprompter.

Vision LT System Packages

VIN-5LT Vision 5LT System Package Including:

- 3325-3S Vision 5 ENG fluid pan and tilt head including telescoping pan bar and clamp assembly and 100mm ball base
- 3360-3 2-stage carbon fiber tripod with 100mm bowl
- 3313-3 Lightweight spreader (black)
- 4500-3 Vision ENG carrying strap
- 3340-3 Soft, foam-filled carrying case. Capacity: 18 lbs. . . . \$3895.00
Recommended for CCD Cameras in ENG Configuration.

VIN-10LT Vision 10LT System Package Including:

- 3321-3S Vision 10 ENG fluid pan and tilt head including telescoping pan bar and clamp assembly and 100mm ball base
- 3360-3 2-stage carbon fiber tripod with 100mm bowl
- 3313-3 Lightweight spreader (black)
- 4500-3 Vision ENG carrying strap
- 3340-3 Soft, foam carrying case. Capacity: 30 lbs. \$5595.00
Recommended for CCD Portable Cameras in Studio Configuration or Camcorders.

VIN-20LT Vision 20LT System Package Including:

- 3322-3S Vision 20 ENG/EFP fluid pan and tilt head including telescoping pan bar and clamp assembly and dual 100/150mm ball base
- 3360-3 2-stage carbon fiber tripod
- 4500-3 Vision ENG carrying strap
- 3313-3 Lightweight spreader (black)
- 3219-35 Second telescoping pan bar and clamp assembly
- 3341-3 Soft, foam-filled carrying case. Capacity: 55 lbs. . . \$7275.00
Recommended for Portable Cameras With and Without Studio Viewfinder
- 3360-3 Vision LT carbon fiber tripod with 100mm bowl. . . \$1425.00
- 3219-35 Vision telescoping pan bar and clamp assembly . . . \$190.00

Vision CV-5 Corporate System Package

CV-5 Vision CV-5 System Package Including:

- Vision 5 fluid pan and tilt head complete with single pan bar and clamp assembly and 100mm ball base. Single-stage corporate tripod with mid-level spreader and carpet feet \$1950.00
- Corporate floor spreader \$150.00
- Corporate dolly with cable guards \$400.00

CAMERA SUPPORT EQUIPMENT

Vinten

VISION™ SERIES

Pan and Tilt Heads

- 3325-3S** Vision 5 ENG fluid pan and tilt head, complete with single pan bar, pan bar clamp and 100mm ball base \$ 1735.00
- 3325-3N** Vision 5 ENG fluid pan and tilt head, complete with single pan bar, pan bar clamp and flat base to accept intermediate adaptors 1840.00
(Please specify for use with other than 100mm ball)
- 3321-3S** Vision 10 ENG fluid pan and tilt head, complete with single pan bar, pan bar clamp and 100mm ball base 3255.00
- 3321-3N** Vision 10 ENG fluid pan and tilt head, complete with single pan bar, pan bar clamp and flat base to accept intermediate adaptors 3360.00
(Please specify for use with other than 100mm ball)
- 3322-3S** Vision 20 ENG/EFP fluid pan and tilt head, complete with single pan bar, pan bar clamp and dual 100mm/150mm ball base 4970.00
- 3322-3N** Vision 20 ENG/EFP fluid pan and tilt head, complete with single pan bar, pan bar clamp and flat base to accept intermediate adaptors 5100.00
(Please specify for use with other than dual 100mm/150mm ball)
- 3259-3S** Vision 30 EFP fluid pan and tilt head, complete with single pan bar, pan bar clamp, male/female Quickfit adaptor and 150mm ball base 7095.00
- 3259-3F** Vision 30 EFP fluid pan and tilt head, complete with single pan bar, pan bar clamp, male/female Quickfit adaptor and flat base to accept intermediate adaptors 7230.00
(Please specify for use with other than 150mm ball)

Tripods/Pedestals

- 3310-3** Vision 2-stage ENG tripod with 100mm bowl \$ 955.00
- 3311-3** Vision single-stage ENG tripod with 100mm bowl . . . 775.00
- 3312-3** Vision 2-stage EFP tripod with 150mm bowl 1185.00
- 3316-3** Vision mid-level spreader tripod with 100mm bowl . . . 1220.00
- 3317-3** Vision ENG baby legs 900.00
- 3320-3C** Vision studio pedestal with self-plumbing pneumatic elevation unit, track lock, cable guards and 100mm bowl. Capacity: 44 lbs. 2525.00
- 3320-3B** Vision field/studio pedestal without track lock and cable guards. Capacity: 44 lbs. 2415.00
- 4500-3** Carrying strap for Vision ENG tripods (must be specified at time of order) 135.00

Spreaders

- 3313-3** Vision lightweight calibrated low-level spreader . . . \$350.00
- 3314-3** Vision heavy-duty flexible calibrated low-level spreader 380.00

Dollies

- 3319-3B** Vision folding/castoring dolly with 5" wheels for Vision 5 and Vision 10 systems (recommended for remote use) . . \$ 635.00
- 3319-3C** Vision folding/castoring dolly with 4" wheels and cable guards for Vision 5 and Vision 10 systems (recommended for studio use) 710.00
- 3315-3** Vision folding/castoring dolly with 5" wheels 865.00
- 3315-3A** Vision folding/castoring dolly with cable guards and 5" wheels 1050.00

Accessories

Pan Bar/Pan Bar Clamp Assemblies

- 3219-26** Pan bar and clamp assembly for 3325-3 Vision 5 . . \$100.00
- 3219-21** Pan bar and clamp assembly for 3321-3 Vision 10 and 3322-3 Vision 20 100.00
- 3219-31** 2-part pan bar and clamp assembly for 3321-3 Vision 10 and Vision 20 (20" long) 190.00
- 3219-29** Pan bar and clamp assembly for 3259-3 Vision 30 . . 210.00
- 3259-30** Vision 30 clamp for Classic pan bar 105.00
- 3308-158** Classic pan bar for Vision 30 (22" long) 145.00



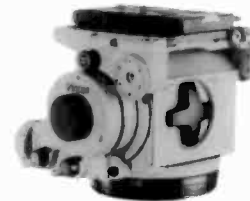
Vision 5



Vision 10



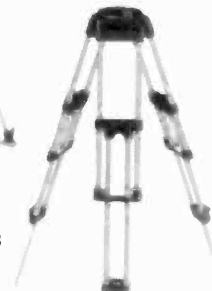
Vision 20



Vision 30



3311-3



3312-3



3320-3B

Adaptors

Quick Release Adaptors

- 3763-3/11** Small auto quick release wedge assembly \$390.00
- 3761-3/13** Vision 30 auto quick release wedge assembly 475.00

Base Adaptors

- 3109G** Vision Gitzo base (Vision 5 and Vision 10 heads) . . \$110.00
- 10065G** Vision Gitzo base (Vision 20 and Vision 30 heads) . . 130.00
- 3104-3** Vision 150mm ball base 265.00
- 3107-3** Vision 100mm ball base 205.00
- 3116-3** Vision Samson adaptor 260.00
- 3750-3** Vision Mitchell base 315.00
- 3752-3** O'Connor claw ball base (100mm) 325.00
- 3322-900SP** Dual 100mm/150mm ball base (for use with Vision 20 only) 175.00
- 3322-901SP** Flat base to convert Vision 20 to other than dual 100/150mm ball (used in conjunction with base adaptors listed above) 175.00
- 3259-29** Flat base to convert Vision 30 to other than 150mm ball (used in conjunction with base adaptors listed above) . . . 240.00
- 3330-11** Adaptor to convert Vision 5 and Vision 10 100mm ball base to flat base (used in conjunction with base adaptors listed above) 95.00
- 3330-12** Vision 5 and Vision 10 hot pod adaptor (used in conjunction with 100mm ball base) 120.00
- 3330-14** Vision 20 hot pod adaptor (used in conjunction with dual 100mm/150mm ball base) 120.00
- 3330-16** Vision 100mm Hi-Hat adaptor 250.00
- 3321-900SP** Top slide plate with two 3/8" fixing screws for Vision 10 and Vision 20 110.00
- 3325-901SP** Top slide plate with two 3/8" fixing screws for Vision 5 105.00

Vinten

CAMERA SUPPORT EQUIPMENT

CLASSIC™ SERIES

Pan and Tilt Heads

All prices include 3/8" bolt fixing to camera, full size pan bar, pan bar clamp and base fitting to pedestal and/or tripod.

		Capacity	
3277-3	Mark 7A fluid cam	.250 lbs.	\$5,600.00
3084-14	Female wedge adaptor for Mark 7A		.790.00
3716-3	Mark 5 cam	.180 lbs.	4,150.00
3716-13	Female wedge adaptor for Mark 5		.790.00
3076-3	Petrel Mark II fluid link	.100 lbs.	2,995.00
3078-3B	Swan fluid post	.50 lbs.	5,500.00

Accessories—Pan and Tilt Heads

MARK 7A and MARK 5

Adaptor Plates

3052	Full size male wedge plate		\$250.00
3069-3	Adjustable wedge extender (sandwiches between female wedge adaptor and top of head). Offers additional 8" offset fore and aft		.755.00
1123	Ikegami "HK" series offset adaptor		.295.00
1134	Ikegami HK-322/357 and Hitachi SK-110 series offset adaptor		.295.00

Pan Bar/Pan Bar Clamp Assemblies

3308-156	Cork handle sleeve for short pan bar		\$185.00
3308-157	Short pan bar for zoom controls (14" long)		.105.00
3308-158	Extended short pan bar (22" long)		.145.00
3716-28	Pan bar clamp		.105.00

PETREL AND SWAN

Base Fittings (included in price of head)

If purchased separately:

3104-3	150mm ball base		\$270.00
3750-3	Mitchell base		.330.00

NOTE: Other base fittings available upon request.

Male/Female Quick Release Adaptor

3076-13A	Full size female wedge adaptor including 1 each: 3308-7A full size pan bar and 3716-28 clamp for use on 3076-3 Petrel (requires 3052 male wedge plate).		\$1,170.00
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Pan Bar/Pan Bar Clamp Assemblies

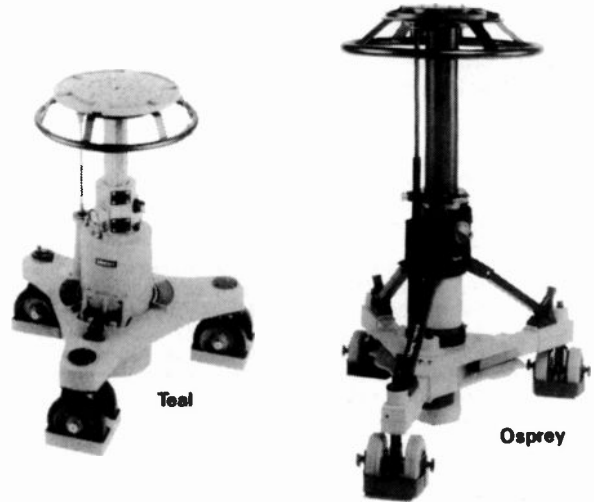
3219-32	2-part pan bar assembly for 3076-3 Petrel		
	Mark II fluid link		\$175.00
3219-30	Pan bar clamp for 3219-32 (above)		.80.00
3078-25	Pan bar and bracket assembly for 3078		
	Swan post head		.175.00

Hi-Hat/Adaptors for Tripods and Pedestals

3080	Pro Jr. with 4 1/2", 6" or 8" rise (please specify)		\$240.00
3055-3	Standard Mitchell with 2 1/2" rise		.245.00
3155-3	8" spacer with Vinten 4-bolt fixing		.335.00
1193	Mitchell with 4 1/2", 6" or 8" rise (please specify)		.315.00
1205	O'Connor claw bowl with 4 1/2", 6" or 8" rise (please specify)		.500.00
1210	100mm bowl with 4 1/2", 6" or 8" rise (please specify)		.390.00

Studio Pedestals

	Capacity		
3702-3	Fulmar extended range pneumatic	.350 lbs. \$28,850.00	
3741-3	Tern standard range pneumatic	.290 lbs. 14,700.00	
3267-3B	Hawk extended range pneumatic	.175 lbs. 21,800.00	
3197-3	Teal standard range pneumatic	.160 lbs. 13,150.00	
3328-3C	Osprey 2-stage lightweight pneumatic	.120 lbs. 11,725.00	
3326-3	Osprey 2-stage castoring lightweight pneumatic*	.120 lbs. 8,050.00	
3323-3C	Osprey single-stage steering pedestal	.150 lbs. 11,200.00	
3324-3	Osprey single-stage castoring pedestal*	.150 lbs. 7,250.00	
3286-3E*	MidipEd 2-piece lightweight pneumatic	.100 lbs. 6,350.00	
3806-1135	Nitrogen regulator with hose and adaptor for all pedestals.		
	*3329-32 kick bar not included with castoring versions		.645.00



Remote/Portable Equipment

	Capacity	
3329-3C	Osprey folding/steering/crabbing dolly with 5" wheels, cable guards and tiller	\$ 5,340.00
3267-3C	Hawk extended range pneumatic pedestal complete with rubber cushion wheels and carrying handles, without cable guards	.175 lbs. 23,100.00
3267-61	Cable guards (set of 3) for 3267-3C Hawk	.380.00

Tripods and Dollies

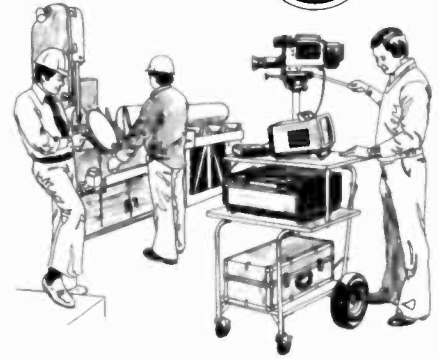
	Capacity	
3063-3	Combination tripod/elevation unit and dolly (price includes head adaptor), please specify 1 from: "Hi-Hat/adaptors for tripods and pedestals"	.100 lbs. \$2,950.00
3063-3A	Combination tripod/elevation unit and dolly with cable guards	.100 lbs. 3,100.00
3206-3B	3/4 (short) heavy-duty tripod with stabilizer (price includes Mitchell Hi-Hat)	.250 lb. 2,425.00
3207-3B	Standard heavy-duty tripod with stabilizer (price includes Mitchell Hi-Hat)	.250 lbs. 2,425.00
3327-3	Osprey castoring dolly with 5" wheels and cable guards	.2,180.00
3737-3	Elevation unit (crank operated) for 3206-3B	.1,850.00
3699-3	Elevation unit (crank operated) for 3207-3B	.1,965.00
3719-3	Heavy-duty dolly for 3206-3B and 3207-3B	.1,855.00
3719-3A	Heavy-duty dolly with cable guards for 3206-3B and 3207-3B	.2,025.00

Penguin Base, Cranes, Crane Arms

	Capacity	
3067-3	Dolphin crane arm (with Mitchell base, if required)	.50 lbs. \$ 9,390.00
3167-3	Short Dolphin crane arm (with Mitchell base, if required)	.50 lbs. 9,390.00
3257-3A	Merlin remote arm featuring standard high level platform and viewfinder support bracket	.40 lbs. 28,340.00
3257-3D	Merlin remote arm featuring standard low-level platform and viewfinder support bracket	.40 lbs. 28,340.00
3510-3	Penguin II tracking base including T-bar steering tiller, cameraman's seat, crab/steering functions, brakes, counterbalance, bracket with weights and special adaptor to accept crane arms, pan and tilt heads or 3699 elevation unit	. \$26,765.00
3743-3	Kestrel crane with manual jib arm	.450 lbs. 40,385.00
3754-3	Kestrel crane with powered jib arm	.450 lbs. 47,250.00

NOTE: When calculating total load for pedestals and cranes, include weight of camera, lens, pan and tilt head, prompter and accessories. Cameraman's weight must also be allowed for on Kestrel cranes.

VIDEO EQUIPMENT CARTS



EFP-17 Folding All-Terrain Field Production Cart

The EFP-17 folding camera cart is the big brother to ENG-1. The EFP-17 is a larger, smoother folding vehicle designed to assemble all of the necessary portable video equipment required for field production. It features a separate shelf to support a monitor for playback or viewing as the action happens. The monitor platform is positioned forward to place the recorder controls at the fingertips of the operator. With optional elevator column and head, taping may be accomplished directly from the cart. Large 12" inflatable pneumatic wheels dampen vibration and allow basic dolly moves over general terrain. The EFP-17 folds to 15 1/2" and only the camera and monitor need be removed for storage. The equipment board is predrilled in 1" increments for quick adjustment.

Specifications

Equipment Platform:	17" x 29"
Monitor Platform:	41" H x 15" x 21"
Camera Platform*:	37" H x 6" x 17"
Folded Size:	42" x 28" x 15"
Load Capacity:	175 lbs.
Wheel Base:	16"
Wheels (inflatable):	12" pneumatic
Casters:	5" swivel with lock
Straps:	1 ea. 8', 2 ea. 5'
Shipping:	Assm. 57 lbs. truck

*Note: Camera platform is predrilled for elevator column

EFP-17 \$436.00

Accessories:

Receptacle and Cord Reel, Elevator Column, Friction Head, or Fluid Head

DG/H4/TM The Challenger Friction Head

Specifications

Load Capacity:	25 lbs.
Minimum Height:	34"
Maximum Height:	70"
Elevation Adjustment:	16"
Geared Center Post:	1 3/8" dia.
Leg Diameters:	1 1/8" - 1 1/4"
Head Tilt Angles:	60° up, 90° down
Spring Loaded Head:	2 springs
Head Pan Rotation:	360°
Weight:	8 lbs.

Material &

Finish: Clear and Black anodized aluminum

Self-Locking Gear Mechanism

DG/H4/TM \$218.00

DG/TM/FM-15 Fluid Head

Specifications

- Camera platform 4" x 4 1/4"
- Accommodates cameras up to 25 lbs.
- Dual handle capability
- Positive tilt lock and pan lock
- Leakproof and dustproof sealing
- Easily visible bubble level gauge



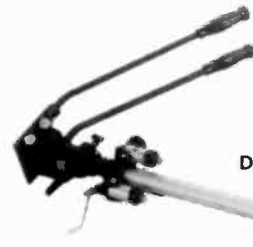
EFP-17 With
Column and Head



IFP-39



DG/H4/TM



DG/TM/FM-15

- Extremely smooth pan and tilt movements
- Weight: 5 lbs.
- Height: 5"
- Fits ball on flat top tripod
- Low profile design
- Rugged construction
- Reliable operation
- Compatible with European standards
- Unique quick release camera mounting screw with slot to allow camera balancing
- Tilt: +90°

DG/TM/FM-15 (Includes Head and Elevator Assig) \$436.00

IFP-39 (Non-Folding) Industrial Field Production Cart

The IFP-39 is a heavy-duty industrial, non-folding camera cart designed to assemble all of the necessary video equipment required for quality industrial video production. This vehicle will accommodate camera, videocassette recorder with electric editing, monitor, camera control unit, AC adaptors, batteries and/or battery packs. Taping can be accomplished directly from the vehicle with the addition of an optional elevator column and head. The large inflatable pneumatic tires offer smooth transportation over rough terrain.

Specifications

Upper Platform*:	39" H x 29" x 19"
Center Platform:	28" H x 29" x 19"
Lower Platform:	10" H x 18" x 24"
Load Capacity:	200 lbs.
Wheel Base:	21"
Wheels (inflatable):	12" pneumatic
Casters:	5" swivel with lock
Straps:	3 ea. 8'
Shipping (3 crt.):	K/D, 75 lbs. UPS

*Note: Upper platform is pre-drilled for elevator column.

IFP-39 \$398.00

Accessories

Receptacle and Cord Reel, Elevator Column, Friction Head, or Fluid Head



VIDEO EQUIPMENT CARTS

ENG-1 Folding Video Production Cart

Equipped with large 12" wheels, the light-weight ENG-1 offers excellent mobility to video producers using 1/2" systems. Its camera platform is pre-drilled for an optional elevator column. Sloping 14" x 29" platform with two 5" straps and two adjustable brackets holds 9" monitor and VCR. Platforms are laminate material with protective plastic edge strip. 4" swivel casters lock for safety. Holds 150 lbs. of gear and folds to 42" x 23" x 12" for automobile stowage \$300.00



ENG-1

CAM-10 Folding Video Production Cart With Fluid Head

Comes with crank adjustable column and micro-fluid head pre-mounted on 6" x 17" x 36" high camera platform. Head holds 15 lb. camera, adjusts 47"-63" height, has full pan and 180° tilt. Monitor platform measures 16" x 24" x 36" high and has two 6" straps. Lower 15" x 18" platform with 5" strap and bracket locks in either slant or horizontal position which allows 16" headroom. Tough laminate platforms have protective edging. 10" wheels on 16" wheelbase assure safe, easy movement. 4" swivel casters lock. Holds 150 lbs. Folds to 40" x 25" x 12" \$545.00



CAM-10

GR-3 Folding Video Production Cart With Fluid Head

This lightweight folding cart for smaller systems has a pre-mounted telescoping column with fluid head that supports 10 lb. camera, adjusts 43"-82" height, has full pan and tilt. Sloping 13" x 33" laminate platform has three 4" buckle-end straps and three brackets to hold equipment. 8" wheels and 16" wheelbase ensure easy passage over curbs, steps and obstacles. 4" swivel casters lock for safety. Holds 130 lbs. and folds to 41" x 21" x 10" for automobile stowage \$436.00



GR-3

2900 Upper Platform Mount Projector Stand

Video projectors up to 24" wide can be securely mounted on the upper platform of this rugged stand, which has a tilt range of -4° to +13°. Large 24.5" by 29.5" middle and lower platforms hold professional-size VCR, cables and other equipment. Frame is 1" square steel tube and platform surfaces are tough laminate. Two 8" straps secure equipment during transit while large 5" locking swivel casters assure mobility. Overall size: 30" H x 24.5" W x 29.5" D \$360.00



2930

3400 Upper Platform Mount Projector Stand

Similar to the 2900 stand, but wider to accommodate projectors up to 33.5" wide. Projector platform tilts -4° to +13°. Oversize 30" by 29.5" middle and lower platforms hold VCR, cables and accessories. Construction is of strong, 1" square tube with laminate platforms. Unit has large 5" locking swivel casters and two 8" buckle-end straps to protect delicate equipment. Overall size: 30" H x 34" W x 29.5" D \$392.00



3400



3430

2930 Center Platform Mount Projector Stand

This 3-tube projector stand accommodates video projectors up to 15" H x 25" W x 29" D on a pivoted center platform which can be tilted from -3° to +21°.

The large 27.5" x 29.5" top shelf offers plenty of space for professional-type VCRs and control equipment at convenient 30" working height. Handy bottom shelf holds cables and accessories.

The 2930 transports up to 250 lbs. on large, 5" locking swivel casters and has two 8" buckle-end straps to secure equipment. Overall size: 30" H x 28" W x 29.5" D . . . \$322.00

3430 Center Platform Mount Projector Stand

Similar to the 2930 stand, this larger unit holds video projectors up to 15" H x 31" W x 29" D on a pivoted platform with adjustable tilt from -3° to +21°.

The larger top shelf provides 34" x 29.5" of surface area for VCRs and control equipment. Both top and center platforms have 8" buckle-end restraints to secure equipment.

The 3430 carries up to 250 lbs. of gear on large, 5" locking swivel casters. Overall size: 30" H x 34" W x 29.5" D \$360.00

MICROPHONE CABLE/ ACCESSORIES

wireworks®

The Microphone Multicable

Components Group

- Multipin disconnectible convenience and versatility
- Over 1200 products to choose from
- Nearly limitless system configurations
- Easy adaptability to a wide variety of applications
- Rugged durability
- Expansion capabilities at any time you choose
- Unrivaled portability and modular flexibility
- Simple set-up and tear-down procedures to optimize labor time
- Available in 9 different channel sizes: 3, 6, 9, 12, 15, 19, 27, 36 and 50

The Microphone Multicable Components Group is a family of rugged and versatile components that has virtually revolutionized the design and implementation of microphone multicable systems.

Modular flexibility is the hallmark of the Microphone Multicable Components Group. You can design a system to meet your immediate needs and then easily expand on it in the future. Components Group products, available in an unparalleled range of lengths and capacities, allow you complete freedom in configuring and reconfiguring your system. A simple change in length or termination enables your system to adapt to any application—quickly, efficiently and economically. The base on which you establish your system allows you almost limitless expansion capabilities at any time you choose.

And non-limiting system configurations are only a part of the components concept benefits. System components "disconnect" into easily managed, modular units for unrivalled portability. Set-up and tear-down procedures are simplified to optimize labor time.

The Components Group can be divided into 4 basic categories: Input Units, including MultiBoxes and MultiRacks; Transformer Isolated Microphone Splitters—available in both box and rack configurations; Main and Extension Cables—MultiTrunks; and Interface Components, consisting of MultiTails and Chassis Mount Multipin Connectors.

Components Group products are designed in an unmatched variety of sizes to satisfy every system requirement. Models support 3, 6, 9, 11, 15, 19, 27, 36 and 50 individual channels.



Microphone Multicable Components Group Products

MultiBoxes

Floor or wall mount termination components featuring XLR-type chassis mount connectors and 1, 2, 3 or 4 multipin connectors.

MultiRacks

Rackmount counterparts to MultiBoxes. Upfront connector identification and rack-mounting are key features.

MultiTails

Multipin to XLR-type line connectors in a fan-out arrangement provide direct plugging to equipment. Available in 4' and 8'.

MultiTrunks

Main and extension cable sections terminated on both ends in multipin connectors. Available in 11 standard lengths: 10', 25', 50', 75', 100', 125', 150', 175', 200', 225' and 250'.

Microphone Splitters

Transformer isolated microphone splitters in a wide variety of configurations, featuring genuine Jensen Transformers for optimum performance. Available in both MultiBox and MultiRack mounting styles, with either XLR-type or multipin inputs. 1, 2 or 3 isolated outputs are featured in addition to the direct output, which is phantom power compatible.

LineBoxes

Chassis mount XLR-type connectors in a stagebox wired to a length of multipair cable terminated in a multipin connector. Combines the features of MultiBoxes and MultiTrunks in a partially hardwired configuration.

LineTails

Fan-out XLR-type line connectors wired to a length of multipair cable terminated in a multipin connector. Combines the features and advantages of MultiTails and MultiTrunks in a flexible, economical configuration.

Multipin Connectors

Available pre-wired for installation in consoles and other equipment. Complete connector kits are available for applications where cables must be terminated in the field.

HUB1000 TBC Control System

Central arbitration router allowing up to 64 TBCs to be controlled from up to 8 control panels. Following options are required: HCP300 Control Panel (minimum 1, maximum 8), HUB100 Crosspoint Card, each card provides interface to 8 TBC remotes (minimum 1, maximum 8), SDR300/SDR350/SDR400/SDR450 TBC remotes, 1 remote required for each TBC to be controlled (minimum 1, maximum 64).

- HUB1000 TBC control system \$5550.00
- HCP400 EDL control panel 1800.00
- HUB100 Crosspoint card 1100.00
- SDR300/SDR350/SDR400/SDR450 See Above
- Interface cable, HCP300 to HUB1000 *
- Interface cable, TBC remote to HUB1000 *
- Interface cable, TBC remote to TBC *

SDR300 TBC Digital Remote Control

Digital remote for control of 1 TBC. Includes serial communications port for use with HUB1000 TBC control system. May be ordered with optional "Auto Color Framing" where applicable. No additional options required \$1050.00
 Auto color framing No Charge
 Interface cable, SDR300 to TBC *

DR300 Digital TBC Remote

Same as SDR300, less communications port. Intended for stand-alone control of 1 TBC. May be field upgraded to SDR300. No additional options required \$975.00
 Auto color framing 75.00
 Interface cable, DR300 to TBC *

SDR350 Digital TBC Remote

Same as SDR300, less front panel controls. Intended for use as cost reduced TBC remote in HUB1000 based systems. Must be controlled via HUB1000 \$775.00
 Interface cable, SDR350 to TBC *

SDR400 TBC Digital Remote Control

Digital remote for control of proc amp adjustments for D2 format VCRs. Equivalent to SDR300 in form and function. Includes serial communications port for use with HUB1000 TBC control system. No additional options required \$1050.00
 Interface cable, SDR400 to VCR *

DR400 Digital TBC Remote

Same as SDR400, less communications port. Intended for stand-alone control of 1 VCR employing D2 format. May be field upgraded to SDR400. No additional options required \$975.00
 Interface cable, DR400 to VCR *

SDR450 Digital Remote

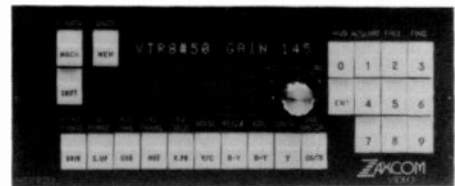
Same as SDR400, less front panel controls. Intended for use as cost reduced remote in HUB1000 based systems. Must be controlled via HUB1000 \$775.00
 Interface cable, SDR450 to VCR *

Accessories

- RM100 4 device rackmount \$100.00
- BL100 Blank for RM100 15.00



HUB1000



HCP400



SDR300

MTBC1500 Multiple TBC/D2 Controller

Provides control of 8 TBCs from up to 2 control panels. Basic system includes 1 HCP400 control panel. Comes with D2 or Zeus software, including Digimatch™, which allows matching back to setup of any memory of any tape in any machine \$6900.00

ZX400 4 TBC/D2 Control System

Cost efficient 4 TBC/D2 controller providing control of up to 4 TBC/D2 units. Basic unit includes 3 analog TBC protocols and EDL or GVG200 interface. Expandable to 8 TBC controller. Includes Digimatch \$3700.00

TM100 TBC Task Master (Patent Pending)

Automatic TBC adjustment for gain, setup, chroma and hue in 5 seconds or less. Interfaces with any Zaxcom TBC/D2 control system \$2400.00

APV100 Audio Preview Mixer

• Allows monitor mixing of up to 5 channels of audio from Betacam D2 or D1 machines in an edit session • Basic unit consists of the control panel and mainframe \$3500.00

*Zaxcom provides the required interconnect cable diagrams with all products. As a service to our customers cable fabrication is available at cost. Specify cable length and type of equipment to which connection will be made.

PROJECTION LAMPS



Ordering Code	Price
BAK 4V, 75A	\$10.74
BCK 120V, 500W	47.46
BCK-5 125V, 500W	47.46
BEH 120V, 150W	20.27
BFK/BFL 120V, 750W	45.28
BGB/BGK 4V, 75A	10.74
BHB 120V, 250W	33.41
BHC	(See DYS)
BLC 120V, 30W	6.20
BRD 4V, 75A	13.90
BRH 120V, 1000W	49.93
BRK 4V, 75A	12.07
BRL/BCD 12V, 50W	10.02
BRN 120V, 1200W	62.04
BRP 120V, 750W	53.51
BRR 120V, 1000W	57.89
BRS 4V, 75A	11.83
BRX 4V, 1A	13.41
BSB	(See BSS)
BSF 25V, 280W	19.00
BSK 6V, 1A	12.77
BSS/BSB 6V, 1A	10.10
BSW 7V, 20A	12.96
BTD 7V, 20A	13.38
BTG 120V, 1200W	59.38
BVA 120V, 900W	61.22
BVE 120V, 625W	53.23
BVE-5 125V, 625W	53.23
BVS/BVK 5V, 6.5A	15.60
BXE 10V, 7.5W	13.27
CAC/CAJ 12V, 50W	11.96
CAL/CXP 120V, 300W	24.32
CAL/CXP-5 125V, 300W	24.32
CAR 120V, 150W	23.93
CAR-5 125V, 150W	23.93
CAS/CAV 120V, 50W	18.12
CAV	(See CAS)
CAW	(See CAX)
CAX/CAW 120V, 50W	11.85
CBA 120V, 500W	50.22
CBA-5 125V, 500W	50.22
CBC	(See CBJ)
CBJ/CBC 120V, 75W	15.31
CBS	(See CBX)
CBX/CBS 120V, 75W	16.67
CDD 120V, 100W	15.75
CDJ 120V, 100W	14.96
CDS/CDX 120V, 100W	16.74
CDX	(See CDS)
CEM 120V, 120W	15.19
CEW/CFC 120V, 150W	16.22
CFC	(See CEW)
CHK 120V, 150W	17.89
CLG	(See CLS)
CLS/CLG 120V, 300W	17.04
CLX/CMB 120V, 300W	19.41
CMB	(See CLX)
CMT	(See CMV)
CMV/CMT 120V, 300W	27.28
CRT 120V, 300W	29.51
CTT/DAX 120V, 1000W	50.62
CWA 120V, 750W	41.85
CWA-5 125V, 750W	41.85

Ordering Code	Price
CWD 120V, 300W	\$24.02
CXH 230V, 300W	31.27
CXK 120V, 300W	34.91
CXL/CXR 8V, 50W	34.37
CXP	(See CAL)
CXP-5	(See CAL-5)
CXR	(See CXL)
CXY 120V, 300W	38.27
CYC/CYM 120V, 300W	23.83
CZA/CZB 120V, 500W	29.11
CZA/CZB-5 120V, 500W	29.11
CZB	(See CZA)
CZB-5	(See CZA-5)
CZS 120V, 500W	40.81
CZX/DAB 120V, 500W	37.14
DAB	(See CZX)
DAH 120V, 500W	38.89
DAK	(See DAY)
DAK-5	(See DAY-5)
DAT/DAK 120V, 400W	24.40
DAX	(See CTT)
DAX-5	(See CTT-5)
DAY/DAK 120V, 500W	29.36
DAY/DAK-5 125V, 500W	29.36
DCH/DJA/DFP 120V, 150W	33.41
DCX 120V, 750W	36.17
DDB 120V, 750W	38.20
DDJ/DZZ 10V, 80W	32.37
DDK 19V, 80W	29.73
DDL 20V, 150W	18.22
DDM 19V, 80W	30.91
DDM-5 20V, 80W	30.91
DDN 20V, 200W	32.57
DDP 22V, 132W	30.00
DDS 21V, 80W	20.59
DDY 120V, 750W	52.10
DED 13.8V, 85W	20.40
DED-5 14.5V, 85W	20.40
DEK 120V, 500W	29.78
DEK-5 125V, 500W	29.78
DEP 120V, 750W	27.26
DFC	(See DFN)
DFG/DFA 120V, 150W	34.71
DFN/DFC 120V, 150W	35.46
DFP	(See DCH)
DFT 120V, 1000W	38.00
DFY 120V, 1000W	37.38
DGH 120V, 750W	50.59
DHX	(See DLG)
DJA	(See DCH)
DJL 120V, 150W	35.75
DJT 13.8V, 50W	21.46
DLG/DLS/DHX 21V, 150W	38.35
DLN 120V, 750W	37.21
DLS	(See DLG)
DMX 120V, 500W	34.69
DNE 120V, 150W	32.91
DNF 21V, 150W	33.56
DPJ 120V, 750W	42.51
DPT 120V, 1000W	47.01
DRA 120V, 300W	38.52
DRB/DRC 120V, 1000W	28.62

Ordering Code	Price
DRB/DRC-5 120V, 1000W	\$28.62
DRC	(See DRB)
DRC-5	(See DRB-5)
DRS 120V, 1000W	32.86
DRS-5 125V, 1000W	32.86
DVY 120V, 650W	31.33
DVY-5 125V, 650W	31.33
DWZ 30V, 375W	32.74
DYF 19.3V, 140W	41.14
DYH 120V, 600W	30.52
DYH-5 125V, 600W	30.52
DYP 120V, 600W	38.05
DYP-5 125V, 600W	38.05
DYR 220V, 650W	39.46
DYS/DYV/BHC 120V, 600W	25.46
DYS/DYV/BHC-5 125V, 600W	25.46
DYT 19V, 80W	35.93
DYV	(See DYS)
DYV-5	(See DYS-5)
DYY/EGH 120V, 500W	38.32
DZA 10.8V, 30W	24.86
DZB 12V, 100W	32.27
DZE 24V, 150W	15.23
DZZ	(See DDJ)
EFM 8V, 50W	30.49
EFN 12V, 75W	34.37
EFP 12V, 100W	34.02
EFR 15V, 150W	34.62
EGX 120V, 500W	57.78
EHA 120V, 500W	50.12
EHA-5 125V, 500W	50.12
EHJ 24V, 250W	24.05
EJA 21V, 150W	36.47
EJL 24V, 200W	27.28
EJL-5 25V, 200W	27.28
EJM 21V, 150W	28.67
EJN	(See ELD)
EJV 21V, 150W	30.22
EKB 120V, 420W	42.22
EKD 120V, 650W	32.78
EKE 21V, 150W	37.53
EKG 19V, 80W	30.35
EKL 21V, 150W	25.80
EKN 17.7V, 120W	19.51
EKS	(See EMM)
EKX 24V, 200W	22.79
EKZ 10.8V, 30W	31.21
ELA 19V, 65W	33.70
ELB 30V, 80W	29.01
ELC 24V, 250W	27.75
ELC-5 25V, 250W	27.75
ELC/E 24V, 250W	29.75
ELD/EJN 21V, 150W	19.01
ELE/ELT 30V, 80W	34.99
ELH 120V, 300W	28.37
ELH-5 125V, 300W	28.37
ELR	(See ELS)
ELS/ELR 16V, 50W	26.44
ELV 21.5V, 150W	33.24
ELZ 21V, 150W	33.24
EMC 12V, 100W	26.10

Ordering Code	Price
EML 24V, 175W	\$26.10
EMM/EKS 24V, 250W	31.14
EMM/EKS-5 25V, 250W	31.14
ENC	(See ENW)
ENG 120V, 300W	36.22
ENG-5 125V, 300W	36.22
ENH 120V, 250W	39.58
ENH-5 125V, 250W	39.58
ENL 12V, 50W	20.27
ENW/ENC 19V, 80W	39.70
ENX 82V, 360W	32.35
ENX-5 86V, 360W	32.35
ENZ 30V, 50W	25.11
EPR 120V, 500W	46.79
EPT 10.8V, 42W	34.52
EPV 14.5V, 90W	18.59
EPX 14.5V, 90W	19.23
EPZ 13.8V, 50W	19.91
ESA/FHD 6V, 10W	14.26
ESC 24V, 200W	32.52
ESH 82V, 85W	35.31
ESJ 82V, 85W	29.36
EVW 82V, 250W	29.38
EWG 120V, 300W	27.46
EXN 12V, 50W	22.53
EXR 82V, 300W	27.19
EXR-5 86V, 300W	27.19
EXS 30V, 200W	25.80
EXV 12V, 100W	34.00
EXW 82V, 300W	36.57
EXW-5 86V, 300W	36.57
EXX 120V, 250W	21.65
EXY 82V, 250W	38.62
EXY-5 86V, 250W	38.62
EYB 82V, 360W	26.20
EYB-5 86V, 360W	26.20
EYH/FKT 120V, 250W	26.15
EYK 120V, 300W	27.46
EZE 82V, 150W	28.89
FAL 120V, 420W	28.37
FAL-5 125V, 420W	28.37
FCB 120V, 600W	35.93
FCB-5 125V, 600W	35.93
FCK 20V, 170W	38.89
FCR 12V, 100W	12.07
FCS 24V, 150W	10.62
FDS 24V, 150W	14.84
FDT 12V, 100W	14.84
FDV 24V, 150W	26.57
FFJ 120V, 600W	31.26
FFJ-5 125V, 600W	31.26
FHD	(See ESA)
FHR 12V, 50W	15.44
FHS 82V, 300W	31.01
FHS-5 86V, 300W	31.01
FHX 13.8V, 25W	20.77
FJX 13.8V, 30W	25.38
FKT	(See EYH)
JC24V300W 24V, 300W	22.22

Note: -5 Represents Voltage Increased By 5%

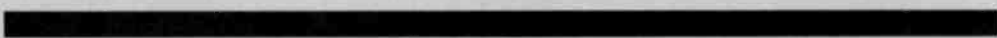
Ordering Code	Price
BFE 120V, 750W	\$ 45.28
BFK/BFL 120V, 750W	45.28
BNF 120V, 75W	8.49
BRH 120V, 1000W	49.93
BSF 25V, 280W	19.00
BTL 120V, 500W	47.27
BTM 120V, 500W	47.27
BTN 120V, 750W	47.04
BTP 120V, 750W	47.69
BTR 120V, 1000W	53.53
BVR 120V, 30W	9.68
BVT 120V, 1000W	73.78
BVV 120V, 1000W	73.78
BVW 120V, 2000W	91.36
BWA 120V, 2000W	130.71
BWF 120V, 2000W	141.51
BWM 120V, 750W	97.87
BWN 120V, 1000W	106.62
CAC/CAJ 12V, 50W	11.96
CAX/CAW 120V, 50W	11.85
CBS	See CBX
CBX/CBS 120V, 75W	16.67
CDD 120V, 100W	15.75
CDJ 120V, 100W	14.96
CDS/CDX 120V, 100W	16.74
CEA/CEB/CDK 120V, 100W	19.16
CEM 120V, 120W	15.19
CEW/CFC 120V, 150W	16.22
CHK 120V, 150W	19.89
CLS/CLG 120V, 300W	17.04
CLX/CMB 120V, 300W	19.41
CMV/CMT 120V, 300W	27.28
CWZ 120V, 1500W	106.07
CXZ 120V, 1500W	119.64
CYV 120V, 1000W	93.82
CYX 120V, 2000W	129.04
DCT 120V, 2000W	146.58
DEB 120V, 500W	26.84
DMX 120V, 500W	34.69
DNS/FMC 120V, 500W	57.40
DNT/FMD 120V, 750W	57.64
DNV/FME 120V, 1000W	60.49
DNW 120V, 500W	62.22
DPJ 120V, 750W	42.51
DPW 120V, 1000W	63.24
DPY 120V, 5000W	565.07
DRB/DRC 120V, 1000W	28.62
DRB/DRC-5 125V, 1000W	28.62

Ordering Code	Price
DRS 120V, 1000W	\$ 32.86
DRS-5 125V, 1000W	32.86
DRW 120V, 1000W	55.40
DSB 120V, 1000W	64.19
DTA 120V, 1500W	98.42
DTJ 120V, 1500W	81.58
DTY 120V, 1000W	1095.69
DVS 130V, 500W	15.27
DVY 120V, 650W	31.33
DVY-5 125V, 650W	31.33
DWT 120V, 1000W	95.91
DWY/FAB 120V, 650W	33.33
DXN 120V, 1000W	47.25
DXW 120V, 1000W	44.62
DXX 240V, 800W	30.05
DYG 30V, 250W	29.89
DYH 120V, 600W	30.52
DYH-5 125V, 600W	30.52
DYR 220V, 650W	39.46
DYS/DYV/BHC 120V, 600W	25.46
DYS/DYV/BHC-5 125V, 600W	25.46
EAD 120V, 60W	25.98
EAJ 12V, 35W	19.41
EAK 120V, 100W	42.84
EAG 120V, 500W	60.89
EGE 120V, 500W	60.89
EGF 120V, 750W	68.29
EGG 120V, 750W	68.29
EGJ 120V, 1000W	71.69
EGK 120V, 1000W	74.09
EGM 120V, 1000W	101.96
EGN 120V, 500W	57.53
EGR 120V, 750W	74.64
EGT 120V, 1000W	81.29
EHC/EHB 120V, 500W	55.07
EHD 120V, 500W	55.07
EHF 120V, 750W	60.89
EHG 120V, 750W	60.89
EHM 120V, 300W	14.68
EHP 120V, 300W	46.49
EHR 120V, 400W	41.18
EHV 120V, 325W	34.00
EHZ 120V, 300W	54.31
EJD 185V, 1000W	50.24
EJG 120V, 750W	43.38
EKB 120V, 420W	42.22
EKD 120V, 650W	32.78
ELJ 120V, 1050W	47.19

Ordering Code	Price
EMD 120V, 750W	\$ 54.18
ESL 120V, 150W	36.93
ESM 120V, 250W	39.07
ESN 120V, 100W	39.71
ESP 120V, 150W	36.93
ESR 120V, 100W	39.71
ESS 120V, 250W	24.64
ETB 120V, 250W	39.07
ETC 120V, 150W	24.64
ETD 120V, 100W	42.38
ETE 120V, 100W	42.38
ETF 120V, 150W	38.27
ETG 120V, 150W	23.04
ETH 120V, 150W	38.27
EVR 120V, 500W	39.07
EYH/FKT 120V, 250W	26.15
EYT 120V, 750W	49.76
EYV 130V, 500W	40.07
EYW 130V, 500W	35.18
EYX 120V, 500W	40.07
FAD 120V, 650W	25.64
FBG/FBD 120V, 500W	35.93
FBV 30V, 250W	49.42
FBW 30V, 350W	53.73
FBX 120V, 650W	33.58
FBY 120V, 1000W	47.96
FCA 120V, 650W	31.36
FCB 120V, 600W	35.93
FCB-5 125V, 600W	35.93
FCL 120V, 500W	15.27
FCM 120V, 1000W	33.82
FCV 120V, 1000W	68.29
FCZ 120V, 500W	43.04
FDA 120V, 400W	34.29
FDB 120V, 1500W	63.67
FDV 120V, 500W	33.82
FDN 120V, 500W	32.62
FEL 120V, 1000W	56.60
FEP 220V, 1000W	63.78
FER 120V, 1000W	66.44
FEV 120V, 200W	30.20
FEX 220V, 2000W	117.76
FEY 120V, 2000W	111.64
FFT 120V, 1000W	31.26
FGT 120V, 1500W	81.81
FGW 24V, 150W	27.33
FHM 120V, 1000W	37.53

**COMPUTER •
PRESENTATION • GRAPHICS**

Section



Photoshop™ Software Macintosh® Version

Photoshop is the affordable Macintosh image-processing program with enough power and versatility to be used as a paint, pre-press, color correction and darkroom system, all in living 24-bit color.

Whether you start with scanned photographs, slides, electronic artwork or from scratch, Photoshop's full range of filters, painting, drawing and selection tools give you the artistic control and precision you've been missing. Paint original designs with soft-edged or custom brushes, textures or patterns. Retouch photos with a range of airbrushing tools or extend a photo's background quickly with the rubber stamp tool. Blend, layer or fill multiple images for mosaic, photo-realistic or impressionistic effects.

It's all up to you. Bitmapped and grayscale pictures, indexed color and 24-bit images. Because the Photoshop program uses virtual memory, you can work with practically any image on a 2M byte Macintosh. Plus, Photoshop converts between different formats and file types, so you don't have to scrap the electronic artwork you've already created. You'll have automatic color trapping, retouching and color correction capabilities you'd expect to find only in a pre-press shop.

When you're ready to produce your artwork, you can print color separations directly from the Photoshop program. Or save your images as encapsulated PostScript® files and place them in popular page layout programs like PageMaker® or Quark XPress®. You can even add type and line art effects to your continuous tone images by exporting them to the Adobe Illustrator® program.

Painting

- Paint with anti-aliased (soft-edged) paint brush or airbrush tools in any of 16 million colors
- Paint with textures or patterns of any size
- Create custom brushes
- Perform linear or radial gradient fills
- "Clone" part of an image with the rubber stamp tool
- Smudge, blur or sharpen any part of the image
- "Scratch area" to blend and create colors

Selection

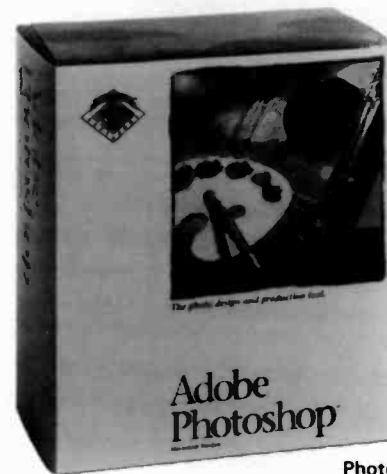
- Photoshop's 8-bit selection mask lets you define a working area within your image
- Make simple selections with the rectangular marquee and elliptical marquee tools
- Make straight line and irregular selections with the lasso tool
- Perform automatic selections with the "magic wand" tool
- Specify precise sizes or aspect ratios for rectangular and elliptical selections
- Select arbitrary regions with a variable "feather edge"
- Add to, subtract from or refine selections
- Copy to the selection mask from any channel or vice-versa

Adjustment

- Adjusts brightness, contrast, gamma, color balance, hue and saturation
- Adjusts color balance independently for shadows, highlights and midtones
- Adjusts the entire image, the selected area or any individual channel

Filters

- The Photoshop program has an extensive set of built-in filters and supports plug-in filters which permit the creation of custom filters
- Image sharpening filters: sharpen, sharpen more, sharpen edges
- Image softening filters: blur, blur more, gaussian blur, despeckle, motion blur
- Effects filters: add noise, diffuse, facet, star lens, mosaic, trace contours, high pass
- Other filters: offset, convolution, minimum, maximum, median, find edges



Photoshop

Transform

- Rotate, stretch, skew, distort, flip or alter perspective of any part of an image
- Intelligent resampling can be used to reset resolution or image size to values appropriate for printing

Text

- Create text in any size or resolution
- Anti-alias option softens letter edges

Separation/Printing

- Create high quality CMYK separations from continuous-tone images
- Automatic trapping capability reduces registration problems within areas that contain transitions between colors
- Directly print separations from the Photoshop program or save in encapsulated PostScript (EPS) format for placement in Adobe Illustrator or page-layout programs
- Prints to any PostScript color or black and white printer, with control over half-tone frequency, screen angle and dot shape
- Prints to a variety of QuickDraw™ printers including Apple ImageWriter® or ImageWriter II, Tektronix thermal imaging printers and Apple LaserWriter® SC

File Format Support

- Encapsulated PostScript
- PICT files—including 32-bit
- PICT resources
- Amiga® IFF/ILBM
- CompuServe GIF
- MacPaint®
- Thunderscan®
- TIFF
- PIXAR
- Pixelpaint®
- Photoshop
- Scitex
- TGA (Targa)
- A smart, flexible raw format

Format Conversion

- 24-bit color to CMYK separations
- 8-, 4-, 2-bit color to 24-bit color
- 24-bit color to 8-, 4-, 2-bit color
- 8-, 4-, 2-bit grayscale to halftone
- Color to black and white
- Black and white to color

Virtual Memory

- Photoshop uses a very efficient virtual-memory technique, making it possible to edit images of virtually any size

Registered User Support

- Technical support from our expert support staff
- Free product updates for 90 days
- On-line electronic support for subscribers to the CompuServe Information Service

System Requirements

- Macintosh II or SE product line with at least 2M bytes of RAM
- Color monitor recommended
- System 6.02 or later
- Hard disk
- Macintosh-compatible scanner (optional)

Photoshop\$895.00

DIGITAL FILM RECORDERS



DIGITAL FILM RECORDERS

Forte High Performance Professional Film Recorder*

• Top-of-the-line professional digital film recorder • Can image a variety of file formats including PostScript, PICT and SCODL in either 2K, 4K or 8K addressable resolution as fast as 50 seconds per image • Conductor software with 13 fonts • Designed for use in slide service bureaus and corporate imaging centers where speed, quality, format variety and compatibility with many popular graphics programs are necessary • Can be purchased with a Matrix 35mm bulk loading film module for production convenience • The graphic arts, publishing and retouching fields can also benefit from the use of Forte. Its increased addressability (8K) and the optional 4" x 5" or 8" x 10" module allow you to make large format full color chromes and instant prints that can be used for client approval or as original artwork

For Mac and PC. 2K/4K/8K addressability IEEE interface (PC), SCSI interface (Mac), Conductor software for the Mac. Other rasterizers sold separately (MVP Star or MVP Star-16 for the PC, ChromaScript II for PostScript). Base unit \$33,495.00

Forte With 35mm* Forte base unit with 35mm 36 exposure camera back 34,995.00

Forte With Matrix Bulk* Forte base unit with 35mm pin registered Matrix bulk load option (750 exposure). 42,495.00

Forte With Oxberry* Forte base unit with 35mm pin registered Oxberry bulk load 47,995.00

*Includes installation by an authorized Agfa Service Representative.

QCR-Z With 35mm Professional Film Recorder

• Industry standard • Average 3 minutes per slide • User selectable addressability • 2K or 4K • 3 colors: red, blue and green • Bits/pixel: 24 (8 each for red, blue, green) • 2048H x 2048V and 4096H x 4096V pixels, software selectable • 35mm, standard cassette, 100' roll, 4" x 5" sheet, 8" x 10" sheet • IEEE interface • Rasterizers sold separately (MacHarmony for Mac, MVP Star or MVP Star-16 for PC, ChromaScript II for PostScript) . . \$16,995.00

PCR Entry Level Professional Film Recorder

• Generates film output at 2K and 4K addressable lines (software selectable) for the clearest, sharpest, artist-quality images • 35mm only chooses colors from 8-bit look-up tables for red, green and blue to produce color combinations from a possible 16 million colors • Self-calibration: Ensures color consistency frame after frame and roll after roll • Automatic Diagnostics: Speeds problem analysis and minimizes downtime • Compatible with most major mainframe, mini and microcomputer graphics software programs • Incorporated into graphic arts workstations from such manufacturers as Artronics, Autographix, AVL, Dicomed, DuPont Design Technologies and more • Can be controlled directly with a GPIB interface (IEEE 488), or it can be interfaced with the MVP-Star to offload vector-to-raster processing from the host computer (not included) • Compatible with the KMW VP-10 and Lasergraphics UI 100Q rasterizers • Up to 45 images per hour • Film loading and exposure can take place in regular office lighting • Film advance is automatic • 3 colors: red, green, blue • 2048 x 1366 pixels or 4096 x 2732 pixels, software selectable • Data Interface—IEEE Standard 488-1978 • GPIB IEEE included • Rasterizers sold separately (MacHarmony for the Mac, MVP Star or MVP Star-16 for the PC, ChromaScript II for PostScript) \$9,995.00

SlideWriter Entry Level Professional Film Recorder

• 35mm only • SCSI interface user selectable addressability • 2K or 4K • Includes utility software, SCSI cable • Conductor software with 13 fonts • Compatible with Oxberry bulk film cameras



Forte

SlideWriter



QCR-Z

ProColor Premier

• Generates film output at high resolution for the cleanest, sharpest, artist-quality images • Allows you to take full advantage of your Macintosh computer's features, including: creating images from color paint and draw programs; using text in any combination of styles or sizes; merging graphics with pictures; matching corporate logos and colors; and imaging shaded, 3-D solid models • Uses advanced microprocessor control to monitor and automatically compensate for environmental changes during the imaging process \$8,995.00

ProColor Premier Desktop Film Recorder

• With the dual interface you can produce your IBM® PC® AT (or 100% compatible 286/386/486) or Macintosh® slides and prints in minutes • You can use the graphics packages you've already mastered, without learning new programs or commands • Comes with XCS-24 color control system that ensures smooth color gradations, so you can start producing slides like a pro • Create a presentation quickly at your desktop • Last-minute changes are easy • Uses the same file formats as other Agfa film recorders, so you are assured compatibility and interchangeability with other professional film recorders • File formats: PC: SCODL, direct drivers; Macintosh: PICT, PICT II, 32-bit PICT, 24-bit TIFF, direct drivers; PostScript • IEEE-48 • SCSI • 2K or 4K \$7,495.00

RASTERIZERS AND INTERFACES

MVP Star PC Vector-to-Raster Processor Board

• High-speed raster image processor for IBM AT personal computers and 100% compatibles • Computer-generated graphics are converted from vector format to a raster format that can be output on film recorders, color printers and laser printers • Merge full-color, digitized photographs and computer "paintings" with vector images • Accepts SCODL files from IBM PC, mainframe and minicomputer graphics packages, allowing access to a wide range of applications such as business charting, graphic design and more • 1M byte memory, driver software diskettes, 4 fonts • For use with: ProColor Premier, PCR, QCR-Z and Forte • MVP Conductor™ image management software is the bridge between SCODL files, the MVP Star and output devices • Total control over device selection, addressability, film type, film format, advanced image processing techniques and number of copies produced • MVP Conductor has a preview feature that lets you view images before they are recorded onto film or sent to a printer. \$995.00

MVP Star-16 PC Vector-to-Raster Processor Board

• (SCODL) supporting multiple devices • 16MHz 68000 processor • 1M byte memory • LIM EMS 4.0 support • For use with: ProColor Premier, PCR, QCR-Z and Forte \$1,495.00

MacHarmony Switchbox

• For connecting Macintosh and PC to 1 PCR or QCR-Z, SCSI and IEEE inputs, IEEE output • Includes Conductor software for the Mac, 13 fonts and cables \$2,495.00

Conductor Image Management Software

• Conductor's image management capability is fast, powerful and convenient • Shoot a group of slides and prints, select global defaults, even preview images • A complete tool palette allows you to modify your layout • Resize an image or center it on a slide, quickly and easily • Complete control over your output device, including batch processing of images, dither pattern and size, number of copies for each file and much more • Supports all Agfa film recorders as well as the MaxiColor™ printer • With an AppleTalk® network, you can share your film recorder among many users using the built-in Conductor Remote feature • For the Mac. Images PICT, PICT II, 32-bit PICT and 24-bit TIFF images. Includes 35 Conductor fonts and cable • Requires Mac SE/30 or higher \$495.00

ChromaScript II Atlas 68030 Color PostScript Raster Image Processor

• Output PostScript files to a high-resolution color film recorder in a variety of formats including 35mm slides, 4" x 5" prints and chromes, and 8" x 10" prints and chromes • ChromaScript II is as easy to use as other PostScript devices you are already familiar with • Uses the same fonts, too • Graphics created for output to a laser printer or laser imagesetter can be imaged to 35mm slides • For Agfa film recorders. Standalone unit with Adobe PostScript, 8M byte RAM, 80M byte disk, 73 fonts (specify Mac or PC) • For use with: ProColor Premier, PCR, Slide-Writer, QCR-Z and Forte (2K/4K/8K) \$17,995.00

FONT PACKAGES

MVP Serif and Sans Serif Fonts Package of 13 serif and 13 sans serif fonts for use with the MVP Star or MVP Star-16 \$795.00

CAMERA BACK OPTIONS

35mm/QCR-Z 35mm 36 exposure camera module for QCR-Z \$2,495.00
35mm/Forte 35mm 36 exposure camera module for Forte 2,495.00
4 x 5 Option 4 x 5 sheet film back for QCR-Z and Forte. Includes Lisco cassette and a Polaroid 559 film holder 3,995.00
8 x 10 Option 8 x 10 sheet film back for QCR-Z and Forte. Includes Lisco cassette for chromes 4,995.00
Matrix Bulk Load Matrix pin registered bulk load camera for Forte 9,995.00
3 x 4 Option 3 x 4 Polaroid film back for ProColor 1,095.00

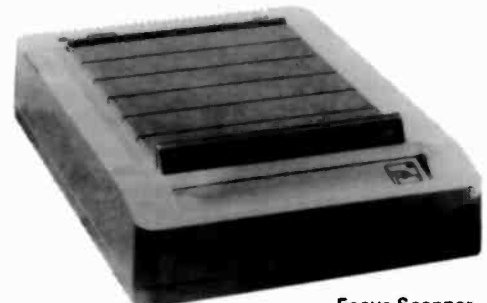
DESKTOP SCANNERS

Focus Scanners

• Now there's a Focus scanner for every Macintosh® or PC® production environment • S600GS for office publishers, S800GS for desktop publishers and S800GSE for professional graphic artists and commercial printers • Designed with standard SCSI interfaces, resolutions up to 800dpi and 64 or 256 gray-levels, Focus scanners bring reprocamera-quality results out of the darkroom and onto your desktop • 7-step sharpness control and 50-step independent control provide better highlights and shadows. On-board memory reduces waiting time by speeding up image processing • Combined with powerful MC View Plus or PC View Plus software, Agfa scanners bring image control to a new level • Existing halftones can be descreened and exposure problems automatically adjusted • Edges can be enhanced and density ranges easily defined. Use the on-



ChromaScript II



Focus Scanner

line densitometer for exact measurements • On-screen interactive graymap control allows users to manipulate gray-level images and automatically invert to negatives • You can even adjust the gray transfer curve of your PostScript output device

Focus S600GS Scanner 600 dpi resolution, 64 gray levels. Includes McView software for Macintosh platform \$2,995.00
Focus S800GS-RG Reconditioned Focus S800GS Scanner 800 dpi resolution, 64 gray levels 2,495.00
Focus II S800GSE Scanner 800 dpi resolution, 64 and 256 gray levels 5,495.00

Focus Color Scanners

• High-resolution color scanning • Fully compatible with the Macintosh and meets the needs of graphic design studios, agencies, service bureaus, print shops and publishers • MC View Color software offers 256 gray-level capability. Combined with the unit's 24-bit graphic tools and automated features, maximizes productivity and yields color and black and white images that are sharp and clear • With up to 800dpi resolution, you can often go directly from desktop to camera-ready art • Functions include exposure and density control to ensure exacting parameters during the pre-scan phase • Automatic white balance correction eliminates distortions from images scanned from varying photographic paper • The MC Calibrator™ software included with MC View Color allows you to correct for deviating gray values which can cause color shifts • Color Map tool allows further control over image densities on the RGB or CMY signals • Additional built-in features include automatic descreening to prevent moiré effects and unsharp masking to clarify and enhance images • A scan-to-disk function allows you to transfer your work directly to disk, thus freeing up memory space

Focus Color Scanner 800 dpi resolution, 24-bit color (RGB), 256 gray levels (black and white) \$7,995.00
Focus Color Transparency Module High quality light source module for scanning slides and transparencies from 35mm to 4" x 5" at up to 800 dpi resolution. Universal slide holder. 1,500.00

IMAGING SOFTWARE

McView McView 2.0 Professional Scanning software for the Macintosh platform. Includes software and SCSI cable \$ 495.00
McView Color McView Professional Color Scanning software for the Macintosh platform. Includes software and SCSI cable 695.00
PCView (AT) PCView 3.0 Professional Scanning software for the IBM PC and compatibles. Includes SCSI board for PC AT, software and cable 995.00
PCView (MCA) PCView 3.0 Professional Scanning software for the IBM PS2 and compatibles. Includes SCSI board for MCA bus, software and cable 1,395.00

COLOR THERMAL PRINTER

MaxiColor Printer 300 dpi color thermal printer, Centronics interface. Requires: printer interface kit for use with Macintosh; MVP Star and Super Cable for use with PC \$5,595.00

CABLES AND INTERFACES

Printer Interface Kit Centronics parallel card and cable for the Macintosh. Includes Conductor software, 13 fonts \$595.00
Super Cable Specialized Centronics cable for use with the MVP Star 200.00

SOFTWARE



PageMaker® 4.0 for Macintosh

PageMaker desktop publishing software integrates text and graphics, allowing you to write, design and produce professional quality printed communications quickly and easily.

PageMaker is the only desktop publishing program that is file-compatible across 3 platforms—Macintosh, DOS-Windows and OS/2-Presentation Manager—allowing you to create, work on and transfer publications in mixed computing environments.

Features added for version 4.0 include sophisticated text-handling capabilities, professional typographic controls and enhanced support for long documents:

- Story Editor, fully integrated for fast text entry and editing within the PageMaker publication
- Spelling checker and search-and-replace
- Track kerning over individual words or the entire publication
- Ability to condense or expand type from 5% to 250%
- Text rotation in 90° steps
- User-defined window/orphan line control
- Ability to generate tables of contents and indexes
- Links management for managing external text and graphics files and easily keeping a publication up to date

In combination with a laser printer, PageMaker produces output that is near-typeset quality; with an imagesetter, output will be true typeset quality. You can also use PageMaker to color text and graphics, or import them from other programs. You can output 4-color separations directly to an imagesetter, using a desktop separator, such as Aldus™ PrePrint™, that is compatible with the Open Prepress Interface (OPI) standard, or to an OPI-compatible high-end prepress system.

Word-Processing Functionality

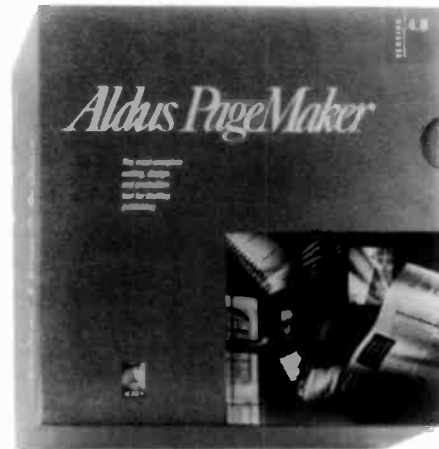
- Write and edit text in a fully integrated Story Editor: Enjoy the same performance you'd expect in a stand-alone word processor; Check spelling using a 100,000-word dictionary; Search for and replace words, phrases, fonts, point sizes and paragraph styles
- Save time with style sheet enhancements, such as the ability to switch styles while typing using the "Next Style" feature
- Apply simultaneous hyphenation and spelling verification by adding dictionaries in up to 10 other languages (purchased separately). Or add additional English dictionaries for specialized fields, such as law and medicine
- Generate tables with a new Table Editor utility, then place them directly into a PageMaker publication

Typographic Controls

- Rotate text in 90° steps
- Condense or expand type from 5% to 250%
- Apply point-size-dependent track kerning to any range of text
- Kern over any range of text to within 0.01 of an em
- Assign type sizes from 4 to 650 points in increments of 0.1 of a point
- Set leading in increments of 0.1 of a point
- Spread text evenly across a column or page with a forced-justification option

Long-Document Capabilities

- Automatically generate tables of contents—even for multiple-file publications
- Compile elegant indexes automatically, then edit them quickly and easily
- Attach graphics and ruled lines to text with new "Inline Graphics" and "Paragraph Rules" options



PageMaker 4.0

- Be sure your publications are up to date with the Links management facility for text and graphics: Control the size of your PageMaker file by storing graphics either inside or outside the publication; Keep track of changes to external text and graphics files placed in the document; At your option, automatically update a publication with the most recent versions of text and graphics files
- Regulate how text breaks in a paragraph, column or page with such features as user-definable window and orphan controls
- Copy-fit quickly with new hyphenation enhancements
- Build individual files up to 999 pages long—limited only by disk space
- Combine multiple PageMaker files for longer publications, using a "Book" feature to generate a common index and table of contents, then chain-print all the documents

Expanded Color Features

- Apply Pantone® Colors, in addition to the 3 most popular color models—RGB, HLS and CMYK
- Import and display full-color images and illustrations, including 24-bit color TIFF and Encapsulated PostScript (EPS) graphics
- Output process-color separations using an OPI-compatible separator such as Aldus PrePrint (purchased separately)

Easy to Learn and Use

- Learn at your own pace with the program's modular tutorial and comprehensive documentation
- Obtain help instantly with an online, context-sensitive Help system
- Start off right with any 30 pre-designed templates for quick and attractive formats

System Configuration

- PageMaker 4.0 requires System version 6.03 and Finder version 6.1 or higher
- Recommended configuration: Apple Macintosh portable, SE/30, II, IIx, IIcx or IIci with hard disk and 2M bytes of RAM
- Minimum configuration: Apple Macintosh Plus or SE with a hard disk and 1M byte of RAM
- PageMaker 4.0 prints to PostScript language-compatible or QuickDraw-compatible laser printers and PostScript language imagesetters that support Apple Macintosh

PageMaker\$795.00



MEDIA CONTROL SYSTEMS

ACCESS CONTROL PANELS

AXP-EL Touch Panel

The AXP-EL offers touch-sensitive control of media and environmental equipment. The panel features 100 user-definable pages of up to 255 unique system functions on a super-bright, electroluminescent display screen. Standard features include clock and date functions, an elapsed/countdown timer, bar graphs, a "screen saver" timer, adjustable baud rate and extensive button and function editing capabilities. The AXP-EL is also RS-232 compatible and can be controlled by a mouse. It may be housed in a wood enclosure, or it can be rack or flush mounted.

Specifications

• Screen Size: 3.875"H x 7.75"W • Mount Size: 7.063"H x 11.813"W x 2.438"D • Enclosure Size: 7.75"H x 12.375"W x 3.25"D • Display: Amber electroluminescent pixels • Resolution: 512(H) x 256(V) • Memory Size: 64K (expands to 256K) RAM • Operating Voltage: 12VDC, 1.25A maximum • Wiring: 4-wire bus, including power

AXP-SP Software Panels

The AXP-SP Software Panel offers a slim-line panel with up to 64 LED buttons and up to 3 8-segment LED bar graph displays for volume, lighting or other applications. The AXP-MSP Mini-Software Panel can have up to 8 LED buttons and an 8-segment LED bar graph. The Software Panel can be flush or rackmounted or housed in a wood enclosure, and the Mini-Software Panel can be mounted in a standard wall box. The AXP-CPI is used for customer supplied or special order buttons. It is used for external relays, switches or closures.

Wired Control Panels

Touch Panels

AXP-EL	Touch panel	.....	\$4175.00
AXP-EL/PB	Touch panel with external buttons	.....	4340.00
AXE-EL	Wood enclosure for touch panel*	.....	335.00
AXK-EL	Rackmount kit for touch panel	.....	335.00

Software Panels

AXP-SP	Software panel, up to 64 buttons	.....	\$1250.00
AXP-MSP	Mini-Software panel (fits single gang wall box)	.....	565.00
AXE-SP	Wood enclosure for Software panel*	.....	335.00
AXK-SP	Rackmount kit for Software panel	.....	335.00

* Available in oak, walnut or satin black. Others available upon special request

Custom Panel

AXP-CPI	Custom panel interface (Overlay panels may have logos, icons and legends engraved)	\$835.00
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ACCESS CONTROL SYSTEM

Access CardFrame

Access is a unique remote control system that simply assigns 1 control card for every piece of equipment to be controlled, from slide projectors, CD player, and VCRs to drapes, screens and lights. Each card easily fits into the front-loading 16-slot Access CardFrame.

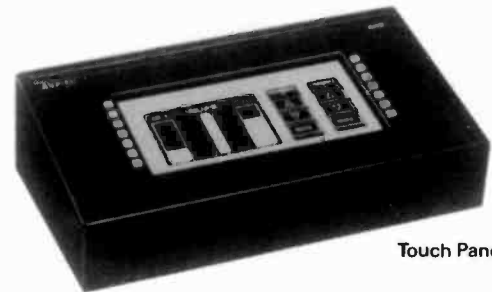
Coordinating the entire system, the Access Master Card features powerful Motorola 68000 16-bit microprocessor and up to 128K of memory. The Master Card controls any combination of up to 255 devices, including devices utilizing infrared, RS-232/422 and MIDI codes. An optional second Master Card can be added to provide automatic backup for the primary Master Card.

With the included Access PC software, the system can be programmed and updated in the field using an on-site IBM-compatible computer or a modem at a remote location. Diagnostic tests, card changes, touch screen changes and systems operation can be performed in the same manner.

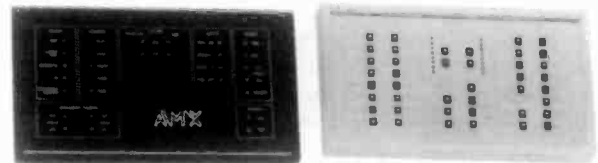
Specifications

• Size: 2.5"H x 19"W x 14"D • Card Wiring: Phoenix captive-wire
• Power: 12VDC

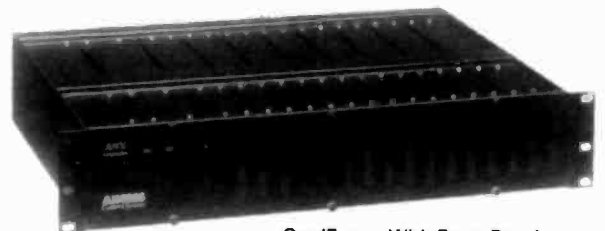
AXF-M/S	CardFrame with AXC-M and AXC-S cards	.....	\$1420.00
AXF-S	CardFrame with AXC-S card only	.....	1085.00



Touch Panel



Software Panels



CardFrame With Front Panel



Cards

Access Cards

All AXC control cards can be installed in the CardFrame without disturbing existing wiring or removing power from the system. All cards include operational status LEDs that are visible from the front, even when the cover is in place.

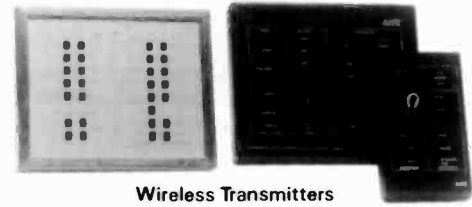
AXC-M	System Master	.....	\$ 335.00
AXC-S	CardFrame server	.....	335.00
AXC-232	RS-232/422	.....	335.00
AXC-PA422	PA-422 professional audio	.....	335.00
AXC-INP8	8 switch/logic inputs	.....	335.00
AXC-IR/S	Infrared or serial	.....	335.00
AXC-MIDI	MIDI in/out/thru	.....	335.00
AXC-PRN	Printer	.....	335.00
AXC-REL8	8 relays—universal	.....	335.00
AXC-REL15	15 relays with single common	.....	335.00
AXC-SAV	European 35mm projector	.....	335.00
AXC-SLD	Slide projector	.....	335.00
AXC-SMP	SMPTTE time code	.....	335.00
AXC-SPE	Enhanced speech synthesizer	.....	1000.00
AXC-VOL	Stereo/dual mono volume	.....	335.00
AXC-VRG4	4 voltage outputs	.....	335.00
AXC-VAI	2 voltage outputs and 2 analog inputs	.....	335.00
AXC-X10	X-10 power line controller	.....	335.00

MEDIA CONTROL SYSTEMS



Keyboard Commander, TX16 and MX40TX

Power Supply



Wireless Transmitters

MX SERIES AND KEYBOARD COMMANDER

MX Series Wireless Projector Controls

Each MX system consists of a wireless transmitter and receiver. The receiver plugs into the back of a slide projector, and the transmitter is handheld. Using radio frequencies, the MX Series provides remote control of up to 12 functions on 1 or 2 projectors, with 9 different MX models to choose from. Since the control signal is a radio frequency, it carries through glass, walls, screens or drapes, providing an omnidirectional range of up to 150'. As a result, the controlled equipment does not even have to be positioned in the same room.

Specifications

• Transmitter Size: 1" H x 2.125" W x 3.625" D • MX120 Size: 1.25" H x 3.5" W x 5.75" D • Receiver Size: (MX20, MX22, MX22A, MX40): 1.5" H x 3.25" W x 4.375" D • Receiver Size: (MX30, MX30A, MX40A, MX40B, MX120): 1.5" H x 5" W x 5.25" D • RF Carrier: 303.5MHz

KC Keyboard Commander

The KC Keyboard Commander adds the convenience of RF wireless control to your IBM-compatible personal computer. Simply connect 1 end of the KC to your keyboard and the other to the computer. No other adaptors or serial cards are required, and the keyboard remains fully functional. Any AMX transmitter may be used with the KC, allowing an omnidirectional range of up to 150'. The KC will learn and repeat any sequence of keystrokes, assigning each sequence to a desired control button. An RS-232 serial version is available for control integration with wired SX and AXCESS systems.

MX Series

Wireless Single Projector Control

MX20	Forward and reverse	\$ 184.00
MX30	Forward, reverse and on/off	.239.00
MX40	Forward, reverse and focus in/out	.245.00
MX40A	Forward, reverse, focus in/out and on/off	.299.00
MX40B	Forward, reverse, focus in/out, on/off and auxiliary on/off	.399.00

Wireless Dual Projector Control

MX22	Forward and reverse, 2 projectors at the same time	\$219.00
MX22A	Projector 1: forward and reverse; 2: forward and reverse; 2 projectors independently	.245.00
MX30A	Projector 1: forward, reverse and on/off; 2: forward, reverse and on/off; 2 projectors independently	.399.00
MX120	Projector 1: forward, reverse, focus in/out and on/off; 2: forward, reverse, focus in/out and on/off; both forward and reverse	.598.00

All MX systems include a transmitter, receiver, instructions and plastic carrying case except the MX120, which does not include a plastic carrying case.

Transmitter Only

MX20TX, 22TX, 22ATX, 30TX, 30ATX, 40TX, 40ATX and 40BTX	\$ 90.00
MX120TX	.210.00

Keyboard Commander and Transmitters

KC	Keyboard Commander	\$265.00
MX40TX	4-button wireless transmitter	.90.00
TX16	16-button wireless transmitter	.315.00
TX32	32-button wireless transmitter	.600.00
TX64	64-button wireless transmitter	.975.00

TX SERIES AND PERIPHERALS

TX Control Panels

The TX Series of wireless remote control panels feature slim-line design, offering comfort and flexibility to the presenter. TX Control Panels come in 3 formats: TX16, TX32 and TX64. Button locations may be

deleted to create custom layouts. A wide range of engraving options is included, and customer logos may be added at extra cost. Wood enclosures are standard for TX32 and TX64, and optional for the TX16.

Specifications

• TX16 Enclosure: 5.75" H x 3.625" W x 1.25" D • TX16E Enclosure: 6.625" H x 4" W x 1.063" D • TX32 Enclosure: 6.625" H x 7.5" W x 1.063" D • TX64 Enclosure: 6.25" H x 11.063" W x 1.438" D • RF Carrier: 303.875MHz standard • Power Supply: 1 9V battery

Peripherals

The AXM line of high voltage control products includes the PC1 and PC2 Power Controllers, the MC1 Motor Controller and the NEMA option. The PC1 and PC2 offer an easy-to-use, affordable method of controlling AC power with a remote control unit. The MC1 is a low-voltage control device designed to operate high voltage, bi-directional motors. The NEMA option allows direct wiring of the control device.

The PRO-2400 PRODIGY is an architectural light dimming system. Each PRO-2400 can accommodate up to 6 2.4kW modules. Multi-zone systems can be created by combining up to 16 packs on the 4-wire bus. The PRO-2400 dimmer pack can be controlled via RS-232/422 push-button closures or from an AMX AXCESS system.

TX Series Wireless Control Panels

TX16	16-button transmitter (plastic enclosure)	\$315.00
TX16E	Wood enclosure for TX16*	105.00
TX32	Up to 32 buttons in wood enclosure*	600.00
TX64	Up to 64 buttons in wood enclosure*	975.00

* Available in oak, walnut or satin black. Others available upon request.

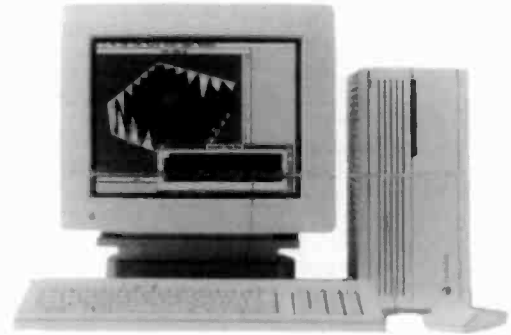
Peripherals

AXR-RF	Radio frequency receiver	\$ 335.00
AXR-IR	Infrared receiver	.335.00
PC1	Power controller (10A)	.165.00
PC1N	Heavy-duty power controller (NEMA)	.295.00
PC2	Dual power controller	.225.00
PC2N	Heavy-duty dual power controller (NEMA)	.360.00
MC1	Motor controller	.225.00
MC1N	Heavy-duty motor controller (NEMA)	.360.00
M320	Light dimmer	.675.00
PS4.2	Power supply (12VDC regulated, 4.2A)	.210.00
AC-RK	Accessory rack kit	.60.00
PRO-2400	PRODIGY light dimmer	.2400.00
PRM-INC	Incandescent power module	.335.00
PRM-FPC	277VAC fluorescent on/off power module	.335.00
PRM-FLM	110VAC fluorescent dimmable magnetic power module	.335.00
PRM-FLE1	110VAC fluorescent dimmable electronic power module	.335.00
PRM-FLE2	277VAC fluorescent dimmable electronic power module	.335.00

Macintosh IIci Personal Computer

Its 25MHz 68030 microprocessor enables the Macintosh IIci to run applications up to 25% faster than the Macintosh IIsi. The Macintosh IIci also offers built-in 256-color video support, eliminating the need for a separate video card and freeing an expansion slot for other uses. It has 3 internal NuBus expansion slots for adding coprocessor and networking cards and RAM can be expanded to up to 32M bytes. The Macintosh IIci also accommodates a cache card, which can increase the overall performance of many applications by as much as 50%.

The advanced performance of the Macintosh IIci makes it an excellent choice for financial analysts, engineers and publishers. In addition to general productivity software, it can run a wide range of specialized applications, from 3-D modeling and animation programs to CAD and software engineering programs.



Macintosh IIci

Macintosh IIx Personal Computer

The Macintosh IIx comes standard with a 40MHz 68030 microprocessor, the 68882 coprocessor, 4M bytes of RAM and the Apple SuperDrive. It has 6 NuBus slots for system expansion and can accommodate a 3.5" hard disk or a half-height 5.25" hard disk (typically available with higher storage capacities). It also has an SRAM cache, which increases overall system performance even more.

As the highest-performance, most expandable member of the Macintosh II line, the Macintosh IIx can be used in a broad range of applications. It's an excellent choice for engineers, architects, scientists, designers, multimedia production specialists—and anyone else who needs a fast, flexible system that incorporates different monitors and diverse networks, shares information with other types of computers and stores large documents, drawings and images. It is well suited for modeling and rendering, engineering design, managing large databases or creating multimedia presentations.

In addition to being faster, the Macintosh IIx differs from the IIci in several ways:

It features a built-in 32K SRAM cache for increased performance; it has 6 NuBus expansion slots instead of 3 (allowing you to add more video cards, communications cards and other options); it can accommodate a higher-capacity 5.25" hard disk; and it has separate I/O processors for managing input and output devices, thereby increasing overall system performance.



Macintosh IIx

Macintosh LC Personal Computer

The Macintosh LC comes with a 16MHz 68020 microprocessor and includes on-board video support for 3 different Apple monitors. For example, it supports 256 colors or shades of gray on the Macintosh 12" RGB display. It also includes the Apple SuperDrive (for reading from and writing to 3.5" Macintosh, MS-DOS, OS/2 and ProDOS floppy disks). Its internal expansion slot supports the Apple IIe card (which enables the Macintosh LC to run the thousands of programs available for the Apple IIe personal computer), as well as cards for networking (such as the Apple Ethernet card) and other options.

This combination of features in an affordable system makes the Macintosh LC an excellent choice for financial applications, word processing and desktop publishing, as well as for educational uses such as classroom projects and administrative functions.

Macintosh IIsi Personal Computer

The Macintosh IIsi offers the performance and flexibility of a Macintosh II system at an affordable price, making it an excellent choice for people in business, higher education and government. It includes a 20MHz 68030 microprocessor, built-in networking capability and on-board video (which supports 4 different Apple monitors, including the 13" AppleColor™ High-Resolution RGB Monitor and the Apple Macintosh Portrait Display).

Like all Macintosh computers, the Macintosh IIsi comes with the Apple SuperDrive. It also includes a 40M byte or 80M byte internal hard disk. Unique expansion capabilities, provided through an optional NuBus or 030 Direct Slot adaptor card, allow you to customize the system to meet your specific performance needs. The Macintosh IIsi also runs A/UX, Apple's implementation of AT&T UNIX.

The Macintosh IIsi has many of the benefits of the Macintosh LC, but offers even more capabilities, including higher overall performance, built-in support for 4 different Apple monitors, increased memory expansion options, the ability to accommodate expansion cards (via the optional NuBus or 030 Direct Slot adaptor card), and the ability to run A/UX.

PERSONAL COMPUTERS

AST[®]
COMPUTERS

Premium Exec Series

- Offers 386SX or 286 processing power and a host of special options in a fully functional notebook computer • Ideal for people who travel frequently, but can't afford to be away from their work • Notebook chassis: 2.25H" x 11.4" W x 9" D; 7.3 lbs.
- Memory expandable to 8M bytes • Display: VGA CCFT "Paper White" graphics screen • Keyboard: 82-key with 101-key functionality • AST expansion slot • 1 serial port, 1 parallel port, 1 external VGA monitor port and 1 keypad port • LaPLink™ III and Battery Watch™ software

Cupid-32 Premium Series

All Cupid-32 systems share these features: • Cupid-32 processor board: supports processor, coprocessor(s), memory and cache memory • Cupid-32 system board: 2 serial and 1 parallel port; mouse port; integrated floppy controller; "no-slot" interface for hard drives; system BIOS • Cupid-32 memory expansion board: identical for all Cupid-32 systems. Efficient memory upgradeability • Security: 3-level password protection includes server mode and keyboard disable; chassis lock for protection of system internals • Enhanced keyboard: 101/102 keys • Bundled software: Utilities/Diagnostics, includes custom BIOS-based setup for easy installation and configuration; EMS 4.0 • Optional software: MS-DOS® 3.3; MS-DOS 4.01 from AST; OS/2™

Cupid-32 Premium Tower Series

- Tower chassis: 24.25" H x 14" W x 17.9" D; 300W power supply • Memory: up to 16M bytes (four 4M byte SIMMs) on processor board and up to 80M bytes total using two 32-bit Cupid-32 memory expansion boards • 10 EISA expansion slots: 32-, 16- or 8-bit. Cupid-32 processor board and video adaptor each require 1 slot • 6 drive bays: up to 6 half-height (4 externally accessible). To mount 3.5" drives, Premium Install Kit (500746-002) required • SCSI hard drive support (335, 665, 1005): high-speed SCSI interface allows connection of multiple peripheral devices (total storage over 2G bytes) using 1 slot. Uses EISA SCSI host adaptor with 1M byte cache to manage multiple hard drives independent of host system, freeing CPU resources • Mouse port • Additional software: EISA Configurator

Cupid-32 Premium i486 Desktop Series

- Integrated, on chip: 8K byte cache memory/cache controller and Intel 80387-compatible coprocessor • Desktop chassis: 6.25" H x 19.25" W x 16.5" D; 220W power supply • System board: 2 serial ports and 1 parallel port, integrated floppy controller and IDE hard drive interface, mouse port, integrated VGA (ISA only) • Memory: up to 16M bytes (four 4M byte SIMMs) on i486 processor board and up to 80M bytes total using two 32-bit Cupid-32 memory expansion boards • 7 expansion slots: seven 32/16/8-bit (EISA) or three 32/16-bit; three 16/8-bit; one 8-bit (ISA). Processor board requires 1 slot • 5 drive bays: up to 5 half-height (3 externally accessible). To mount 3.5" drives, Premium Install Kit (500746-002) required • Bundled software: Utility/Diagnostics, includes custom BIOS-based setup for easy installation and configuration • Additional software: EISA Configurator (EISA systems only)

Cupid-32 Premium II Desktop Series



Cupid-32 Premium 386 Desktop Series

- Desktop chassis: 6.25" H x 19.25" W x 16.5" D; 220W power supply • System board: 2 serial ports and 1 parallel port, integrated floppy controller and IDE hard drive interface, mouse port, integrated VGA • Memory (Premium 386/33 and 386/25): up to 4M bytes on processor board and up to 68M bytes total using two 32-bit Cupid-32 memory expansion boards • Memory (Premium 386SX/16): up to 16M bytes (four 4M byte SIMMs) on processor board and up to 16M bytes total using one 32-bit Cupid-32 memory expansion board • 7 expansion slots: three 32/16-bit; three 16/8-bit; one 8-bit. Processor board requires 1 slot • 5 drive bays: up to 5 half-height (3 externally accessible). To mount 3.5" drives, Premium Install Kit (500746-002) required • Bundled software: Utility/Diagnostics, includes custom BIOS-based setup for easy installation and configuration; EMS 4.0 Expanded Memory Manager; disk caching

Cupid-32 Premium II Desktop Series

- Desktop chassis: 6.25" H x 15.25" W x 16.5" D; 145W power supply • System board: 2 serial ports, 1 parallel port, 1 mouse port, 16-bit VGA graphics controller, integrated floppy controller and IDE hard drive interface • Memory: up to 16M bytes system total on processor board (four 4M byte SIMMs), or on optional memory expansion board using 1M byte SIMMs • 6 expansion slots: three 32/16/8-bit, two 16/8-bit and one 8-bit. Processor board requires 1 slot • 5 drive bays: 4 half-height, 1 1/3-height • Bundled software: Utility/Diagnostics, includes custom BIOS-based setup for easy installation and configuration; EMS 4.0 Expanded Memory Manager; disk caching

Standard Premium Series

- Desktop chassis: 6.25" H x 19.25" W x 16.5" D; 200W power supply • System board: 1 serial and 1 parallel port, integrated floppy controller • Memory: expandable to 16M bytes • 7 expansion slots: two 16-bit/FASTslots; four 16/8-bit; one 8-bit. Video adaptor requires 1 slot • 5 drive bays: up to 5 half-height (3 externally accessible). To mount 3.5" drives, Premium Install Kit (500746-002) required • Enhanced keyboard: 101/102 keys • Bundled software: MS-DOS 3.3 and GW-BASIC: Utilities/Diagnostics, includes custom BIOS-based setup for easy installation and configuration; EMS 4.0 Expanded Memory Manager; disk caching

Call for Pricing Information

TOPAS Now Available for the Macintosh

TOPAS™ 3-D Modeling and Animation Software

TOPAS is a full color 3-D modeling and animation software program for applications in creative design, presentation graphics, video production and CAD applications. TOPAS consists of 5 stand-alone, yet fully integratable, modules: the Modeler, Pro-Modeler, Animator, AutoAnimator and SuperShade.

Modeler

3-D is made easy with a natural menu system and use of a mouse or graphics tablet. With the Modeler, commands for 3-D primitives like freestyle polygons, squares, rectangles, cubes, circles and spheres are included. Also included are high quality vector fonts from Bitstream®. Object editing commands offer powerful creative options.

The full color palette of the TARGA® and AT-Vista™ is available, and because TOPAS automatically anti-aliases and interpolates texture maps, it is easy to create images that appear almost real.

The following are included in the Modeler package:

Building Tools: Simple primitives (polygons, splines, rectangles, squares, cubes, circles, spheres); Complex (surface of revolution, spiral, extrude, bevel, connect, duplicate, mirror); Groups (group, add to group, ungroup).

Editing Tools: Object editing (rotate, move, Zmove, scale, stretch, Zstretch, match, hide object, show object, name object, delete); Polygon editing (add, move and delete points, move, cut, trim, smooth, flatten and delete polygons)

Camera: Pan, tilt, track, dolly, zoom and revolve.

Lighting: Display, add (up to 20 light sources), delete, move, Zmove, color.

Texture Map: Video capture management, buffer images; mapping applicable to polygons, solids, extrusions, surfaces of revolution and spheres; specular highlights on textures.

Color Tools: simple color creation with intensity, highlight, contrast, smooth shading controls, Gouraud shading, color control of individual polygons.

Additional Features: Online help, preview and final rendering, image buffer and model file management, numerical input via keyboard.

Output: Render TOPAS models to the display to obtain a quality image, or render to 512, 1K, 2K, 4K or 8K lines resolution TARGA or ATVista files in standard TGA or VST format.

Pro-Modeler

Pro-Modeler offers you all that TOPAS Modeler provides and more. With TOPAS Pro-Modeler you get the following additions:

- Soft-edged shadows • Phong shading
- Cross sectional modeling • 8 full screen texture map buffers • Automatic reflection mapping • Hierarchical grouping • Automatic outlining of 2-D artwork • Drill and Fog functions • Up to 16,000 polygons • PAL support (ATVista only) • User definable units (cm, in, ft)

Animator

TOPAS Animator is a professional keyframe animation system that incorporates the TOPAS Pro-Modeler solids modeling software and the tools to animate those models. The Animator provides a high performance and friendly environment to produce professional video applications. TOPAS Animator provides control of all animation aspects of TOPAS models including camera control, lighting and object attributes, and motion path control. And TOPAS Animator offers both a real time wireframe and full-color solid preview of your animation sequences. Support for industry standard videotape controllers, coupled with ease-of-use, fast rendering and low cost, make TOPAS a high performance and friendly environment for the production of professional video applications.

The Animator adds the following features and functions:

- Animation of any model's position, orientation, size, color, transparency
- Animation of light sources for color, intensity, position • Rotation and camera movement along X, Y, Z and user-definable axes • Real time previews, both wireframe and full color solid versions • 3-D motion and path control • Variable tension, bias and continuity controls • Rotoscoping of up to 8 full separate buffers • "Reverse" capability
- Scripting and script editing via graphical timeline editor or ASCII editor • Automatically generated storyboards • Support for DiaQuest, Lyon Lamb and BCD controllers and VLAN controllers

Options

A set of 12 optional URW® fonts are available for the Modeler, Pro-Modeler and Animator.

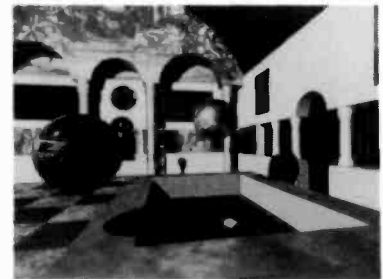
Also available for the Animator is the Page Turns special effects package. This package allows you to duplicate many of the sophisticated ADO page curling and turning functions that add that finishing touch to your animation.

AutoAnimator

AutoAnimator is a subset of TOPAS Animator for rendering and sending animation sequences out to tape only. The addition of the AutoAnimator to the system configuration frees Animator stations for the task of creating animation sequences, rather than tying them up in the output of animation to the



Package designers can see their creations from any side or angle, or stack packages on shelves for simulated walk-bys.



Reflective spheres, texture-mapped pillars and automatically generated soft-edged shadows demonstrate TOPAS' elegant possibilities.

VTR. At a fraction of the investment of a full Animator package, AutoAnimator provides added flexibility in establishing production schedules to keep your work load flowing smoothly.

TOPAS/VGA

Like the regular version of TOPAS, TOPAS/VGA is a 3-D modeling and animation software application, except it runs on any standard VGA board. TOPAS/VGA is designed to create disk-based animations that can be played back in real time on the VGA screen.

TOPAS Rapid Render System

TOPAS renders more quickly with the TOPAS Rapid Render System™ (RRS). RRS is a combination of hardware and software that makes TOPAS render up to 10 times faster than on a 386/20MHz PC.

Minimum Requirements:

- IBM PC or AT compatible, or plug-compatible
- 640K of RAM • Hard disk system (10M byte or greater) • Math co-processor • Lotus-Intel-Microsoft EMS memory (2M byte minimum/32M byte maximum) • Truevision® TARGA 16, 24, 32 or AT-Vista • Composite video monitor, analog RGB monitor or color TV with RF modulator • AT&T, Microsoft Mouse or compatible or Summagraphics Summasketch 961, 1201 or BitPad One compatible tablets • Videotape recorder and VTR controller (optional) • DOS (2.0 or later version)

Truevision and TARGA are registered trademarks and ATVista is a trademark of Truevision, Inc.

GRAPHICS SOFTWARE



Panorama

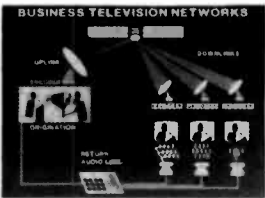
Panorama is image sequencing software written specifically for the Truevision® ATVista™ and the TARGA +.* Panorama applications include professional video shows, corporate presentations, and still frame video editing.

Panorama takes full advantage of the ATVista's onboard processing power to combine ATVista or TARGA + generated images with 45 different sophisticated wipes and fades, including pushes, pulls, fades and louver effects. Creative use of the wipes will also allow the user to simulate 2-D animation effects. The order and timing of the transitions are controlled by the user through a menu-driven interface on the DOS monitor.

Panorama also features a special effect called Movie. In Movie, frames of video can be captured at a reduced resolution, and then played back sequentially in real time for the production of animatics, which can be output via an encoder to videotape.

Minimum Requirements

- IBM PC or AT compatible, or plug-compatible personal computer with at least 640K of RAM and a 1.2M byte disk drive (ATVista requires an IBM AT or compatible)
- 1M byte, 2M byte or 4M byte ATVista
- Hard disk drive system of 10M bytes or greater
- (Optional, but recommended) Expandable memory board with at least 1M byte of memory. Panorama requires memory cards that are compatible with the Lotus-Intel-Microsoft expanded memory standard
- Analog RGB monitor
- DOS (version 3.0 or later)



Create Slides

RIO Design and Layout Software

RIO is a full color, resolution-independent, object oriented draw and image processing program for applications in presentation graphics, graphic design, photocomposition and specialty slide production. This flexible, powerful program lets the user compose scenes that combine video-captured, TV-quality electronic color images or high resolution scanned images with vector-based text and geometric shapes, without the tedium normally associated with photo burn-in and multiple exposure techniques.

Creation

With RIO the user can create, draw and manipulate scene elements using friendly pop-up menus and a mouse or graphics tablet. Scene backgrounds can be flat or gradient, or any standard TGA or VST file. Choices of scene elements include TGA or VST images or windows, lines, circles, squares, rectangles, ellipses, regular or point-to-point polygons and text. RIO comes standard with 8 fonts (with both serif and sans serif faces) and additional font libraries are avail-

able. Text can easily be justified, kerned or edited, and all elements can be grouped, ungrouped, pushed, pulled, deleted, rotated, scaled, flipped, moved and copied.

RIO provides a variety of layout tools, like grids and light source control, and correct aspect ratios for 35mm, 4" x 5", 8" x 10" and 8 1/2" x 11" formats. There are 5 resident color palettes and color creation models for RGB, HSV, HSL and CMY palettes. Also included are the drivers to support industry standard color scanners.

Other features include drop shadows, with direction, offset and density controlled by the user; up to 100 levels of transparency; anti-aliasing; brush and fill styles; embossing; ability to call DOS from within the program.

Touch-up

With the proxy edit feature RIO offers the ability to edit larger, high resolution files. The proxy edit function allows the user to address screen size portions or high-res files and then access their favorite paint program to perform functions like blend, tint, airbrush, or any of the other functions provided by the paint package. This function is especially useful to remove the hard edges created during the photocomposition process, or to clean up scanned images.

Output

During the creation process the scenes are composed using a video-resolution display, but they are stored in a resolution-independent form. This allows the final images to be output at resolutions up to 4096 (8K, 32-bit) lines to digital film recorders, color inkjet or thermal printers or PostScript devices.

RIO makes it easy to queue your completed scenes and images to any of the supported printers with the batch management function. When the scenes are complete, simply select an output device from the menu, specify the number of copies required and render the queue of RIO scenes or image files to the connected device. Images can be created during working hours, and output when the station is not needed for the creation function.

Minimum Requirements

- IBM PC or AT compatible, or plug-compatible personal computer with at least 640K of RAM and a 1.2M byte disk drive (ATVista requires an IBM AT or compatible)
- TARGA or ATVista or compatible videographics board
- Hard disk drive system of 10M bytes or greater
- Expandable memory board with at least 2M bytes of memory. Panorama requires memory cards that are compatible with the Lotus-Intel-Microsoft expanded memory standard
- Analog RGB monitor
- DOS (version 3.0 or later)

RIO Animator

RIO Animator is an add-on module for RIO 4.0. RIO Animator is the first low-cost, vector-based 2-D keyframe animation software for the Truevision TARGA and ATVista environment. The "Animate" menu has the following sub-menus: create key, edit key, final frame, flipbook and record. The Animator

takes advantage of all of RIO's current features and supports anti-aliased objects and text, gradients and transparency.



Graphico

Graphico

Specifically designed for creation of 3-D business graphics for the TARGA and ATVista environment. Choose from over 20 different styles to automatically generate charts and graphs from spreadsheet information, and then merge the charts with scanned or captured images to create professional slides, prints or transparencies. Graphics can create video resolution images or images up to 4K in size.

ImagePaint

ImagePaint processes images with painting and illustrative styles like charcoal pencil, watercolor or exotic reflective chrome or glass. Processed still images look like hand-drawn renderings; processed video sequences look like moving paintings. ImagePaint's effects are sure to leave a lasting impression.

Sable

Unique functionality and powerful special effects make it the perfect paint package for a broad spectrum of users. Sable's wide variety of drawing tools, like freehand draw, blend, tint and mask, allows users to import, create and edit TIFF, PCX and TGA files.

Logo Editor 4.0

Object creation tools for the designer. Recreate logos or complex shapes with easy-to-use spline and outline functions, and then output vector information in a variety of industry standard file formats.

35mm Express/GSL

Even if you don't own a truecolor videographics board, AT&T still has a software solution for your business graphics needs. 35mm Express/GSL supports CGA- and EGA-type display boards, and can import Lotus 1-2-3 or Symphony graph information and CGM graphics files to automatically generate service bureau-quality charts, drawings and graphs. Output your files to a number of industry standard printers, or to other AT&T/GSL software applications. Use 35mm Express/GSL to make your next presentation the best ever.

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AUTODESK

ANIMATION/ MODELING SOFTWARE

Autodesk 3D Studio™ Animation and Modeling Software

Autodesk 3D Studio integrates all the tools professionals need to perform 3D modeling and animation under a single user interface, including close links to other Autodesk products like AutoCAD®, Autodesk Animator Pro™, Autodesk Animator®, Autodesk Animator Clips™, James Gleick's CHAOS: The Software™ and CA LAB™. Software packages with comparable features cost far more and often require dedicated workstations or very expensive systems.

Autodesk 3D Studio uses the Autodesk Device Interface™ (ADI®), an open, defacto standard device driver format which is supported by more than 300 computer peripherals and software packages. ADI has been extended to support video and other multimedia peripherals.

Autodesk 3D Studio creates 3D objects and generates images and animations from them with a feature set that is unprecedented on the IBM-PC. It integrates 4 high performance tools:

Modeler Features:

- Works with Microsoft® mouse and ADI-compatible tablets • Runs in protected mode on 80386 and 80486 machines—size of models and scenes only limited by the amount of disk space and/or memory • Bezier spline model creation tools—lines, curves, arcs, quads, circles, ellipses, regular polygons; Dimensions in units, feet/inches or meters/centimeters; Accuracy to 1/100 of a centimeter; User-definable snaps and grids • Bezier spline text using industry standard fonts • Reads and saves AutoCAD 3D DXF files. Also reads 2D DXF and filmroll files • Models can be constructed from multiple spline cross-sections interpolated along a 3D spline path—Paths can be straight, splined, circular or helical; Spline-based deformations of models include twist, bend, scale, teeter-totter and bevel; Spline-mesh models can be automatically constructed from top, front and side profiles in addition to traditional surface of revolution and extrusion tools • 3D sculpting tools allow for free-form modeling • Built-in 3D shapes include cubes, spheres, hemispheres, prisms, toroids and cones • Keyboard coordinate entry supported • Ability to reduce an object's or scene's visual complexity to maximize interactivity of large scenes—Includes ability to reduce mesh objects to point clouds or bounding boxes • Material properties assignment from an individual face to an entire object • Control over smoothing groups and face normals • Texture map alignment tools for precise map placement and style • Interactive, unlimited real-time cameras with dynamic zoom • Interactive spotlight and omnidirectional light placement

Renderer Features:

- 32-bit rendering of still images or animations • Includes built-in library of over 100 materials • Supports multiple rendering devices, and ships with drivers for boards including VGA, Targa, TrueVista™ and Vision 16™ • Professional-quality, selectable anti-aliasing • Transparency • Fog and distancing shading—atmospheric effects • Illumination models including wireframe, flat, Gouraud and Phong shading • Texture, reflection, bump and opacity mapping • Unique animated texture mapping using .FLI files from Autodesk Animator, CA LAB and CHAOS: The Software • Unlimited number of spotlights, omnidirectional lights and ambient light—RGB color selection • Spotlights—Variable hotspot and falloff sizes; Can have cast shadows • Loads any size .GIF, .TIF and .TGA image files into any size display; Automatic rescaling • Automatically renders 8-bit real-time animations in .FLI format for Autodesk Animator—Low and high resolution • Includes VGA player program • Saves images in .GIF, color .TIF, monochrome .TIF and .TGA file formats • Render to screen, file, VTR or printer, at any resolution • Backgrounds can be solid colors, gradients, picture files or animations • Outputs to Daiguest single-frame VTR controllers • Supports printing devices through ADI interface

Materials Editor Features:

- Interactive user interface for creating materials library of files that define objects' appearances • Color control includes RGB or hue, luminance and saturation (HLS system) • Separate control of diffuse, ambient and specular light components for simulating such materials as



- plastics, metals or rubber • Shininess and transparency controls • Materials can be 2-sided • Materials can be self-illuminating for simulating light sources • Materials shading methods can be set as wireframe, flat, Gouraud or Phong—Different shading methods can be mixed in the same scene for optimum performance/rendering quality • Texture, reflection, opacity and bump maps can be applied as a percentage of the material instead of overriding the entire material

Keyframer Features:

- Real-time preview renderer for shaded motion tests • VTR-type controls and interactive time slider bar for dynamic time control • Supports true object hierarchies with each object having an independent, user-definable pivot point • Hierarchies can selectively inherit position, rotation, scale, squash, stretch or any combination • Hierarchies can be slaved to dummy (non-renderable) objects for more flexible control of large scenes • Tremendous control over duplication of elements of a hierarchy to "grow" objects, and duplication of branches to "grow" complex object trees • Automatic squash and stretch controls • True 3D object metamorphosis • Spotlight position, hotspot and falloff can be animated • Lights can be slaved to objects and/or cameras • Camera position, field-of-view and roll can be animated • Cameras and camera targets can be slaved to objects • Accurate spline paths can be loaded in from the Modeler for objects, lights or cameras • Objects can be looped to repeat defined animation • Includes object instancing—Can create large scenes from very little geometry; Can create multiple animated object copies from a single animated object • Uses quaternion math to control transformations for extremely smooth motion • Animations can be merged into other animations, making a new field of 3D clip animation sequences possible • Full visual control of all key frames with a spreadsheet-like interface for precise timing • Acceleration and deceleration motion controls for visual ease-in/ease-out • Cubic splines visually control interpolation between keys—Tension; Continuity; Bias

System Requirements

Autodesk 3D Studio runs on IBM® or Compaq® 386/486-based computers or 100% compatibles. Also required are MS-DOS 3.3 or a later release, 3M bytes of RAM, a hard disk, an 80387 or Weitek™ math coprocessor, a VGA device and a Microsoft compatible mouse or a SummaSketch® compatible tablet. Optional equipment includes Targa compatible displays and ADI compatible display and printing devices.

Autodesk 3D Studio \$2995.00

PROGRAMMERS/ PLAYBACK SYSTEMS



PROGRAMMERS

Hewlett-Packard Vectra ES

With Genesis board set installed. Includes Alt/Connection box, 640K memory, two 360K floppy drives, 8MHz 80286 microprocessor, clock/calendar configuration with battery backup, 12" monochrome monitor, graphics display adaptor, parallel and 9-pin serial ports, 101-key enhanced keyboard, HP HIL port, bootable Procall 5, X and enhanced diskettes, MS-DOS 4.1, HP manuals and Genesis manuals. Turnkey system, ready to go. \$4995.00

Genesis Board Set

Single full length 8-bit slot interface card, turns an IBM PC/XT/AT and most compatibles into a Genesis multi-image programmer, with Procall 5, X and enhanced \$1895.00

Super Genesis I/O

AVL computer interface. Connects to MS-DOS/PC-DOS computers with an RS-232 port. XLR and RCA inputs. Remote cue input. XLR and RCA outputs for Out 1 and Out 2. Digitrak connection. Supplied with Procall X and enhanced on 5 1/4" and 3 1/2" disks (Procall 5 available separately). Generates RAM cartridges for all Super Family products. Runs stand-alone from RAM cartridge memory. Includes tape control cable and 1 Genesis memory cartridge. Supplied in desktop standard. \$2495.00

Additional RAM Cartridge 64K byte, stores 2048 cues 245.00

Additional RAM Cartridge 128K byte, stores 5200 cues 325.00

SG Tapetrak Cable For tape control. Standard length 15' 90.00

SG Tapetrak Cable Each additional 1' over 15' 2.00

PROGRAMMERS/PLAYBACK SYSTEMS

Coyote

3-projector leisure-time programmable dissolve with computer memory of over 900 cues, 7 dissolve/alternate rates, Positrak, sequence timing, blink, repeats, logic level aux control. \$1145.00

Coyote SAV Same as Coyote with 12-pin DIN connectors, for use with SAV compatible projectors 1195.00

FX-2

2-projector, real time programmable dissolve, 7 dissolve/alternate rates, freeze, blink, step and Positrak \$645.00

FX-2 SAV Same as FX-2 with 12-pin DIN connectors, for use with SAV or compatible projectors 720.00

WIRELESS PROGRAMMERS/PLAYBACK SYSTEMS

IR Presenter 1

2-projector real time programmable basic dissolve with infrared hand control for programming/speaker support playback. Specify Ekta or SAV projector type \$745.00

IR Presenter 2

2-projector real time programmable advanced dissolve with infrared hand control for programming/speaker support playback. Also functions as a 2-projector M-Dove. Specify Ekta or SAV projector type \$1195.00

MULTI-IMAGE PLAYBACK SYSTEMS

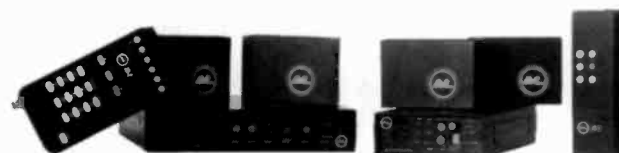
M-Dove

Computerized playback module for controlling 4 projectors. Executes cues from any AVL programmer or cued audio tape. Internal loop, 4 auxiliaries, 0 tray sense, Positrak. Lamp and tray status indicators. Specify Ekta or SAV projector type \$1995.00

M-Dove Controller Only M-Dove without power supply and triac cables 1695.00

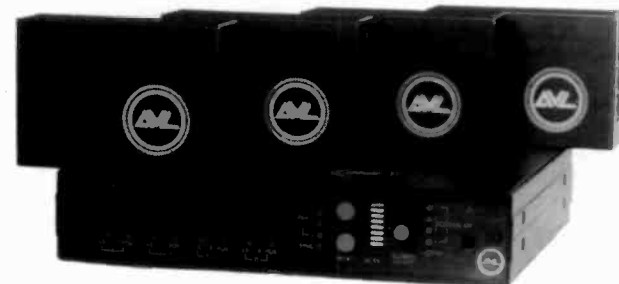


Super Genesis I/O



IR Presenter 2

IR Presenter 1



M-Dove

Super Dove

Computerized playback module for controlling 3 projectors. Executes cues from any AVL programmer or cued audio tape. Internal loop, 3 auxiliaries, integrated home tray sense with harness, Positrak, Cycle-trak, automatic/programmable/manual projector power control, advanced setup, bi-directional communications link, lamp and tray failure indication, home tray sense with option for show start on slot 1, playback software mode user-selectable with lock. 16-character backlit LCD display. Supplied in desktop standard \$1795.00

Super Dove SAV Same as Super Dove with 12-pin DIN connectors, for use with SAV or compatible projectors 1995.00

Dove X²

Computerized playback module for controlling 3 projectors. Executes cues from any AVL programmer or cued audio tape. Internal loop, 2 auxiliaries, 0 tray sense option, Positrak, Cycle-trak \$1495.00

Dove X² SAV Same as Dove X² with 12-pin DIN connectors, for use with SAV or compatible projectors 1695.00

Pro Traveler X²

3-projector presentation playback, all features of Dove X², integral stereo tape deck, 30W amplifier \$2995.00

Pro Traveler X² SAV Same as Pro Traveler X² with 12-pin DIN connectors, for use with SAV or compatible projectors 3295.00

2 speakers and carrying case 395.00

2 speakers only 215.00

Carrying case only 210.00

VIP 300M

250W xenon slide projector with built-in dissolve capability and keystone correction \$4795.00

BarcoVision 600S/BarcoVision 1500 HDTV

BarcoVision 600S

• 750 lumens light output • Wide range of screen sizes from 3.3' to 20' • Quad-standard: NTSC 3.58/NTSC 4.43/PAL/SECAM + S-VHS RGB analog with separate sync or with sync on green • Picture framer: 4 side blanking adjustments (video only)

For applications that require large screen projection of different composite video and standard video resolution RGB computer sources, the BarcoVision 600S delivers high light output and excellent resolution on front, rear, flat or curved screens up to 20' wide.

The BarcoVision 600S accepts inputs from any NTSC/PAL/SECAM composite video source including VCR, videodisc, off air antenna/satellite receivers and video cameras. An S-VHS input provides direct Y/C capability for American and European formats. The BarcoVision 600S is ideally suited for large screen corporate presentations, sales/educational seminars, teleconferencing links, trade shows, and sports and entertainment applications.

90-00508 \$7,995.00

BarcoVision 1500 HDTV

• Wide range of screen sizes possible from 7'-21' wide • Very high brightness projector for video, IDTV, EDTV and HDTV applications • 9" CRTs and liquid coupled TOC 7 lenses provide 1620 peak lumens brightness • Quad-standard video decoder, 15MHz RGB bandwidth, loopthrough BNC video and 4-pin S-Video inputs, RGBS analog BNC inputs • Switchable, dual mode operation for: scan frequencies, aspect ratios (4:3 or 16:9) and picture framer • Scan rates—Horizontal: 15.7kHz or 30-35kHz; Vertical: 50-60Hz

90-00589 \$16,995.00

BarcoData 650/BarcoData 1050

Common Features

Optical

Resolution: 10 lp/mm at 50% MTF

Scan

Frequencies: Horizontal: 15-50kHz autolock; Vertical: 37-140Hz autolock

Minimal Retrace

Time: Horizontal: < 4.7µs • Vertical: < 450µs

RGB Bandwidth:

Inputs: 30MHz -3dB
RGB analog (BNC connectors), sync on green or separate sync. Video (PAL/SECAM/NTSC 3.58/NTSC 4.43): BNC-BNC looped through with 75 ohm termination switch. 4-pin S-Video input (Y/C) looped through with internal 75 ohm termination switches

Operator Controls: Contrast, brightness, color saturation, hue, sharpness, screen width, shift, input select switch video/RGB/RGBS/S-Video, fast or slow sync

Remote Control: The remote control box can be plugged into the projector and hardwired up to a distance of 330'; a 40' cable is provided with the projector



BarcoData 1050

Optional Source Selector:

A remote controlled video and data source selector, RCVDS 650, makes it possible to connect up to 10 sources to a BarcoData 650/1050 and to adjust all picture settings via an infrared remote control. The RCVDS 650 also provides individual remote control of: horizontal amplitude (width control), allows variable aspect ratio plus underscan amount; horizontal phase (centering control), allows perfect picture positioning

BarcoData 650

Includes common features plus: • 600 lumens at 10% peak white • 7" liquid cooled CRTs • f/1.03 hybrid lenses, with center plus edge focus adjustment. Also available with TAC 3 lens (5 lp/mm) • Optional ultra high resolution glass lenses, optimized for precise magnification (14X, 22X, 27X, 36X) • Screen size: 3.3' x 2.5' minimum, 20' x 14.9' maximum

90-00619 \$9,995.00

BarcoData 1050

Includes common features plus: 1230 lumens at 10% peak white • 9" liquid cooled CRTs • f/1.15 hybrid lenses, liquid coupled with center plus edge focus adjustment. Also available with TOC 7 lens (5 lp/mm) • Screen size: 6.6' x 4.9' minimum, 29' x 21.8' maximum

90-00629 \$18,995.00

BarcoData 800

• Very high brightness data projector with liquid cooled, square 8" CRTs and high resolution HD-8 lenses • Provides 825 lumens peak brightness • Wide range of screen sizes possible, from 4'-20' wide • 50MHz RGB bandwidth • Fully configured with loopthrough BNC video and 4-pin S-Video inputs, RGB, S, HS, VS analog BNC inputs and D9-pin RGB TTL/EGA compatible input • Microprocessor-based design features: full digital control of all setup adjustments, 25-zone digital convergence, user-friendly, menu-driven on-screen displays, Linear Digital Interpolation (LDI), 38 memory blocks with auto storage • RS-232/422 communication ports allow full computer control of up to 256 projectors • Autolock scan rates—Horizontal: 15-58kHz; Vertical: 45-120Hz

90-00549 \$13,995.00

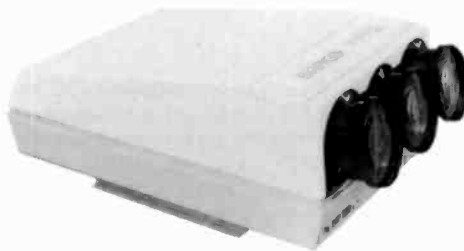
VIDEO/DATA PROJECTORS/ SOURCE SELECTORS

BARCO

Barcographics 800

- Universal and user-friendly, menu-driven digitally controlled large screen video/data/graphics projector
- Software package for the control of up to 256 projectors by an IBM PC (or compatible) or Apple Macintosh through an RS-232/422 input
- High light output of 825 lumens on screens from 1.2m up to 6m wide
- Wide range autolock circuit (15-90kHz horizontal, 45-120Hz vertical) allows the display of images from a multitude of sources, from low-end video pictures up to ultra high resolution CAD images
- Projection under non-standard angles is possible due to the built-in stepless adjustable Scheimpflug correction
- Liquid cooled 8" square CRTs with stabilized pressure chamber result in a constant superb picture quality
- Air-coupled f/1.06 hybrid lenses with an optical resolution of 10 lp/mm, fully color corrected
- Inputs: RGB analog (BNC connectors), RGB TTL (D9 sub-connector), video loopthrough (2xBNC) with 75 ohm termination switch, 4-pin S-Video loopthrough with 75 ohm termination switch
- RCU 800 infrared remote control

90-00569 \$19,995.00



Barcographics 800

IRIS 800 Automatic Convergence System

- Using the infrared remote control of the 800 Series projectors, the convergence process starts by selecting an option displayed by an on-screen menu
- Scans all 25 zones on the screen and aligns red, green and blue in minutes
- Less than 12 lbs.
- Based on an advanced optical system, utilizing a high-resolution CCD camera and ultra-light front surface mirror which moves horizontal and vertical
- Operates in either a table or ceiling mount

IRIS 800POR*

RCVDS 800 Source Selector

- Remote controlled video and data source selector for Barco 800 Series projectors
- Connects up to 10 different video, S-Video and data sources to a Barco 800 projector
- Infrared remote control of picture settings
- Highly modular design
- An optional expansion module makes it possible to set up to 10 source switchers in a series, allowing up to 90 different sources to be connected to an 800 Series projector

98-27459 \$2,350.00

System Retrovision 600S/System Retrodata 650

System Retrovision 600S

- Self-contained, stand-alone
- Rear screen projection system with stereo audio capability
- 67" high performance fresnel screen
- Equipped with stereo audio inputs and 2 x 15W 2-way bass reflex loudspeakers
- 750 lumens/244 fL
- 800 lines resolution
- Ideal for use in high ambient light environments where mobility is an important factor
- Video mode picture framer
- Provides adjustable screen blanking on all 4 sides of projected image
- Accepts inputs from any NTSC/PAL/SECAM composite video source, S-VHS VCRs, as well as RGBS from most standard video resolution computer terminals

90-00539 \$13,995.00

System Retrodata 650

- Self-contained, stand-alone 67" rear screen projection system
- High brightness CRTs provide peak light output
- 15-50kHz autolock range
- 600 lumens/196 fL high resolution, color corrected f/1.0 hybrid HD-6C lenses (1600 lines)
- High efficiency blue phosphor provides truer color reproduction and more brilliant whites
- Double-pole magnetic focus rings for improved spot size and resolution
- Independent video/RGB mode H and V size and H phase (centering) remote controllable adjustments; allows each projector input to be individually corrected for size, aspect ratio and position

90-00489 \$15,495.00

Retro 800 Series Computer Controlled Projector Systems (Preliminary)

RetroData 800/RetroGraphics 800

Common features:

- Built-in 67" diagonal fresnel/lenticular-type, fine pitch rear projection screen
- 825 lumens/172 fL
- All controls are accessible through a soft-touch front panel or through the user-friendly infrared remote control
- Source switching
- User settings per source (sharpness,

hue, color, brightness, contrast, volume, bass, treble, balance) • Geometry per source • Convergence per source • Mono/stereo switch, normal/expand switch and mute function (only via the front panel)

Special features:

- 38 frequency-related memory banks
- LDI (linear digital interpolation)
- Effective on-screen display: installation screens, help screens, barscale display of user settings, on-screen display of source frequencies
- Automatic storing of all adjustments
- Text generators for other languages
- Color temperature adjustment (3200°K, 6500°K, 9300°K or custom)
- Possibility to set adjustment parameters to mid-position
- Easily transportable cabinet
- Ruggedized construction
- Extremely fine borders around the screen

Inputs:

- RGB analog (BNC connectors), sync on green or separate sync
- RGB TTL/EGA (D9-pin)
- Video (PAL, SECAM, NTSC 3.58, NTSC 4.43), loopthrough (2xBNC) with 75 ohm termination switch
- 4-pin S-Video input, loopthrough with 75 ohm termination switch
- High brightness, high definition liquid cooled 8" CRTs
- High definition, fully color corrected, liquid coupled f/1.1 hybrid lenses
- Built-in stereo audio amplifier (2 x 15W continuous sine wave), with 2 frontal 2-way bass-reflex speaker systems (2 x 20W)
- Stereo audio input on 2 Cinch (RCA phono) connectors
- 2 audio DIN connectors for external loudspeakers

RetroData 800

- 15-58kHz autolock scan rate
- 50MHz RGB bandwidth
- 3.3µs horizontal retrace time

90-00599 \$19,995.00

RetroGraphics 800

- Digitally controlled
- Can be set up and controlled from any PC
- Settings can be stored on a floppy or hard disk drive
- Includes wireless infrared remote with full access to projector's parameters
- Switching of up to 90 inputs, software support for linking up to 256 projectors
- 15-90kHz autolock scan rate
- 60MHz RGB bandwidth
- 2.6µs horizontal retrace time

90-00579 \$26,995.00

RCVDS 400 S-Quad Switcher

- Connects up to 10 different video and data sources
- Master all significant picture settings through a handheld infrared remote control
- Modular inputs
- Match any possible application where more than 1 source has to be projected on the screen

The RCVDS 400 S-Quad has been specifically designed for use in conjunction with Barco projection systems having wide band RGB only capabilities. The RCVDS 400 S-Quad features a high performance video decoder which transforms any incoming PAL/SECAM/NTSC 3.58/NTSC 4.43 composite video signal or S-VHS S-Quad signal into an RGBS analog output signal and a 100MHz RGB bandpass capability.

98-27271 \$2,350.00

Input Modules for RCVDS 400 S-Quad Switcher

98-25760 Video input module \$195.00
 98-25780 RGB analog input module 245.00
 98-26450 Video and RGB insertion module 165.00

*Price On Request

Multidata® Monitors

Common Features:

- Wideband autolock (15 to 36kHz horizontal, 45 to 120Hz vertical) and extensive connection facilities
- Possible to reproduce images from almost all the commonly used computers, such as IBM PC, XT, AT, PS/2 and Apple Macintosh II
- Compatibility with Hercules, CGA, EGA, VGA, S-VGA and 8514/A graphics boards and facility for reproducing all video signals in PAL, SECAM, NTSC 4.43, NTSC 3.58 and Super VHS make the Multidata monitors extremely suitable for software and graphics presentations, video conferences, sales seminars and training programs
- Dark-tinted flat square screen with horizontal resolution of 640 pixels ensures a luminous and sharp picture, even in bright surroundings
- RGB bandwidth: 30MHz \pm 3dB
- Sound reproduction: 3W mono amplifier

OCM 2846 28" Multidata Monitor

- Ideally suited for presentations to a small audience
- Dot pitch: 0.8mm
- 2 frontal loudspeakers

93-30399 \$3895.00

OCM 3346 33" Multidata Monitor

- Black matrix screen
- Full screen VGA images
- For presentations to a larger audience
- Dot pitch: 0.8mm in center, 1mm at corners
- 2 side speakers and supplementary socket for external loudspeaker

93-30525 \$4795.00

SCM 3346 33" Multidata Monitor

- Offers the same performance specifications as the OCM 3346 in a special wedge-shaped, low profile housing
- Ideal for creative applications requiring maximum flexibility and performance
- Can display a wide variety of sources while stacked in virtually any configuration

93-30559 \$5095.00

SCM 2846 28" Multidata Built-in Monitor

- Designed for built-in applications, such as a boardroom or demonstration area, industrial applications or for situations where the monitor has to be moved on a regular basis
- Metal case, suspension points and strong handles
- Dot pitch: 0.8mm
- Supplementary audiosocket provided for external loudspeaker

93-305539 \$4095.00

SCM 2840 System Color Monitor

- Invar mask for improved brightness
- Rugged metal housing
- Designed for minimum dimensions and maximum stackability (up to 16 monitors high)
- In-line gun, 28" dark tinted flat square tube
- Fully automatic Quad-decoder (PAL, SECAM, NTSC 3.58, NTSC 4.43) with CTI
- Ideal for integrating into a videowall system, a multi-screen data information display, powerful simulation or alternatively as a Public Address Display monitor
- Long term color stability due to ABL
- Dual color temperature switch 6500°K and 3200°K for TV studio applications
- Resolution, Horizontal (pixels): 600; Vertical: (active lines interlaced): 575; Characters per line: 80; Geometric distortion (corners): < 5%
- RGB bandwidth: 10MHz



OCM 2846



SCM 3346

- (-3dB)
- RGB inputs: Digital RGB TTL (CGA compatible) and analog RGB with separate sync or with sync on green
- Switching (Video-RGB): Automatic
- Dimensions: 18.4" H x 23.4" W x 18.1" D

93-30609 \$1695.00
 93-30599 Same as above except RGB only 1595.00

SCM 2140 System Color Monitor

- Same as SCM 2840 except 21"

93-30709 \$1395.00

SCM 3240 System Color Monitor

Same as SCM 2840 except:

- 32" dark tinted black matrix flat square tube
- Stackable up to 8 monitors high
- Resolution, Horizontal (pixels): 500; Vertical (active lines interlaced): 575; Characters per line: 80; Geometric distortion (corners): < 5%
- RGB bandwidth: 10MHz (-3dB)
- RGB inputs: Digital RGB TTL (CGA compatible) and analog RGB with separate sync on green
- Switching (Video-RGB): Automatic
- Dimensions: 21.9" H x 27.4" W x 21.6" D

93-30357 \$2995.00

PAT Public Address Terminal

- Perfect information display monitor
- Microprocessor-based, the PAT translates digital information into pictures and text
- Information can be stored on the PAT via a keyboard, current loop, RS-232 port or internal modem
- 28" diagonal screen size
- 15.75kHz scan frequency
- Character display: 12 x 40, 24 x 40, 24 x 64
- Colors: 7 foreground, 8 background
- Variety of character modes, including flashing, double height, graphics set

93-30383 PAT OCM 2840 office cabinet \$2595.00
 93-30377 PAT SCM 2840 system cabinet 2795.00

VIDEO CONTROLLERS



BCD-5000 Professional Video Animation Controller

- Desktop or rackmountable • Serial host communication RS-232/422
- Serial/parallel mixed machine control • Tape and disc, mixed control • Full function machine control • RS-422/232 machine protocol • Standard SMPTE time code: read and write; non drop frame; drop frame • Vertical interval video switching • 2 opto-isolator "GPI triggers"

The BCD-5000 for computers with an RS-232 port provides frame-accurate control of most industrial and broadcast video tape and disc machines.

The BCD-5000 was designed with animators and time-lapse professionals in mind. It is already supported by most professional graphics animation software with more systems being added.

For rotoscoping, the BCD-5000 features a unique composite video switching system to permit frame-grab and frame recording to and from the same machine. Naturally, the BCD-5000 can be equipped to control 2 machines for dual VTR rotoscoping or simultaneous animation to 2 machines.



BCD-5000



BCD-4000

Compatible Machines

This is a partial list of video machines that are controllable by the BCD-5000.
Sony 3/4": VO-2811, VO-2860, VO-5000, VO-5600, VO-5800, VO-5850, VO-7000, VO-9000, VO-9600, VO-9850, BVU-850, BVU-870, BVU-950
Sony 1/2" Betacam: BVW-40, BVW-70, BVW-75 (Betacam also marketed under other brand names.)
Sony 1/2" Beta I Industrial: SLP-303, SLP-305, SLO-323, SLO-325, SLO-383

Panasonic 3/4": NV-9240, NV-9600, AU-700

Panasonic 1/2" VHS: NV-8170, NV-8200, NV-8500, AG-6100, AG-6200, AG-6300, AG-6500, AG-7100, AG-7300, AG-7510, AG-7500, AG-7500A

Panasonic MII: AU-660, AU-620

JVC 3/4": CR-850U, CR-600U

JVC 1/2" VHS: BR-8600, BR-S810, BR-S811

JVC MII: KRM-800

Pioneer Laser Disc: LD-V6000, 6010, 4200, 8000

Sony Laser Disc: LDP-1000A, 2000, 1200, 5000

BCD-5000

1 machine control	.....\$2995.00
2 machine control	.....3995.00
Without display	.....deduct 300.00
Null modem RS-232 cable	.....50.00
EDL-4000 Edit Decision Lister program (MS-DOS only)	.....695.00

BCD-4000 Professional Video Controller

- 1 PC expansion slot • Tape and disc • Disc and disc • Tape and tape • Full function control variable speed • Edit function select 2 VTR editor option • RS-422 SMPTE protocol • 2 VTR SMPTE code: read and write; non drop frame; drop frame; EBU 25 fps (read only) • Vertical interval video switching • 3 opto-isolator "GPI triggers"

The BCD-4000 for slot-compatible IBM PC type computers, controls virtually all industrial and broadcast video tape and disc machines as well as many other video devices.

The BCD-4000 can simultaneously control a pair of industrial or broadcast video tape or video disc machines with full variable speed and function select. RS-232 and RS-422 protocols are available for 1", Betacam, MII and other sophisticated devices. The BCD-4000 can be equipped with a built-in 2-machine editor.

The BCD-4000 main CPU board occupies 1 expansion slot in the computer with no adaptors, making it suitable for advanced "AT" and 386 machines. The board is short enough to fit small computers.

For interactive video systems, the BCD-4000 responds to the same command protocol as BCD's VIPc and BCD-1000 with the added capability of interrupting the host computer on the user's choice of interrupt lines.

The BCD-4000's optional internal video editor can control any 2 appropriate video tape or disc machines for straight-cuts editing. BCD's EDL-4000 Edit Decision List Management system takes full advantage of all the BCD-4000 features.

Supported Machines

Sony Disc: LDP-1000, 2000, 180, 1500

Sony Tape: Type V (VP-5000, 5600, 5630, 5800, 5850), VII, IX, BVU (BVU-200, 800, 850, 870, 950), BVW Betacam (BVW-15, 40, 75), BVH-2000, Beta I (SLO-383, 305, 325, 323, 303)

Panasonic Disc: TQ-2023F, TQ-2024F, TQ-2026F, TQ-2027F, TQ-3031F

Panasonic Tape: NV-8200, 8170, 9240, 9600, 8500, AU-700, MII, AG-6100, 6200, 6300, 6500, 7300, 7500A

JVC Tape: CR-850U, CR-8250, BR-8600, BP-5000, KRM-800, BR-S810

Pioneer Disc: 6000, 6010, 2200, 4200, 8000

MAST/Keystone System 2 Random Access Slide

BCD-4000 Standard System

1 machine control w/SMPTE reader	.....\$1750.00
1 machine animation/SMPTE generator option	.....690.00
Second machine control option, includes SMPTE reader	.....1100.00
2 machine video editing option	.....495.00
SMPTE generator option (per machine)	.....395.00
Additional machine control cables—parallel	.....150.00
Additional machine control cables—serial	.....50.00
EDL-4000 Edit Decision List software	.....595.00

BCD-1000 Video Tape Controller

- Frame accurate • Panasonic, Sony, JVC • 1 PC slot • Software compatible • Enhanced commands

The BCD-1000 is a microprocessor-controlled video tape controller for computers with IBM-PC type slots. While specifically designed to be suitable for Computer Assisted Video Instruction, the BCD-1000 is also an appropriate controller for Video Database Access and Video Tape Animation.

The BCD-1000 is a single board computer, dedicated to receiving commands from its IBM-type host and controlling an industrial video tape machine. The 10" board is small enough to fit into a Tandy 1000 computer. It generates and reads BCD's frame addressing code for frame-accurate accessing of video tape scenes. BCD code applies numbers to each frame of video so that the system can locate any video segment frame-accurately. Optionally, the BCD-1000 may be equipped to read standard non-drop frame SMPTE code as well as perform precise video insert edits for video tape animation.

Supported Machines

Sony Tape: Type V (VP-5000, VO-5600, VO-5800*, VO-5850*), Type VII and Type IX w/33-pin remote, BVU-200, BVU-800, SLO-383, SLO-305, SLO-325

Panasonic Tape: Panasonic Industrial VTRs w/34-pin remote. NV-8200, 8170, 9240, 9600, 8500, AU-700, AG-6100, 6200, 6300, 6500, 7500

JVC Tape: CR-850U*, BR-S810*, BR-8600*, BR-6400*, BP-5000*, KR-M800*

*Some editing and variable speed functions not supported.

BCD-1000 Standard System

Video tape control system	.....\$ 895.00
SMPTE time code read option	.....250.00
BCD-1000 Video Animation Control System	
Includes SMPTE Read option	.....1795.00

M2 TABLE, WALL AND CARRIAGE MODELS

M2 Camera Stand—Table

Consists of • 132-80 M2 column and carriage • 137-50 Column scale/baseboard

132-01 \$445.00

M2 Camera Stand—Wall

Consists of • 132-80 M2 column and carriage • 137-16 Wall mounting brackets (set) • 137-58 Column scale

132-05 \$380.00

M2 Column and Carriage Only

Consists of • 4' M2 column • Column scale • Camera carriage assembly

132-80 \$320.00

M2 COPY OUTFITS

M2 Copy Outfit—Quartz

Suitable for most opaque copying and small object photography, plus back-lighting for transparencies and special effects. For use with cameras weighing up to 15 lbs.

Consists of • 132-01 M2 column, carriage and baseboard • 137-20 Movable copy stage • 137-50 Column scale • 138-25 Swivel light arms, pair • 138-33 Master quartz copy lights, pair

132-13 \$970.00

M2 Copy Outfit—Incandescent

This is the least expensive of the versatile copy outfits; useful for black and white and limited color photography.

Consists of • Same as the M2-Quartz except includes 138-43 master incandescent lights, pair

132-16 \$925.00

M2 ILLUMA OUTFITS

M2 Quartz Illuma With Bench

For many applications. Reliable and easy to use. Features a forced-air cooled base illuminator with extremely even illumination over the entire 14" x 17" area and 600W quartz halogen (3200°K) light source. Dual function copy light control adjusts "high" or "low" output levels for both base and side lighting.

Consists of • 132-80 M2 column and carriage • 137-50 Column scale • 138-80 Quartz base illuminator-bench • 138-20 Sidelight arms, pair • 138-22 Sidelight arm braces, pair • 138-33 Master quartz copy lights, pair

132-30 \$1560.00

M2 Quartz Illuma With Pedestal

Consists of • Same as the Quartz Illuma except includes pedestal and 138-37 dual quartz copy lights, pair

132-33 \$1960.00

M2 RCM SYSTEM

M2 RCM System With Pedestal

A Quartz Illuma System with a camera shutter actuator built into the carriage assembly and controlled by an electronic 60 second adjustable timer located in the light control housing. The RCM is ideal for Kodak RPC and Kodalith materials, as well as all conventional films. Copy mask set is included.

Consists of • 4' M2 column, camera carriage with built-in solenoid operated cable release, quartz base illuminator with digital timer, automatic light output control and shutter release, pushbutton switch • 137-14 Camera stand pedestal • 137-25 Copy mask set • 137-50 Column scale • 138-20 Sidelight arms, pair • 138-22 Sidelight arm braces, pair • 138-37 Dual quartz copy lights, pair

132-51 \$2760.00



M2 Camera Accessories

136-10	Precision camera leveling plate	\$ 48.00
136-11	Fine focusing and centering device	210.00
136-12	Camera quick release	35.00
136-15	Shutter cable release	29.00
136-20	Camera reflection shield—49mm	25.00
136-21	Camera reflection shield—52mm	25.00
136-22	Camera reflection shield—55mm	25.00
136-23	Camera reflection shield—58mm	25.00
136-24	Camera reflection shield—Hasselblad	47.00

M2 Camera Stand Accessories

137-10	Camera stand riser	\$ 56.00
137-12	Camera stand bench	300.00
137-14	Camera stand pedestal	460.00
137-16	Wall mounting brackets	70.00
137-20	Movable copy stage	290.00
137-25	Copy mask set	125.00
137-27	Copy holdown	110.00
137-28	Book holder	150.00
137-40	Slide duplicator	94.00
137-60	Motor drive assembly	260.00
	User installed-control switch built into motor housing—cannot be remote controlled.	

M2 Lighting Accessories

138-20	Sidelight arms, pair	\$ 95.00
138-22	Sidelight arm braces, pair	65.00
138-25	Swivel light arms, pair	42.00
580-10	Master quartz copy lights, pair, 2 lights (1 each side)	225.00
580-12	Auxiliary quartz copy lights, pair, 2 lights, plug into master quartz lights	215.00
138-37	Dual quartz lights, pair, 4 lights (2 each side)	440.00
138-43	Master incandescent copy lights, pair, 2 lights (1 each side)	180.00
138-45	Auxiliary incandescent copy lights, pair, 2 lights, plug into master incandescent lights	180.00
138-47	Dual incandescent copy lights, pair, 4 lights (2 each side)	360.00
138-50	Copy light control	230.00
580-85	Polarizing light filter kit	220.00
138-80	Quartz base illuminator—bench, includes: baseboard with 14" x 17" aperture, quartz base illuminator assembly, 14" x 17" opal plexiglass, 14" x 17" clear glass, dual function copy light control, 137-12 camera stand bench	1010.00
138-81	Quartz base illuminator—pedestal, same as 138-80 except includes 137-14 camera stand pedestal	1170.00

COPY OUTFITS/SYSTEMS



M3 TABLE, WALL, COLUMN & CARRIAGE

M3 Camera Stand — Table Model

Includes: • 4' M3 column • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly • M3 baseboard • 26 1/2" W x 23 1/2" D • Massive 6 3/4" x 10" mounting plate • M3 column/baseboard support base • For use with cameras weighing up to 30 lbs.

430-02 \$750.00

M3 Camera Stand — Table Model — EX

• Same as 430-02 except includes 5' M3 column

430-04 \$780.00

M3 Camera Stand — Wall Model

Includes: • 4' M3 column • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly • 437-16 M3 wall mounting brackets

430-06 \$580.00

M3 Camera Stand — Wall Mount — EX

• Same as 430-06 except includes 5' column

430-08 \$625.00

M3 Column & Carriage Only

Includes: • 4' M3 column • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly

430-80 \$520.00

M3 Column & Carriage — EX

• Same as 430-80 except includes 5' column

430-81 \$560.00

M3 COPY OUTFIT

M3 Copy Outfit — Quartz

Includes: • M3 column and carriage assembly (5') • 437-20 movable copy stage • 138-25 swivel light arms • M3 solid grid baseboard • Master quartz halogen copylights • Tabletop platform • Overall dimensions: 65" H x 53" W x 29" D • Working column height: 51" • Baseboard net working area: 26 1/2" W x 23 1/2" D • Camera mounting plate: 6" fore and aft movement • Counterbalanced: up to 30 lbs., adjustable • Light arm span: 53" • Front to back: 33" (35" with motor drive) • Lamps: sidelights — two 300W/120V

430-12 \$1375.00

M3 PEDESTAL & BENCH CAMERA STANDS

M3 Incandescent Camera Stands — Bench

• M3 column (4 1/2' net, 6' overall) • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly • M3 baseboard • Camera stand bench • 138-20 Sidelight arms, pair • 138-22 Sidelight arm braces, pair • 138-47 Dual incandescent copy lights, pair • 138-50 Copy light control

430-13 \$1680.00

M3 Incandescent Camera Stands — Pedestal

• Same as 430-13 except includes 7' overall column and camera stand pedestal

430-14 \$1850.00

M3 Quartz Camera Stand — Bench

Includes: • M3 column (4 1/2' net, 6' overall) • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly • M3 baseboard • Camera stand bench • 138-20 Sidelight arms, pair • 138-22 Sidelight arm braces, pair • 138-37 Dual quartz copy lights, pair • 138-50 Copy light control

430-15 \$1840.00

M3 Quartz Camera Stand — Pedestal

• Same as 430-15 except includes 7' overall column and camera stand pedestal

430-16 \$2010.00



M3 PEDESTAL & BENCH ILLUMA OUTFITS

M3 Quartz Illuma — Bench

Includes: • M3 column (4 1/2' net, 6' overall) • Auxiliary dual counterbalance springs • Column scale • M3 camera carriage assembly • M3 illuma baseboard • 14" x 17" opal plexiglass • 14" x 17" clear glass • Quartz base illuminator • Camera stand bench • 138-20 Sidelight arms, pair • 138-22 Sidelight arm braces, pair • 138-37 Dual quartz copy lights, pair • Dual function copy light control

430-20 \$2160.00

M3 Quartz Illuma Stand — Pedestal

• Same as 430-20 except includes 7' overall column and camera stand pedestal

430-21 \$2340.00

M3 ACCESSORIES

437-16	Wall mounting brackets	\$ 70.00
437-20	Movable copy stage	.330.00
137-25	Copy mask set	.125.00
137-27	Copy holdown	.110.00
137-28	Book holder	.150.00
137-40	Slide duplicator	.94.00
137-60	Motor drive assembly	.260.00
	User-installed control switch built into motor housing cannot be remote controlled.	

M3 LIGHTING ACCESSORIES

138-20	Sidelight arms, pair	\$ 95.00
138-22	Sidelight arm braces, pair	.65.00
138-25	Swivel light arms, pair	.42.00
580-10	Master quartz copy lights, pair, two lights (one each side)	.225.00
580-12	Auxiliary quartz copy lights, pair, two lights, plug into master quartz lights	.215.00
580-14	Dual quartz lights, pair, four lights (two each side)	.440.00
138-43	Master incandescent copy lights, pair, two lights (one each side)	.180.00
138-45	Auxiliary incandescent copy lights, pair, two lights, plug into master incandescent lights	.180.00
138-47	Dual incandescent copy lights, pair, four lights (two each side)	.360.00
138-50	Copy light control	.230.00
580-85	Polarizing light filter kit	.220.00

RC-470 Still Video Camera

- 1/2" CCD • 360,000 separate "pixels" • Video resolution of 400 lines in both horizontal and vertical axes • White-peak level 9.7MHz (deviation 2.0MHz). This extra bandwidth "headroom" can potentially raise the video resolution to 500 lines • In Frame Mode, can record up to 25 images, each using 2 tracks of the video floppy • In Field Mode, the maximum recording capacity is 50 images • Feedback AE system • Variable flash has 3 modes: On for intentional use, Off for special effects and Auto for automatic firing in lighting conditions below EV 8 • Exposure compensation. You can choose up to "±" 1.5 EV compensation in quarter steps, or instantly set the camera for plus 1.5 EV at the touch of a button • Solid-State Active Triangulation (SSAT) autofocus • High-performance optics offer 9mm wide or 16mm tele • Bifocal switchover type lens • Full aperture in this bright lens is f/2.0 at wide to f/2.5 at tele • High continuous-shooting speed of 20 images per sec. in Field Mode; you can also choose 5-image/sec. and Single operation in that mode, while the Frame Mode offers 5-image/sec. and Single shooting • Data recording by year/month/day, hour/minute/second or a 6-digit code number • Track Feed System: 3 modes: Normal/Skip/Insert • Self-timer: 10 sec. delay \$2050.00



RC-470



RC-250

RC-250 XAPSHOT High Band Still Video Camera

- Built-in playback unit with easy hookup to TV • Record up to 50 still video images on a video floppy disk • Video images can be saved or erased and video floppy disk reused • High-band circuitry, 1/2" CCD with 786 horizontal pixels • Fully automatic shooting • Built-in flash • Macro photography • Shutter speeds: 1/500 sec. to 1/30 sec., flash sync at 1/125 sec. • 10 sec. self-timer • Single or continuous 3 images/sec. shooting mode • Exposure compensation button (+1.5EV) • f/2.8 11mm lens (equivalent to 60mm on 35mm camera) • 14 1/16 oz. (body only)

RC-250 Choice of black or white \$699.00
 VP-50 Disk package (10) 100.00
 BP-4P Battery pack 32.50

XAPSHOT Still Video Computer Imaging Kit

A complete solution for the entry-level user, the XAPSHOT Still Video Computer Imaging Kit bundles a XAPSHOT camera with all of its necessary accessories and a ComputerEyes™ video digitizer with software.

The XAPSHOT SV camera records up to 50 images (300-line video fields) on a reusable 2" floppy disk. Its point-and-shoot operation, built-in flash and automatic features allow for quick and easy "electronic photography" of virtually any subject. Images can be played back directly from the camera to any standard NTSC TV monitor. When used with the Computer Imaging Kit, the same single video cable connects the XAPSHOT to the digitizer for computer input. The bundled software controls the image capture, image adjustment and save functions of the digitizer.

Once the image is saved in the computer environment, it can easily be exported to various applications. Images can be incorporated into desktop publishing, used to enhance a database, or added as visuals to multimedia presentations. The computer imaging applications are virtually limitless.

The XAPSHOT Still Video Computer Imaging Kit is ideal for personal use and many business applications. The kit is available in 5 different computer versions:

Kit Features:

- Canon RC-250 XAPSHOT SV camera • Wrist strap WS-C25 • Soft case SC-C25 • Battery charger BA-24P • Battery pack BP-4P • AC coupler AV-C25 • Mini plug-pin cable KE-M2P • Pin cable KE-PIN • Video floppy disk VF-50 • ComputerEyes (software and video digitizer) produced by Digital Vision Inc.

Macintosh® Color Version

- Captures and displays up to 24-bit (16.7 million colors) 640 x 480
- Supports 32-bit QuickDraw™ • Controls brightness, contrast, hue and color adjustments • Saves in PICT and TIFF file formats

System Requirements

- Any Macintosh II (NuBus computer) • 2M byte RAM • 3.5" floppy disk drive • 8-bit or 24-bit graphics display \$1099.00

Macintosh Black and White Version

- Compact module plugs into printer or modem port • Resolution up to 640 x 480 pixels with 8-bit per pixel depth • Automatic calibration of brightness and contrast, further adjustable by user • Supports TIFF, PICT, MacPaint and EPS formats

System Requirements

- Mac 512 enhanced, Mac Plus, SE, SE/30, Classic or any Mac II • 1M byte RAM • 3.5" floppy disk drive \$899.00

Apple IIgs™ Version

- Single board plugs into any slot • Supports 320 and 640 graphics mode • Images can be saved and displayed in a variety of formats

System Requirements

- 1M byte of memory • 3.5" disk drive • Composite or RGB monitor • GS/OS release 4.0 or higher. \$899.00

PC Color Version

- Single board for 8-bit (or 16-bit) slot • Captures 24-bit color or 8-bit grayscale images • Image control of brightness, contrast, hue and color • Supports EGA, MCGA, VGA and Super-VGA • Saves in various formats: PCX, IFF, TIFF, TGA, GIF and more

System Requirements

- PC, XT, AT, 386, 486 or compatible, or PS/2 Model 25/30 • 640K RAM minimum • 5.25" floppy drive • DOS 2.1 or higher. \$1099.00

PC Black and White Version

- Saves in various formats: PIC (BSAVE), PCX, IFF, TIF, MSP, etc.

System Requirements

- Same as PC color version \$899.00

STILL VIDEO EQUIPMENT

RV-301 Still Video Player

- Erasure function • Use with any TV monitor • Video floppy disk • NTSC color, EIA standard • Control signal for forward/reverse feed (L/R to GND); 3.5ø mini jack (stereo) • Single-screen and consecutive—field mode: 2, 5, 10 images/sec.; Frame mode: 2 images/sec.; Direct access/interval playback: 1-99 sec. • Single-screen and consecutive erasure • High-band: 500 TV lines (min.); Normal: 350 TV lines (min.) • Track no., screen feed speed, interval time or direct access track no.: appear in upper right corner of monitor display • Year/month/day or hour/minute/second with code no.: appear in lower right corner

RV-301 \$890.00



RV-301

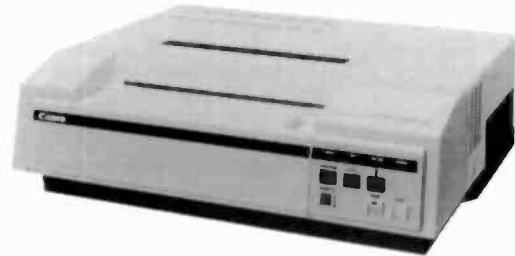
RV-311 Still Video Player

- Same as RV-301 except includes RS-232C interface \$1435.00

FP-510 Full Color Printer

- Built-in masking circuit • Ultra fine computer graphics • 160 pixels per inch • 64-step gradation • High resolution printer • Ink-jet printing method • Analog modulation method • Electromotive pumping mechanism and an auto-capping mechanism to prevent ink head block • Print size can be easily programmed up to 8" W and 39⁵/₁₆" L • Integer multiple function, making possible print enlargement by up to 9X • Printing Method: Drop-on-demand type ink-jet printing • Recording Density: 6.3 PEL (6.3 pixels/mm); 160DPI. 1 dot corresponds to 1 picture element • Color Representation: 260,000-color; 2-color, 4-color, 16-color, 256-color (palette) • Gamma Correction: Optional setting by user or selection of built-in correction formula • Palette Selection: RGB 16-color mode (gamma correction present) RGB 256-color mode (gamma correction present) CMY 16-color mode (no correction) • Ink: Exclusive Ink (all-color simultaneous exchange cartridge system) Breakdown: Yellow 1 color; Cyan 3 colors; Magenta 3 colors; Black 1 color • Print Speed: Approx. 8 min., 36 sec. for 8" x 6"; Approx. 2 min., 36 sec. for 4" x 3" • Data Input: CMY, RGB, B/W, palette; 1, 2, 4, and 8 bits each • Interface: Standard—Centronics type, 8-bit parallel interface. Optional—GP-IB (IEEE-488) • Available with Macintosh or IBM driver included—please specify

FP-510 \$4995.00



FP-510



RP-420

RP-420 Color Video Printer

- Single or multi-image printing • Built-in frame memory for 25-image print (50 in field mode) • Color ink/film thermotransfer method • Large color print in 80 sec., small in 70 sec. • Mirror reverse and B/W prints • Designed primarily for use in commercial and personal still video systems, also compatible with all other video sources • Input terminals are provided for RGB and video • Special S-Video terminal accepts direct inputs from ultra high resolution sources, employing separate Y/C (luminance/chrominance) transmission • Convenient Through-Print function is provided, in which the Multi-Image Memory circuit is off-line, to offer good-quality, 1-touch printing of non-moving video sources

RP-420 \$1998.00



RE-552

RE-552 Video Visualizer

- Visual input terminal handles any visual source—notes, charts, color slides and even 3-D objects • Accepts direct input from external video equipment, such as VCRs or still video players • Output can be made to VCRs, still video recorders and other equipment • Applications include direct display on any TV or monitor • S-Video output capacity • Auto focus 8X power zoom lens • Front-panel controls • External mic input and a light on each side • A touch of a switch converts color and monochrome film negatives to positive images • Power zoom, auto focus, auto iris and auto white balance can be adjusted manually

RE-552 \$3100.00

FV-540 Video Floppy Disk Drive

- 3-D color scanning using a still video camera • Video Input: Still video floppy (via built-in player: normal band/hi-band); S-Video; NTSC • Video Output: NTSC • Digital Interface: SCSI (small computer system interface) • Image Size: 640H x 480V pixels • Sampling Frequency: 12.25MHz (mesh ratio 1:1) • A/D Convert: Color 24 bits (8 bits per color), 256 gray level • Freeze Time: 1/60 sec. (per color, B/W) • SCSI Commands: 23 • Panel Controls: Track feed forward/backward; input select (SV/S-Video/NTSC); SCSI ID setting 0-7 • LED Panel Display: hi-band/normal band; frame/field; input (SV/S-Video/NTSC); power (on/off); SV floppy (in/out)

FV-540 With software \$2500.00



FV-540



VIDEO PROJECTOR STANDS/ CEILING MOUNTS

VIDA-SET™ Video Projector Stands

• **Multi-Projector Versatility:** Width adjustment allows VIDA-SET to be used with popular projectors • **Counter-Balanced Height Adjustment:** Vertical height adjustment from 27³/₁₆" to 38³/₁₆" with the assistance of a gas spring in the pedestal to offset the weight of the video projector. Optimized for projectors weighing 55 to 75 pounds. Heavier or lighter projectors will require proportionately greater effort to raise or lower • **Fast Image/Screen Alignment:** Yaw is adjusted by rotating and then locking the upper module on the pedestal while roll and pitch are set with controls on upper module • **Heavy-Duty 5" Locking Casters:** Two fixed and two swiveling wheels make system roll easily yet lock up securely. Special brakes lock swiveling as well as wheel rotation for stable projection (VSU-1P and VSU-1S only) • **Positive Projector Hold-Down:** Rubber-padded clamps adjust to various projector dimensions or optional hold-down brackets provide more permanent attachment • **Steel and Aluminum Construction**

VSU-1S VIDA-SET System

• Composed of a lower pedestal module (VSU-1P) with folding legs and 5" locking casters, plus an upper projector module (VSU-1) which mounts on the pedestal • May also be used on a table or cart \$899.00

VSU-1SE VIDA-SET System

• Similar to the VSU-1S except the pedestal has non-folding legs • Upper module does not have legs for tabletop application \$ 749.00

VSU-1	Table stand	459.00
VMC-5	Mounting collar kit for VSU-1	31.95
VSU-1P	Pedestal	469.00
VSU-2*	Two-tier stacker, 15 ³ / ₄ " center	969.00
VSU-2C*	Ceiling mount, two-tier	1129.00
VSU-2LP*	Two-tier for large video projector	999.00
VSU-3*	Three-tier stacker, 18" center	1449.00

* Video projectors used in this unit require 1 VHD hold-down kit for each projector.



VSU-1S System

VSU-2



VSU-1P Pedestal

VCR Shelf (VR-1)

VSU-1 Table Stand

Accessories

EK-10	Extender Kit—Raises the VSU-1 an additional 9 ³ / ₁₆ " , for a maximum of 48" , to bottom of projector	\$ 31.95
VR-1	VCR Shelf—A 16" x 24" Accessory Shelf which connects to the VSU-1P Pedestal	89.95
VB-2	Stacker Brackets—Mount one VSU-1 Table Module over another so that an additional projector may be used—either as a backup or for additional illumination. Two spacing positions provided to accommodate projectors of various sizes	\$ 119.95

Hold-Down Kits

VHD-5	Sony 722/1020/1030/2020	\$ 39.95
VHD-5C	Inverted hold-down kit for Sony 722/1020/1030/2020	69.95
VHD-15	Panasonic PT-101 and GE Imager 200	39.95
VHD-25	BarcoData, Barco	34.95
VHD-35	AquaStar IIIC	39.95
VHD-45	ESP Esprit	39.95
VHD-55C	Mitsubishi VS-1200/1250/1250E/2020	69.95
VHD-65C	NEC DP 1200A/1200S. GE 300/310	69.95
VHD-75C	Sony 1270	69.95

Specifications

Model	VSU-1	VSU-2	VSU-3	VSU-2C	VSU-1P	VSU-1S	VSU-1SE
Projector Width	15 ³ / ₄ " min. 25 ¹ / ₄ " max.	Same as VSU-1	Same as VSU-1	Same as VSU-1	N/A	Same as VSU-1	Same as VSU-1
Projector Height	67 ¹ / ₈ " min. 121 ¹ / ₄ " max.	Same as VSU-1	Same as VSU-1	Same as VSU-1	N/A	Same as VSU-1	Same as VSU-1
Roll	3 ¹ / ₈ " , up or down each side of projector	Same as VSU-1	Same as VSU-1	Same as VSU-1	N/A	Same as VSU-1	Same as VSU-1
Pitch	10°-20° above or below horizontal	Same as VSU-1	Same as VSU-1	Same as VSU-1	N/A	Same as VSU-1	Same as VSU-1
Yaw	Determined by position on table	Same as VSU-1	Same as VSU-1	N/A	N/A	360° Rotation with lock	Same as VSU-1S
Stand Height	14 ³ / ₄ " min. 20 ⁹ / ₁₆ " max.	18" lens center 32 ³ / ₄ "	18" lens center 50 ³ / ₄ "	21 ¹ / ₄ " lens center 33 ³ / ₄ "	Compressed 32 ³ / ₄ "	27 ³ / ₁₆ "-38 ³ / ₁₆ "	26 ⁷ / ₈ "-37 ⁷ / ₈ "
		15 ³ / ₄ " lens center 30 ¹ / ₂ "	15 ³ / ₄ " lens center 46 ¹ / ₄ "	18" lens center 31 ¹ / ₂ "	Extended 34 ⁷ / ₈ "	(to bottom of projector)	(to bottom of projector)
Stand Depth	17"	Same as VSU-1	24 ³ / ₃₂ "	16"	32 ³ / ₄ "	Same as VSU-1P	25 ⁵ / ₈ "
Stand Width	23 ⁷ / ₈ "-31 ¹ / ₂ "	Same as VSU-1	27 ¹ / ₈ "-31 ¹ / ₂ "	22"-31 ¹ / ₂ "	27 ⁵ / ₈ "	27 ⁵ / ₈ "	25 ⁵ / ₈ "
Lens Center (from projecting surface to bottom of projector)	N/A	18" lens center 6"-24"	18" lens center 6" to 24" to 42"	21 ¹ / ₄ " lens center 6 ¹ / ₄ " to 27 ¹ / ₂ "	N/A	N/A	N/A
		15 ³ / ₄ " lens center 6" to 21 ³ / ₄ "	15 ³ / ₄ " lens center 6"-21 ³ / ₄ "-37 ¹ / ₂ "	18" lens center 6 ¹ / ₄ "-24 ¹ / ₄ "	15 ³ / ₄ " lens center 6 ¹ / ₄ "-22"		
Folded Dimensions	23 ⁷ / ₈ " x 17" x 14 ³ / ₄ "	N/A	N/A	N/A	13 ¹ / ₄ " x 13 ¹ / ₄ " x 28"	N/A	N/A

VCM-10 Series Ceiling Mounts

• Makes installations quicker and easier through simple attachment to standard 1¹/₂" pipe columns and fast "fine tune" position adjustments • Roll, pitch, yaw and horizontal adjustments make it possible to compensate for small irregularities in the ceiling column plumb or location and to quickly and easily mechanically align the image on the screen • Compact and sturdy • Hard, low luster black epoxy

VCM-10S	Sony 600/722/1020/1030/1031/1040/1041/1042/2030	\$ 219.00
VCM-10B	Barco: BarcoData, BarcoData P/C, BarcoData HR, BarcoData 400, BarcoData 600, BarcoGraphic 400, Barco Special Video, BarcoVision 600/600S, Vstar 5	229.00

VCM-10P/GE	Panasonic: PT-101/101N, PT-101Y/301. General Electric: Imager 200/210	\$ 229.00
VCM-10NEC/GE	NEC: DP-1200A/1200S. General Electric: Imager 300/310	229.00
VCM-15S	Sony 1270	249.00
CMA-50	Optional column for VCM-10 Series. Offers nine 1" vertical adjustments. Telescopes in standard 2" pipe. Fastens with cross bolts	33.95
CMA-60	Barco brackets for VCM-10 ceiling mount	35.95
CMA-70	Panasonic/GE brackets, VCM-10 ceiling mount	33.95
CMA-90	NEC: DP-1200A/1200S. GE: Imager 300/310	36.95

PERSONAL COMPUTER SYSTEMS

 **Commodore®**
AMIGA®

Amiga® 500P/2000 Personal Computer Systems

Common Features:

- V1.2 and 1.3 software compatible
- Internal 3.5" 880K byte capacity micro floppy drive
- 4096 color display with many levels of resolution from a minimum of 320 x 200 to 640 x 400 (interlaced)
- 68000 microprocessor running at 7.16MHz
- Includes AMIGA VISION

Amiga 500P

- Contains 1M byte RAM with battery backed-up real time clock
- Up to 9M byte RAM (512K byte standard)
- Kickstart in 256K byte ROM
- Standard ports for printers, modems and disk drives
- Composite monochrome and RGB output ports

Amiga 2000

- Up to 9M byte RAM (1M byte standard)
- Detachable keyboard with professional numeric pad
- Space for up to 3 disk drives (2 3.5" and 1 5.25")
- Kickstart in 256K byte ROM
- 7 expansion slots
- Accepts IBM-PC compatible hardware
- 200W power supply
- CPU expansion slot
- Composite video/genlock slot
- Battery backed-up clock

Amiga 2000HD

- 16/32-bit CPU comes with built-in disk drive, keyboard, mouse, documentation and system software (workbench), Amiga-BASIC and utilities preinstalled on hard disk (backup disks included)
- Standard 1M byte RAM expandable to 9M byte
- 50M byte, 28ms hard disk with autoboot controller
- Multi-tasking operating system
- 4-voice, 2-channel sound output with built-in speech
- With Amiga Bridgeboard: internal option for IBM-PC® (MS DOS®) compatibility
- Expansion slots: up to 4 available Amiga expansion slots; up to 3 IBM-PC expansion slots; 2 special purpose expansion slots
- Built-in clock/calendar function with battery backup

Amiga 2500/30 Personal Computer

- Motorola 25MHz 68030 32-bit CPU, 68882 math coprocessor, system software (Workbench, Amiga-Basic and utilities) pre-installed on hard disk (backup disks included)
- 5M byte RAM standard, expandable to 9M byte
- 50M byte, 19ms hard disk with A2091 Autoboot Controller
- Amiga DOS multi-tasking operating system
- 4096 available colors with resolutions up to 640 x 400 (more with overscan)
- 4-voice, 2-channel stereo sound output with built-in speech synthesis
- Internal option for IBM-PC/XT or IBM-PC/AT compatibility using an Amiga Bridgeboard
- 4 available Amiga expansion slots, 4 IBM-PC expansion slots, 1 video expansion slot
- Built-in clock/calendar with battery backup
- 200-300% performance increase over 68020 based machines
- High speed hard disk drive
- Single partition, Fast File System hard drive
- Includes AMIGA VISION

Amiga 3000 Personal Computer

- High-speed Motorola®68030 microprocessor running at either 16 or 25MHz, 32-bit data bus, 68881 or 68882 math coprocessor, built-in disk drive, 94-key keyboard, mouse and system software (backup disks included)
- Standard 2M byte RAM (1M byte chip RAM, 1M byte fast RAM), expandable to 18M byte on the motherboard (over 1GB address space)
- 50M byte, 19ms hard disk with hard disk backup and maintenance software included (100M byte hard drive model available)
- AmigaDOS 2.0 Multi-tasking Operating System
- 4096 available colors with built-in display enhancer for NTSC compatible interlaced or flicker-free de-interlaced video; user definable resolutions including 320 x 200, 640 x 480, 768 x 480, 1280 x 400
- 4-voice, 2-channel stereo sound output with built-in speech synthesis
- Expansion slots: 4 Zorro III expansion slots, 2 PC AT™ expansion slots, 1 video expansion slot, 1 CPU/cache memory expansion slot
- Built-in clock-calendar function with battery backup
- Includes AMIGA VISION



Amiga 2500/30



Amiga 3000

Amiga 3000/16-50

1-3.5FD, 2M byte RAM, 50M byte hard drive, mouse, keyboard, 2 mouse ports, serial and parallel ports, SCSI interface, 15.75 and 31.5kHz video ports (built-in de-interlacer), 68881 math coprocessor, AmigaDOS and AMIGA VISION.

Amiga 3000/25-50

1-3.5FD, 2M byte RAM, 50M byte hard drive, mouse, keyboard, 2 mouse ports, serial and parallel ports, SCSI interface, 15.75 and 31.5kHz video ports (built-in de-interlacer), 68882 math coprocessor, AmigaDOS and AMIGA VISION.

Amiga 3000/25-100

Same as Amiga 3000/25-50 with a 19ms, 100M byte hard drive.

AMIGA VISION AS250 Authoring System

- Powerful, icon-based authoring system
- Easy-to-use, flow-chart based user interface allows even the most inexperienced user to develop powerful applications
- Allows the creation of a wide range of applications: business presentations; animated slide shows with audio; interactive video applications and displays; computer-based training for business, government and education
- Supports all standard Amiga file formats: IFF graphics; ANIM 5 animation format; SMUS music; 8SVX digitized sound
- Compatible with dBASE III™ database files
- Supports a wide variety of peripherals including videodisk players, genlocks and touch-screens

EZPIXpc 150MHz Digital/Analog Interface

• 150MHz universal PC interface • Connects over 90% PCs and video cards (including PS/2s, Mac IIs, and CGA, MDA, Hercules, EGA, MCGA, Enhanced EGA, VGA, 8514/A, XGA, Super VGA and Super Mac) to RGB data projectors and monitors • LCD automatically displays the computer's H and V scan rates • Digital frequency-sensitive centering • Other fully automatic features: digital/analog input selection, color/monochrome detection, sync polarity, sync stripping on green, sync on green output • Unique input cable contains three connectors (15 pin D HD, 15 pin D, 9 pin) • Inputs: TTL, analog, sync • Outputs: RGB comp sync or RGB sync on green at 75 ohms on BNC connectors • 1 control position for H centering • Separate power supply

EZPIXpc Includes single 3-way input cable \$595.00
Carrying Case 118.00



EZPIXpc



123A

123A S-Video Interface—VGA to S-Video TV

• Low cost way to display computers on S-Video TVs • Ideal for classrooms, meetings and sales presentations • Connects computer to S-Video or standard TVs • S-Video (also referred to as S-VHS or Beta-ED) has luminance and chrominance for superior color definition and detail, and is a must when displaying 80 column text. If displaying graphics and 40 column text, a standard TV will produce satisfactory results • Will record programs on S-VHS VCR • 1 S-Video and 1 composite video output • Requires 1 input cable and 1 output cable • 123A interface includes memory resident software (3.5" and 5.25" diskettes packaged with each 123A) to operate with IBM PS/2 Model 30-286, 50, 55, 60, 70, 70 portable, 80, IBM display adaptor and 100% compatible VGA cards

123A \$328.00

Input Cables

12-8525-00	PS/2-25 color*	..... \$75.00
12-8513-15	PS/2-30, * 30-286, * 50, * 60, * 70, * 80, * and VGA compatibles with color	..... 75.00
12-1200-09	PC, XT/AT with CGA	..... 55.00
12-2000-23	Commodore Amiga (color only)	..... 75.00
12-9962-09	Targa video adaptors in PCs	..... 55.00
12-215-15	Apple II GS (15-pin color only)	..... 55.00
12-1040-13	Atari 520ST and 1040ST (color only)	..... 75.00

*Picture on monitor is scrambled. Use multiscan monitor or set up additional S-Video or standard TV for local viewing.

S-Video to S-Video cables—4-pin to 4-pin also available.

460 Color/Monochrome Digital Interface

• For EGA, CGA, Mono and Hercules cards • 100MHz video bandwidth • Horizontal sync from 15 to 75kHz • 5 options available

460		..... \$395.00
OPT-00	EGA modification for Sony 1030/1	..... 40.00
OPT-01	Self diagnostics with LED	..... 95.00
OPT-02	CGA/EGA mode output jack	..... 22.00
OPT-03	External interlace input for IBM 3270 PCG	..... 70.00
OPT-04	Special IBM enhancement—3179 low video level	..... 60.00
OPT-05	No sync on RGB	..... 70.00
460-99	Ruggedized rental/demo unit w/OPT-01	..... 640.00
461	Color and mono, digital with interlace. Supports terminals with odd-interlace and has no vertical centering control	..... 395.00

700 RGB Analog to Analog Interface

• 100MHz analog interface supports newest workstations, including IBM PS/2, VGA and Mac II workstations • Outputs: RGB and composite monochrome (0.7V P-P at 75 ohms), TTL composite sync • Output video has sync removed and is DC restored to: Black = 0.0VDC • Sync input 250mV to 8V P-P • Automatically selects: 1) horizontal and vertical sync 2) composite sync or 3) sync on green • "Zero Drift" positioning of < 150ns drift from 50° to 150°F • Calibrated, adjustable RGB gain controls on front panel • Accepts positive, negative or

differential analog video input signals • Autotrack horizontal positioning control covers 15 to 95kHz • Separate power supply • Analog video input • Color and monochrome input and output

700	..... \$525.00	
OPT-03	Sync on green output for 700	..... 70.00
OPT-04	Black level sampling modification from back porch to front porch	..... 70.00
OPT-06	Special blue enhance option for sky blue phosphor terminals	..... 70.00

100MHz RGB Distribution Systems

• 950 Series switches route signals from any combination of RGB or composite video sources to 1 projector or monitor • 900 Series distribution amplifiers connect 1 RGB/computer video source to any number of monitors/projectors • 100MHz switches and DAs have 3 identical analog channels for R, G, B video and 1 analog/digital sync channel • Switch options include auto sync polarity, 2 RS-232 applications and range of remote controls including wired, infrared and a buffered terminal remote for external control systems • DA options include auto sync polarity and long cable equalization • Rackmounts available

900-04	1 in 4 out DA	..... \$ 969.00
900-08	1 in 8 out DA	..... 1249.00
950-04	4 in 1 out switch	..... 1325.00
950-08	8 in 1 out switch	..... 1850.00
950-12	12 in 1 out switch	..... 2375.00
950-16	16 in 1 out switch	..... 2895.00
950-20	20 in 1 out switch	..... 3425.00
950-24	24 in 1 out switch	..... 3950.00

Call for price and part no. on options, remote controls and rackmounts.

RGB and Sync Umbilical Cable

• 100MHz RGB/sync cable combines 4 or 5 ultra-low loss coaxial cables into 1 highly flexible, easy-to-handle cable • Cables are lower loss than RG59 types, and mil-spec BNCs are watertight and double-crimped for strength • Wires are brightly color-coded and can be distinguished in low light • Standard lengths are 3' to 300' and custom lengths, connectors and cabling kits are also available

Call for part numbers and price.

A/V CONTROL SYSTEMS

CRESTRON

Cresnet II Audio-Visual Control System

- Very friendly software • Centralized software • Symbolic graphic programming • Symbolic editor • Software utilities • Software drivers
- Field programmable • Copilot mode • Plug-in card system
- Modular • International power supply • High function density
- Expansion rack • Local area network • Disk storage • RF 2-way wireless • Infrared wireless • Ease of installation

This flexible, cost effective, modular control system will meet all your control needs, from the most basic control requirements to the most sophisticated. A world class system designed to operate from any international power, Cresnet II features high density hardware supervised by symbolic programming language. An extensive selection of distinctively styled control panels, enclosures and accessories are available. The Cresnet II originates with the master computer module.

System software is centralized in the master computer module and most hardware setup is software defined. During power-up, all hardware setup and software characteristics are downloaded from the master computer module to the control modules. This eliminates the need to change factory programmed PROMs to accommodate specific system requirements. Centralized system software means that existing systems may be quickly repaired by a simple module replacement and modules may be inventoried for fast system delivery requirements.

System components and modules are easily added, removed or replaced without the inconvenience of removing the card rack from an equipment rack. All electronic components, including switches, indicators and power supplies, are mounted on plug-in modules for easy replacement and repair. A selection of control modules and rack front panel modules are available to meet every control need. Many modules include powerful on-board microcomputers capable of independent control, allowing for maximum system speed at minimum system cost. Each type of module contains a fixed identity which permits the master computer module to identify any module type and location within a system configuration.

Versatile Card Rack Design

The 5.25" high x 7.5" deep, 19" card rack incorporates 12 slots. The first slot is assigned either to the master computer module or the system expansion computer module. The second slot is assigned to a power management module. The remaining 10 slots are available for use by a comprehensive collection of control modules designed to cost effectively fulfill every audio, video and environmental control need. When the disk storage option is used, 9 slots remain for control modules. A motherboard incorporating gold plated card edge connectors is used to interconnect control modules.

The card rack includes a front mounted control panel which provides system performance information as well as save to disk, load from disk, program-run and power switches. A 9-pin D-type RS-232 connector is located on this panel and used for computer interfacing.

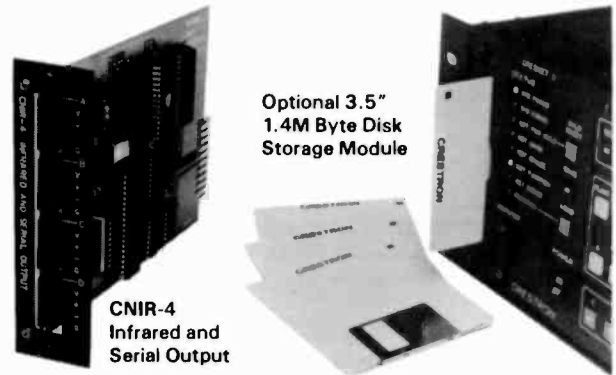
The front region of the card rack has been designed to accept modular pushbutton and special function control panels. These panels can provide for local control if required. Panels are supplied with custom engraving and colored button caps using Crestron's exclusive "custom crafted panel" concept.

Simplified System Expansion

Cresnet II incorporates a family of powerful control modules. Therefore, complex control requirements can be implemented with a minimum number of modules. All but the very largest systems may require only a single card rack. However, if required, system size can be economically increased with the use of 5.25" high expansion card racks. Each rack can hold 10 control modules with up to 15 racks in a single system. Expansion racks require a power management module and expansion computer module.

Ease of Installation

Cresnet II has been specifically designed to simplify installation. By making extensive use of screw terminal connectors, control modules may be replaced in a matter of seconds by removing connectors. These connectors do not require soldering or special tools, allowing for fast, quality field wiring. Wiring may be quickly inspected, tested and corrected. An optional wiring support system is available which provides an organized means of dressing wiring connections.



Crestron's exclusive Local Area Network (LAN) technology means it only requires 4 wires to install the most sophisticated Crestron equipment.

Exclusive Disk Storage Capability

An optional high quality 3.5" 1.4M byte disk storage module is available. The disk drive must be specified at time of system purchase.

System configurations may be stored and loaded to and from disk, including any programmed system component such as the Command Center and fade dissolve unit (CFD-2). This allows instant complete change for a specific user application. Programs may be developed on a personal computer at a remote location and quickly loaded into a Cresnet II system, eliminating system downtime.

Typical System Consists of:

WITH DISK DRIVE

- CNRACK-D (1) Card rack with 3.5" disk drive; holds 9 modules \$1290.00
- CNMM-D (1) Master computer for systems with disk drive . . . 1088.00
- (1) CNPS-25 or CNPS-50 Power Supply:
- CNPS-25 25W output, operates on 120VAC, 50/60Hz, occupies 1 module space in card rack \$375.00
- CNPS-50 50W output, operates on 100 to 140VAC, 50/60Hz, mounts external to rack 525.00
- CNPM (1) System Power Component. Provides local regulation of CNPS system power supply; 1 required per CNRACK and CNRACK-D 300.00
- Control modules as required POR*
- Wired or wireless control panels as required POR*
- Additional system power components as required POR*

WITHOUT DISK DRIVE

- CNRACK (1) Holds 10 control modules; supplied with system control panel \$863.00
- CNMM (1) Master computer module; 1 per system 788.00
- 1 CNPS-25 or CNPS-50 Power Supply:
- CNPS-25 25W \$375.00
- CNPS-50 50W 525.00
- CNPM (1) System power component 300.00
- Control modules as required POR*
- Wired or wireless control panels as required POR*
- Additional system power components as required POR*

FOR WIRELESS CONTROL

- CNWC1-4 (1) Wireless module. Interface module required in systems with IR or RF wireless transmitters; has 4 wireless adaptor module inputs \$375.00
- Wireless Adaptors as Required Each wireless adaptor occupies 1 port of a CNWC1-4. IR and 1-way RF may be used simultaneously.
- CNRF-1W 1-way remote mounted RF receiver for use with CNWC1-4 \$150.00
- CNRF-2W 2-way remote mounted RF transceiver for use with CNWC1-4; 1 CNRF-2W allowed per CNWC1-4 375.00
- CNIRR-1W 1-way remote mounted IR receiver for use with CNWC1-4 150.00

Note: All modules occupy 1 space in card rack.

*Price On Request

CRESTRON

MEDIA CONTROL SYSTEMS

Cresnet IIP/IIPB Media Control Systems

The Cresnet IIP takes the worry and confusion out of specifying a media control system because it incorporates all the features, functions and software most commonly required in a presentation environment.

In today's market, many control systems are extremely cost sensitive. To satisfy this requirement, Crestron also offers the Cresnet IIP, Version B. Version B is the perfect cost efficient system with a special combination of features required in a small installation.

Cresnet IIP is powerful, incorporating every software feature and programming tool provided with its big brother, Cresnet II. The Cresnet IIP control system series supports all Cresnet II software, panels, interfaces and accessories.

The Cresnet IIP includes the most commonly used control functions packaged into a complete, turnkey, single priced control system.

Standard Features Include:

- Master computer with exclusive SIMPL (Symbolic Intensive Master Programming Language) software • 25W power supply, UL listed, CSA and FCC Class B approved • 16 isolated contact closures • 8 solid-state switch outputs • 8 inputs with over-voltage protection • 6 serial outputs for infrared, RS-232 or serial interface • 2-channel professional quality volume control • Communication port for both 1 and 2-way RF and IR

Cresnet IIP Version B Features:

- Master computer with exclusive SIMPL software • 25W power supply, UL listed, CSA and FCC Class B approved • 8 isolated contact closures • 8 solid-state switch outputs • 6 serial outputs for infrared, RS-232 or serial interface • Single-channel professional quality volume control • Communication port for both 1 and 2-way RF and IR

Options (Both Versions):

- 2 bi-directional RS-232 communication ports • Local control front panel, including 50 functions and dual bargraph • 50W VDE approved external power supply for international use and for large system power requirements

Specifications

Power Input:	100-140VAC, 50/60Hz, 30W domestic; 200-240VAC, 50/60Hz, 50W via external CNPSI-50 international
Power Output:	15W power factor supplied to other devices
Approvals:	UL, CSA, FCC Class B
Size and Weight:	3.5" H x 19" W x 9.5" D, approx. 13 lbs.
Serial Output Ports:	6 ports for serial, IR or RS-232 control; 300-19,200 baud
Relay Outputs:	16 isolated closures, 2A, 30VAC/VDC resistive, 1A, 30VAC/VDC inductive, 1mA min.
Inputs:	8 solid-state switch inputs; input threshold less than 0.9VDC or closure to ground max. input 24VDC
Outputs:	8 solid-state switch outputs to ground; 0.1A max. per output, 24VDC max. open circuit voltage



Cresnet IIP

- Volume Control (per channel):** Gain: -70dB to +14dB, BW: 30Hz to 25kHz. Hum and Noise: -60dB. Input Z: 10K or 600 ohms. Output Z: 10 ohms. Inputs and outputs are balanced or unbalanced
- Wireless Interface:** 1 and 2-way RF or IR communication. Requires CNRF or CNIRR wireless adaptor
- RS-232 (optional):** 2 bi-directional communication ports: 300-38,400 baud with hardware handshaking
- Front Panel (optional):** 50-button with dual bargraph

Software

To complete the control package, Crestron has developed an easy-to-use, intuitive programming language, SIMPL. This is the same software used on larger Cresnet II systems. SIMPL uses graphic symbols which represent control functions. Control scenarios are simply represented by block diagrams drawn using the library of available symbols. The block diagrams are then converted into control programs by user-friendly software. Program entry is as easy as filling in the blanks. Cresnet IIP with SIMPL software incorporates a system of software device drivers used to communicate and control equipment with serial inputs, thus eliminating the need for custom chips and special programming. These drivers are available for virtually every type of equipment used in the A/V industry. The Cresnet IIP also includes a wealth of programming tools and utilities to further simplify system programming startup.

CNP	Complete control system with 6 IR/serial/RS-232 ports, 16 relays, 8 inputs, 8 outputs, 2-channel Pro volume control, wireless interface, power supply and system software	\$2400.00
CNPI	For international use. Same as CNP less power supply. Requires a CNPSI-50	2400.00
CNP-A	Complete control system with 6 IR/serial/RS-232 ports, 8 relays, 24 outputs, 3-channel Pro volume control, wireless interface, power supply and system software.	\$2550.00
CNPI-A	For international use. Same as CNP-A less power supply. Requires a CNPSI-50	2550.00
CNP-B	Complete control system with 6 IR/serial/RS-232 ports, 8 relays, 8 outputs, 1-channel Pro volume control, wireless interface, power supply and system software.	\$1800.00
CNPI-B	For international use. Same as CNP-B less power supply. Requires a CNPSI-50	1800.00

System Options

CNPLCP-50	50-function local control front panel; includes colored cap LEDs, with feedback dual bargraph and custom engraving	\$600.00
CNPCOM-2	2 bi-directional RS-232 ports	450.00

The Command Center Audio-Visual Control and Presentation Management System

• User-friendly control center • Presenter's message screen • Speaker timer system • Teleprompter • Teleconferencing control center • Data retrieval terminal • Time and date indicators • Graphic display • Fully field programmable • Touch-sensitive display screen • 640W x 400H pixels • Choice of models with display colors of: black-on-white or amber-on-black • Choice of super-twist LCD or electroluminescent display

Software Included: • On-board graphic and operating system • Mouse interface (Logitech) via RS-232 port • MS-DOS and Macintosh interface software for upload, download, keyboard, mouse and message transmission • A printer may be connected to the RS-232 port to produce full-size copies of panel configurations stored in the Command Center

The Command Center is a bright, high resolution, touch-sensitive display screen with powerful on-board computers and advanced graphic display software. This compact low power unit can simulate control buttons and switches as well as display text and graphics. When used in combination with Crestron's control products, the Command Center is perfect for both large and small systems.

Control panels are displayed on a high resolution screen with just the control functions and speaker support elements needed for a particular presentation. Panels may be as simple or as complex as an application requires.

A unique directory concept allows simple access to any panel. A panel button may be assigned to select any other panel in the non-volatile memory. Thus, related panels may be accessed from the active panel. This same button can also activate control functions while changing to the new displayed panel. Support elements such as clock, speaker timer, teleprompter, computer accessed message and data window may be conveniently integrated into any panel.

Advanced graphic software provides fast, smooth display changes with an almost infinite variety of graphic shapes and sizes, including four upper and lower case type sizes. The combination of graphics and text gives the freedom to design user-friendly self-instructing panels.

Control buttons may be simply created by drawing them on the screen with your finger. Standard button shapes are square, rectangle, circle, ellipse, radius and obround shapes. Size aspect ratios and line thickness may be changed by a simple touch. Panel design is simplified by a grid and snap-to-grid feature. This feature allows buttons to be moved into exact alignment with each other, thus locking button locations to a grid which is displayed on the screen during the panel design process.

Borders defining button groups may be created with the same ease and variety as creating buttons. Four text sizes are available to label buttons and borders. Special characters may be used to give your panel that professional look. A system of pull-down menus and menu panels provides instant access to all editing and panel design functions.

Predefined graphic elements are inserted into a panel design by a single touch. These include clocks, speaker timers, bar graphs and random access keypads. Complete displays, as well as complex graphics, icons and corporate logos, can be created on an AUTOCAD system and loaded directly into the Command Center. Once displayed on the Command Center, the AUTOCAD graphics can be easily configured to perform any desired function in the remote control system. Non-volatile memory permits storage of 96 panel configurations while allowing control of up to 999 discrete functions.

The RS-232 port may also be used to connect a PC and mouse to the Command Center. The mouse can be used to draw graphics, floor plans, teleconferencing layouts, and replace the human finger in programming. The PC's keyboard speeds the process of entering text.

A PC also may be used to transmit messages to the Command Center. The message appears in a window of user-defined size. A simple touch of the message window removes it from the screen. A presenter may also recall computer files and display them using the same window technique. Optional teleprompter software is available so that an interactive, full feature speaker teleprompter may be implemented.



CTP-2000DST

An input/output port allows up to 64 pushbutton switches with incandescent or LED feedback indicators to be connected directly to the Command Center. The switches may operate any function in the system and interact with the Command Center display. Relays may also be driven from this port to provide control of local functions, such as lectern height control or microphone mute.

In systems with multiple Command Centers, the tracking feature updates each display should a change be initiated on any panel. Tracking may be selectively inhibited on any panel, permitting selection of a different display without affecting the other panels.

CTP-1000DST2	LCD double super-twist cold cathode fluorescent backlight. 5.2"H x 8.3"W screen, high brightness, black-on-white graphics. Suitable for very high ambient lighting. Mid-sized viewing area	\$3863.00
CTP-1000EL2	Electroluminescent display. 4.7"H x 7.6"W screen, widest viewing angle, high contrast amber-on-black graphics.	4200.00
CTP-1000ELB	Same as CTP-1000EL2 plus 16 independent pushbuttons with LED feedback indicators	4350.00
RMK-1000	Rackmount kit. Requires 10.5" rack space. For use with CTP-1000DST2	293.00
RMK-1000EL	Rackmount kit. Requires 10.5" rack space. For use with CTP-1000EL2	293.00
TSK-1000	Table stand kit. 2 smoke-gray acrylic side panels for use with CTP-1000DST2	83.00
TSK-1000EL	Table stand kit. For use with CTP-1000EL2; 2 smoke-gray acrylic side panels	83.00
TPS-1000	Teleprompter software. For MS-DOS PC	825.00
DBS-1000	Data base access software. For MS-DOS PC	1380.00
LTM-1000	Logitech mouse.	128.00

CTP-2000DST Wireless Command Centers

• 1-way or 2-way (feedback) wireless operation • Incorporates CTP-1000DST2 LCD touch panel • Backlit • Architectural grade solid oak enclosure • Rechargeable NiCad battery system • Automatic turn-off circuit extends battery operating time • Low battery indicator • Built-in charging circuitry • Battery charging and ready indicators

The CTP-2000DST combines the CTP-1000DST2 with exclusive 2-way wireless transceiver technology in a portable oak enclosure. The console controls up to 126 functions with feedback indication. The unit provides all the innovative features of the CTP-1000DST2 panel (except tracking lockout and bar graphs). The CTP-2000DST may also be used in 1-way wireless systems for control of up to 126 functions without feedback.

The CTP-2000DST is powered by a rechargeable high current density NiCad battery pack housed within the console.

As an added convenience, a low battery indicator is provided to alert the user that there is approximately a one hour charge remaining on the batteries. Full charging takes a maximum of 15 hours. A time-out feature has been included which automatically turns off the console if the panel has not been activated for 15 minutes.

CTP-2000DST For black on white graphics. Suitable for very high ambient lighting, mid-sized viewing area . . \$5700.00

CRESTRON

TRANSMITTERS/PANELS

A Comprehensive Line of Off-the-Shelf Wireless Transmitters and Wired Panels for Use With Crestron Control Systems

There is a wide variety of button configurations to suit virtually every control requirement—from a simple handheld 1-button wireless transmitter to a sophisticated wired or wireless panel with feedback. And any wired or wireless panel used in conjunction with an Executive or Cresnet system includes a custom engraved panel. An easy-to-use design kit provides a wide variety of design choices. Now you can select console enclosure finish as well as panel and button colors.

Wireless Transmitters

- 250' range from received unit • Multiple control locations
- Simple screwdriver adjustments of carrier frequency, no test equipment necessary • Dip switch for digital identity code selection • Power consumed only during button depression
- Long-life 9V alkaline battery included • LED indicates battery strength • Consoles may be freestanding or mounted in a lectern

2-Way Wireless Transmitters

These transmitters are used solely with Cresnet systems. True feedback is provided via an LED located on each pushbutton. As a function is activated on any panel or equipment control module, the LED illuminates on all wireless panels to indicate equipment status. A battery-saving feature allows the LEDs to automatically extinguish after 30 seconds and illuminate again when any function is activated or if the Status button is depressed.

1- and 2-way console transmitters are available with 16 to 48 functions. Convenient handheld transmitters utilize 1-way transmission. The compact, lightweight units are available with 1 to 16 functions and may be used in conjunction with the larger transmitters.

Regardless of the size of the transmitter, the primary feature that links all units is their dependable operation. Crestron employs a unique combination of frequency tuning and digital coding which allows numerous systems to operate in close proximity without interference. The ultra high frequency (UHF) radio transmissions permit wireless operation of equipment through walls and rear projection screens.

Wired Panels

The Executive Series II EWP wired panels offer features you want at a price you can afford.

- Simple installation via 4-conductor cable • Panels available with 8 to 48 functions • Control panels may be positioned up to 1000' from the control decoder

Complete customization is also available with the Cresnet Designer Panels. Virtually every aspect of the unit is defined by the end user to provide a panel which would enhance any AV facility.

1-Way Transmitters Handheld (Executive and Cresnet)

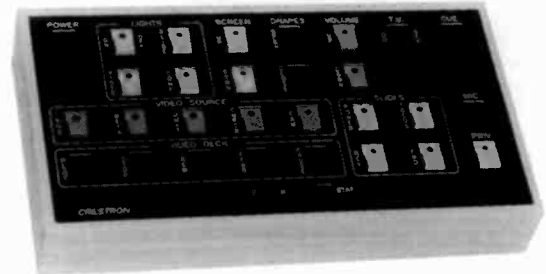
CTS-12	12-function transmitter	.....	\$383.00
CTS-16	16-function transmitter	.....	459.00

1-Way Transmitters Console (Executive and Cresnet)

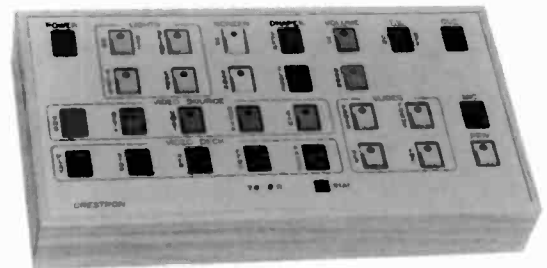
CTW-16	16-function transmitter	.....	\$ 536.00
CTW-24	24-function transmitter	.....	.612.00
CTW-32	32-function transmitter	.....	.689.00
CTW-40	40-function transmitter	.....	.765.00
CTW-48	48-function transmitter	.....	1193.00

2-Way Wireless Transmitters (Cresnet Only)

CTF-16	16-function transmitter	\$842.00
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CTF-32 Panels



Custom panel finishes and button cap colors are available

CTF-24	24-function transmitter	\$ 995.00
CTF-32	32-function transmitter	.....	.1148.00
CTF-40	40-function transmitter	.....	.1301.00
CTF-48	48-function transmitter	.....	.1454.00

Mini Transmitters (Executive and Cresnet)

CTM-4	4-function transmitter	.....	\$230.00
CTM-6	6-function transmitter	.....	.260.00
CTM-8	8-function transmitter	.....	.275.00

Wired Panels (Executive and Cresnet)

EWP-8	8-function wired panel	.....	\$ 842.00
EWP-16	16-function wired panel	.....	.842.00
EWP-24	24-function wired panel	.....	.995.00
EWP-32	32-function wired panel	.....	.1148.00
EWP-40	40-function wired panel	.....	.1301.00
EWP-48	48-function wired panel	.....	.1454.00

Custom Wired Panels (Cresnet Only)

CDP-10	10-function designer panel	.....	\$1320.00
CDP-15	15-function designer panel	.....	.1492.00
CDP-25	25-function designer panel	.....	.1837.00
CDP-30	30-function designer panel	.....	.2010.00
CDP-35	35-function designer panel	.....	.2225.00
CDP-40	40-function designer panel	.....	.2441.00
CDP-45	45-function designer panel	.....	.2743.00
CDP-50	50-function designer panel	.....	.3045.00
CDP-55	55-function designer panel	.....	.3347.00
CDP-60	60-function designer panel	.....	.3648.00

Touch Panels (Executive or Cresnet)

CTP-2000	High performance, white-on-blue graphics. Largest viewing area.	.....	\$5438.00
CTP-2000DST	For black on white graphics. Suitable for very high ambient lighting, mid-sized viewing area	.....	.5700.00

TELEVISION FORMAT SCREENS



TELEVISION FORMAT PROJECTION SCREENS

Various models available with Glass Beaded or nongloss Matte White surface, both flame retardant and mildew resistant.

TRIPOD MODEL SCREENS

Picture King Television Format

• Extra heavy-duty tripod • Spring roller in embossed metal case • Camlok metal roller system • Automatic fabric lock • Automatic leg lock • Extra heavy extruded gable type constructed aluminum legs • Full range height adjustment • Plunger locks for positive stops • Built-in keystone eliminator

Size H x W	Nominal Diag. Size	Glass Beaded	Matte White	Price
64" x 84"	100"	11-3125-040	11-3125-330	\$329.00
72" x 96"	10'	11-3145-040	11-3145-330	359.00

MANUAL WALL/CEILING SCREENS

Model B™ Television Format

• Large, ruggedly constructed screen • No rub, flat back case • Grooved metal rollers on larger sizes • May be hung from wall, ceiling or map rail hooks

Model C™ Television Format

• Floor stand to fit all sizes, optional at extra cost • Slat saddle distributes pull on heavy fabric for easier operation and longer life • Pull cord furnished • Case ball bearing mounted roller ends have sturdy metal supports concealed by heavy-duty end caps designed with built-in brackets for easy installation on wall or ceiling

Size H x W	Nominal Diag. Size	Glass Beaded	Matte White	Price
Model B				
64" x 84"	100"	11-7125-040	11-7125-330	\$193.00
72" x 96"	10'	11-7145-040	11-7145-330	234.00
Model C				
64" x 84"	100"	11-9125-040	11-9125-330	\$317.00
72" x 96"	10'	11-9145-040	11-9145-330	332.00

Perm-Wall Television Format

• Custom screens • Wall mounting • No legs • No case • Permanent installation

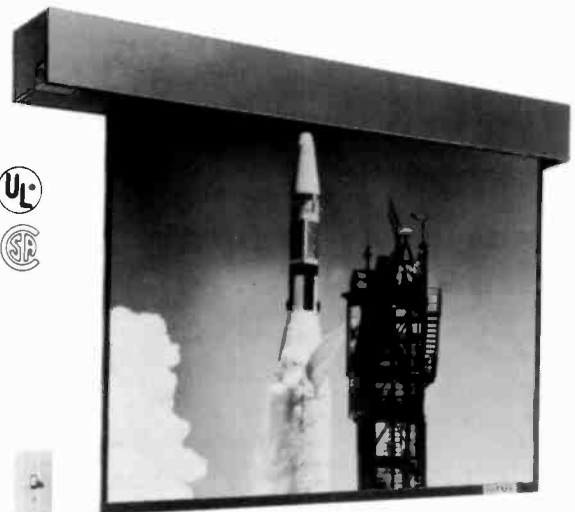
Size H x W	Nominal Diag. Size	Surface	Da-Lite Number	Price
45" x 60"	6'	Da-Mat	12-2885-030	\$302.00
45" x 60"	6'	Da-Tex	12-2885-090	316.00
45" x 60"	6'	Pearlescent	12-2885-190	264.00
45" x 60"	6'	Super Wonder-Lite	12-2885-140	254.00
63" x 84"	100"	Da-Mat	12-2925-030	373.00
63" x 84"	100"	Da-Tex	12-2925-090	484.00
63" x 84"	100"	Pearlescent	12-2925-190	426.00
63" x 84"	100"	Super Wonder-Lite	12-2925-140	390.00
72" x 96"	10'	Da-Mat	12-2975-030	441.00
72" x 96"	10'	Da-Tex	12-2975-090	569.00
72" x 96"	10'	Pearlescent	12-2975-190	518.00
72" x 96"	10'	Super Wonder-Lite	12-2975-140	488.00

PORTABLE SCREENS

Fast-Fold Television Format

• Freestanding portable frame • Snap-button surface snaps onto frame • Frame and legs 1" square hard alloy structural aluminum tubing etched and anodized • Frame height adjustable on legs in 6" increments • Folding frame can be tilted for keystone

Size H x W	Nominal Diag. Size	Surface	Da-Lite Number	Price
63" x 84"	100"	Da-Mat	12-2091-030	\$469.00
63" x 84"	100"	Da-Tex	12-2091-090	642.00
63" x 84"	100"	Pearlescent	12-2091-190	584.00



Senior Electrol

ELECTRIC WALL/CEILING SCREENS

Cosmopolitan Electrol® Television Format

• Whisper-quiet screen with fingertip operation • Picture surface centered • Custom crafted for visual presentations • Walnut grain vinyl covered steel case

Boardroom Electrol® Television Format

• Picture surface centered • Sturdy wood case • Comes assembled ready for in-ceiling installation

Senior Electrol® Television Format

• Automatic electric operation • Heavy-duty motor driven • Complete with 3-position control switch and metal hangers for either wall or ceiling installation • Strong wood case

Slimline Electrol® Television Format

• Low profile decorator • 2 3/4" diameter octagon screen case hangs unobtrusively in any room • Perfect for boardrooms, home entertainment areas, meeting rooms or other "design" sensitive areas • Electric brake prevents coasting, adjustable limit switches offer format versatility • Choice of matte or glass beaded surface with black masking borders standard • Pre-wired with in-line cord switch, no electrician needed for installation • Accessory low voltage control systems, including wireless remote, optional • Black case finish with chrome end caps

Size H x W	Nominal Diag. Size	Surface	Da-Lite Number	Price
Cosmopolitan Electrol				
64" x 84"	100"	12-8125-040	12-8125-330	\$745.00
72" x 96"	10'	12-8145-040	12-8145-330	765.00
Boardroom Electrol				
64" x 84"	100"	12-7125-040	12-7125-330	\$1497.00
72" x 96"	10'	12-7145-040	12-7145-330	1512.00
Senior Electrol				
64" x 84"	100"	12-5125-040	12-5125-330	\$1236.00
72" x 96"	10'	12-5145-040	12-5145-330	1246.00
Slimline Electrol				
52" x 70"	80"	12-4105-040	12-4105-330	\$629.00
64" x 84"	100"	12-4125-040	12-4125-330	660.00



REAR PROJECTION SCREENS

POLACOAT® REAR PROJECTION SCREENS

• In-wall screens for professional presentations • Choice of glass or acrylic substrates in wide selection of thicknesses and sizes • Choose glass for longest service life and sound isolation • Select acrylic for breakage-resistance and installation ease

Aluminum Frames

• Bronze or satin finish anodized aluminum frames greatly simplify screen installation and provide a finished look • Shipped complete—no assembly required • Eliminates need for glaziers—may be carpenter-installed • Available in 2 sizes—1³/₄" x 3" or 1" x 1³/₄". Screens over 6' x 10' must be mounted in the 1³/₄" x 3" frame

Optical Coatings for Every Application

• Da-3N—The best balance between brightness and viewing angle for general purpose projection. Yields excellent contrast and color fidelity • Da-1N—Special multi-image coating offers wide-angle viewing with short focal length lenses. Provides excellent contrast, brightness and light distribution • Da-WA—For wide-angle viewing under reduced ambient lighting conditions • Da-5N—High gain coating specifically designed for low lumen output video projection. Increased brightness, but with a narrower viewing angle • Protek—Optional protective coating applied over optical coating lessens accidental damage due to scuffing and abrasion



UNFRAMED SCREEN PANELS

Da-Glas™

Custom Sizes up to and Including	Coating	Price Per Square Foot		
		1/4"	3/8"	1/2"
16 sq. ft.	DA-3N, DA-5N	\$35.00	—	—
6' x 10'	DA-3N, DA-5N	31.00	\$45.00	\$64.00
7' x 10'	DA-3N, DA-5N	34.00	46.00	69.00
6' x 12'	DA-3N, DA-5N	34.00	50.00	71.00
* 8' x 12'	DA-3N, DA-5N	—	50.00	71.00
* 8' x 18'	DA-3N, DA-5N	—	50.00	71.00
* 10' x 18'	DA-3N, DA-5N	—	50.00	71.00
* 10' x 20'	DA-3N, DA-5N	—	—	80.00
16 sq. ft.	DA-1N, DA-WA	\$38.00	—	—
6' x 10'	DA-1N, DA-WA	35.00	\$49.00	\$70.00
7' x 10'	DA-1N, DA-WA	37.00	49.00	76.00
6' x 12'	DA-1N, DA-WA	37.00	57.00	78.00
* 8' x 12'	DA-1N, DA-WA	—	57.00	78.00
* 8' x 18'	DA-1N, DA-WA	—	57.00	80.00
* 10' x 18'	DA-1N, DA-WA	—	57.00	80.00
* 10' x 20'	DA-1N, DA-WA	—	—	80.00

* Special Freight Handling Required

Da-Plex

Custom Sizes up to and Including	Coating	List Price Per Square Foot		
		1/4"	3/8"	1/2"
16 sq. ft.	DA-3N, DA-5N	\$42.00	—	—
6' x 8'	DA-3N, DA-5N	40.00	\$50.00	\$66.00
6' x 10'	DA-3N, DA-5N	42.00	53.00	67.00
7' x 8'	DA-3N, DA-5N	—	56.00	68.00
* 8' x 8'	DA-3N, DA-5N	—	57.00	69.00
* 7' x 10'	DA-3N, DA-5N	—	57.00	69.00
16 sq. ft.	DA-1N, DA-WA	\$46.00	—	—
6' x 8'	DA-1N, DA-WA	43.00	\$56.00	\$72.00
6' x 10'	DA-1N, DA-WA	46.00	58.00	73.00
7' x 8'	DA-1N, DA-WA	—	61.00	74.00
* 8' x 8'	DA-1N, DA-WA	—	61.00	76.00
7' x 10'	DA-1N, DA-WA	—	61.00	76.00

* Special Freight Handling Required

NOTE: 1/8" Da-Glas and Da-Plex available for special applications; Call for details.

To Calculate Custom Prices Raise any uneven (1, 3, 5, 7, 9) and fractional dimension to next highest full even (2, 4, 6, 8, 0) inch to calculate total area.

Protek Coating Add 10% to basic screen (without frame). Minimum order \$50.00.

Available With Factory Installed Frames for In-Wall Placement

Frame Price Per Linear Foot (Add to Screen Price)

Frame Type	Substrate Thickness	Maximum Size	Approx. Net Weight Per Linear Foot	Silver Satin Finish	Bronze Aluminum Finish
Deluxe	1/4", 3/8", 1/2"	10' x 20'	1 lb. 13 oz.	\$38.00	\$42.00
Standard	1/4", 3/8"	See Note	1 lb.	27.00	31.00

When measuring screen for a frame—calculate perimeter of screen and raise to next full foot.
Note: Da-Plex up to 7' x 10'; Da-Glas up to 6' x 10'

Factory Framed Sizes

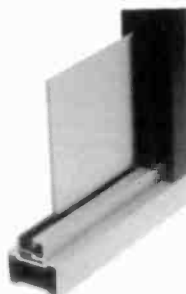
Use the following chart to determine overall frame size.

Model	Deduct from Screen Panel Size for Viewing Area	Add to Screen Panel Size for Overall Frame Size
Deluxe	1"	4 1/2"
Standard	1"	3"

Note: Tolerance on frame size is ± 1/4" (6.4mm)

Unframed Screen Weights

Thickness	Da-Glas		Da-Plex	
	Approx. Net Wt. Per Sq. Ft.	Approx. Ship. Wt. Per Sq. Ft.	Approx. Net Wt. Per Sq. Ft.	Approx. Ship. Wt. Per Sq. Ft.
1/4"	3 1/2 lbs.	9 lbs.	1 1/2 lbs.	4 lbs.
3/8"	5 1/4 lbs.	12 lbs.	2 1/4 lbs.	6 lbs.
1/2"	7 lbs.	15 lbs.	3 lbs.	8 lbs.



Frames simplify installation and provide a finished look.

Frames ship as an assembly for easy carpenter installation, thus avoiding costly on-site glazing.

Height to Width Ratio Limitations
For safety reasons, Da-Glas and Da-Plex screens are limited to the following Height to Width Ratios:

Thickness	Height to Width Ratios
1/4"	1:2 max.
3/8"	1:3 max.
1/2"	1:4 max.

Da-Lite Lenskleen Cleaner

Description	Da-Lite Number	Price
8 oz., Plastic Plunger Bottle	26-0005-000	\$12.00
1/2 gal., Plastic Bottle	26-0006-000	42.00
1 gal., Plastic Bottle	26-0007-000	64.00

Da-Lite In-Wall Repair Kit

2 Cleaning Cloths, 1 Tracing Paper, 1 Razor Blade, 1 Art Gum Eraser, 1 8-oz. Bottle of Lenskleen, 1 1/2" x 4 1/2" Decal Strip and Instructions. Specify type of optical coating to be repaired.

Da-Lite Number	Price
25-0000-000	\$27.00

VIDEOWALLS

delcom

SAM Videowall System

Image Storing

Storage capacity for up to 6 images per module (can be held and recalled later); animate images at any time (no waiting time); recall, creatively combine, erase and overwrite images in any desired sequence, and exchange visual data from 1 memory (module) with other memories.

Picture Size/Format Variation

Starting with the "standard" picture size—1 full image per module—you can: • Scale up or down to different image formats from 1/16 screen to 64 screen (8 x 8) • Present different motifs on each image area—for example, 16, 9 or 4 different images on 1 screen module or 16 different images on a giant 8 x 8 module screen • Combine and mix different picture sizes, motifs and image segments (partial pictures) on the same screen area, regardless of size

For example, a large-screen, 64 module wall SAM offers: • 64 sources • 512-image storage capacity (8 per module) • Scale-down: 1/16, 1/9, 1/4 image sizes 16, 9 or 4 images per module • Scale-up: almost any desired configuration, e.g., 1 x 1, 1 x 2, 1 x 3, 2 x 2, 3 x 2, 3 x 3, 4 x 3, 4 x 4, 5 x 4, 5 x 5, 6 x 5, 6 x 6, 7 x 6, 7 x 7, 8 x 7, 8 x 8

Post Production Effects

RGB color generation, mirror effects, image compression, stretching, colorizations and other post production effects are all possible with SAM.

SAM Systems

	Frame Store Cards Used	Includes Monitors	Without Monitors
2 x 2	4	\$ 22,300.00	\$ 17,100.00
3 x 3	9	40,600.00	28,900.00
4 x 4	16	66,300.00	45,500.00
5 x 5	25	102,400.00	69,900.00
6 x 6	36	142,700.00	95,900.00
8 x 8	64	254,800.00	171,600.00
10 x 10	100	389,900.00	259,900.00

SAM-Pro Software

SAM-Pro is a powerful software specially designed for controlling and programming SAM Videowall. It is user-friendly and easy to learn while at the same time allowing the production of all the impressive effects possible with SAM.

SAM-Pro software can be used with any IBM AT or compatible computer. If used without the SAM Control Card, the computer must have at least 1 serial port. The SAM Control Card is required if you wish to use a SMPTE timecode for programming or controlling a VCR.

SAM-Pro functions on an immediate execution command basis (I/O-system), i.e., every command from the software is immediately interpreted and executed by the SAM cards. The 2 primary types of commands for SAM-Pro are direct and single chip commands. A direct command consists of a single byte and causes a single, direct action or effect. A single chip command affects SAM in a more complex way and can cause multiple effects and actions. Used together, these 2 types of commands give SAM-Pro very broad video design capabilities. \$1,500.00

SAM Single Unit

Single board play version including: power supply, converter, remote control with special effects. \$1,950.00



Universal Videowall System (Effect Software Included)

• Magnifications from 1 x 1-6 x 6 and 8 x 8 (any X-Y combination, e.g., 3 x 2) • Combination of max. 100 racks for an 1800 monitor wall • Single monitor freeze capability • Color generator for 16 million colors • Colorize mode allows mixed real video with color display • 4 software controlled RGB inputs on board • 2 parallel RGB outputs per monitor card • RS-232 control with on-board micro command controller • Internal SMPTE/EBU timecode reader • Internal U-Matic control interface • Universal 1 software emulator • 10MHz digitizing rate—video bandwidth: 5MHz • 3*8-bit color resolution (8-bit red, 8-bit green, 8-bit blue) • RGB standard inputs 0.7V p-p, composite sync 1.0V p-p • Pixel resolution: 1 x 1=256 x 256/2 x 2-6 x 6=512 x 512 • Power supply: 85-240VAC/50-60Hz • Power dissipation: 35VA

	Frame Store Cards Used	Includes Monitors	Without Monitors
2 x 2	4	\$18,400.00	\$13,200.00
3 x 3	9	26,600.00	14,900.00
4 x 4	16	40,700.00	19,900.00
5 x 5	25	61,000.00	28,500.00
6 x 6	36	83,700.00	36,900.00

GPS Pro Software

GPS Pro is a control software for Universal. Running on an IBM AT computer, this software gives you the programming power for maximum performance.

GPS Pro offers not only a special command set for controlling a videowall, but also implements the major structure functions of a modern programming language. For example, there is no longer the need for a higher language to implement interactive videowall programs. Conditioned program execution is possible, as well as defining global and local variables, loop/end loop constructions and mathematic functions.

In addition GPS Pro supports up to 4 of the Controller Cards in your IBM computer, which offers many possibilities to control external devices with a maximum of 28 special RS-232 ports. Also the IBM internal COM-ports 1-4 are supported to control peripherals over the RS-232. In combination with the Controller Card, GPS Pro also synchronizes and controls program flow with standard SMPTE/EBU studio time code.

The built-in editor has all the features of a modern program implementation such as full block command support, as well as pull down menus for easy handling. For the advanced programmer there are CTRL hotkeys for quick editing and On-Line Help immediately gives you an entire page of information about any command which might be giving you trouble. Simply place the cursor on the command and press F5. Line capacity is only restricted by the free memory in your computer.

A special feature is the EOC (Execute-On-Edit) mode. All commands are executed immediately after the Return key. You always have the instant control of the given commands and the wall status. The commands themselves are recognized after just 3 significant letters, so instead of wasting time typing long statements, you can concentrate on the creative part of your programming sessions.

Running a program is as easy as pressing the function key F1. For automatic program execution, there is a Time-Table (running any program at any preset time automatically) and even command line parameters for unoperated startup on power on. \$1,500.00

WALL/CEILING PROJECTION SCREENS V-Screen — 5-Year Warranty

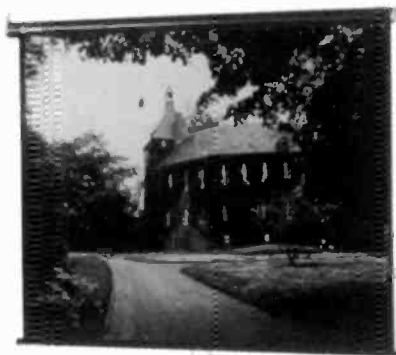


All Draper V-Screens are warranted against defects in materials and/or workmanship for 5 years. Extreme simplicity of design, durable components and tearproof fiberglass matte white viewing surface make the Draper V-Screen the longest lasting classroom wall screen, and at a very reasonable price.

Size H x W	Product Number	Shipping Wt. (Lbs.)	Price
40" x 40"	VS4040M	5	\$ 46.00
50" x 50"	VS5050M	7	49.00
60" x 60"	VS6060M	8	56.00
70" x 70"	VS7070M	9	72.00
84" x 84"	VS8484M	15	159.00
96" x 96"	VS9696M	19	224.00

Star — Classroom Wall Screen

Durable construction and attractive design—at an economy price. Cylindrical steel case and tearproof fiberglass matte white are standard. Heavy gauge endcaps form universal mounting brackets.



Size H x W	Product Number	Shipping Wt. (Lbs.)	Price
50" x 50"	ST5050M	9	\$ 54.00
60" x 60"	ST6060M	10	67.00
70" x 70"	ST7070M	12	81.00
84" x 84"	ST8484M	20	181.00

Luma — Finest Wall/Ceiling Screen

Highest quality projection screen for wall or ceiling mounting. Combines contemporary appearance and dependable performance. Attractive walnut and chrome styling. Choice of fiberglass matte white (-M) or glass beaded (-G) viewing surface.



Size H x W	Product Number	Shipping Wt. (Lbs.)	Price
50" x 50"	LM5050M/G	11	\$ 81.00
60" x 60"	LM6060M/G	15	96.00
70" x 70"	LM7070M/G	17	120.00
84" x 84"	LM8484M/G	22	191.00
72" x 96"	LM7296M/G	24	204.00
96" x 96"	LM9696M/G	27	256.00

Video — Also available in video format

Luma 2 — For Large Audiences

Superior quality spring roller screen for large audiences. Designed for wall or ceiling mounting. Walnut woodgrain and chrome styling. Choice of fiberglass matte white (-M) or glass beaded (-G) viewing surface.



Size H x W	Product Number	Shipping Wt. (Lbs.)	Price
6' x 8'	L27296M/G	39	\$325.00
8' x 8'	L29696M/G	41	350.00
7' x 9'	L279M/G	45	362.00
9' x 9'	L299M/G	48	382.00
4' x 10'	L2410M/G	47	394.00
8' x 10'	L2810M/G	50	422.00
10' x 10'	L21010M/G	56	478.00
5' x 12'	L2512M/G	65	548.00
9' x 12'	L2912M/G	75	562.00
12' x 12'	L21212M/G	85	614.00

Video — Also available in video format

Mounting Fixtures for Wall/Ceiling Screens

T-Bar Twist Clips — Mount screens directly to T-irons supporting suspended ceilings — without tools. For Star and Luma through 70" x 70" and all V-Screens.

TBTC	pr./\$8.20
Keystone Eliminator Brackets 16" -25" adjustable brackets	pr./\$25.20
Non-adjustable wall brackets, 6" extension	pr./11.00
Non-adjustable wall brackets, 12" extension	pr./19.70

VIDEO/GRAPHICS PROJECTION SYSTEMS

ELECTROHOME
Projection Systems

ECP® 3100 Data/Graphics Projector

The ECP 3100 is a microprocessor-based 3-lens data/graphics and video projection system that scans 15-55kHz. Simple to set up and operate, the ECP 3100 has on-screen menus and is controlled by an infrared remote keypad.

Scan Frequency:	15-55kHz (horizontal) autolock 45-120Hz (vertical) autolock
Retrace:	3.6ms
Light Output:	650 lumens
Resolution:	1280 x 1024
Bandwidth:	60MHz
Inputs:	RGB, TTL, NTSC 3.58, NTSC 4.43, PAL, SECAM
Screen Size:	5'-25' diameter
Size:	17.25" H x 24" W x 25" D
Weight:	99 lbs.
ECP 3100	..... \$12,995.00



ECP 3100/4100

ECP 3101 Acon® Data/Graphics Projector

Same as ECP 3100 except weighs 114 lbs. and features Acon automatic convergence feature. Acon auto-convergence is a hardware/software system that automatically aligns the projected color image from an Electrohome 3-lens data/graphics projector when initiated by the user through a command from the projector's keyboard or remote. This function is performed by the Acon system in less than 3 minutes over 45 zones on the screen. Before Acon, this wasn't even a remote possibility.

ECP 3101 \$15,995.00
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ECP 3101/4101

ECP 4100 Data/Graphics Projector

The ECP 4100 is a microprocessor-based 3-lens data/graphics and video projection system that scans 15-80kHz. Simple to set up and operate, the ECP 4100 has on-screen menus and is controlled by an infrared remote keypad.

Scan Frequency:	15-80kHz (horizontal) autolock 45-120Hz (vertical) autolock
Retrace:	2.5ms
Light Output:	650 lumens
Resolution:	1280 x 1024
Bandwidth:	70MHz
Inputs:	RGB, TTL, NTSC 3.58, NTSC 4.43, PAL, SECAM
Screen Size:	5'-25' diameter
Size:	17.25" H x 24" W x 25" D
Weight:	99 lbs.
ECP 4100	..... \$19,995.00



ECP 4101 Acon Data/Graphics Projector

Same as ECP 4100 except weighs 114 lbs. and features Acon automatic convergence feature.

ECP 4101 \$22,995.00
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Data/Graphics Projector Accessories

Mobile cart \$ 499.00
Ceiling mount 355.00
IR video/data switcher	..... 1,595.00
Quad standard decoder NTSC/PAL/SECAM	..... 595.00
Interface modules	..... 255.00-295.00

ECP Retro Portable Rear Screen Projection Enclosure

The ECP Retro is a portable rear screen projection enclosure for Electrohome Data/Graphics Projection Systems. Provides a self-contained, stand-alone 67" diagonal rear screen enclosure for sharp, bright images in full ambient light environments.

Size:	78" H x 58.2" W x 32" D (Pullout adds 18" to depth)
Color:	Gray tubular steel frame with gray corded polypropylene covered panels
Weight:	355 lb./420 lb. shipping weight
Screen:	67" diagonal high resolution fresnel/lenticular screen
ECP Retro	..... \$7,500.00

ELMO

OVERHEAD PROJECTORS/ PRESENTATION STAND

Overhead Projectors (Non Glare)

Common features found in all of our overhead projectors include a large 10" x 10" stage for projecting 650W of direct halogen lamp illumination. The color tone control is universally interlocked with the focusing knob for excellent color rendition. All cooling systems utilize a built-in fan motor to provide high volume forced-air cooling. For projector and personal safety, an incorporated safety switch automatically disengages the electrical circuit when the stage is opened. A thermal switch prevents overheating. All units project both sheet and/or roll transparencies.

Classroom Overhead Projectors

- 4302 HP-L14 Budget Classroom 14" lens, 10" x 10" aperture, solid metal body, ENX lamp, dust-free sealed compact head, rack and pinion focusing \$249.00
- 4320 HP-L355, 14" lens, 16.5 lbs 299.00
- 4327 HP-L355 Deluxe with lamp changer and variable brightness control, 14" lens, 17.6 lbs., supplied with 1 ENX lamp 390.00

Portable, Wide Angle Projectors

- 4319 HP-L290 Portable, wide angle 11.4" lens, 16.5 lbs., with reinforced carrying cover \$465.00
- 4324 HP-L290 Deluxe Portable with lamp changer and variable brightness control, wide angle 11.4" lens, 17.6 lbs., supplied with carrying cover and 1 ENX lamp 535.00
- 4318 HP-A290 Portable, multi-voltage, aperture size 11 1/4" x 11 1/4", high/low brightness control, wide angle 11.4" lens, 23 lbs., with reinforced carrying cover 499.00

Briefcase Size, Self-Contained Projectors

- 4345 HP-254S Portable, self-contained projector, aperture 10" x 10", wide angle 11.4" lens, spare lamp storage, supplied with 1 ENX lamp, plastic dust cover, dismounted size 4.9" x 17.7" x 14.1", slim, lightweight 18 lbs. \$395.00
- 4310 HP-285S Portable, similar to HP-254S but has a wide angle 11.4" lens, aperture 11 1/4" x 11 1/4" business size, with quick lamp changer, 2 FLW lamps, reinforced carrying cover, self-retracting cord storage, weight 19.2 lbs. \$508.00
- 4309 HP-285P Portable, features same as HP-285S but with 11"-12.6" 3-element vari-focus lens for higher resolution 671.00
- 4351 Padded soft carrying case for HP-254S/285S/285P 87.50

300 Series Conference Room Type Overhead Projectors

- 11 1/4" x 11 1/4" (A4 format) aperture • High quality metal body
- Whisper-quiet, powerful cooling • Superior resolution optics

- 4701-27 HP-A305 LV Overhead Projector. 24V, 250W EHJ lamp, 265-305mm Vari-focal 3-element lens, Hi-Lo brightness selection, quick lamp changer, multi-voltage (soldering change required) \$699.00
- Labor for voltage conversion per unit 25.00
- 4705 HP-A305 SQ Overhead Projector. 36V, 400W EVD lamp, 265-305mm Vari-focal 4-element lens, non-keystone focusing at 7° angle, Hi-Lo brightness selection, quick lamp changer \$1050.00
- 4702 HP-A380 Zoom Overhead Projector. 36V, 400W EVD lamp, 170-380mm Vari-focal 6-element lens, power-operated 2X zoom stage, 360° swivel head, variable brightness control, automatic lamp changer . . \$1570.00
- 4707 HP-305 Solar Overhead Projector. 250W metal-halide lamp, 265-305mm Vari-focal 3-element lens, 360° swivel head, Hi-Lo brightness selection 1890.00



- 4704 HP-305 Solar Deluxe Overhead Projector. 575W metal-halide lamp, 265-305mm Vari-focal 3-element lens, 360° swivel head, Hi-Lo brightness selection \$2450.00
- 4703 HP-A380 Solar Zoom Overhead Projector. 575W metal-halide lamp, 170-380mm Vari-focal 6-element lens, power-operated 2X zoom stage, 360° swivel head, Hi-Lo brightness selection \$2950.00

Writing Rolls

- 4557 10" for HP-L355/L290/3000/3300/L14/254S . . \$22.00
- 4555 A4 for HP-A290/285S/285P/A305/A380 28.00
- 4367 10" x 65.5' for HP-L355/L290/L14/254S 6.50
- 4556 A4 x 65.5' for HP-A290/285S/285P 15.95
- 4351 Padded soft carrying case for HP-285S/285P/254S 87.50
- 4560 Stage dust cover for HP-L355/L290/A290 12.95
- 4565 Full dust cover for HP-L355/L290/A290 12.95
- 4559 Reinforced carrying cover (replacement) for HP-L290/A290 19.95

EV-308 Visual Presenter

- Can be fed into any size color video monitor, VCR, still video recorder or video printer • Special audio output and input capabilities allow for microphone usage • 8:1 motorized f/1.4-2.1, 8.5-68mm zoom lens • Transmission lightsource built into its stage
- Provides crisp, sharp images of 35mm to 4" x 5" transparencies and will convert negative film into a positive image • Utilizes CCD color camera which allows this to double as a location camera
- Camera head rotates 90° • 46dB S/N • 370 lines horizontal resolution • 300K pixel CCD

Standard equipment includes all cables, dust cover and two close-up lenses. The unit has its own built-in handle for portability. An optional heavy-duty fiberglass reinforced carrying case is also available.

- 8929 EV-308 \$3100.00
- 8898 LU-308 Lighting unit 279.00
- BI-100 Baselight panel 399.00

UNIVERSAL COMPUTER INTERFACES

Extron Electronics
INTERFACING, SWITCHING AND DISTRIBUTION

RGB202 PLUS Universal TTL/Analog/ECL Computer Graphics Interface

Along with an extended line of monitor breakout cables and internal computer wiring kits, the RGB202 PLUS provides versatility and compatibility with any computer system on the market. The horizontal frequency range of the RGB202 PLUS is 15-125kHz, the RGB video bandwidth is 220MHz and it contains switchable dual TTL and analog/ECL inputs. Special enhancement features give the RGB202 PLUS the ability to improve clarity, sharpness, video level, enhance the blue level of TTL signals, do full picture centering and also boost the video output for cable runs of up to 1000'.

- Auto power LED • Variable level control • Variable peaking (sharpness) control • LCD composer scan frequency readout • Boost switch (for long cable runs) • Vertical picture centering • Dual horizontal picture centering controls (1 for the TTL input and 1 for analog/ECL input) • Horizontal frequency indication LEDs (6 ranges) • Variable TTL blue enhancement • Front panel TTL and analog/ECL input switch • Rear panel input switch remote jack • 75 termination switch • Automatic sync stripping from green • Sync on green switch • Serration pulse removal switch • Widen vertical sync pulse switch (150ms to 500ms) • Auto power defeat • Monochrome composite video output • Separate H and V sync output • Color RGB and sync output • 1000' cable run capability • Horizontal frequency range of 15-125kHz • RGB video bandwidth of 220MHz -3dB (sweep tested) • Rise time of 1.6ns (pulse tested) • External control knobs • FCC Class A

RGB202 PLUS Plastic \$1095.00
 RGB202 PLUS Metal 1195.00
 RGB202 PLUS Remote switch 125.00



RGB202 PLUS



UK-2

UK-2 Universal Interface Kit

• Uses Extron's industry standard RGB202 PLUS universal TTL/analog/ECL computer-video interface along with the included MBC (Monitor Breakout Cables) and the ICWKs (Internal Computer Wiring Kit) • Allows immediate compatibility with virtually every interface application, including mainframes, workstations, PCs, laptops and portables • Included cables allow connection to the following computers: IBM PC XT/AT CGA/EGA, IBM PS/2 VGA, Super VGA and Extended VGA, Macintosh II, IIX, ILCX, ILCI, Apple IIGS, Sun Sparc, NeXT, Mac SE and SE/30, Sun Workstations, Apollo Workstations, Silicon Graphics Workstations, IBM MDA Cards and Hercules HGC Cards • Includes a carrying case which is small enough to fit under an airplane seat

UK-2 Kit \$2295.00

Partial Computer Compatibility Listing

Cable Name	Compatible Computers	Hor. kHz	Vert. Hz
MBC PCM	PC, XT, AT/Compatibles Mono Board	18.4	50
MBC PCC	PC, XT, AT/Compatibles Color, EGA/CGA Cards	15.7-22.0	60
MBC 3161/63/91/96 Mono	IBM 3161, 3163, 3191 3196 Mono	27.6	65
MBC IBM 3162	IBM 3162 Mono	25.9	65
MBC IBM 3164	IBM 3164 Color	27.6	65
MBC 3179/92/97	IBM 3179, 3192, 3197 Color	23.0	60
MBC IBM 3192D	IBM 3192D Color		
ICWK IBM 3180	IBM 3180 Mono	20.0	83
MBC IBM 3194	IBM 3194 Color	29.6	73
MBC IBM 3270PC	IBM 3270 PC Color	23.5	63
MBC IBM 3270PCG	IBM 3270PCG Color	24.0	63
ICWK IBM 3278	IBM 3278	16.4	
ICWK IBM 3279	IBM 3279 Color	15.7	92
MBC IBM 3290	IBM 3290 Color	29.6	73
MBC 5291 M-2	IBM 5291 M-2	18.3	50
MBC IBM 6153	IBM RT 6153 Mono	24.8	92
MBC IBM 6154	IBM RT 6154 Color	24.8	92
MBC Apple IIE	Apple IIE/IIc	15.7	60
ICWK Mac RGB	ICWK Mac RGB	22.3	60

Partial Computer Compatibility Listing (cont'd)

Cable Name	Compatible Computers	Hor. kHz	Vert. Hz
ICWK Mac SE RGB	ICWK Mac SE RGB	22.0	60
ICWK AT&T 7300	AT&T 7300 Mono	22.3	60
MBC AT&T 6300	AT&T 6300 Color	26.0	60
MBC B-25	Burroughs 25	19.8	60
MBC NCR PC 6, 8	NCR PC 6, 8 Color	23.6	55
MBC Sigma 400	Sigma 400 Color	31.4	60
MBC Sperry Med.	Sperry Medium Res.	15.7	60
MBC TI PC	Texas Inst. PC Color	19.2	50
MBC TI Business Pro	Texas Inst. Bus. Pro	19.2	60
MBC Wang PC Mono	Wang PC Mono 8-pin DIN	18.4	50
MBC Wang PC Color	Wang PC Color 9-pin "D"	15.7	60
MBC Zenith 150	Zenith 150 Color	15.7	60
MBC Mac II HR	Apple IIGS and Mac II, IIC, ILCX	15.7	66
MBC SuperMac	Mac II w/Super Mac Card	35-48	60
ICWK DEC 340	DEC 340	31.5	60
MBC Amiga 2000	Amiga 500, 1000, 2000	15.7	60
MBC IBM PGA	PC, XT, AT and Compatibles with PGA Card	31.5	60
MBC Wang 4230	Wang 4230	31.5	60
ICWK Tektronix 4205	Tektronix 4205	23.6	60
MBC IBM PS/2	PS/2 VGA 8514A Card	31.5	60/70
MBC VGA HR	VGA or Super VGA	31.5-50	60/70
MBC NeXT HR	NeXT Computers	62	68
*MBC Sun/Apollo	Monochrome 9D Sun/Apollo Workstations	63.8	66
MBC RGB Universal HR	Color Sun and Apollo Workstations or any Workstation with RGB out on BNC connectors	64-125	60
*MBC Wang WIIIS II-16	Wang WIIIS w/16" Monitor	64	60
*MBC Xerox 6085 HR	Xerox 6085 and 1186 Computers	35	76
*MBC Symbolics	Monochrome Symbolics	54	60
MBC Sperry Hi-Res	Sperry 3585 Computer	15.7	60
MBC Vertacom HR	Vertacom Board	31.5	60
MBC Wang 8 DIN HR	Wang 8 DIN Color Card	16.5	60

*When using these cables a Hi-Res ECL Buffer (Part #26-177-01) must be used.

RGB 118/RGB 118 PLUS Universal Interfaces

The RGB 118 and RGB 118 PLUS (with SRI) Universal Interfaces are compatible with any computer video output with a TTL, analog or ECL signal (such as CGA, EGA, VGA, IBM PS/2, Mac II, Super VGA, Sun, NeXT and many more). Providing an RGB video bandwidth range of 150MHz and a horizontal frequency range between 15-100kHz, the RGB 118 and RGB 118 PLUS allow any computer to be connected to a compatible large screen data projector or data monitor. The easy-to-use RGB 118 and RGB 118 PLUS also include a number of features that guarantee complete computer compatibility, including the ability to automatically track any incoming frequency and allow for picture centering, video peaking (sharpness) controls, adjustable gain control, horizontal centering and 3 output configurations (RGB-Sync, RGB-Sync on Green or Mono Composite). The RGB 118 PLUS with SRI has 2 additional features. An LCD scan-rate display automatically detects the horizontal and vertical frequency of any input computer source through the connected cable and displays that frequency in hertz. Also, through the power of SRI, simply holding the RGB 118 PLUS up to the face of the computer's monitor will display the horizontal rate without any attached input cables.

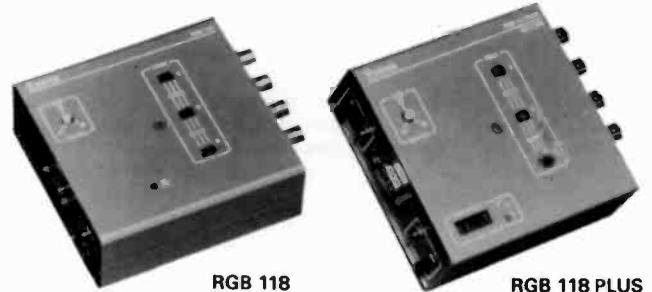
Common Features

- Horizontal centering shifts the displayed image to the right or left of the screen, as desired. A horizontal center on/off switch is provided to override the horizontal center control
- Peaking allows for the sharpness of the displayed image to be enhanced in 2 increments. Peaking of high resolution type signals decreases the "fuzziness" or "streaking" commonly associated with projection of many computer signals
- 3 output configurations standard—RGB-Sync: The RGB 118 and RGB 118 PLUS are factory set for the most common application of analog separated red, green, blue and composite sync outputs. The RGB 118 and RGB 118 PLUS automatically strip sync off the red, green and blue video channels of any incoming signal. RGB-Sync on Green: A switch is provided to allow sync to be added to the green channel of any output signal. Mono Composite Video: A switch is provided to allow for a monochrome composite video signal output utilizing the green channel
- Can automatically strip sync from any incoming computer signal from the red, green and blue video channels
- A TTL blue enhancement control is provided for mixing just the right amount of blue information with the green signal for displaying text in a more readable "aqua" color
- A 12V power output jack is provided to allow for connection of all of Extron's MBC buffers for high resolution computers and workstations
- Standard 9-pin TTL, analog or ECL input connector provided to allow for connection of the RGB 118 and RGB 118 PLUS to all of Extron's existing MBC and ICWK cables, thus not requiring a complete set of new cables

Features of the RGB 118 PLUS Only

- SRI allows for automatic detection of the horizontal and vertical frequency by simply holding the RGB 118 PLUS up to the face of the computer's monitor screen. No connection cables are required. The scan-rate is displayed on the LCD readout in hertz
- An LCD readout is provided to determine the exact horizontal and vertical scan rates from the input computer source. The frequency is displayed in hertz
- Vertical shift

RGB 118 \$495.00
 RGB 118 PLUS 650.00



UK-1 jr Universal Interface Kit

- Uses Extron's simple to use RGB118 PLUS universal TTL/ analog/ECL computer video's interface along with a number of MBC "Monitor Breakout Cables"
- Provides simple compatibility with the most popular PC type applications including: IBM PC XT/AT colors and compatibles, CGA/EGA, IBM PS/2, VGA, Super VGA, extended VGA, Apple IIGS and all Mac II models
- Along with the RGB118 PLUS and the monitor breakout cables, the UK-1 jr comes with a 25' high resolution BNC cable, all packaged in a handy carrying case

UK-1 jr \$1125.00

VS-100 VideoShift Screen Saver

The VS-100 allows the projector or monitor to be utilized at all times because it never totally shuts off the signal. It simply moves the displayed image around in a circle continuously on the screen, thus minimizing the amount of time for burn-in.

The VS-100 has a range adjustment capable of manually setting the amount of shift around the screen, depending on the size of the characters being displayed.

A complete revolution around the screen is factory set for 8 minutes so it is unnoticeable by the audience. It simply "sits" in the background, helping to extend the life of the CRT.

VS-100 \$995.00

VIDEO PROJECTION/ PRESENTATION SYSTEMS

GENERAL  ELECTRIC

Imager[®] LCD10 Portable Liquid Crystal Video Projector

- Portable, under 30 lbs. • Easy to set up and use • Single lens system (no convergence) • Three 3.1" active matrix LCDs • High pixel count available for maximum brightness and resolution—331,350 total pixels • Reverse picture scanning • Front and rear projection • Built-in 3W amplifier and speaker • Image sizes up to 120" • Infrared remote control zoom and focus • 12.7" H x 8.7" W x 24.9" D • f/4.5 lens with 5.51"-10.63" motor drive zoom and focus • 150W metal halide lamp

\$4,995.00



LCD10

Imager 150 Video Projector

- Wireless infrared remote control • On-screen menus • Digital chassis with comb filter • Audio amp with 2 5" speakers • Ceiling mount (optional)

Specifications

- Scan Frequency: 15.750kHz horizontal, 60Hz vertical • Brightness: 600 lumens • Resolution: 425 lines S-Video and 525 lines RGB • Inputs: 1 NTSC video (BNC), 1 S-Video (with optional adaptor), 1 RGB (with optional adaptor), 1 audio (RCA) • Picture Size: 60-120" • Throw Distance: 1.14 x screen width

\$2,890.00



Imager 210 Video/Graphics Projector

- Vary the picture size from 50" to greater than 120" diagonally • Vary the throw distance from about 5' to 18' • Project inputs from any video signal, and switch from 1 to another instantly • Link up with IBM[™] and IBM CGA compatible computers, using the optional RGB interface, for dynamic data and graphics displays of up to 2000 characters • Project on front or rear screens • Use the projector ceiling mounted or free-standing • 650 lumens • 600 TV lines, 1000 lines RGB • f/1.0 hybrid lenses • Quadra-potential focus gun (QPF) • Dual focus lens designed for sharp edge focus

Specifications

- Screen Size: >9' x 12' • Lenses: Double-focus hybrid • Inputs: 1 loopthrough composite video, 1 S-VHS, 1 RGB • Power Supply: 120V, 50/60Hz • Weight: 77 lbs. • Dimensions: 11¹³/₂₂" H x 22¹¹/₁₆" W x 23²⁹/₃₂" D

\$6,495.00



Imager 414

VZ10

Imager 310 Video/Data Projector

- RGB/video switcher (with audio follow switching) • Remote controls: wireless infrared, 1 full function and 1 executive remote, digital convergence (static, dynamic, point), 8 convergence and picture geometry memories • 12' RGBHV and control cables (52' optional) • Ceiling mount (optional)

Specifications

- Scan Frequency: 15.750-36kHz horizontal, 38-100Hz vertical • CRTs: 7" with Norita glass lenses • Brightness: 575 lumens • RGB Bandwidth: 30MHz • Resolution: 800+ lines RGB and 600 lines video • Minimum Retrace: < 4.8 microseconds horizontal, < 600 microseconds vertical • Inputs (via switcher): 2 video (PAL/SECAM/NTSC and 1 S-Video), 3 RGB (19-pin TTL/analog and 2 BNC analog) • Picture Size: 72-120"

\$9,750.00

Imager 414 Video/SuperData Projector

- RGB/video switcher (with audio follow video switching) • Remote controls: backlit wired/wireless infrared, 1 full function and 1 executive remote (12' cable included), digital convergence (static, dynamic, point), 12 convergence and picture geometry memories, center and edge electronic focus, height, width, H-position, V-hold, RGB gains, on-screen menus, quick copy for fast convergence setup • Ceiling mount kit • 52' RGBHV and control cables

Specifications

- Scan Frequency: 15.750-55kHz horizontal, 38-100Hz vertical • CRTs: 7" liquid cooled with HD6 lenses • Brightness: 600 lumens peak white • RGB Bandwidth: 50MHz • Resolution: 1000 lines RGB and 600 lines video • Minimum Retrace: < 4.5 microseconds horizontal, < 450 microseconds vertical • Inputs (via switcher): 2 video (PAL/SECAM/NTSC and 1 S-Video), 3 RGB (19-pin TTL/analog and 2 BNC analog) • Picture Size: 60-300"

\$13,499.00

Imager 414PJ Without switcher. 12,499.00

Imager 610 Video/Graphics Projector

- RGB/video switcher (with audio follow video switching) • Remote controls: backlit wired/wireless infrared, 1 full function and 1 executive remote (12' cable included), digital convergence (static, dynamic and point), 12 convergence and picture geometry memories, center and edge electronic focus, height, width, H-position, V-hold, RGB gains, on-screen menus, quick copy for fast convergence setup • Ceiling mount kit • 52' RGBHV and control cables

Specifications

- Scan Frequency: 15.750-75kHz horizontal, 38-100Hz vertical • CRTs: 9" liquid cooled, and liquid coupled with HD10 lenses • Brightness: 650 lumens peak white • RGB Bandwidth: 70MHz • Resolution: 1200 lines RGB and 600 lines video • Minimum Retrace: < 2.5 microseconds horizontal, < 450 microseconds vertical • Inputs (via switcher): 2 video (PAL/SECAM/NTSC and 1 S-Video), 3 RGB (19-pin TTL/analog and 2 BNC analog) • Picture Size: 100-150"

\$19,999.00

Imager VZ10 Wolf Visualizer Image Magnification System

- Single high-resolution CCD • 380,000 pixels • > 450 lines horizontal resolution • Minimum 3.5" depth of focus • Front surface mirror • Automatic white balance • Auto or manual iris • Easy setup and use • Light remotely zooms in sync with camera • Remote control iris and focus • 24V/150W halogen lamp • Variable incidence angle control • Reflector head rotates 360° • Built-in backup light source • Built-in 35mm slide viewer • 6:1 tele zoom lens eliminates the need for additional lenses • Tabletop or flush installations • 37 lbs., folds down to less than 7" high • Light path and scanning system prevent shadows and reflections

\$9,995.00

VideoShow® Presentation Systems

- Create a presentation with VideoShow and a PC/XT/AT, PS/2®, or Macintosh® II or SE. MacroVision™ technology automatically enhances images
- Show a presentation with VideoShow and a color monitor or video projector
- Focus the attention of your audience on key points with features that highlight text and build charts and graphs as you present, and dynamic special effects such as spirals, fades and wipes
- Move to any picture in your presentation, in any order, at the press of a button
- Push just 2 buttons to turn VideoShow into a self-running presentation system
- As compact as a briefcase
- Wireless remote control
- Disk-based presentation maintains confidentiality and makes last-minute changes easy
- Connects to PhotoMetric® SlideMaker® to make 35mm slides
- Works with PrintMaker® software and a variety of popular printers to create overhead transparencies and hardcopy handouts or reports

VideoShow Professional

- Allows you to create and show presentations that include photographic images, clip art, charts, graphs, drawings and text
- Compatible with most popular software for PC/AT, PS/2, Macintosh II and SE
- 100,000 simultaneous on-screen colors for photographic images, 5000 for computer-generated images
- ImageProcessor™ software compresses data so a whole presentation can fit on a single diskette
- Optional HardDisk stores hundreds of photographic images or thousands of graphic images for multiple presentations without disk-switching, or for large image libraries
- 5 1/4" or 3 1/2" disk
- Integrate photographic images with graphics
- Create slides and transparencies
- Wireless remote

VideoShow Professional Presentation Products

- 4000348 ARC (advanced remote control) for VideoShow. Combines the functions of a teleprompter and random access image database with those of a traditional remote control. \$1795.00
- 4000297 VideoShow Professional 180 (5 1/4") 8995.00
- 4000254 VideoShow Professional 280 (3 1/2") 8995.00
- 4000333 VideoShow Professional 180XP (5 1/4") 7995.00
- 4000335 VideoShow Professional 280XP (3 1/2") 7995.00

Design Station Products

- 4000209 Natural Image Pack #1 (includes ImageProcessor software, high speed ImageLink, Image Capture Board, software and cable) (DOS: 3 1/2" and 5 1/4"). . . . \$4495.00
- 4000202 Natural Image Pack #2 (includes ImageProcessor software and high speed ImageLink). 2195.00
- 4000331 Natural Image Pack for Macintosh (includes NuVista board and ImageProcessor for Mac, which includes StarTime software). 4995.00
- 4000337 ImageProcessor for Mac (includes StarTime) . . . 1995.00
- 4000364 Color video camera model JVC KY-F30CI (includes RGB adaptor and power unit) 6595.00
- 4000195 Camera stand with lights. 595.00
- 4000203 System adaptor 180 kit. 440.00

HardDisk Products

- 4000367 VideoShow HardDisk (includes controller module and cartridge with case) \$1595.00
- 4000368 HardDisk cartridge with case. 695.00
- 4000369 HardDisk controller module (includes cable) . . 950.00
- 4000366 AT-XT SCSI adaptor kit 129.00



VideoShow

VideoShow Executive

- Allows you to create and show presentations that include computer-generated images of all kinds including charts, graphs, clip art, drawings, text, etc.
- Compatible with most popular software for PC/AT, PS/2 and Macintosh II and SE
- 1000 simultaneous on-screen colors
- Wireless remote

- 4000165 VideoShow Executive 160 (5 1/4" disk) \$3995.00
- 4000258 VideoShow Executive 260 (3 1/2" disk) 3995.00

Cables

- 4300125 EIA cable \$40.00
- 4300163 VideoShow RGB output monitor cable 10' 95.00
- 4300164 ImageProcessor 6' output cable. 85.00
- 4300169 MultiSync cable 10' (for VideoShow 160/180/280 to an NEC multisync monitor) 90.00
- 4300177 Apple RGB cable (10') for VideoShow 260 95.00
- 4300178 SCSI to Mac cable (3') 40.00
- 4300179 SCSI to SCSI cable (6') 50.00
- 3000266 SCSI terminator 30.00

Hardware Options

- 4000107 Video enhancer for VideoShow 160 \$250.00
- 4100103 Replacement remote control 150.00
- 4000105 VideoLink. 150.00

Carrying Cases

- 5000139 Hard carrying case for VideoShow 180/280 \$250.00
- 5000104 Hard carrying case for VideoShow 160 150.00
- 5000111 Deluxe soft carrying case for VideoShow 160 290.00
- 5000112 Soft carrying case (std. for VideoShow 160) . . . 100.00
- 5000151 Hard carrying case for VideoShow 260 150.00
- 5000150 Soft carrying case for VideoShow 260 150.00

VIDEO FLOPPY SYSTEM/ COLOR VIDEO PRINTERS

 **HITACHI**
Hitachi Denshi America, Ltd.

VX-52A Video Floppy System

- Records and plays back video floppy disks • Up to 50 still (pseudoframe) images can be stored on a single disk • Both continuous playback and fast forward/reverse search (45 images per second) modes are available • Accepts NTSC input • Can be connected directly to a source of video signals — video camera, video recorder, TV, etc. • Whenever a scene that you want to record appears on the screen of the TV or in the camera's viewfinder, simply pressing a button activates the recording mechanism and a single field is recorded on the floppy disk • Disks can be played back and still pictures seen on the TV or printed by either printer • Fast forward and reverse at 4 pictures per second • Automatic playback at speeds of 0.5, 1.0 and 5.0 seconds per picture • Full function wired remote control is standard • 350 TV lines resolution

VX-52A \$1495.00

VX-100A Video Floppy Disk Drive

- All features of the VX-52A • 25 frame images or 50 field images • S-(Y/C) connectors for high quality dubbing • Wired remote control • Input/output terminals are provided for both NTSC composite video and analog RGB • RS-232C interface allows full computer control • Date and ID superimpose • High-speed serial shot capability for following fast-moving sports action without blurring • Continuous replay mode for presentations • High-speed random access

VX-100A \$2695.00

VX-DB100 Dubbing cable 25.00

VX-SC100 S-(Y/C) output cable 25.00

Accessory for Video Floppy Systems

VX-F50 2" Video Floppy Disk

- The luminance and color are separated and recorded separately for pictures with accurate color • The disks have a capacity of 50 fields and can be rewritten for repeated use

VX-F50 \$99.95

VY-200A Color Video Printer System

- Versatile video printer, suited for a wide range of applications • 128 possible gradations for each of the 3 primary colors (yellow, magenta, cyan) • Over 2 million possible hues are available • Freeze-frame sequences may be reproduced in combinations of 4, 16, 25 and 64 frames per picture • Print area is adjustable • Included are input/output terminals for NTSC composite video, S-Video and analog/TTL RGB signals • Front loading paper and ink • Built-in IC RGB frame memory + 1 frame optional • 480x640 resolution • Print counter quantity preset up to 9 • Mirror mode printing • Color, tint, brightness and contrast adjustment before memory • Wired remote • Multi-scan up to 32kHz

VY-200A \$3995.00



VX-52A



VX-100A



VY-150A

VY-150A Color Video Printer

- High quality hard copy from video sources including NTSC and S-Video signals • Prints in 100 seconds • Freezes any video picture • Date and title superimposition • Once an illustration or title is recorded with a camcorder, it can be transferred to the VY-150A for superimposition in any of 8 colors (reversals are also permitted) • Advanced photo processing circuitry • When using composite video or S-Video input, the color, white balance, contrast and brightness of a still picture can be adjusted prior to printing • Also accepts RGB input (still only) • Can also be output as a composite video or S-Video signal • Front panel controls • 64 gradations for each of 3 primary colors • 3³/₈" x 4³/₈" print area • Picture memory: 1 frame/2 fields • Remote control included

VY-150A \$1995.00

Accessories for Video Printers

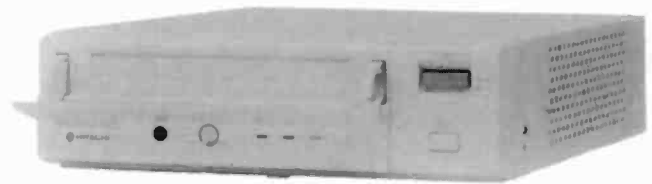
VY-SX100A Paper and ink cartridge \$99.95

VY-T50 Transparency paper and ink cartridge 99.95

CDR-1700/CDR-1750 CD-ROM Drives

• 340ms access time • Slim stand-alone design • Dust-free chassis with dust-proof door • Automatic pickup lens cleaning (ALC) mechanism • Daisychain up to 8 drives • Audio output • 3-way caddy ejection

CDR1700S	Slim line external CD-ROM drive, triple dust protection/audio capability/Hitachi bus. Includes caddy	\$ 815.00
CDR1750S	Slim line external CD-ROM drive, triple dust protection/audio capability/SCSI bus. Includes caddy . . . . .	.965.00
CDR1700SPC	Complete external package for ISA (PC) bus. Includes: CDR1700S, CDIFI4A, CDCBL25C, CDREXT4, caddy . . . . .	.995.00
CDR1700SMC	Complete external package for MCA bus. Includes: CDR1700S, CDIFI5A, CDCBL25C, CDREXT4M, caddy	1095.00
CDR1750SMAC	Complete external package for Mac II. Includes: CDR1750S, CDCBLSC3, CDMACDRV11, caddy	1060.00



CDR-1700S



CDR-3600

CDR-3600/CDR-3650 CD-ROM Drives

• Hitachi bus (CDR-3600)/embedded SCSI type (CDR-3650) • Access time of .45 seconds (1/3 stroke) • Large buffer for high throughput • Automatic pickup lens cleaning (ALC) mechanism • Daisy chain up to 8 drives (CDR-3600) • Horizontal or vertical installation • Linear motor • Compatible with earlier CD-ROM drives • 2-channel audio output with stepless volume control

CDR3600	Internal half height CD-ROM drive, dust protection/audio capability/Hitachi bus. Includes caddy	\$745.00
CDR3600PC	Complete internal half height package for ISA (PC) bus. Includes CDR3600, CDIF35A, CDCBL35A, CDREXT4, caddy . . . . .	.865.00
CDR3650	Internal half height CD-ROM drive, dust protection/audio capability/SCSI bus. Includes caddy . . . . .	.865.00

CD-ROM Interface Cards

CDIFI4A	Interface card for ISA (PC) bus. IBM PC/XT/AT PS/2 25/30 or compatible for up to 4 external CD-ROM drives	\$ 70.00
CDIFI5A	Interface card for MCA bus. IBM PS/2 50/55/60/70/80 or compatible for up to 4 external CD-ROM drives	170.00
CDIFI8A	Interface card for ISA (PC) bus. IBM PC/XT/AT PS/2 25/30 or compatible for up to 8 external and/or internal CD-ROM drives	150.00
CDIF35A	Interface card for ISA (PC) bus. IBM PC/XT/AT or compatible for up to 4 internal CD-ROM drives . . . . .	.70.00
CDSCKITF10	SCSI interface kit for CDR1750S. Includes: future domain SCSI host adaptor (TMC845), 5.25" SCSI device driver and Microsoft CD-ROM extensions disk, special SCSI interface cable	\$ 180.00
CDSCKITF10B	SCSI interface kit for CDR3650. Includes: future domain SCSI host adaptor (TMC845), 5.25" SCSI device driver and Microsoft CD-ROM extensions disk, special SCSI interface cable	\$ 180.00

CD-ROM Cables

CDCBL25C	5' external connecting cable (37-pin) for CDR1700S/CDR1503S/CDR2500S.	\$ 80.00
CDCBL35A	Internal connecting cable (40-pin) for CDR3600/CDR3500USM. . . . .	.20.00
CDCBL35C	Special cable for up to 4 internal drive package 4 x 40-pin plus 1 x 37-pin female chassis-mount . . . . .	.70.00
CDCBL35E	Special cable for up to 8 internal drive package 8 x 40-pin plus 1 x 37-pin female chassis-mount	100.00
CDCBLSC3	3' external SCSI cable for Macintosh (25-pin to 50-pin) . . . . .	.25.00
CDCBLSC6	6' external SCSI cable for Macintosh (25-pin to 50-pin) . . . . .	.35.00
CDCBLS	External SCSI cable (50-pin to 50-pin).	100.00

CD-ROM Accessories

CDBIO5	BIOS software for Hitachi CD-ROM drives	\$ 100.00
CDREXT4	5.25" Microsoft CD-ROM extensions disk, includes Hitachi device drivers for ISA (PC) plus MCA bus . . . . .	.30.00
CDREXT4M	3.5" Microsoft CD-ROM extensions disk. Includes Hitachi device drivers for ISA (PC) plus MCA bus . . . . .	.30.00
CDMACDRV11	Macintosh driver software. . . . .	.70.00
CDSCDRVF10	5.25" SCSI device driver/Microsoft CD-ROM extensions disk for future domain TMC845 and TMC1660 . . . . .	.70.00
CDMUSIC	5.25" audio play software for Hitachi CD-ROM drives . . . . .	.50.00
CDTAPE	Instructional videotape for CD-ROM drive system installation . . . . .	.59.00
CDROMTEST3	Test/demo CD-ROM disc	100.00
CDCTR	Caddy . . . . .	.15.00
100CDCTR	Caddy (100 pieces bulk)	1000.00

COLOR SCANNERS



Personal Color Scanner

- Full-color 50-300 dpi flatbed scanner
- Scans line art, black and white continuous tone and text
- Capable of scanning 8" x 14" color originals
- Supported by Scan-It software
- Images can be cropped, modified, enhanced and saved in a variety of formats
- 8-bit A/D conversion, 6-bit accuracy
- 256 levels per color
- 3 fluorescent lamps (RGB)
- Bi-directional parallel interface
- 140-second full area color scan
- 20-second full area black and white scan

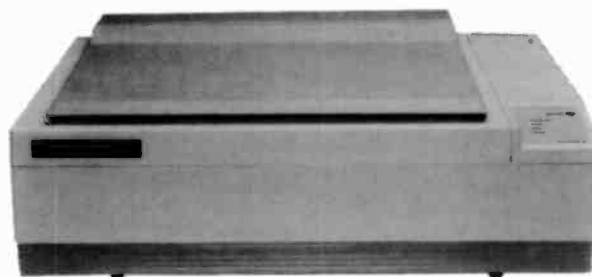
Affordable desktop color scanning for the general office environment. This full-color 300 dpi flatbed scanner meets all of your desktop scanning needs. Incorporate brilliant color images into presentations, business communications and compositions. Scan line art, black and white contones and text. No matter what the application, Howtek delivers the perfect input solution.

Capable of scanning full 8.5" x 14" color originals, the Personal Color Scanner is supported by proprietary Scan-It software. Images can be cropped, modified and enhanced and saved in a variety of formats to export into other applications.

- Personal Color Scanner With parallel card for MSDOS and Scan-It.** \$ 1295.00
- Personal Color Scanner With parallel card for MSDOS and Mathematica Tempra Pro™** 1295.00
- Personal Color Scanner Kit—PC Kit includes:**
cable, board and Astral Picture Plus™ or Mathematica Tempra Pro 300.00
- Personal Color Scanner Kit—Mac Kit includes:**
cable, board and Adobe Photoshop™ LE 600.00



Personal Color Scanner



Scanmaster 3

Scanmaster 3 Color Scanner

- 11.7" x 17" (11.7" x 16" transparency)
- Scans continuous tone, halftone, line art and text
- 75-400 dpi continuous
- Full 8-bit A/D accuracy
- 256 levels per color
- Single CCD sensor, single fluorescent bulb
- Standard 8-bit GPIB interface
- Full B-size (A3-size) flatbed
- Stationary platen
- Supports Scan-It software, which incorporates cropping, resizing, color balance, file formatting

The Scanmaster 3 is a full B-size (A3-size) digital desktop flatbed color scanner that accurately scans both reflective and transmissive copy, incorporating design elements previously found only in much higher priced scanning systems. The high resolution capability of the Scanmaster 3 makes it an ideal input device for accomplishing a number of applications including: • Pre-press • Desktop publishing • Presentations • Graphic arts • Scientific/medical • General imaging and design

The Scanmaster 3 uses a multi-element CCD, single illumination fluorescent bulb light source with highly accurate dichroic filters. The architecture also includes a Digital Signal Processor (DSP) which processes computationally intensive algorithms leading to speed and quality improvements. Scan resolution ranges from 75 to 400 dpi with more accurate spectral response. Analog-to-digital conversion develops full 24-bit accuracy, 8-bit for each color (red, green, blue) and for black and white scanning.

Advanced features are combined in Scanmaster 3 which significantly enhance scan accuracy, scan stability, shadow detail and color discrimination. Improved color discrimination is

achieved through the use of a signal lamp/filter architecture. Special dark signal correction circuitry is utilized which significantly improves shadow detail.

Scanmaster 3 uses a stationary platen design for high reliability. This design reduces the overall effective footprint (deskpace) requirement while allowing full-sized (B/A3) transparencies to be scanned. The transparency option also supports A/A4-size transparencies in portrait or landscape orientation. Scanmaster 3 scans continuous tone, halftone, line art and text image types in full 24-bit color or 256-level black and white grayscale.

Scanmaster 3 interfaces to an image capturing computer using the industry standard IEEE 488 GPIB standard interface. Scanmaster 3 is supported by Scan-It scanning software, which incorporates features of cropping, resizing, color balance, file formatting and other advancements including unique image enhancement capabilities.

- Scanmaster 3 With transparency option** \$6995.00
- Scanmaster 3 With GPIB interface, cable, Scan-It, Astral Picture Publisher Plus™ and transparency option** 8195.00
- Scanmaster 3 With GPIB interface, cable, Scan-It, Mathematica Tempra Pro™ and transparency option** 8195.00
- Scanmaster 3 With GPIB interface, cable, MacScan-It, Adobe Photoshop™ and transparency option** 8195.00
- Transparency option** 659.00



COLOR SCANNERS

Scanmaster 3+ Color Scanner

- 11.7" x 17" • Scans continuous tone, halftone, line art and text • 75 to 1200 dpi • Full 8-bit A/D conversion per color • 256 levels per color • Single fluorescent bulb and RGB filters • Standard 8-bit GPIB • CCD array • Full B-size (A3-size) reflective and transparent copy format • Upwardly compatible with existing Scanmaster series • Transparency option standard • No operator controls required • Broader dynamic range • Enhanced scan accuracy and stability • Improved color discrimination • Incorporates system functions at the device level

The Scanmaster 3+ is a full B-size (A-3-size) digital desktop flatbed scanner that accurately scans both reflective and transparent copy, incorporating design elements previously found only in much higher priced scanning systems. The high resolution capability of the Scanmaster 3+ makes it an ideal input device for accomplishing a number of applications, including: • Graphic arts • Line art • Pre-press • Technical publishing • Scientific/medical

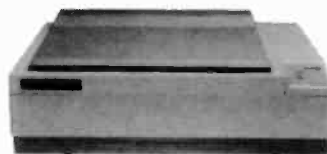
Advanced engineering significantly enhances scan accuracy, resolution, shadow detail and color discrimination. Improved color discrimination is achieved through electronic enhancements designed to stabilize and extend the scanner range (optical density).

Scanmaster 3+ uses a stationary platen design for high reliability. This design reduces the overall effective footprint (desk space) requirement while allowing for full-sized (B/A3) transparencies to be scanned. The transparency option also supports A/A4 size transparencies in portrait or landscape orientation. Scanmaster 3+ scans continuous tone, halftone, line art and text image types in full 24-bit color or 256 gray levels and binary (1-bit mode).

- Scanmaster 3+ With transparency option \$7995.00
- Scanmaster 3+ With GPIB interface, cable, Astral Picture Publisher Plus™ and transparency option 9195.00
- Scanmaster 3+ With GPIB interface, cable, Mathematica Tempra Pro™ and transparency option 9195.00
- Scanmaster 3+ With GPIB interface, cable, Adobe Photoshop™ and transparency option. 9195.00

Scanmaster 35 Plus Color Scanner

- 24mm x 36mm image size • Positives, negatives, mounted or unmounted, filmstrips • 2000 x 2000 dpi • Color separation • Scanning is accomplished using a 2048-element CCD array, a fluorescent lamp and a color filter wheel • Overall image resolution of 3 million pixels per film, with accuracy to 1/2 pixel • Scans at 12 bits per color, with a total accuracy of 24 bits per pixel (4096 gray levels) • The user can choose to read the raw 12-bit CCD data or 12- or 8-bit values that have been color corrected • Selectable data packing • Scanning in line oriented and sent over a standard 8-bit GPIB interface • Under control of the host computer, output data can be packed in 1 of 3 ways: RGB pixel packed, RGB line packed or black and white • Scan-It applications program • Menu-driven package provides the user with immediate access to all of the functions of the Scanmaster 35 Plus • Available for both the IBM PC and Mac II • Scan-It allows the user to display scanned images and generate display files for processing with other graphics editing software



Scanmaster 3+



Scanmaster 35 Plus

Scanmaster 35 Plus adds a new dimension to desktop scanning. Both Macintosh and IBM PC compatible, Scanmaster 35 Plus converts film images into data which can be displayed and stored on an image-capturing computer. Input can be in the form of 35mm positive or negative film, color or black and white, either mounted or in strip form.

Scanmaster 35 Plus has a scanning resolution of 2000 x 2000 dpi, yielding an effective resolution of 1333 x 2000 dpi and full 180° image rotation capability. It is recommended for publishing and other applications where presentation of the image in the appropriate orientation is essential.

- Scanmaster 35 Plus. \$5795.00
- Scanmaster 35 Plus With GPIB interface, cable and Mathematica Tempra Pro 6995.00
- Scanmaster 35 Plus With GPIB interface, cable and Adobe Photoshop 6995.00
- Scanmaster 35II Plus. 5795.00
- Scanmaster 35II Plus With GPIB interface, cable and Mathematica Tempra Pro 6995.00
- Scanmaster 35II Plus With GPIB interface, cable and Adobe Photoshop 6995.00

Scan-It™ Applications Program

- Professional scanning software on a variety of platforms (IBM-PC, PS/2, Macintosh and workstations) and across the full line of Scanmaster products • Easy-to-use, mouse driven utility program satisfies a broad range of image input needs from the casual user to the graphic arts professional

Prescan— Lets you quickly display the image on the monitor for cropping and resizing.

Scan— Allows you to scan to a virtual disk file or to the monitor at variable resolutions and sharpness settings.

Contrast and Color Correction— Allows you to modify image quality by adjusting brightness, contrast and individual gamma settings.

Sharpness— Edge sharpness can be set to either soften, normal, sharp or exaggerated.

Image Type— Allows you to specify type of artwork to be scanned.

File Formats— The final image can be saved in TIFF, PICT, PICT32, TGA, VGA, RIFF, Artisan and Sun Raster file formats.

- Scan-It Specify PC, PS/2, Mac, or VGA \$100.00

Systems Interfaces Available:

- GPIB Drive Kit c/o GPIB board and cable (specify PC, PS/2, Mac) \$795.00
- GPIB cable 50.00

VIDEO TITLING AND SEQUENCING SOFTWARE



Distributed Exclusively by
MainFrame Computer Graphics Ltd.

Inscriber™ Video Titling Software for ATVista™ and Targa™

Titling

- Anti-aliased text with dropshadow and edging displayed as you type • Flexible text positioning • Free-form alignment
- Access to over 250 fonts • Extreme ease of use • Use the graphics and logo tools to highlight your text or load in any Truecolor image as a background • Advanced page description language integrates Inscriber with remote data feeds for use in "on-air" applications • Full function text creation system is geared especially to the rapid entry and editing of display text
- Flexible alignment means that you can make your lines overlap or be positioned anywhere; you can ask for any spacing or you can constrain text to preserve line-to-line spacing. Lines can move independently of one another or together with lines below
- Left, right and center alignment is easy with adjustable tab stops • Automatic word wrap mode simplifies text entry
- Apply text attributes like drop, offset or extruded shadows in 8 directions in any amount • Use edging to emphasize your message, in any amount with outline, glow or embossed effects • Color text with a solid color or with a gradation from top to bottom • Transparency of text can also be controlled overall or varying from top to bottom
- Text can be arbitrarily sized, compressed or expanded, drawn as "small caps" or slanted left or right in degree increments • Kerning can be set per line or individually per character
- Standard 12 fonts: Helvetica Bold, ITC Zapf Chancery, ITC Bookman Demi, Palatino Italic, or maybe ITC Avant Garde Gothic Book • Fonts contain over 200 characters including commonly used symbols and foreign language accents
- Supreme option has 50 fonts including Benguiat, Revue, Hobo, New Century Schoolbook and Stencil • Import a special symbol or multi-colored graphic image and Inscriber will make it into a logo. You can then apply special effects like shadow and edging to it just like text. And you can resize it
- Dedicated support for video output gives you an adjustable safe title area, screen center markers, definition of video key areas, partial or full video "show-through" of text or graphics and integrated roll and crawl. Add linear keyer support, anti-aliasing, optional edge-blurring of high luminance text and you have the best possible character edge quality for encoding to video

Presentation

- Sequence images in a flexible professional manner using several types of transitions in multiple directions with varying speed and transition element granularity
- Single step through slides, forward and reverse, instantly display selected key images, trigger external hardware via a system escape. Top it off with rolled credits
- Presentation module will let you build sequences of images to be displayed
- A variety of transitions between pictures including fade, snap, wipe, push, tile, louvre, turn, crawl, peel and flip. You control the speed, direction, size and motion of the transitions
- Fully programmable with loops, conditionals and system escapes to custom applications
- Can be used to control interactive displays with real-time updating
- Supports both NTSC and PAL • Standard Truecolor format files can be compressed to about one third of their normal size. The resulting file displays 10 times faster—in about 1 to 2 seconds

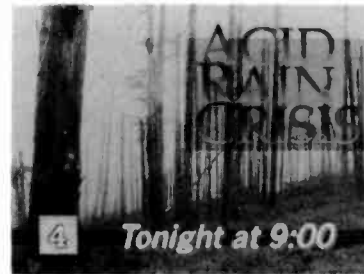


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Color sold where prohibited by law.



Special Effects

- Smooth fades • Real-time image warping for page turns, curls and peels
- Push effects, flips, louvres or tiling
- Sprite animation, roll and crawl, windowed effects
- Roll credits at varying speeds
- Push segments on the screen off, slide new segments on
- Hardware works on any PC-AT compatible hard disk system with a number of videographics cards such as the Truevision ATVista and Targa 16
- Depending on the choice of card, 640K of PC memory and 1M of EMS is required on your computer system
- Additional video and/or EMS memory is recommended to improve creation and presentation speed
- An RGB video monitor is recommended for optimal display of screen menus
- A mouse simplifies learning and using Inscriber, but you can also use a variety of graphics tablets
- Contact closure switches and infrared remote controls can be configured to work with Inscriber to control image transitions

Inscriber ATVista	\$3995.00
Inscriber Targa 16 12 fonts	1895.00
Inscriber Supreme Targa 16 50 fonts	2695.00
Inscriber Targa + 12 fonts	2895.00
Inscriber Supreme Targa + 50 fonts	3695.00

Liteshow II Portable Presentation Management System

- Captures computer generated presentations onto a standard 3 1/2" diskette, then lets you organize it and enhance it
- Built-in special effects generator lets you add wipes, dissolves, fades and more
- Plugs into virtually any monitor, video/data projector or LCD projection panel
- Color palette of 256,000 colors, of which 256 can be displayed simultaneously
- Includes handheld remote control
- 640 x 480 resolution supports CGA, EGA, VGA, Apple Macintosh and Mac II

Liteshow II \$1995.00

5000CX True Color LCD Projection Panel

- Projects 4913 true colors • 15:1 contrast ratio • 640 x 480 resolution to support CGA, EGA, VGA, PS/2, Apple Macintosh and Mac II (Macintosh support requires adaptor)
- High heat resistant TSTN™ (Triple Super Twist Nematic) LCD
- Handheld remote control
- Power supply: UL approved 12VDC, 1.5A
- Screen aspect ratio: 1.33:1

5000CX \$5995.00

480C/480CX True Color LCD Projection Panels

- 640 x 480 pixel resolution
- Integral temperature regulating fan
- User selectable color palette mapping
- Auto signal recognition circuitry
- Vibrant solid color pixels for smooth, continuous color
- Compatible with: IBM CGA, EGA, VGA, Apple Macintosh and Mac II
- Manual, cables (9-15 pin, 15-15 pin) and AC adaptor are included

480C 8 true colors include: red, green, blue, cyan, magenta, yellow, black and white \$3995.00

480CX Projects 64 brilliant colors simultaneously from a palette of 64, matching the colors on the computer monitor \$4495.00

480S/480GS PC Viewers®

- 640 x 480 pixel resolution
- Compatible with: IBM CGA, EGA, VGA, Apple II series, Macintosh and Mac II
- Manual, cables (9-15 pin, 15-15 pin, RCA) and AC adaptor are included

480S With shades of blue or patterns to represent 8 colors . . . \$1355.00

480GS With shades of gray or patterns to represent 8 colors, high contrast 20:1 display \$1655.00

200S PC Viewer

- Bright blue and yellow display with 8:1 contrast
- 640 x 200 pixel resolution
- Works with Apple II, IBM and compatible computers in CGA mode
- Cables provided • 8 levels of gray scale • 8 patterns
- High heat resistant super-twist LCD
- Power: U.L. approved 9VDC, 1A
- Aspect ratio: 1.33:1

200S \$925.00

Overview™ 360P Portable Overhead Projector

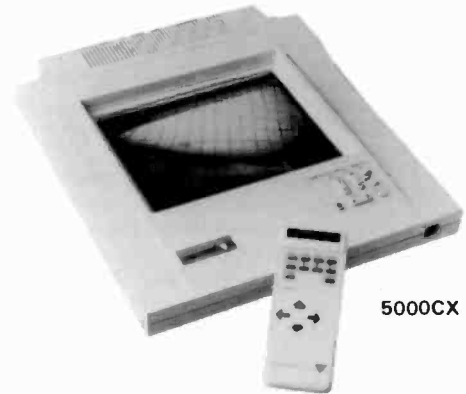
- Instant lamp changer
- Built-in heat filters, quiet fans and low wattage bright quartz halogen light
- Rack and pinion focus
- Automatic power cut-off turns off the power when protective housing is removed
- Folds easily into compact package
- UL and CSA listed

Overview360P \$495.00

Optional Accessories for PC Viewers

1/2 Snap-on portable presentation computer with built-in firmware that allows you to organize captured images, add special effects and then present computer generated images without your computer. Includes an infrared remote control with pointer and highlight controls. Allows you to upgrade your 480S or 480GS by adding a Presentation Module. \$1595.00

C70 Carry case for your PC Viewer, power supply and cables. Made of durable Cordura type material with hand and shoulder straps for easier carrying. Not designed for the 480C, 480CX or 5000CX \$69.95



5000CX

C75 Deluxe soft carry case with shoulder strap for PC Viewer. Incorporates the functions of a carry case and briefcase. The main section accommodates your PC Viewer with an adjustable divider for power supply and cables. \$129.95

C95 Hard carry case for all PC Viewers. Space provided for adaptors, cables and remote controls. Comes with lock and key \$229.95

Accessories for IBM and Compatible PCs

A25 Allows operation of both monitor and viewer on an IBM PS/2 Model 25. Adds a video output port to the PS/2 Model 25 to allow display of the MCGA graphics. Installed inside the case of the Model 25 \$99.95

A40C Allows operation of both monitor and viewer with IBM and compatibles using VGA graphics and IBM PS/2. Provides 2 outputs, 1 connector for the 15-pin monitor cable and a 15-pin connector for the PC Viewer. Uses the AC adaptor from the PC Viewer to power both the viewer and the A40C \$199.95

A60 Allows operation of both monitor and viewer on a PC with CGA and EGA. Internal amplifier assures quality image. Uses the AC adaptor from the PC Viewer to power both the viewer and the adaptor box. Equipped with a 9-pin input and 2 9-pin outputs. Not for use with A5 cable \$149.95

Additional Interfaces for PC Viewers

A5 This cable allows connection of a Hercules® or MDA (Monochrome Display Adaptor). Not for use with the A60 adaptor. \$29.95

A50 Allows AT&T 6300, 6300+ or Olivetti M24 or M28 to be connected to the PC Viewer. Your color monitor can remain connected and operating. Connects to the 25-pin connector on the AT&T and provides a 9-pin for your PC Viewer \$119.95

Required Adaptors for Macintosh Computers

A10 Internal card/cable required for use on the Macintosh 128, 512 and +. Must be installed inside the Macintosh. The monitor and the PC Viewer both operate. Bezel not included \$119.95

A20 Internal card/cable required for use on Macintosh SE. Does not utilize the SE expansion bus. Must be installed inside the Macintosh case. The monitor and PC Viewer both operate. Bezel not included \$119.95

A35C External adaptor box required for connection of the PC Viewer to the Mac II video output. Equipped with a level adjustment. The monitor and the PC Viewer both operate. Uses the AC adaptor from the PC Viewer to power both the viewer and the A35C \$249.95

A15 Covers the unused area on the PC Viewer so that the Mac image fills the screen. \$14.95

INTERFACES/DISTRIBUTION AMPLIFIERS



IN1100 High Frequency Optical Ground Loop Isolator

- 120MHz optical ground loop isolator with built-in AC power supply
- 5 BNC input and output connectors. 120/220V operation is selected at the time of order
- Removes all hum-bars from high resolution video displays



IN1100

IN2000/2000DA Universal Analog/TTL/ECL Interfaces for Computers and Projectors

- Works with analog and digital signals
- Horizontal picture centering control
- RGBS, mono or sync on green outputs
- 100MHz video bandwidth
- Gain control

IN2000 External 12V power adaptor. Fully automatic \$540.00

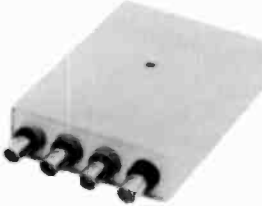
IN2000DA Built-in 1 in 2 out distribution amplifier 740.00



IN2055/2056

IN2000 Plus Universal Analog/TTL/ECL Interface for Computers and Projectors

- Gain and peaking controls
- Horizontal picture centering control
- RGBS, mono or sync on green outputs
- 200+ MHz video bandwidth
- Digital frequency readout



IN2068



IN2075

IN2001 Universal Analog/TTL/ECL Interface for Computers and Projectors

- Ideal for rental applications
- Horizontal picture centering control
- RGBS, mono or sync on green outputs
- 100MHz video bandwidth
- Built-in factory set 120/220V power supply.

IN2068 High Resolution HDTV Tri-level to Bi-level Sync Converter

- 70MHz video bandwidth
- Converts tri-level sync to standard sync
- Works with RGB and sync signals

IN2055/2056 1 In 4 Out Composite Video Distribution Amplifier/Line Driver

- 200MHz video bandwidth
- Individual output gain controls (internal)
- Individual peaking controls (internal)
- BNC input and output connectors

IN2055 High resolution video distribution amplifier. Individual gain and peaking controls for each output (internal). \$320.00

IN2056 1 in 1 out video line driver for extending cable length to 1000'. The actual drive distance varies with cable used. 240.00

IN2075 CGA/EGA/MDA Distribution Amplifier

- Compatible with CGA/EGA/MDA type video cards
- 100MHz video bandwidth
- Loopthrough output for local monitor
- Can drive LCD displays/compatible monitors.

IN2076 Mac II, Super Mac Distribution Amplifier

- Video buffer/amplifier for Apple Mac II or compatible computers
- Provides an output for LCD panel or additional monitor
- Will operate with any video card that has the same pin-out as Mac II
- Fully compatible with Raster-Ops cards

IN2060 IBM VGA, MCGA, XVGA, 8514A Distribution Amplifier

- For IBM PS/2 VGA, MCGA, Super-VGA, 8514A color/monochrome and compatible graphic cards
- Provides an additional output for LCD panel or VGA video monitor
- Precision coaxes are used for all video and sync signals

IN2080/81/90 IBM PS/2, Mac II, EGA/CGA Dedicated Video Interfaces

IN2080 VGA type video interface. RGB and sync output. Horizontal centering control. Works in all modes of IBM VGA card or compatibles \$280.00

IN2081 Mac II type video interface. RGB and sync output. Horizontal centering control. Works with all Mac II and Super Mac type compatible video cards. \$280.00

IN2061 Targa Board Distribution Amplifier

- For Targa type video graphic cards, provides an output for additional monitor
- Loopthrough input cable allows easy connection of local monitor and additional display
- Input and outputs are pin compatible to Targa board format
- Will work with any video output compatible with Targa board

IN2090 EGA/CGA type TTL video interface for IBM or compatible video cards. Blue enhancement and blanking controls. Automatically tracks EGA or CGA modes. \$280.00

IN2065 High Resolution Video Sync Separator

- For composite monochrome signals or RGB with sync on green
- Provides separate sync output and 3 video outputs
- BNC input and output connectors
- Internal video gain control.

IN2085 RGBS Line Driver/Equalizer 150MHz Bandwidth

- In-line BNC input and output connectors
- Individual gain controls for each channel
- Individual peaking controls for each channel
- AGC controlled sync channel

IN2067/2069 High Resolution Video and Sync Combiners

- 120MHz video bandwidth
- Internal sync level control
- Combines sync with video
- Works with RGB and sync signals

IN2067 RGB and sync input to RGB and sync on green output. Internal sync level control \$320.00

IN2069 RGB and sync on green input to RGB and sync on all output. Internal sync level control. 320.00

IN2093/2094 PAL and S-VHS to RGB Sync Video Decoders

IN2093 PAL to RGB and sync video decoder. Brightness, contrast and color controls \$560.00

IN2094 PAL S-VHS to RGB and sync video decoder. Brightness, contrast and color controls \$560.00

IN2095/2096 NTSC and S-VHS to RGB Sync Video Decoders

IN2095 NTSC to RGB and sync video decoder. Brightness, contrast and color controls \$480.00

IN2096 S-VHS to RGB and sync video decoder. Brightness, contrast and color controls 480.00



DISTRIBUTION AMPLIFIERS/ SWITCHERS

IN3010/3020 1 In 4/6 Out Variable Gain RGBS Analog Distribution Amplifiers

IN3010 1 in 4 out RGBS distribution amplifier with variable gain control and 150MHz bandwidth. 120V and 220V operation specified at time of order \$1,120.00

IN3020 1 in 6 out RGBS distribution amplifier with variable gain control and 150MHz bandwidth. 120V and 220V operation specified at time of order 1,260.00

IN3011/3021 1 In 4/6 Out Fixed Gain RGBS Analog Distribution Amplifiers

• Up to 1.5V p-p input video range • 120/220V factory set operation
• Rackmountable • 120MHz video bandwidth • Fixed gain video output

IN3011 1 in 4 out RGBS distribution amplifier \$560.00

IN3021 1 in 6 out RGBS distribution amplifier 780.00

IN3012/3014 1 In 2 Out 150MHz RGBS/RGB H&V Analog Distribution Amplifiers

• 150MHz video bandwidth • Fixed gain of 1.1 for each video output
• Up to 1.5V p-p input video range • RGBS or RGB H&V configuration
• Allows connection of local monitor and an additional large screen projector or monitor

IN3012 1 in 2 out RGBS distribution amplifier \$440.00

IN3014 1 in 2 out RGB H&V distribution amplifier 520.00

IN3050/3055 1 In 4 Out EGA/CGA/VGA/Mac II Distribution Amplifiers

• 100MHz video bandwidth • Fully buffered outputs • Drives 75' of special cable • Works with LCD displays

IN3050 1 in 4 out CGA/EGA video distribution amplifier. Can be used with any TTL video signals \$340.00

IN3055 1 in 4 out PS/2 VGA or Mac II video distribution amplifier 480.00

IN 3056/3058 1 In 4/8 Out S-VHS Analog Distribution Amplifiers

• 35MHz video bandwidth • Works with PAL and NTSC format • Up to 1.5V p-p input video range • Chroma and luma configuration

IN3056 1 in 4 out S-VHS distribution amplifier \$320.00

IN3058 1 in 8 out S-VHS distribution amplifier 560.00

IN3505 2 In 1 Out 150MHz Analog RGB and Sync Video Switcher

• 150MHz RGBS video bandwidth • Front panel manual control • Remote control connector for hardwire remote switching • Built-in AC power supply \$440.00

IN3510/3520 4/6 In 1 Out Manual Analog RGB and Sync Video Switchers

• 120MHz RGBS video bandwidth • Front panel manual control • Remote control connector for hardwire remote switching • High voltage (50V) tally outputs

IN3510 4 in 1 out switcher \$600.00

IN3520 6 in 1 out switcher 880.00

IN6901 RS-232 to 6 relays converter. 9-pin PC COM1: compatible serial input 300.00

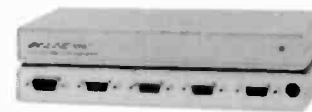
IN3590 Handheld hardwired remote control unit. 6 channel selection buttons 200.00



IN3010/3020



IN3012/3014



IN3050/3055



IN6000

IN3511/3521 4/6 In 1 Out Analog RGB and Sync Auto Switchers

• 120MHz video bandwidth • Automatic channel selection • Rack-mountable enclosure • Built-in 120/220V factory set power supply

IN3511 4 inputs 1 output RGBS analog auto switcher \$660.00

IN3521 6 inputs 1 output RGBS analog auto switcher 900.00

IN3564/3568 4/8 In 1 Out VGA/XVGA/8514A Video Switchers

• 120MHz video bandwidth • Front panel manual control • Tally output • Remote control connector for hardwire remote switching • Handles all types of VGA signal formats

IN3564 4 in 1 out switcher \$660.00

IN3568 8 in 1 out switcher 980.00

IN3574/3578 4/8 In 1 Out Mac II, Super Mac Video Switchers

• 120MHz video bandwidth • Front panel manual control • Remote control connector for hardwire remote switching • High voltage (50V) tally outputs

IN3574 4 in 1 out switcher \$660.00

IN3578 8 in 1 out switcher 980.00

IN4090/4091 2 In 1 Out Analog NTSC and RGB and Sync Video Auto Switchers

• 120MHz video bandwidth • Automatic channel selection

IN4090 2 inputs 1 output NTSC composite video audio switcher \$260.00

IN4091 2 inputs 1 output RGBS analog auto switcher 360.00

IN6000/6000E Universal 12 Port RGBS Routing Switchers With RS-232 Control

• Input gain controls • Preview monitor output • 100MHz bandwidth • Fully programmable

IN6000 Universal routing switcher with 12 port capability. Built-in RS-232 control. Controller included \$ 9,995.00

IN6000E Universal routing switcher with 12 ports. Expandable to 24 ports by stacking 2 units 14,995.00

IN6059 Remote control pad for IN6000/6000E routing switchers. 16-controls can be connected at a time 980.00

VIDEO ADAPTORS/BOARD/ ENCODER BOX

JOVIAN

Pure Logic, by Jove!

VIA™ Video Input Adaptor

VIA is a real-time video input adaptor, meaning that a complete single frame is acquired (digitized and stored in memory) as it occurs in 1/60 of a second. Live subjects can be captured from a camera or VCR without being placed in 'pause.'

Images may be captured from any NTSC video source, in 320 by 240/65,536 colors. The captured images are converted to a digital format that can be manipulated and saved to a file in various formats for later use. The captured images can be displayed on any VGA system monitor in 320 by 200/256 colors without a VIA adaptor installed in the system. A video RGB monitor or multi-sync monitor can be attached to the VIA video output connector, allowing the user to view live or captured images during the capturing process.

VIA is supplied with installation software and a stand-alone image acquisition program that provides a simple, menu-driven interface through which the user can configure the hardware, build 2-monitor systems, preview, control brightness, saturation and hue adjustments to the image, capture images, save the image in several different formats and display previously acquired images.

VIA is available for both PS/2 Micro Channel (VIA/MC) and conventional PC bus computers (VIA/PC).

VIA/PC\$595.00
VIA/MC595.00

SuperVIA Color Video Digitizing Adaptor

SuperVIA can colorfully capture images in real time, 1/30 or 1/60 of a second, and display on a VGA, Super VGA or IBM 8514 equipped computer system from 320 by 200 up to 640 by 480 resolution in 256 colors from a palette of 65,536 or 64 gray levels.

SuperVIA is engineered to digitize from any NTSC or PAL video signal. SuperVIA is supplied with installation utilities and an easy, menu-driven, image capture software program. The software is used to configure the hardware, build 2-monitor systems and control brightness, saturation and hue. Hot key preview and freeze and color mapping control are also software controlled, along with the capability to modify and save images in different resolutions and various file formats.

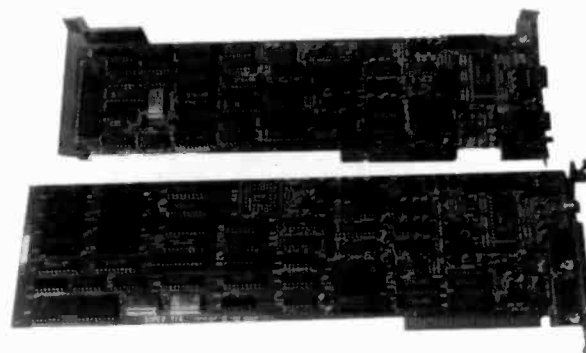
SuperVIA/PC\$895.00
SuperVIA/MC895.00

SYLVIA™ Still Video Capture Board

SYLVIA is a still video capture board for high-resolution monochrome and color applications. It requires the image to be steady during the capturing process.

Images can be digitized from 320 by 240 to 640 by 480 in 256 gray levels or 16.7 million colors. Monochrome images are captured from NTSC or PAL B/W or color composite video equipment. Color images are captured by sequentially digitizing the RGB video signal EIA 60Hz (U.S. standard) or CCIR 50Hz (European standard), thus yielding 16.7 million color images. An optional external RGB color decoder box, the CECI, is required to convert standard NTSC or PAL color composite or Y/C (S-Video) to RGB video signal for color image capture.

SYLVIA is supplied with installation software and a stand-alone image acquisition program that provides a simple, menu-driven interface through which the user can configure the hardware, preview and capture images from a camera or other video



SuperVIA

source, save the image in several different formats and display previously acquired images. A Video mode allows the operator to view an image on the display continuously in the event a second monitor is unavailable.

SYLVIA/PC\$395.00
SYLVIA/MC395.00
CECI External RGB color decoder box195.00

VINplus™ Encoder Box

The VINplus converts the signals from your VGA computer display adaptor into professional television video signals.

The VGA computer graphic animation is transferred to the VCR, TV or big screen projector in real time as it appears on the VGA computer monitor. The signal conversion is transparent to the VGA and software animator application.

The VINplus product has 2 elements: the software program and the encoder box. The VINplus software program must be loaded into the computer system memory in order for the VGA signal to TV video signal conversion to take place.

VINplus software changes the horizontal frequency output of the VGA display adaptor to TV video frequency. The analog VGA output signal connected to the VINplus box is encoded to a composite or Y/C (S-Video) signal. The VGA computer monitor connected to the VINplus box will display whatever is being converted to video signal if it's a multisync monitor that supports video frequency (horizontal frequency at 15.75kHz or lower). If it's a fixed VGA frequency monitor, the VINplus box will automatically disable it while the VGA signal is being converted to TV video signal.

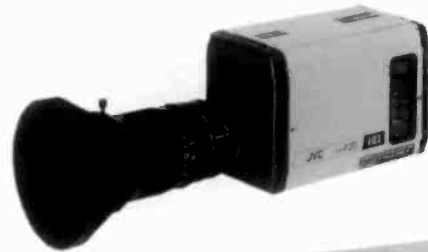
There are 3 different kinds of video signal output from the VINplus: composite, Y/C (S-Video) and RGB video signal. The composite and Y/C video signals are used most often by home and industrial video equipment such as a video camera, VCR, TV and video editing/genlock/overlay system. The RGB video signal is used by big screen TV projectors and color video printers.

The VINplus box works with your existing VGA display adaptor. It is perfect for most laptop, portable, notebook and desktop computers that are equipped with a VGA display in the system. VINplus can also be used alone without the VINplus software program to convert any analog RGB video to a composite or Y/C signal such as RGB video camera and SuperVIA RGB video output signal.

VINplus\$495.00

KY-F30CI 1/2" 3-CCD Color Camera (Less Lens)

• Specifically designed for input to image processing systems • 32 lux at f/1.4 • 500 lines horizontal resolution • Built-in full color bar generator • 668 x 485 resolution • 58dB S/N ratio • Simplified control panel • 1-line scanning • 9-pin RGB output • Genlock • Composite and Y/C outputs • Optional accessories: HZ-H713U lens, KA-F30KITU AC adaptor kit, RM-LP80U remote control unit
 KY-F30CI\$5045.00



KY-F30CI

Accessories

HZ-H713U 13:1 Manual Zoom Lens

7 1/2-97 1/2mm manual focus, zoom and iris lens\$950.00

HZ-M151U Nikon Microscope Adaptor

Used for connection between 1/2" CCD camera and Nikon microphoto and Optiphot triple-ocular microscopes. Requires Nikon TV relay lens. 45% angle of view ratio with 10X ocular lens\$280.00

HZ-M152U Olympus Microscope Adaptor

Used for connection between 1/2" CCD camera and Olympus BH series triple-ocular microscopes. 60% angle of view ratio with 10X ocular lens\$665.00

HZ-M153U Zeiss Microscope Adaptor

Used for connection between 1/2" CCD camera and Zeiss AX10SKOP, AX10PLAN and AX10PHOT series microscopes. 35% angle of view ratio with 10X ocular lens\$280.00

KA-F30KITU AC Adaptor Kit

Kit includes an AC adaptor and cable\$170.00



TK-F7100U



TK-870U (With Optional Lens)

TK-1070U 2/3" CCD Color Camera (Less Lens)

• 768 x 493 elements with RGB filter • 480 lines horizontal resolution • RGB via D-sub 9-pin socket plus Y/C and composite video outputs • Genlock • C-mount lens capability • Gain-up function (0dB/+6dB/+12dB/auto) • Selectable gamma correction (0.45/1.0) • Aperture switch • Shutter speeds of 1/125, 1/250, 1/500, 1/1000, 1/4000 and 1/10000 second • Auto white balance: auto/manual/preset (3200K) • Compatible with VISTA, TARGA and other image capture boards. Standard accessory: DC cable

TK-1070U\$1695.00

TK-F7100U RGB Frame Capture Camera (Less Lens)

• High resolution (1024 x 1024 pixels) • Non-standard 1050-line scanning • Capture time 0.4 seconds • Accepts C-mount lens • 2/3" Saticon tube. Standard accessories: AC adaptor, 9-pin to 9-pin VISTA cable, JVCAP software

TK-F7100U\$7995.00

TK-870U 2/3" CCD Color Camera

• 330 lines resolution • RGB output supplies red, green and blue composite sync signals ideal for computer image capture • Compatible with TARGA and other image capture boards • Horizontal resolution of 440 x 400 pixels • Low light sensitivity—20 lux (1.9fc) at f/1.4 • 45dB S/N • Operating temperature range -5°C to 40°C • Auto iris lens connector provided • Simple, easy genlock application • 6X remote controlled motorized power zoom lens available optionally • C-mount enables TK-870U to use several different lenses and makes changing lenses easy. Standard accessory: DC cable

TK-870U\$1270.00

GD-H3220USL 19" Pro Multi-Sync Monitor

• Multi-scan (15-34kHz) • RGB analog and TTL inputs • High resolution (1024 x 600 dots) • Long persistence phosphor • Compatible with CGA, EGA, VGA, TARGA, VISTA • Input connectors are D-sub 9-pin for analog and TTL. Standard accessories: TARGA/VISTA cable, TTL cable

GD-H3220USL\$2995.00



GD-H3220USL

Computer Imaging Accessories

AC-C412P AC Adaptor for TK-870U

Uses the DC cable supplied with the TK-870U\$73.00

AC-C712P AC Adaptor for TK-1070U

Uses the DC cable supplied with the TK-1070U\$140.00

H6x12.5CL 6:1 Manual Lens for TK-870U, TK-F7100U, TK-1070U

Included is a close-up attachment which makes it ideal for copy stand. Focusing range is .52m-1.1m (1m to infinity without attachment). Made by Fujinon\$407.00

HL-C25 25mm Fixed Focal Lens for TK-870U/TK-F7100U/TK-1070U

C-mount lens with manual iris/focus. No zoom. Wide angle view with focusing as close as 10"\$183.00

HZ-C611AF C-Mount Autofocus Lens for TK-870U, TK-1070U

11-66mm power zoom lens with C-mount, autofocus, auto/manual iris, macro function, remote control\$700.00

VC-451-2U RGB Breakout Cable for TK-870U, TK-1070U

2-meter cable which plugs into the 9-pin D connector of the TK-870U and provides RGB breakout (BNC) of R, G, B, video and sync signals\$94.00

VC-452-4U 9-Pin to 9-Pin RGB Cable (4-Meter)

This cable is used to connect the TK-870U/TK-1070U to TARGA and VISTA boards\$40.00

CD-ROM DRIVE

JVC®

JVC Information Products Company of America



XR-W1001, Disc and Cartridge Optional

XR-W1001 Write-Once CD-ROM Drive (Preliminary)

- Built-in type
- 5.25" half-height form factor
- Real-time encoding
- High-speed access
- Conforms to Orange Book
- SCSI interface
- JVC extension support (ISO 9660)

The XR-W1001 features the ability to specify characteristics of the ROM and write-once memories, permitting flexible use according to application. The disc can be played on existing CD-ROM drives by processing (finalizing) it after data has been written. Also, new data can be appended sequentially with JVC Extensions (JVC's File System Software), which conform to the ISO 9660 standard.

A wide range of applications are envisioned for the XR-W1001 CD-ROM including still-picture files, authoring systems and small-system electronic publishing.

Specifications

Capacity:	580M bytes/side
Data Transfer Rate:	153.6K bytes/sec.
Access Time:	300ms (average)
Rotation Speed:	200 to 500 CLV
Host Interface:	SCSI
Bit Error Rate:	< 10 ⁻¹²
Disc Diameter:	4.72"
Dimensions:	5 ³ / ₄ " x 1 ⁵ / ₈ " x 8 ¹ / ₁₆ "
Loading:	Auto loading/auto eject
Vibration:	0.5G (operating)
Shock:	2G (operating)
Temperature:	-20°C to 60°C (non-operating); 5°C to 40°C (operating)
Humidity:	25% to 85% (operating/wet bulb 29°C)
MTBF:	20,000 POH
Indicator:	"Busy" (front panel)
Power Requirement:	5VDC, 12V
Caddy:	Standard CD-ROM caddy
Controls:	Eject button, volume control
Jack:	Headphones
Power Consumption:	10W
XR-W1001	.....TBA*

*To Be Announced



ANIMATION CONTROLLERS

ProVAS Animation Controller and Encoder/Sync Generator

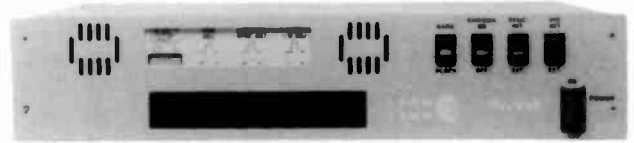
Controller Section

- Designed specifically to be the comprehensive solution for computer graphics applications • Performs single frame recording and frame grabbing (frame capture) operations from computer graphics systems to standard editing VTRs • Operators control all recording, grabbing, search and VTR functions from the host terminal • RS-232 interface at 9600 baud • No modification required to VTR • Assures field accuracy by the use of Lyon Lamb's proprietary Vertical Interval Frame Code. Additionally, SMPTE time code is used interchangeably with VIFC® for VTRs with time code output available. An LED display on the ProVAS displays the VIFC or SMPTE time code for positioning and locational status
- Interfaces automatically to a wide range of VTR formats including S-VHS U-Matic, Betacam, M-II, 1" type C, D1, D2 and HDTV, as well as laser disc recorders • All supported recorder interfaces reside in ProVAS firmware so the user may select or change recorders at any time with no hardware or software modification. ProVAS can be easily updated at any time for newly developed recording devices
- Supported by all major animation software packages running on every level of computer platform • Programmable operations for 1 or more frames • Frame grabbing with programmable offsets • Rotoscoping capability with 2 VTR control • 2 RS-422 9-pin D connectors for control of 2 serial machines • Programmable event triggers • Software selectable preroll and timeout • Accurate search to any frame on any VTR interface • Programmable scene playback and sequencing • Status information available over RS-232 interface • All recorder control functions including jog and shuttle supported • Separate sync input for video edit timing • Audio editing capability

Encoder/Sync Generator Section

- Full bandwidth encoding. Outputs include composite video (2), component video Betacam or M-II, S-VHS and separate Y and C • Internal sync generator allows for genlock of NTSC or PAL RGB devices, or the ProVAS will slave to incoming sync from the RGB source or house sync • Accepts continuous subcarrier input for phase locked color framing • Adjustments are included for sync advance and delay, selectability of calibrated or adjustable RGB input levels, selectable color bars and blackburst, also Superblack video output for keying • Sync generator outputs include: composite sync, blanking, burst flag, subcarrier, horizontal and vertical drive, also PAL ID pulse in PAL version • Sync input accepts composite sync, composite video, sync on green • Internal color bar generator: NTSC-SMPTE, EIA standard or full color, PAL-BBC, EBU or full color, blackburst • Adjustment for sync advance and delay • Accepts RGB with setup, can add setup to video or adjust for Superblack video output • Switchable loopthrough or terminated RGB and sync inputs • 360° SCH phase adjustment • Adjustments and switches available from front panel • Desktop or rackmountable; front and rear rackmounting brackets included

ProVAS \$6980.00
 ProVAS/PAL PAL version 6980.00



ProVAS



MiniVAS-2

MiniVAS-2 Animation Controller

- Performs single frame recording and frame grabbing (frame capture) operations from computer graphics systems to standard editing VTRs • Operators control all recording, grabbing, search and VTR functions from the host terminal • Remote RS-232 interface at 9600 baud • No modification required to VTR • Assures field accuracy by the use of Lyon Lamb's proprietary Vertical Interval Frame Code. Additionally, SMPTE time code is used interchangeably with VIFC for VTRs with time code output available. An LED display on the ProVAS displays the VIFC or SMPTE time code for positioning and locational status • Interfaces automatically to a wide range of VTR formats including S-VHS U-Matic, Betacam, M-II, 1" Type C, D1, D2 and HDTV, as well as laser disc recorders • All supported recorder interfaces reside in MiniVAS-2 firmware so the user may select or change recorders at any time with no hardware or software modification. MiniVAS-2 can be easily updated at any time for newly developed recording devices • Supported by all major animation software packages running on every level of computer platform • Programmable operations for 1 or more frames • Frame grabbing with programmable offsets • Rotoscoping capability with 2 VTR control • 2 RS-422 9-pin D connectors for control of 2 serial machines • Programmable event triggers • Software selectable preroll and timeout • Accurate search to any frame on any VTR interface • Programmable scene playback and sequencing • Status information available over RS-232 interface • All recorder control functions including jog and shuttle supported • Separate sync input for video edit timing • Audio editing capability • Desktop use or rackmountable; rackmounting brackets included

MiniVAS-2 Includes video recorder cable,
 does not include S-VHS to BNC cable set. \$4980.00
 Additional VTR Cables RS-422, AG-7500,
 BR-S811 or VO-5850. 75.00
 S-VHS Cable Set S-VHS to BNC cable set for
 S-VHS MiniVAS-2 or S-VHS ENC-7 operation. 160.00

SCAN CONVERTER/ENCODER



RTC Real Time Scan Converter

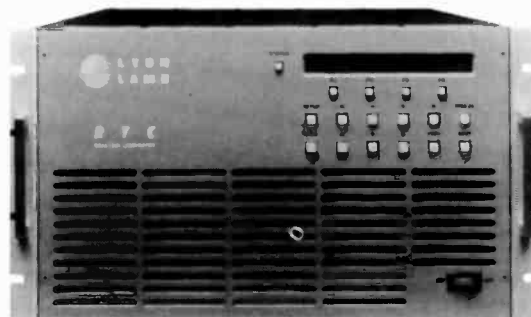
- High-resolution scan conversion in real time
- Automatic conversion of RGB signals scanning at rates from 20kHz to 89kHz (standard NTSC version), 14kHz to 60kHz (LF version), 20kHz to 73kHz (standard PAL version)
- Proprietary VLSI digital filtering with selectable sharp, medium and soft focus on both the input horizontal and vertical axis allows for high text resolution, removes unpleasant flickering and adds hardware anti-aliasing
- Zoom, pan and scroll capability for precise image composition
- 3 source input channels with built-in selector and memories for storage of 40 sets of input and output settings
- Adjustable for various input aspect ratios
- Digital encoder with menu-driven settings and memory
- Selectable encoder filters
- Outputs include composite video, component Betacam or M-II, S-VHS and 15kHz RGB
- Internal sync generator allows genlock of external devices or will genlock system to external input (NTSC or PAL), sync and subcarrier
- Built-in black and color bars
- Easy-to-use menu operation with front panel 2-line x 40-character backlit LCD display and controls
- All features may also be controlled through a serial communications port
- Easy connection to graphics computers via looping BNC connectors; typically the computer's monitor outputs are looped through the RTC
- NTSC and PAL versions available

The RTC real time scan converter accepts RGB signals from virtually any computer—from PC to workstation to super-computer, and converts the RGB output to a broadcast-quality NTSC or PAL video signal. This allows computer images to be recorded on video tape recorders, displayed on standard video monitors or projection systems, and broadcast. The RTC automatically converts output from computers scanning from 14kHz to 89kHz. Up to 3 independent sources may be connected simultaneously. Pan, scroll and zoom features allow the smallest graphic detail to become the center of attention.

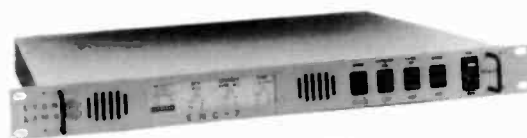
Outputs include composite video, component video Betacam or M-II, S-VHS and low resolution RGB. There is a built-in genlock sync generator with color bars and black.

The RTC conversion process actually combines individual pixels where other processes discard some pixels and lose resolution. With the RTC there is no distortion so that circles remain circles and squares remain squares. The operator has complete flexibility to size, position and compose graphic elements. Pushbuttons allow for text to be sharpened and shaded images to be softened, and the built-in digital encoder and sync generator assures the highest quality for all video formats.

RTC	\$24,950.00
RTC/LF Low frequency scanning version of RTC. Automatic conversion of RGB signals scanning at rates from 14kHz-69kHz	24,950.00
RTC/HD Version of RTC specifically designed for input of HDTV signals	24,950.00
RTC/PAL PAL version of RTC	30,950.00
RTC/PAL/LF PAL version of RTC/LF.	30,950.00
RTC/PAL/HD Version of RTC/PAL specifically designed for input of HDTV signals	30,950.00
RTC Rack Slides Rackmounting slides for RTC . . .	250.00



RTC



ENC-7

ENC-7 Encoder/Sync Generator

- Available in both NTSC and PAL versions
- Full bandwidth encoding. Outputs include composite video (2), component video Betacam or M-II, S-VHS and separate Y and C
- Internal sync generator allows for genlock of NTSC or PAL RGB devices, or the ENC-7 will slave to incoming sync from the RGB source or house sync
- Accepts continuous subcarrier input for phase locked color framing
- Adjustments are included for sync advance and delay, selectability of calibrated or adjustable RGB input levels, selectable color bars and blackburst, also Superblack video output for keying
- Sync generator outputs include: composite sync, blanking, burst flag, subcarrier, horizontal and vertical drive, also PAL ID pulse in PAL version
- Sync input accepts composite sync, composite video, sync on green
- Internal color bar generator: NTSC-SMPTE, EIA standard or full color; PAL-BBC, EBU or full color; blackburst
- Accepts RGB with setup, can add setup to video or adjust for Superblack video output
- Switchable loopthrough or terminated RGB and sync inputs
- 360° SCH phase adjustment
- Adjustments and switches available from front panel

The ENC-7 is a broadcast quality encoder/sync generator designed specifically to be the comprehensive solution for computer graphics applications. The ENC-7 meets the special requirements of RGB imagemakers for RS-170A encoding. Full bandwidth filter encoding outputs include composite video, component video Betacam or M-II, S-VHS and separate Y and C. The internal sync generator allows for genlock of NTSC or PAL level RGB devices, or the ENC-7 will slave to incoming sync from the RGB source or house sync. For studio environments the ENC-7 accepts subcarrier input for phase locked color framing.

Adjustments include sync advance and delay, selectability of calibrated or adjustable RGB input levels, selectable color bars, blackburst and Superblack video output for keying.

ENC-7	\$4,500.00
ENC-7/PAL PAL version	4,500.00
S-VHS Cable Set S-VHS to BNC set for S-VHS ENC-7 operation	160.00



Authorized Distributor of 3M Presentation Products

PROJECTION PANELS

4180/4080/2080 Projection Panels

Common Features

- Slim line design for portability
- Infrared heat shielding
- High efficiency cooling fan
- State-of-the-art chip on glass technology
- Easy access top mounted display controls
- Compatible with many of today's popular computers, including IBM, IBM compatible and Macintosh systems
- Panel-Ready™ presentation software allows you to capture images from any DOS-based software
- Store as many as 300 text pages or 30 images on one 2.0M byte high-density disk
- 17 choices of transition effects and 3 dissolve speeds
- 2:1 magnifier

For winning presentations that really make an impact, choose the projection panels that make the most of your resources. Continue to use your current computer and software to communicate your ideas. Or use Panel-Ready presentation software to produce visual presentations from any input software. You're no longer limited to a specific set of transparencies. Use your PC to present "live" and interactive charts, spreadsheets and graphics. Or, during brainstorming sessions, use the panel as an interactive tool to help generate ideas or solve problems. The magnifier feature of Panel-Ready adds emphasis and readability. Magnify any area on the screen to twice its size.

3M projection panels are simple to install and easy to use. They fit on top of your overhead projector and can be controlled from either your PC, the panel itself or, depending on the model, a remote control.

4180 Projection Panel

- 4913 colors
 - Infrared remote control
 - High resolution — 648 x 480 pixels
- 4180\$6495.00



4080

4080 Projection Panel

- 64 vivid color capability
 - High resolution — 640 x 480 pixels
- 4080\$4995.00

2080 Projection Panel

- Color mapping presents full-color graphics in up to 16 shades
 - High resolution — 720 x 480 pixels
 - Infrared remote control
 - Presentation software that lets you freeze, dissolve or re-order images and create other effects
 - Includes panel remote and Mac remote software
- 2080\$2295.00

Compatibility Chart ^{1,2}

	4180/4080	2080
IBM PS/2, VGA	X	X
Macintosh II, IIsi, LC	X ³	X
IBM PC/XT/AT, EGA/CGA	X	X
IBM PC/XT/AT, CGA only	X	X
Olivetti and AT&T	X ³	X ³
Macintosh SE, Plus, 512/128K, Classic	X ³	X ³
Apple II, II GS, DEC VT2200	NA	X ³

¹Not compatible with portable Macintosh

²A loopthrough adaptor is required for simultaneous CRT and LCD viewing

³With optional interface kit

⁴Requires optional cable

"IBM," "PS/2" and "AT" are trademarks of International Business Machines Corporation.

"Macintosh" is a licensed trademark of Apple Computer.

"Panel-Ready" is a trademark of Mind Path Technology

MULTIMEDIA PRESENTATION AND ANIMATION SOFTWARE

MACROMIND

Director Version 2.0

With Director Version 2.0 you can develop a complete multimedia presentation by creating graphics, text and animations, synchronizing them with sound and video and adding a full range of interactive control for your presenter or audience.

Director Version 2.0 features 2 integrated modules, Overview and Studio, which operate as a single program for transforming your visions into dynamic multimedia communications.

Overview is a multimedia presentation module. You can quickly import and arrange graphics (PICT, MacPaint, Scrapbook, PICS, Glue files), animations (Director and VideoWorks II files), and sounds (SND, MacRecorder™, MacInTalk™) to easily create a complete multimedia presentation. You can also add animated text and charts in just seconds using the Auto Animate function.

Studio, the heart of Director Version 2.0, is the production module. With Studio you have complete, precise control over time of virtually every element in your multimedia presentation.

Studio has 3 main elements: Paint, Score and Lingo™. Use the Paint module to create and edit beautiful 8- and 32-bit graphics and add dramatic animation effects to your artwork. Score is a time-line that allows you to position and easily animate the artwork that you've created or imported, synchronize the animation, assign color palettes, add special effects and more. Lingo, a HyperTalk-like scripting language, provides flexibility to add buttons, scripts and a full range of interactivity to your multimedia presentations.

Lingo also uses XObjects™ (and Hypercard™ XCMDs) to allow you to add sound and video to your presentations from external devices such as CD-ROM and videodisc players and videotape recorders.

Once your multimedia communications are complete, you can present them on your Macintosh® with full color and sound. Or project them using a large screen monitor or video projector. You can also record your presentation to videotape in real time or with frame accuracy, or overlay your animations onto existing video footage.

Director Version 2.0 includes Player™, a utility that lets you distribute your productions for viewing by those who do not have Director Version 2.0. Also available from your dealer is Accelerator™, a utility that speeds and smooths your finished animations for presentations and recording to videotape. Accelerator supports the non-interactive movies created in Director . . . \$895.00

Director Version 3.0

Anti-aliased text and graphics, image blending, full support for editing and playback of 24- and 32-bit images.

Sound

Dual sound channels, fade in and fade out of volume, play sounds direct from disk, sound playback during movie loading.

Lingo

"Smart" castmembers can have scripts attached, external device controls which can be cut and pasted, Improved HyperTalk syntax and text manipulation compatibility, over 60 Lingo commands.

Memory Management

"Cast on demand" memory management, castmembers can be linked to data files, unlimited size movies, full text handling, batch importing of sound, image and movie data.

System 7

32-bit memory addressing, AppleEvents™, TrueType™, Balloon Help™, virtual memory, streaming audio playback and file sharing.

Wider Audience

Unlimited size movies can play back on minimally configured systems. Your messages can be distributed to more people at no charge, thereby adding value to your ideas. . . . \$995.00

Three-D

Three-D gives you power, flexibility and a straightforward interface to create dazzling images and animations, exciting flying logos, architectural fly-throughs, package designs and compelling photorealistic visualizations.

Three-D consists of 3 separate modules that operate together: 3DWorks, RenderWorks and ImageWorks. 3DWorks is the animation module in which users can import 3-D models, easily and directly animate multiple objects, cameras and lights in 3-D space.



Director Version 2.0

RenderWorks is the visualization module in which color, texture maps, surface material, shading and lighting attributes set in 3DWorks are applied to models and animations for realism and exciting visual effects.

ImageWorks is the compositing and output module where the user can digitally composite 2-D and 3-D images and animations and output these as PICT or PICS files for inclusion in Director or other programs or record directly to videotape.

The Three-D Developer Version allows you to bring in models from 3-D modeling and CAD programs in a variety of formats. Users can render images in either 8 or 24 bits with automatic dithering. Users can also use the Accelerator (included) to accelerate animations for real time preview on screen. Three-D also supports output of the MacRenderMan RIB file format from Pixar. . . . \$1495.00

MediaMaker

MediaMaker is an easy-to-use tool for editing, assembling and synchronizing video with Macintosh graphics, sound and animation to create stunning videotape productions and presentations right from Macintosh desktops.

By providing an integrated environment on the Macintosh, MediaMaker simplifies the videotape production process while at the same time taking advantage of existing Macintosh graphics, animation and sounds. With its user interface, MediaMaker is the definitive video publishing tool for laying out and synchronizing video with sound, animation and graphics to create customized videotapes quickly and inexpensively.

MediaMaker features 2 main parts: Collections and Sequences. MediaMaker Collections are media libraries that allow you to view, add, organize and edit elements of videotape, videodisc, compact disc audio, Macintosh sound, graphics and animations. Each element is represented by a unique picon—or picture icon—that provides a visual cue to the content of the segment you have defined. You can have as many picons in a collection as you wish, and you can copy picons from one collection to another, thus allowing for easy organization of your project's material.

Playback of one video segment can be triggered before another and/or synchronized with other media, such as sound and animation. With Sequences, you can assemble your video segments, synchronize them with music from compact disc, insert or overlay a Director animation, and then add a voice narration track. Finally, MediaMaker Sequences can be automatically output to videotape using MediaMaker's powerful "Print to Video" feature. . . . \$695.00

VS-1202/2020 Video/RGB Projectors

• 9-element all-glass lenses • 4-corner independent convergence • 4-side blanking control • Provide ultra bright, high resolution color images • 700 peak lumen output • Variable screen sizes: from 70" to 120" (diagonal) VS-1202; 120" to 200" (diagonal) VS-2020 • Horizontal resolution: 1000 lines (RGB analog); 800 lines (composite video) • 9000°K color temperature provides pure whites previously thought unattainable for video projectors • Composite, S-VHS, RGB analog inputs; RGB TTL with optional remote • 3 times greater than normal contrast through the use of an electromagnetic focus system and optical coupling of lenses and CRTs • Dynamic focus circuitry keeps focus sharp right to the edges • Double optical coupling in the VS-2020 lens assembly provides a 30% increase in contrast over the already impressive VS-1202 • Compatible with a wide variety of video sources • Composite video input connectors are provided to accommodate television tuners, VTRs, VCRs, video discs, video cameras and other AV equipment • S-VHS (separate Y/C) input terminals are included for high resolution displays • RGB analog signal terminals are provided for professional equipment, broadcasting and personal computers • A TTL input is available on the optional remote

VS-1202	70"-120" adjustable (flat screen)	.....	\$7,200.00
VS-2020	120"-200" adjustable (flat screen)	675 lumens	..... 7,200.00
VC-1200U	Remote control/switcher. Composite, RGB analog and RGB TTL inputs. Control of static convergence, contrast, tint, brightness, color, etc. Audio follows video when inputs are switched. 3 1/2" H x 19" W x 12 1/2" D	.....	\$615.00
CA-003	Cable for remote, 49'	.....	.240.00
CA-002	Cable for remote, 98'	.....	.345.00
CA-001	Cable for remote, 164'	.....	.545.00
VIMVS1200	ATA shipping case with handles and casters	.....	.555.00



VS-1250R



VS-41M



VS-1250R Video/DiamondScan Computer Projector

• Auto tracking function (15 ~ 36kHz horizontal scanning frequencies and 50 ~ 100Hz vertical scanning frequencies) • Signal-free convergence function • 675 peak lumen output • NTSC, S-VHS, PAL, SECAM, RGB analog and RGB TTL are accepted • 7" liquid cooled CRTs with a 9-element all-glass lens assembly • 9500°K color temperature • Clear, highly defined video images achieved through the use of a line converter • Horizontal positioning control • 1100 horizontal lines resolution (RGB) • Resolution and contrast have been dramatically improved by the use of a 9-element all-glass lens assembly in place of the conventional 6-element hybrid type • Distortion is minimized and blooming of the focal point at peak brightness is eliminated through the use of an electromagnetic-focus electron gun • Distributed cathode of scandium oxide achieves a dramatic increase in brightness (675 peak lumen output) without sacrificing CRT life expectancy • By incorporating a CCD tandem-compound filter, color and brightness signals can be separated in a wider band, which significantly reduces NTSC artifacts while producing a clearer screen image • Dichroic coating, mirror-like in appearance, on the green lens filters out the yellow and blue components inherent in the light from the green CRT of projectors • Provides truer color representation

Compatibility

Computer	Resolution	TTL/Analog	H	V
PC/AT/XT CGA	640 x 200	TTL	15.75	60
PC/AT/XT EGA	640 x 200/350	TTL	15.75/21.85	60
PC/AT/XT VGA	640 x 400/480	A	30.48	60
PS/2 VGA	640 x 480/400/350	A	31.5/35.5	60/70/86
Apple MAC-II	640 x 480	A	35.0	66.6
Apple Mac Plus	512 x 342	A	24.0	—
Meiko Multi 16	640 x 486	TTL	30.86	60

VC-1250 Interface/Controller (Standard)

Features: Power on/off, vertical synchronization input switching, static convergence, color, tint, contrast and brightness

Service Controls: Dynamic convergence, vertical width, vertical linearity, horizontal width, correction of keystone distortion, adjustment of lens focus and horizontal position

Hours Meter: 5000 hours, analog indication

VS-1250R	.....	\$10,900.00
CA-053	Cable for remote, 49'	..... 260.00
CA-052	Cable for remote, 98'	..... 430.00
CA-051	Cable for remote, 164'	..... 750.00

Interface Cables

C-VGA25	IBM PS2 to VC-1250/DiamondScan monitors †	.....	\$65.00
C-PGA25	IBM PGA 9-pin to VC-1250/DiamondScan monitors †	.....	65.00
C-MAC25	Mac II to VC-1250/DiamondScan monitors †	.....	65.00
C-2525	VC-1250 to VS-1250R/DiamondScan monitors †	.....	65.00
C-25BNC	Interface to VC-1250/DiamondScan monitors †	.....	95.00

† AM-2751A/AM-3151A/AM-3501R

Accessories for VS-1202/2020/1250R

BR-004	Standard ceiling mount bracket	.....	\$200.00
BR-005	Ceiling mount bracket arm	.....	600.00
BR-006	Ceiling mount bracket for installations with low ceiling heights	.....	185.00
BR-007	Ceiling mount for VS-1202	.....	260.00
BR-008	Ceiling mount bracket and extension arm for VS-1202	.....	700.00
VS-U1S	Variable height projector stand. Tripod design with casters	.....	825.00

Rear Projection Systems

VS-10000 100" self-contained, freestanding rear projection module consisting of projector (VS-1200RW standard), projector frame, mirror, screen, screen frame and knockdown walls and ceiling. Easy assembly required. Optional data projector (VS-1250R) and data screen available. 94" H x 94" W x 79" D. **POR***

VS-10001 100" thru-the-wall rear projection system consisting of projector (VS-1200RW standard), projector frame, mirror, screen and screen frame. Easy assembly required. Optional data projector (VS-1250R) and data screen available. 91" H x 86" W x 69" D. **POR***

VS-12001 Same as VS-10001 except: VS-1202RW standard, 120". 94" H x 102" W x 78" D. **POR***

VS-10250 100" self-contained, freestanding rear data projection module consisting of projector VS-1250R, projector frame, mirror, screen, screen frame and knockdown walls and ceiling. Easy assembly required. 94" H x 94" W x 79" D. **POR***

VS-10251 100" thru-the-wall rear data projection system consisting of projector VS-1250R, projector frame, mirror, screen and screen frame. Easy assembly required. 91" H x 86" W x 69" D. **POR***

VS-12251 Same as VS-10251 except 120". **POR***

VS-41M Videowall Projection Cubes

• 40" diagonal projection modules • 500fL brightness • 600 lines horizontal resolution • 140° horizontal viewing angle • Lightweight with screen frame less than 0.2" • Flush, flat stacking (max. 4 high) gives seamless look • No mount/stack hardware necessary • Vinyl-chloride cabinet with black leatherette covering. **\$13,500.00**

*Price On Request

COLOR MONITORS



COLOR MONITORS

Common Features

• Fully compatible with IBM® compatibles and the Apple® Macintosh™ II • 14", 16", 20", 21", 26", 33" and 37" screen sizes • Perfect for a complete range of applications: presentation graphics, desktop publishing, CAD/CAM, and more • Automatic tracking of scanning frequencies for maximum versatility • Prices do not include bases

XC3715C 37" Auto-Tracking Color Monitor

• Bright, high color saturation picture, viewable at any angle • High contrast direct-view CRT with up to 800 x 560 lines resolution for critical imaging applications • Auto-tracking circuitry automatically locks onto 15kHz-36kHz horizontal and 40Hz-75Hz vertical frequencies • 37" fine pitch CRT with dynamic beam focus for sharper imagery • Microprocessor controlled display alignment and sizing • Digital, wireless remote control with MPU scan mode memory • Accepts composite video, S-VHS, analog RGB and TTL inputs • NTSC, M-NTSC, PAL and SECAM capable • Auto-tracking circuitry • Stereo audio inputs and speakers • Worldwide regulatory standards • 120V/220V switchable power supply • Designed to fulfill the extremely versatile requirements of institutional, governmental and multi-national corporate applications • Able to operate from virtually any worldwide video standard or power source • Mac II and VGA compatible

XC3715C \$7,599.00
XB3715-1 Base995.00

XC3315C 33" Auto-Tracking Color Monitor

• 33" high contrast direct-view CRT • Up to 800H x 560V resolution • 30MHz bandwidth • Accepts TTL, analog, and television-type video signals • Fully compatible with IBM CGA, EGA, PGA, VGA and Mac II

XC3315C \$5,495.00
XB3300-1 Base899.00

HJ6505 26" Color Monitor

• Display area 38% larger than standard 20" CRTs • More readable alternative to the 20" monitors currently used on high-end workstations for large, finely detailed CAD imagery • Compatible with leading CAD/CAM workstations • Auto-tracking automatically adjusts the scanning frequency to match that of the graphics controller board utilized • .31mm dot pitch precision in-line CRT with a 90° deflection angle for sharper, clearer text and graphics • Automatically tracks horizontal (45 ~ 70kHz) and vertical (50 ~ 80Hz) frequencies • Dynamic Beam Focus (DBF) electron gun provides sharp focus over entire CRT • Ultra-high resolution, up to 1280 x 1024 pixels

HJ6505SAK Anti-glare CRT \$15,110.00
HJ6505SK 14,950.00

FHL6115 21" Color Monitor

• Capable of displaying a full 8" x 10" page with bleed margin • 16.5% (24 square inches) larger area than a 19" PIL monitor • 52% flatter than a standard PIL CRT • Anti-glare, bonded CRT faceplate • .31mm dot pitch CRT • DBF electron gun provides sharp focus over entire CRT • Microprocessor-based auto-tracking for versatility • 110MHz video bandwidth • Ideal for high ambient lighting conditions • Microprocessor-based memory system • Well-suited for WYSIWYG desktop publishing

FHL6115SBK Bonded anti-glare CRT \$4,900.00
FHL6115STK High contrast CRT 4,600.00

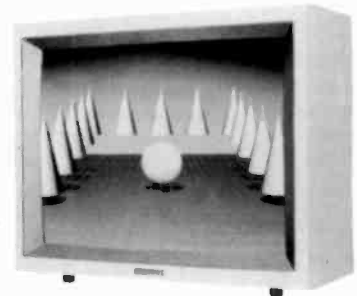
HL6915 20" Color Monitor

• DBF electron gun allows viewing of crisp, clear pixels over the entire CRT face • Ultra-high resolution images up to 1280 x 1024 pixels • 110MHz video bandwidth provides sharp, clear viewing of highly detailed drawings • Bonded anti-glare CRT on SBK version • Convergence of 0.3mm • Higher contrast ratio for viewing ease • Improved raster regulation • Higher video bandwidth • New circuitry provides high contrast ratio and brightest viewing of high resolution images • Digital microprocessor scan mode memory memorizes up to 20 frequency settings of horizontal width, phase and centering plus vertical size and position • Auto-tracking from 30-64kHz horizontal for versatility • Tilt swivel base included

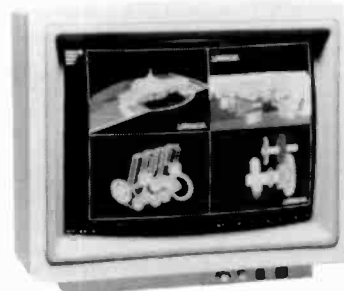
HL6915SBK Bonded anti-glare CRT \$3,790.00
HL6915SATK Diamond matte anti-glare CRT 3,570.00
HL6915STK High contrast CRT 3,495.00



XC3715C With
XB3715-1 Base



XC3315C



HJ6505



FHL6115



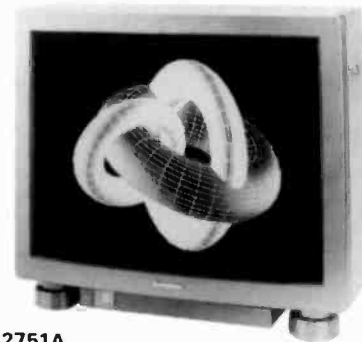
HL6915

MONITORS/MONITOR RECEIVER/ S-VHS RECORDER/PLAYER

AM-2751A 27" Color Multiscan Monitor

- Mitsubishi's DiamondScan™ frequency scanning automatically senses and locks onto horizontal scanning from 15-36kHz and vertical scanning from 45-90Hz
- Designed specifically for computer graphics, video and imaging applications
- Compatible with IBM® PC, PGA, VGA, EGA, CGA and Macintosh® II graphics standards
- Wide range of input signals: NTSC/PAL, composite video; S-Video terminal (separate Y/C); RGB analog; RGB TTL; monochrome TTL; 1 pair detachable speakers; 5W per channel audio amplifier; wired remote control of power on and input switching
- Color select switch accommodates both 8-color and 64-color standards from RGB TTL
- 640 x 480 pixel resolution, RGB • 600 lines horizontal resolution, video
- Microprocessor control system provides automatic vertical raster height adjustment
- High-fidelity stereo audio outputs
- 23¹/₈" H x 26¹/₄" W x 19" D

AM-2751A\$3700.00

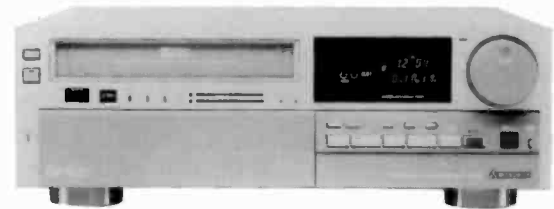


AM-2751A

AM-3151A 31" Color Multiscan Monitor

- DiamondScan enables it to automatically sense and lock-on computer and video horizontal scanning frequencies ranging from 15-36kHz and vertical scanning frequencies from 45-90Hz
- For computer graphics, video and imaging applications
- Accepts IBM PC, PGA, VGA, EGA and CGA and Macintosh II graphics standards. Also accepts NTSC and PAL television standards
- Inputs for S-VHS and RGB TTL sources with 2 inputs each for composite and RGB analog sources
- Output jacks for RGB analog and composite are also provided
- 640 x 480 pixel resolution, RGB • 600 lines horizontal resolution, video sources
- Color select switch accommodates 8-, 16- and 64-color standards from RGB TTL
- Microprocessor control system provides automatic vertical raster height adjustment
- 26¹/₂" H x 30³/₈" W x 21³/₄" D

AM-3151A\$5200.00



BV-1000

AM-3501R 35" Color Multiscan Monitor

- High-resolution DiamondScan monitor with automatic variable scanning from 15 to 35kHz
- Compatible with IBM PC PGC/EGA/CGA
- NTSC composite video input
- RGB analog input
- RGB TTL input
- High-resolution graphic display for computers to workstations, with possibilities for countless other applications
- 2-channel audio amplifier and speakers
- Monochrome TTL

AM-3501R\$6900.00

GP-35 Glare protection screenPOR*
1540-500 30" 2-shelf metal cart370.00
VIMTAM3501H ATA shipping case with handles and casters665.00

Interface Cables for AM-2751A, AM-3151A, AM-3501R

C-TTL TTL 9-pin TTL out to 9-pin TTL in\$50.00
C-VGA BNC IBM PS295.00
C-PGA BNC IBM PGA 9-pin95.00
C-MAC BNC Mac II95.00
C-25 BNC Analog95.00

SMR-2601R Color Data Monitor/Receiver

- 26" step scan monitor receiver
- Handles horizontal scanning frequencies of 15.6 ~ 15.8kHz and 30 ~ 36kHz (selects automatically), and vertical scanning frequencies of 50 ~ 90Hz
- S-VHS, composite (x2), 8-pin VTR, RGB analog (x2) inputs
- RGB analog and composite (x2) outputs
- 181-channel cable compatible FS tuning
- Wireless remote control
- Antenna A/B
- Variable (x1) and fixed (x1) stereo audio outputs/inputs
- Built-in front-firing speaker
- 24¹/₄" x 26⁷/₁₆" x 20³/₈" • 105 lbs.

SMR-2601R\$2600.00

M-0923 9" B/W Video Monitor

- High resolution > 650 lines
- Composite BNC input and output
- Termination switch

M-0923\$235.00

M-01423 14" B/W Video Monitor

- High resolution
- Composite BNC input and output
- Flat screen
- CRT style
- Swivel base

M-01423\$365.00

AM-1480 14" Color Video Monitor

- Accepts NTSC and Y/C separate video
- BNC input and output

AM-1480\$500.00

BV-1000 S-VHS Hi-Fi Editing Recorder/Player

- Deck-to-deck editing with ± 5 frames accuracy
- Flying erase heads
- Jog/shuttle dial permits variable visual search, still frame, variable slow motion, frame-by-frame advance
- 430 lines horizontal resolution in S-VHS mode
- 14MHz, 8-bit digital memory
- Special effects include 9-100 split screens, freeze frame, edit window, picture-in-picture, strobe effect, multi-window strobe, variable speed-scan and window size
- Insert edit, fine edit and audio dubbing
- High-speed 99-position address and 19-position index search capability
- VHS-HQ, CCD noise reduction, comb filter and twin digital auto tracking circuits for image enhancement
- Hi-Fi/MTS stereo audio circuitry
- Real time counter, counter memory, time remaining, auto on/play, auto repeat, auto rewind, fast play and reverse play
- Full-function wireless remote control
- Rackmountable

BV-1000\$1650.00

R-1000 Rackmount for BV-1000100.00

*Price On Request

COLOR MONITORS



COLOR MONITORS

Common Features

- Fully compatible with IBM® compatibles and the Apple® Macintosh™ II • 14", 16", 20", 21", 26", 33" and 37" screen sizes
- Perfect for a complete range of applications: presentation graphics, desktop publishing, CAD/CAM and more • Models with adjustable fixed frequencies for optimum performance • Models with automatic tracking of scanning frequencies for maximum versatility • Prices do not include bases unless indicated otherwise

HL6935 20" Diamond Scan 20L

- Up to 1280H x 1024V resolution • Analog input signal • 100MHz bandwidth • Microprocessor enhanced programmable display settings • Scan frequency 30-64kHz horizontal and 50-90Hz vertical
- Tilt and swivel base included

HL6935ATK Non-glare CRT\$3445.00

HC3905 20" Color Display Monitor

- Microprocessor based auto scanning system for versatility and ease of use (15.7-38kHz horizontal and 45-90Hz vertical) • Analog or TTL input • Pre-set modes for 800 x 600, IBM CGA, EGA, VGA, 8514/A and Apple Macintosh II • High contrast anti-glare CRT • Standard or long persistence phosphors available • 0.31mm dot pitch • Resolution: up to 1024 x 788 pixels interlaced

HC3905ATK Non-glare CRT\$2670.00

HC3905L9ATK L.P. phosphor with non-glare CRT2720.00

HL6605ATK/FL6615ATK 15" Color Display Monitors

- Microprocessor based auto scanning system for versatility and ease of use • Compatible with IBM PS/2 VGA, Apple Macintosh II and many other graphics boards • Accurate digital display control; memorizes up to 20 combinations of settings for horizontal width, phase and centering, pincushion correction, vertical height and centering • High contrast or high contrast anti-glare CRTs available • Dot pitch: 0.31mm (HL6605ATK); 0.28mm (FL6615ATK) • Resolution: 1024 x 788 typical (HL6605ATK); 1280 x 1024 non-interlaced (FL6615ATK)

HL6605ATK\$2030.00

FL6615ATK2310.00

FA3425 14" Diamond Scan 14L

- Automatically scans all horizontal frequencies between 15.7 and 35.5kHz and vertical frequencies between 50 and 87Hz • Compatible with IBM PS/2, PC/AT/XT, Apple Mac II and IIGS • Picture size compatible with EGA, CGA, MCGA, VGA and 8514A (with all controls to clicked position) • Interlace mode also available • 4 modes (color, green, amber and white) selectable by Text switch • Accepts TTL and analog video input • Accepts TTL separate sync, TTL composite sync and sync on green • 14" high-resolution CRT with 0.28mm dot pitch • XF-type gun for the strictest focusing requirements of high-density displays • Compact, lightweight chassis • High contrast, non-glare CRT

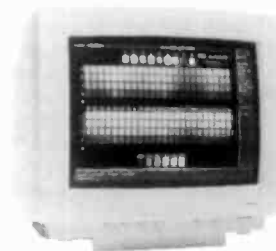
FA3425L9ATK For interlace mode\$1175.00

FA3415ATK For non-interlace mode1015.00

AUM1381ATSV 14" Diamond Scan 14

- 800H x 600V maximum resolution • Analog, TTL, NTSC input signals • 30MHz bandwidth • Scanning frequency: 15.6-36kHz horizontal, 45-90Hz vertical • High contrast, non-glare CRT

AUM1381ATSV Including tilt and swivel base\$889.00



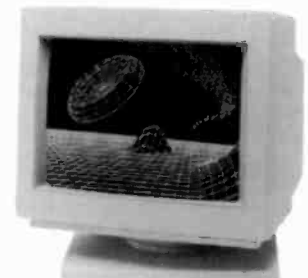
FA3425



FA3415



XC1429CH



XC1410C

XC1429CH 14" Color Display Monitor

- Compatible with IBM Personal System/2-color displays • Advanced color capability—display up to 256 colors on screen from a possible palette of 262,144 colors • Analog, multimode color display with advanced text, graphics and imaging capability • 14" high-resolution CRT with 0.28mm dot pitch • XF-type gun for the strictest focusing requirements of high-density displays • Compact, lightweight chassis • For VGA and MCGA • High contrast, non-glare CRT

XC1429CH\$658.00

XC1410C 14" High Resolution Color Display Monitor

- Designed for enhanced business graphics applications and office automation • Dual horizontal scanning frequency and TTL RGB input • 640 dots x 350 lines at 22kHz or 640 dots x 200 lines at 15.75kHz • Super-high contrast color CRTs for crisp, clear character and graphic displays • Multi-step focus electron gun for the severe focusing requirements of high-density displays • Compact chassis • Advanced video and deflection circuits ensure stable, clear and brilliant images without distortion

XC1410C\$560.00

XC1430C Same as XC1410C with 0.31mm mask pitch. . .595.00

XC1434C Same as XC1410C for AT&T789.00

S340-10 Color Sublimation Thermal Printer

- Produces near photographic quality color hardcopy, including fine detailed images, solid patterns and smooth curves for consistent, state-of-the-art computer graphics applications • 150 x 150 DPI continuous-tone printing capability • Smooth transitions between colors and shades • Capable of producing up to 16.7 million colors • Uses continuous-tone, rather than a dithering technique, to print images • A full-color letter-size page can be produced in approximately 100 seconds • Full page buffer • Single sheet adjustable paper cartridge accommodates letter and legal paper or transparency sizes • Prints images 2 to 3 times larger than the original • Easy-open top for replacement of ink rolls • Maximum system and workstation compatibility • Now bundled with Superprint, Import Plus, chooser level Mac I/F kit or Sun newsprint driver

Specify: S340-10M (Mac); S340-10D (Import Plus); S340-10W (Superprint); S340-10S (Sun) \$13,995.00



S340-10

G370-10U Color Thermal Transfer Printer

- Combines high resolution color printing technology and versatile PC compatibility all in a small footprint design • Fast and easy to use for all printing applications • Ideal for a variety of imaging applications • 300 dpi • Provides high resolution graphics for detailed, solid images • Prints 7 primary colors • Capable of printing thousands of color combinations, depending on the type software and printer controller used • Compatible with all IBM® compatible and Apple® Macintosh™ II computers • Print enlargement capability for producing images 2 to 3 times larger than original • Adjustable paper cassette

Specify: G370-10UM (Mac); G370-10UD (Import Plus); G370-10UW (Superprint); G370-10US (Sun) \$5,995.00



G370-10U

G330-70 Color Thermal Transfer Printer

- Video interface built into printer, compatible with many popular graphics boards • Up to 4096 colors for clear images • Color thermal transfer technology delivers bright colors • Computer system must be IBM PC/XT/AT or compatible, IBM PS/2™, or Apple Macintosh II • Graphics adaptor must be CGA, EGA, PGC, VGA or compatible, or Apple Macintosh II • Delivers fast, high-quality color output on glossy paper or transparency film • Built-in video interface enables it to create a full-color, permanent hard copy of an image viewed on your computer monitor • 150 dpi resolution • Ideally suited for presentation graphics, paint-type graphic art and PC CAD • Easy to use and operates smoothly in several PC environments • Can print the screen display from many popular graphics boards

G330-70 \$3,390.00



G330-70

G650 Color Thermal Transfer Printer

- Same basic model as the G330-70 • 300 dpi resolution • 8-bit Centronics® parallel • Speed: color 60 sec./page, monochrome 25 sec./page • Cut sheet paper: A, B size • Transparencies: A, B size

G650 \$6,995.00



G500

G500 Printer/Plotter System

- Compatible with Auto-CAD® and Lotus 1-2-3® • Operates with IBM PCs and compatibles • Frees up PC during printing • 240 dpi resolution • Continuous forms: A size • Transparencies: A size • Speed: color 60 sec./page, monochrome 25 sec./page • 8-bit Centronics parallel

G500 \$4,700.00

B350-70 Video Interface for G650/G500

- Captures up to 4096 colors from most video sources • Downloads image to video controller in 4 seconds or less • Captures screen resolutions up to 1280 x 1024 in 4 seconds or less • Multiple copy capability up to 99 copies • Compatible with pixel rates up to 125MHz • Supports 16 gray levels

B350-70 \$4,900.00



B350-70

VIDEO PRINTERS



COLOR VIDEO PRINTERS

CP-210U DiamondScan Color Video Printer

• Sublimation-type thermal transfer color video processor • High resolution (1280 x 1218 dots maximum in centronics mode) • Auto-scan from 15-35.5kHz. 8 bits (256 gradations) and 16.7 million colors per dot • Print image size 7.5" H x 5" V • Multi-image capability • Separate R and B level adjustments for RGB • Expanded memory • Multiple gamma curve selection • Unit not shipped with paper \$7700.00

CP-110U DiamondScan Color Video Printer

• Sublimation-type thermal transfer color video copy processor • High resolution (800 x 640 dots) • Auto-scan from 15-35.5kHz. 8 bits (256 gradations) and 16.7 million colors per dot • Print image size 4" H x 3" V in approximately 70 seconds • Separate R and B level adjustments for RGB • Unit shipped with paper and ink cartridge for 20 Images \$3400.00

CP-10U Color Video Printer

• Sublimation-type thermal transfer color video printer • High resolution (6 dots/mm—640 x 464) • Print image size 4" (H) x 3" (V) approx. 70 seconds • Composite input. 128 gradations (210,000 colors) • Wireless remote. Auto contrast correction • Multi/strobe printing • Picture-in-picture • Unit shipped with paper and ink cartridge for 12 images \$1399.00

Color Video Printer Paper

- CK-10S Standard high gloss paper for use with CP-10U. Pack contains paper and ink cartridge for 50 prints. Paper size 6" x 4" \$ 40.00
- CK-10P Standard size high gloss paper preprinted for postcard use with CP-10U. Pack contains paper and ink cartridge for 30 prints. Paper size 6" x 4" 35.00
- CK-10C Standard size high gloss, adhesive backed paper for use with CP-10U. Pack contains paper and ink cartridge for 30 prints. Paper size 6" x 4" 35.00
- CK-10T Standard size film for making color transparencies with CP-10U. Pack contains film and ink cartridge for 30 prints. Paper size 6" x 4" 35.00
- CK-100S Standard high gloss paper for use with CP-110U. Paper size is 4.3" x 4.3" and is packed 100 sheets of paper per pack. Pack also contains ink cartridge for 100 color images 70.00
- CK-100L Large size high gloss paper for use with CP-110U. Paper size is 3.9" x 5.9" and is packed 100 sheets of paper per pack. Pack also contains ink cartridge for 100 color images 90.00
- CK-100TS Standard size film for making color transparencies with CP-110U. Paper size is 4.3" x 4.3" and packed 50 sheets per pack. Pack also contains ink cartridge for 50 color transparencies 75.00
- CK-100BS Standard size high gloss paper for use with CP-110U. Paper size is 4.3" x 4.3" and packed 100 sheets per pack. Pack also contains ink cartridge for 100 black and white images 70.00
- CK-100P Large size high gloss paper preprinted for postcard use with CP-110U. Paper size is 3.9" x 5.9" and packed 20 sheets per pack. Pack also contains ink cartridge for 20 color images 28.00
- CK-200SA Standard high gloss paper for use with CP-210U. Paper size is 8.5" x 7.9" and is packed 100 sheets of paper per pack. Pack also contains ink cartridge for 100 color images 195.00
- CK-200LB Large size high gloss paper for use with CP-210U. Paper size is 8.5" x 11" and is packed 50 sheets of paper per pack. Pack also contains ink cartridge for 50 color images 185.00
- CK-200TS Standard size film for making color transparencies with CP-210U. Paper size is 8.5" x 7.9" and packed 50 sheets per pack. Pack also contains ink cartridge for 50 color transparencies 185.00
- CK-200BS Standard size high gloss paper for use with CP-210U. Paper size is 8.5" x 7.9" and is packed 100 sheets per pack. Pack also contains ink cartridge for 100 black and white images 185.00

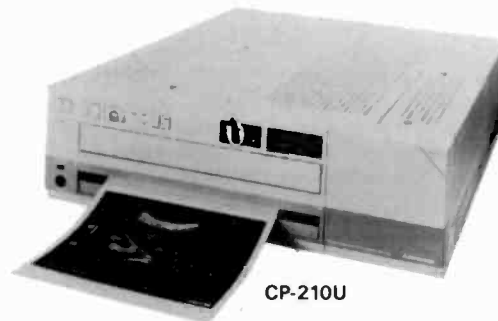
MONOCHROME VIDEO PRINTERS

P-75U Monochrome Video Printer

• Ultra-high resolution, 1280 dots/line = 162 dots/inch • Large prints (6" x 8") • True 64 level gray scale • Composite (PAL, Secam, NTSC); RGB analog input DiamondScan capable: horizontal scanning frequency 15-35.5kHz • Auto-load, auto-cut • Preview/monitor function • Overscan/underscan • Frame/field • Positive/negative • Wired remote control \$2850.00

P-65U Monochrome Video Printer

• DiamondScan capable: horizontal scanning frequency 15-35.5kHz • High resolution, 640 x 480 dots • Composite (PAL, Secam, NTSC), TTL, RGB analog (with Autoscan) and parallel data interface inputs • Automatic paper loading and cutting • Built-in 80-character generator allows coding each print with date, time and comments • On-screen menu: Includes brightness, contrast, color, tint, picture, sharpness, frame and field • Wired remote control included • Prints positive or negative • Variable print sizes accommodate overscan, underscan and zoom function • LED mode indicators • Automatic gain control • True 64 gray scale gradation • Preview monitor checks and adjusts images, real time or memorized • 96-step motor eliminates horizontal noise \$1900.00



CP-210U



P-65U

P-71U Monochrome Video Printer

• Multi-source inputs: composite (PAL, Secam, NTSC), TTL or parallel inputs • 8-bit parallel Centronics® interface offers four modes: Character mode (ASCII character set: 96 char.); Line scan graphic mode; 16 gray scale dot graphic mode; 2 gray scale dot graphic mode • Field/frame selectable • 21 second print time • Video frame memory catches and stores video images • Low-cost prints; up to approx. 90 prints per roll • Underscan capability • Multiple copy capability • Monochrome images can be reversed (negative/positive) • 16' wired remote control \$1700.00

P-40U Monochrome Video Printer

• High frame resolution (800 x 500 dots) • 256 level gray scale • Composite (PAL, NTSC) input. 5 seconds print time • UL544 medical approval • Multiple gamma curve printing • Custom user settings • Additional memory • Print counter • New easy load/print mechanism • Built-in test pattern • Wired remote • Rear remote terminal • 3" x 4" image \$1400.00

P-63UM Monochrome Video Printer

• High frame resolution, 640 x 480 dots • 64 levels of gray scale (4-bits digital and 2-bits dither) • Composite (PAL, Secam, NTSC) and GP-IB inputs • Anti-tearing circuitry for use with time lapse security VCRs, UL-544 medical approval • Compatible with high density paper • Wired remote • Positive/negative • 3" x 4" image \$1250.00

P-50U Monochrome Video Printer

• Low-cost 57' rolls of thermal printing paper • Print direction can be normal or reverse • Pocket size pictures 3 1/4" x 4" • Can be used with Videotex system • Optional wired remote control • Prints in only 15 seconds • 280 dots (horizontal) • 234 dots (vertical) • Color: black \$425.00

Monochrome Video Printer Paper/Accessories

- K-50U Normal grade thermal paper for use in P-50U. Approx. 220 prints per roll. Packed 4 rolls per box \$ 15.00
- K-61S Super grade thermal paper for use in models P-50U, P-63UM, P-65U. Better contrast than normal grade. Approx. 180 prints per roll. Packed 4 rolls per box 44.00
- K-65H High-density thermal paper for use with P-40U, P-63UM and P-65U. Super high contrast features, with black dye image. Approx. 180 prints per roll. Packed 4 rolls per box 75.00
- K-65HM High-density thermal paper for use with P-40U, P-63UM and P-65U. Super high contrast, with blue dye image. Approx. 180 prints per roll. Packed 4 rolls per box 75.00
- K-70S Super grade thermal paper for use in models P-71U and P-75U. High contrast paper. Approx. 90 prints per roll. Packed 4 rolls per box 80.00
- K-75H High-density thermal paper for use with P-75U. Super high contrast, with black dye image. Approx. 90 prints per roll. Packed 4 rolls per box 120.00
- K-75HM Same as K-75H except with blue dye image 120.00
- TDG-10U Time/Date Generator. Can put time and/or date on monitor screen or print. 72-hour battery backup. Time display is in hours, minutes, seconds 250.00

DP-1200S MultiSync™ Video Projection System

- 2-piece projection system with variable projected picture size from 70" to 120", measured diagonally; large enough to accommodate large audiences
- Separate projector and control unit for flexible operation; permits total control in permanent installations
- Professional-grade 7.0" CRTs are optically coupled and liquid cooled for improved picture sharpness and brightness
- 6-element, all-glass lenses for superlative brightness (475 lumens, peak white)
- Multi-synchronous capability locks in data inputs from 15-36kHz (H), 38-100Hz(V); compatible with IBM CGA, EGA, PGA, VGA, 8514A and others
- 3 RGB inputs (control unit) for high quality connection to a computer permit high-resolution color graphic displays
- Full 2000 character computer text display (80 columns x 25 rows)
- Comb filter circuitry for superior color reproduction and incredibly fine picture detail; 550 lines of horizontal resolution via video inputs
- Wireless remote control, in addition to wired remote operation
- Multiple video monitor inputs/outputs control unit for full flexibility
- 2 sets of direct-line video inputs with BNC video connectors for a more secure connection
- Loophrough output from a video source
- Special ceiling-mount and rear-projection installations possible via scan reversal (serviceman's adjustment)
- Digital convergence control for superlative accuracy; 8 convergence preset memories

DP-1200S projects an image on any wall or screen, 70" to 120", measured diagonally. This 2-piece video projector has 2 sets of video inputs to handle VCRs, VDPs, camera inputs and more. Multi-Sync circuitry accepts inputs from all 3 IBM color graphics boards for IBM CGA, EGA and PGA.

DP-1200S \$11,300.00

GP-3000 GraphicSmart Graphics Projection System

- Multiple Frequency Graphics Projection System capable of projecting high resolution computer graphics and video images from 60" to 300" diagonally
- Utilizes sophisticated digital convergence circuitry to allow pinpoint accuracy of the picture by back-lit remote control
- Unit will display computer graphics information within a range of 15-55kHz horizontal, 38-100Hz vertical
- High resolution hybrid lenses
- Liquid cooled CRTs
- IBM CGA, EGA, PGA, VGA and 8514A compatible
- System includes: projector, 5-input system interface (SI-5320), convergence setup remote control (wired or wireless), user remote control (wired or wireless), RGB connecting cables, control cable, 9-pin to 9-pin and 9-pin to 15-pin interface cables, ceiling mount and operators manual

GP-3000 \$14,000.00

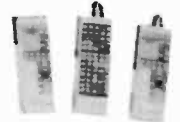
GP-5000 GraphicSmart HR Projection System

- Multiple frequency high-resolution graphics projection system capable of projecting ultra-high resolution computer graphics, HDTV and video images from 100" to 150" diagonally
- Utilizes sophisticated digital convergence circuitry to allow pinpoint accuracy of picture convergence by backlit remote control
- Unit will display video and computer graphics information within a range of 15-75kHz horizontal, 38-100Hz vertical
- Ultra-high resolution lenses, liquid cooled, optically coupled 9" CRTs
- Compatibility includes, but is not limited to, quad video, virtually all personal computer standards, HDTV sources, as well as the majority of CAD/CAM workstations
- System includes: projector, 5-input system interface (SI-5320), convergence setup remote control (wired or wireless), user remote control (wired or wireless), RGBH/V connecting cables, system interface control cable, 9-pin to 9-pin filter adaptor, 15-pin to 9-pin adaptor, ceiling mount kit and owner's manual

GP-5000 \$19,500.00



DP-1200S



GP-5000



IDC-1000

IDC-1000 ImageSmart™ Improved Definition Video Converter

- Improves picture quality for display by converting any composite NTSC signal source as well as the super-high resolution S-Video VCR format to high scan 31.5kHz non-interlaced analog RGB
- Works with all NEC DataSmart Projection Systems and Data Monitors
- 2 levels of digital noise reduction
- 3 positions of incremental freeze
- Picture freeze
- Stereo audio-follow-video switching
- 3 video inputs with stereo audio
- Chroma on/off
- 8-pin EIA-J VTR input
- Rackmount accessory
- Wired/wireless remote control
- 4⁹/₁₆" H x 16¹⁵/₁₆" W x 17³/₁₆" D

IDC-1000 \$4,335.00

PC-CTL Projector Software Control

- Permits full remote control of NEC GP-Series projectors
- Convergence as well as all picture parameters and input switching is conveniently controlled by computer
- Ideal for users who have multiple projectors, change screen sizes, move their projectors regularly or require discrete remote control capability
- Bi-directional communication allows the user to download convergence and picture information from the projector in file format onto disk, and upload picture information files to the same or other projectors
- Storage capacity for multiple image files is limited only by data storage capacity of the host computer
- Requires: IBM or compatible AT class (80286 processor or better) computer, DOS version 3.1 or higher, 1 RS-232 COM PORT. RS-232 to RS-422 converter and cabling required

PC-CTL \$249.00

COLOR VIDEO/GRAPHICS MONITORS/PC-VCR

NEC

DM-2000P/DM-2600P/DM-3000P

DataSmart™ Data Monitor Series

- S-Video input/output for S-VHS video cassette recorder • Compatible with IBM®, CGA®, EGA®, VGA® and PGA® graphics adaptors • Multiple sync capability—automatically locks on data inputs 15-35.5kHz
- Available in 30", 26" and 20" diagonal sizes • Picture tube with flat, square screen for reduced geometric distortion • Invar shadow mask resists deformation due to heat. Maintains color purity • 34-pin multi-connector for easy interface • Built-in stereo amplifier and stereo speakers, external speaker output terminals • Picture tube corrects for pincushion distortion, so straight lines appear straight • Professional comb filter for improved performance; horizontal resolution of 600 lines for DM-3000P (560 lines for DM-2000P and DM-2600P) • Black matrix picture tube with dark screen glass for excellent contrast ratio (52% tinted) • Switchable AFC: Fast for slow-motion or freeze-frame of videotapes, Slow to correct horizontal jitter from weak signals • Blue raster switch for quick, correct setup • 3.58MHz trap filter provides sharp edges on composite video computer graphics, eliminates "crawling" • High DC restoration for a stable picture on high-contrast subjects; provides >90% restoration • Heavy-duty switching power supply maintains picture size despite AC voltage fluctuation • Video 1 input/loop output with BNC; independent L/R audio connections • Video 2 input with BNC connector; independent L/R audio connections • Monitor output with BNC video connector sends out whatever is on screen; independent L/R audio connections • 8-pin VTR connector with separate switch position offers 1-cable connection • Earphone output jack • Detachable 3-prong, grounded AC cable for safe connection • Full range of controls: color, tint, black-level, picture, sharpness, RGB contrast, RGB H-position

The DM-2000P/DM-2600P/DM-3000P DataSmart Series is a complete lineup of data monitors for large screen data display applications. Available in 20", 26" and 30" sizes, DataSmart monitors offer you the ability to display high-resolution computer graphics, composite video and the S-video format. The DataSmart Series of monitors will accept horizontal scanning frequencies within a range of 15-35.5kHz (TTL or analog). This allows compatibility with IBM, CGA, EGA, PGA and VGA graphic adaptors. Color purity is maintained through an Invar shadow mask. The high-contrast black matrix picture tube combined with comb filter circuitry offers remarkable detail—600 lines resolution (DM-3000P). DataSmart monitors are ideal for large conference rooms, training rooms or for major presentations.

Specifications

Power:	120VAC, 60Hz
Dimensions:	DM-2000P—18" H x 20 ³ / ₁₆ " W x 18 ¹⁵ / ₁₆ " D; DM-2600P—23" H x 26" W x 19 ⁵ / ₈ " D; DM-3000P—28 ¹ / ₈ " H x 30 ⁹ / ₁₆ " W x 21 ¹ / ₄ " D
Weight:	DM-2000P—55.2 lbs.; DM-2600P—89.3 lbs.; DM-3000P—152.2 lbs.
DM-2000P 20"	.....\$2750.00
DM-2600P 26"	.....\$3900.00
DM-3000P 30"	.....\$5100.00

ICB-34 Cable

- 4 BNC (R, G, B and sync) to 34-pin cable for analog interface to DM monitors • 2' length

ICB-34\$85.00

PV-S98A PC-VCR

- Ideal for video filing and desktop video presentations from multimedia sources • PC controls all VCR functions by way of RS-232C serial interface • Advanced "full load" mechanism for quick command response • 3 speeds: forward, play and slow motion • Insert/assemble editing with flying erase head • MTS stereo 155-channel cable ready programmable tuner • Built-in address generator allows address post-dubbing of pre-recorded tapes • Compatible with Apple Macintosh II or MS-DOS architecture • Single frame accurate record/ playback capability and Jet Search (2.5 minutes on T-120) • Random access controlled through either RS-232C port or via wireless remote control\$2100.00



DM-2000P



PV-S98A

CC2-A

1.5 meter control cable for connecting PV-VCR to Apple Macintosh computer\$55.00

CC2-D

1.5 meter control cable for connecting PC-VCR to DOS type and Commodore Amiga computers. 9 to 25-pin adaptor included\$55.00

Software Products—Developers Tool Kits

SWDK-A

Working with Apple HyperCard 2.0, this Developers Tool Kit provides HyperCard interactive training and desktop video applications. Supports the Raster-Ops 364 Video Overlay Card. Runs on large and small screen Macintosh computers\$149.00

SWDK-D

Operating with Microsoft Windows 3.0 and Asymetrix Tool Book (run time version), this Developers Tool Kit allows construction and testing of control command scripts. These scripts allow specific PC-VCR routines to be run from any DOS type computer\$149.00

VCRSW-D

Multi-purpose program for use on all DOS type computers. The program has a choice of 3 operating levels with a minimum requirement of DOS at its most basic level and Windows 3.0 and a Videologic DVA 4000 board at its most sophisticated. With Windows 3.0, this program allows control of 2 PC-VCRs for deck to deck transfers\$299.00

SFVF-D

For use on DOS type computers, this is a proprietary NEC version of the SantaFe Media Manager program by HSC Software. This is an ideal program for video filing applications and provides PC-VCR control from the Borland Paradox Data Base Engine. This program is compatible with the Matrox Illuminator 16, Videologic DVA 4000 and Truevision Targa 16+ boards\$299.00

PICLNK-D

This is an interactive authoring program for use with the PC-VCR. Allows presentation and construction of interactive screens to be used with either NEC's DM-2000PMT touch screen monitor or for mouse control on other monitors. Uses Targa captured images as well as PCX file format for EGA and VGA graphics with live video supplied from the PC-VCR. Excellent for commercial, educational and training applications\$299.00

Video Toaster

- **Digital Video Effects**—Real time (60fps) geometric manipulation of incoming live video. Just point and click for flips, spins, tumbles, blinds, squeezes, zooms (with variable borders), splits, trajectories, push-on/off, digital trails, mosaics, montages and hundreds more
- **Character Generator**—Generate 35ns text in 16.8 million colors with variable drop and cast shadows, outlines and transparent shadows. Includes 25 standard fonts plus unlimited user-definable fonts, 100 pages of on-line storage, graphic separators and full spectrum background color gradations. Features variable speed smooth crawl and scroll at 60 fps
- **Color Processing**—The Video Toaster's color processing engine can create color negatives, monochrome, solarization, posterization, color vignettes and photographic filter effects
- **Dual Frame Buffers**—Render 24 bit 3-D images and paint on a 24 bit canvas with optional software. High speed frame loading in less than 3 seconds
- **Production Switcher**—Performs dissolves, wipes, key and color effects between any of 7 channels. Includes 4 synchronous live video sources, 2 frame buffers and 1 background generator (matte color). The Toaster's unique integration allows switcher and digital effects to be combined, such as fading a digital effect
- **Preview Output**—Compose camera shots or preview frame buffers prior to transitions
- **Intuitive Interface**—Make transitions by pulling the on-screen T-bar or with the variable speed "Auto" control. Just point and click with the mouse to perform any Toaster function
- **Linear Keyer**—Overlay live video sources or combine live video with a frame buffer
- **Digital Still Store**—Stores up to 1000 video still frames to disk. 1 buffer can be loading while the other is displaying. Perform digital transitions or wipes between buffers
- **Frame Grabber**—Capture up to 8 consecutive NTSC fields at 1/60th of a second each. Frames may be saved to disk with or without motion and later recalled with the still store
- **Integrated Design**—The all-in-1 integration of the Toaster allows powerful features such as decaying and regenerating trails, digital effects on keys and digital manipulation of character generator output

Specifications

Video

Standard: NTSC
Inputs: 4 composite synchronous input; BNC connectors; 1V p-p coherent chroma; software controllable 75 ohm termination or high impedance for loopthrough on each input; keyed clamping DC restore

Main Video

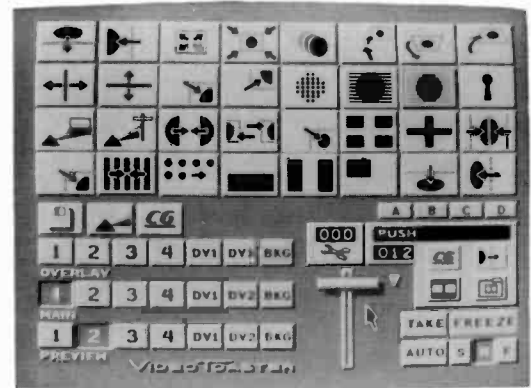
Output: 1V p-p composite into 75 ohms

Preview

Output: 1V p-p composite into 75 ohms

Reference

Video: Composite color or blackburst on video input #1



Video Toaster

Sequence

Trigger: GPI trigger with optional cable and software
Insertion Delay: 400ns video in to main out
Sync

Generator: Sync, blanking and burst internally regenerated. Meets all FCC broadcast video and RS-170A specifications

S/N Ratio: > 55dB

Sampling Rate: 14.31818MHz

Quantizing: 8 bits

Differential

Phase: < 3 degrees

Luminance

Bandwidth: +0/-3dB to 5MHz

Luminance

Resolution: > 400 lines

Memory: 8 fields (expandable)

Still Store: Dual outputs independently routed to switcher; stores 1, 2, 4 or 8 fields

Capacity: Up to 1000 frames depending on hard disk

Load Time: From RAM: < 1/6 second

From hard disk: < 3 seconds

Switcher: 7 inputs: external video 1-4; digital channel 1; digital channel 2; matte generator
 Independent software control of input channel at every pixel (70ns)

Linear keyer: 16 steps at 70ns resolution; 256 steps at 280ns resolution

Dual luminance keyer for dual threshold keying or 2 independent keys

Dual clip level control with 256 steps
 Key input switchable to any input or digital still store

Independently selectable Preview output
Digital Effects: Arbitrary geometric remapping at 60 fps

Host

Computer: Amiga 2000 or 2500; 3M bytes of RAM recommended; hard drive recommended for still store

Power

Requirements: Power supplied by host computer

Dimensions: 13.5" x 5" x 1"

Video Toaster \$3995.00

FILM SCANNER/ COLOR PRINTER

Nikon®

LS-3500 35mm Film Scanner

The LS-3500 scans film in 4096 x 6144 pixels over a 24mm x 36mm area. Reproduced images have perfect color registration and ultra-high definition.

Scans Any 35mm Film

Read directly from positive or negative color film with extremely accurate color reproduction. Direct reading from monochrome film is also possible.

Accurate Color Reproduction

Red, green and blue are each sampled in 8-bit code to provide 256 color gradations. Sequential scanning of the 3 color screens produces more than 16.7 million colors. Color correction is also possible.

A Wealth of Commands

Many simple commands are provided in ASCII codes. They provide the user with scanning and processing flexibility through specifying parameters such as cropping area, exposure, color balance, gamma curve, etc.

Standard Interfaces

The LS-3500 can be connected to most types of computers, because it features both RS-232C and GPIB (IEEE-488) as standard equipment. The GPIB interface in particular enables high-speed data processing.

Flexible Color Reproduction

Colors are reproduced accurately and automatically to maintain the original quality of both positive and negative films. Specific color matches can be obtained through simple adjustments.

Easy Operation

The operator simply places the film holder in the LS-3500. The scanner automatically performs a densitometric analysis, establishes color table data and scans the image, sending the data to the computer.

Compact and Lightweight

The LS-3500 is small enough (11.3" x 15.1" x 5.6") for desktop use and weighs only 15.4 lbs. for easy portability to other workstations.

9201	LS-3500 Color Film Scanner	\$10,495.00
9203	LS-3500 Color Film Scanner (220V)	10,495.00
9205	ColorFlex Software (Mac)*	595.00
9210	ColorFlex Software (IBM)*	595.00
9401	Adobe Photoshop Software*	895.00
9402	Letraset Colorstudio Software*	995.00
9404	U-Lead PhotoStyler Software*	795.00
9220	NB-GPIB Board and SW Set (Mac Version)	495.00
9221	GPIB-PCIIA Board and SW Set (IBM XT/AT Version)	395.00
9223	GPIB Shielded Cable (2m)	100.00
9260	Strip Film Holder**	38.00

*Choice of 1 software package free with scanner purchase

**Included free with scanner purchase/specify on order

CP-3000 Full Color Printer

Density of 8 dots/mm with resolution of 1024 x 1280 pixels makes it possible to print high-quality full-color (16.7 million colors) pictures. In addition, using the γ (gamma) and color adjustment functions you can adjust the contrast and tint as you like.

Compact and Lightweight

The CP-3000 is compact and light enough to configure a system on any desktop (15.4" x 7.6" x 19.0"), weighs 39.6 lbs.

Standard Interfaces

The digital model (CP-3000D) is equipped with GPIB, SCSI and Centronics interfaces to meet various needs.

The analog model (CP-3000A) can be directly connected via analog RGB to most computers, including engineering workstations, to reproduce CRT images quickly without software.

1-Touch Scanner Mode

When used with the LS-3500 Film Scanner, simply choose the scanner mode to get high quality print.



LS-3500



CP-3000

Built-in Window Function

You can designate the print area using the 4M byte memory of the CP-3000. Even overlays and divided images can be printed however you like.

High-Fidelity Printing on OHP Sheets

You can print not only on standard paper but also directly onto OHP (transparency) sheets for impressive presentations.

Clear Sleeve for Storing Pictures

This sleeve allows for greatly extended storage life of thermal sublimation dye transfer image systems. Not only can you store pictures in this clear sleeve, but it also keeps print surfaces free from dust or discoloration and maintains the quality of the image over long periods.

9300	CP-3000D Full Color Printer (Digital Model)	\$13,595.00
9310	CP-3000A Full Color Printer (Analog Model)	22,995.00
9205	ColorFlex Software (Mac)*	595.00
9210	ColorFlex Software (IBM)*	595.00
9401	Adobe Photoshop Software*	895.00
9402	Letraset Colorstudio Software*	995.00
9404	U-Lead PhotoStyler Software*	795.00
9220	NB-GPIB Board and SW Set (Mac Version)	495.00
9221	GPIB-PCIIA Board and SW Set (IBM XT/AT Version)	395.00
9223	GPIB Shielded Cable (2m)	100.00
9320	CP-H3000 Clear Storage Sleeves (100 Sheets)	22.50
9321	CP-M3000 Standard Paper/Dye Ribbon Set (100 Sheets)**	178.50
9322	CP-M3100 OHP Sheet/Dye Ribbon Set (50 Sheets)**	168.00
9331	CP-T3000 Standard Paper Tray (Replacement)**	154.50
9332	CP-T3100 OHP Sheet Tray (Replacement)**	154.50
9333	Thermal Head Cleaning Kit	23.00
9334	Air Filter (Package of 10)	12.90

*Choice of 1 software package free with printer purchase

**Choice of 1 included free with printer purchase/specify on order

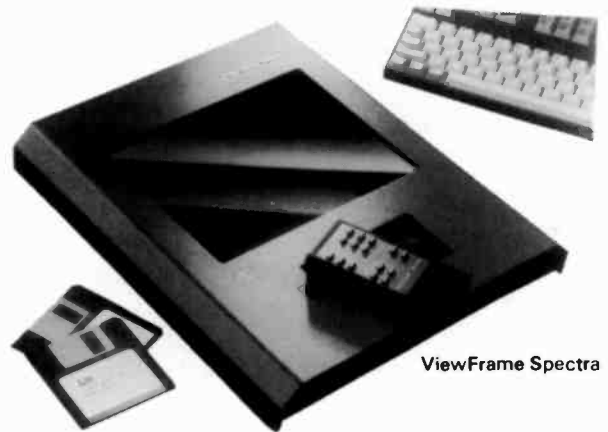


COMPUTER/OVERHEAD PROJECTION SYSTEMS/ KEYBOARD

ViewFrame® Spectra True Color LCD Panel

- 4096 rich, saturated colors for beautiful graphics • High contrast ratio for sharp, clear images • Ultra-fast refresh rate for crisp animation, transitions and mouse movement • Removable control panel for remote or on-board operation • Front or rear projection capability • Color and tint control for adjustment to light conditions, projection screen or individual tastes • Screen clear and optional overhead projector power by remote control to maximize audience attention • Compatible with most computers • Advanced cooling for trouble-free operation • Built-in monitor "redrive" amplifier provides simultaneous optional viewing of monitor and projected image • Initial adjustments for each video are saved in permanent memory for easy subsequent setup • Each ViewFrame Spectra includes LCD panel, choice of 1 set of video interface and redrive cables (redrive cable not needed for VGA), remote control panel, utility software, operator's guide, impact resistant carrying case and power supply

V70	ViewFrame Spectra (VGA cable)	.....	\$5995.00
V71	ViewFrame Spectra (Mac II cable set)	.....	5995.00
V72	ViewFrame Spectra (CGA/EGA/Mac cable set)	.....	5995.00



ViewFrame Spectra

ViewFrame II + 2 Gray Scale LCD Panel

- Triple super-twist nematic LCD • 8 shades of gray • Black on white (or inverted) • 640 x 480 pixels • High resolution LCD display panel connects to video port of computer and allows projection of computer output onto a large viewing screen • AutoJust image positioning • "Y" cables for simultaneous monitor and display viewing • Active cooling system for continuous operation • Double scanning circuitry • Composite input jack works with the DEC VT 220 and Apple II series computers • Compatible with: Mac II, Macintosh 512, Plus, SE or SE/30 (with optional adaptor); all IBM PCs—PS/2, AT, XT with VGA, EGA, CGA, Monochrome** or Hercules Monochrome**; all other IBM compatibles; Compaq; Atari ST; DEC VT 220/340; Zenith; Apple IIs**; AT&T 6300** • Works with front and rear screen projection systems, all standard overhead projectors • Includes LCD, Mac II, PS/2 (VGA), EGA/CGA cables, utility software, carrying case and power supply

V20	ViewFrame II + 2	.....	\$1995.00
A02	Macintosh SE/30 adaptor kit	.....	149.00
A04	Macintosh Plus adaptor kit	.....	149.00
A06	DEC VT 340 adaptor	.....	249.00
A08	Macintosh portable adaptor	.....	285.00
A09	Macintosh Classic adaptor	.....	149.00
C01	AT&T 6300 cable	.....	49.00
C02	Hercules/monochrome cable	.....	49.00
C03	VGA cable	.....	49.00
C04	EGA/CGA cable	.....	49.00
C05	Macintosh II cable	.....	49.00
C07	DEC VT 220 cable	.....	49.00
C09	Atari color cable	.....	99.00
P02	110V power supply for ViewFrame II + 2	.....	25.00
P04	110V power supply for ViewFrame Spectra	.....	25.00
P10	220V power supply for ViewFrame II + 2	.....	35.00
P11	220V power supply for ViewFrame Spectra	.....	35.00
I01	Remote control for ViewFrame II + 2	.....	195.00

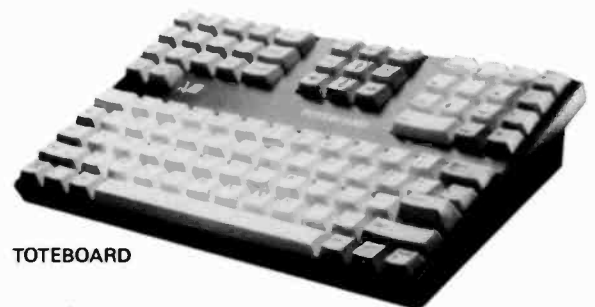


ViewFrame II + 2

TOTEBOARD Wireless Computer Keyboard

- Remote-control keyboard is a small-footprint, 100-key keyboard that transmits keystrokes via infrared light transmissions to the TOTEBOARD receiver • Receiver connects by cable to an IBM PC or compatible computer at either the keyboard jack or serial port • Use to control computer-based presentations or as a versatile keyboard replacement • 30' range • Can control up to 8 different computers • Many TOTEBOARDS can be used to address 1 computer • 60% the size of a standard keyboard • Built-in hand grip, long-life batteries and selectable 1-hand operation • Works with any IBM PC, XT, AT, PS/2 or compatible • Includes keyboard, infrared receiver and cable

K10	TOTEBOARD—XT/AT cable	.....	\$395.00
K11	TOTEBOARD—PS/2 cable	.....	395.00
K12	TOTEBOARD—9-pin serial/F cable	.....	395.00
K13	TOTEBOARD—25-pin serial/F cable	.....	395.00



TOTEBOARD

Accessories

K01	TOTEBOARD keyboard	.....	\$350.00
K02	TOTEBOARD receiver	.....	149.00
C10	PC/XT/AT cable	.....	49.00
C11	PS/2 cable	.....	49.00
C12	9-pin serial/F cable	.....	49.00
C13	25-pin serial/F cable	.....	49.00

* Monochrome only

** Special optional cable required

MONITOR/VIDEO PROJECTION SYSTEMS

Panasonic®

PROFESSIONAL/INDUSTRIAL VIDEO SYSTEMS

DT-2700MS 27" Video/Data Multi-Scan Monitor

- Tint-faced flat screen • Resolution: Video 600 TVL, RGB 640x480 dots • Variable scanning rate: horizontal 15.5kHz to 38kHz, vertical 50Hz to 100Hz • Selectable inputs: RGB1/RGB2/RGB3/video or S-Video • Remote input for wired remote capability • Advanced digital scan compatible (with optional ET-100DS) • Built-in stereo audio amp/speakers

DT-2700MS \$3500.00

PC-2700 Shipping and Storage Case for DT-2700MS

- Steel construction, recessed, spring loaded, twist latches • Steel machine drive rivets • Heavy-duty casters • Conforms to Air Transport Association specifications • Interior padding, custom designed to provide the DT-2700MS with maximum shock protection

PC-2700 \$745.00



PT-101Y/PT-301Y

PT-101Y/PT-301Y Color Video/Data Projectors

- 650 lumens • 1000 lines RGB resolution • NTSC video resolution 650 lines • S-Video input • 4-system capability: PAL/SECAM/NTSC 3.58/M-NTSC 4.43 • Line/video/RGB (TTL/linear) selectable • 2000 character display • Blue mode selector • Built-in cross-hatch generator • Sync inversion switch broadens computer signal compatibility • 4-corner independent dynamic convergence controls for fast calibration • Pulse switching power supply for reduced weight and size • Ideal for teleconferencing, business, entertainment and education • Lens spacers for 50"-54" screens and 85"-120" screens • Ceiling/cart mounting kit • Lens caps • Either system can easily be moved from 1 location to another using the PC-101 Carrying Case or the ET-CR101 Custom Adjustable Cart • Both upright and ceiling mount are possible, and you can use front or rear projection • Lightweight, compact chassis and special mounting plate simplify ceiling installation

Screen size: PT-101Y/72/72F: 50"-84"; PT-101Y/120/120F: 85"-120"; PT-301Y: 150"-300"

PT-101Y/72	Preset for 72" diagonal; ceiling mount	\$5000.00
PT-101Y/72F	Preset for 72" diagonal; floor mount	5000.00
PT-101Y/120	Preset for 120" diagonal; ceiling mount	5000.00
PT-101Y/120F	Preset for 120" diagonal; floor mount	5000.00
PT-301Y	Video/data projector for 150" to 300" screens	7800.00

PT-200 Advanced Digital Video/Data Projector

- Dual focus 6-element color corrected lens • Direct lens/CRT optical coupling system for high contrast • Advanced digital scan compatible • Auto scanning from 15kHz to 37kHz horizontally; 50 to 100Hz vertically • S-VHS compatible • Bright 550 lumens light output • High resolution 1100 lines (RGB), 650 lines (video) • Multiple inputs Line/S-Video/RGB (analog)/RGB2 (TTL) selectable • Multi-standard capability (NTSC, PAL, Secam, M-NTSC) • Built-in audio AMP/speaker; test pattern generator • Compatible with ET-100DS Advanced Digital Scan Converter • Accepts all accessories associated with the PT-105 and PT-105N
- | | | |
|-------------|--|---------|
| PT-200/72F | Preset for 72" diagonal floor mount. Adjustable from 70"-79" diagonal only | 8000.00 |
| PT-200/72R | Same as above for use only with PB-70, 67" rear screen projection cabinet | 8000.00 |
| PT-200/120F | Preset for 120" floor mount. Adjustable from 80"-120" only | 8000.00 |



PT-200

Accessories for Video/Data Projectors

ET-10G	PC/RGB interface with rackmount (use with ET-100C, ET-101C, ET-102C)	\$495.00
ET-11C15	RCU cable, 50' (use with ET-11RY)*	185.00
ET-11C30	RCU cable, 98' (use with ET-11RY)*	275.00
ET-11C50	RCU cable, 164' (use with ET-11RY)*	385.00
ET-15R	Remote control with rackmount for PT-200/72F/120F (use with ET-11C15, ET-11C30 and ET-11C50)	295.00
ET-11RY	Remote control with rackmount for all PT-101Y and PT-301Y series (use with ET-11C15, ET-11C30 and ET-11C50)	300.00
ET-100YC	S-Video/BNC conversion adaptor (2 pcs.)*	67.00
ET-100C	Computer interface cable for IBM-PC Series and Panasonic (use with ET-10G)	65.00
ET-101C	Computer interface cable for Apple III (use with ET-10G)	65.00
ET-102C	Computer interface cable for NEC-PC-8001A (use with ET-10G)	40.00
ET-721S	Semi-curved 72" wall screen with wall mounting kit, use with ET-SS101 (PT-101Y/72/72F, PT-200/72F)	990.00
ET-CR101A	Heavy-duty adjustable cart with wheels*	275.00
ET-SS101	Screen stand, use with ET-721S (PT-101Y/72/72F, PT-200/72F)	440.00
PC-101	Custom carrying case with wheels (PT-101 projectors)	440.00

* All models except PT-200/72R

AG-ES10 Video Floppy Camera

- 1/2" interline transfer CCD (722H x 494V pixels; 360,000 pixels)
- > 400 lines of horizontal resolution for frame recording • > 500 lines of horizontal resolution recording capability from a 3-CCD or 3-tube camera input • Up to 50 pictures per disk (field mode); 25 frame pictures • High band/normal band recording • 2 focal ranges: wide angle (F2.0, f/9mm) and telephoto (F2.5, f/16mm) • Infrared auto focus • Auto exposure • Full auto white balance • High-speed continuous recording (1, 5, 10 or 15 pictures per second in field mode, 1 or 5 pictures per second in frame mode) • Liquid crystal display (for camera status) • Easy dubbing • External signal input • Blank search • 1-touch loading • Wireless remote control • Built-in strobe flash • Real-image type viewfinder • Bifocal switchover type lens • Automatic date, time, ID# recording

AG-ES10		\$1590.00
AG-KIT11	Case, strap, dub cord	75.00
AG-KIT12	Battery and battery charger	85.00
AG-HE10	System carrying case	140.00
AG-CR10	Car battery charger cord	20.00
AG-BP10	Battery pack	24.00
AG-AE10	Wireless remote controller	45.00

AG-ES100 Video Floppy Player

- 50 pictures per disk (field mode) • High-band/normal playback • Jog dial (up to 15 images/sec) • Auto advance for automatic sequential playback of all pictures on the disk, adjustable from 1/20th to 60 seconds • Field/frame address (OSD) • 1-shot/full erase • Auto power off function • Auto tracking • Wireless remote controller • Skew correction • 3600 rpm • External sync input • Forced field playback • Selectable date, time or ID# playback (OSD) • 47mm Ø still video floppy disk • Modulation systems—Y signal: frequency modulation; C signal: color difference line, sequential frequency, modulation recording • Output: video BNC, S-Video, dub 5-pin • Horizontal resolution HB: > 500 lines; NOR: > 350 lines • S/N ratio: Y: > 46dB; C: > 45dB • Y/C cable

AG-ES100		\$825.00
AG-AE10	Wireless remote controller	45.00
100SS	Sync stabilizer	200.00
KS-10	Kodak 4-pin cable interface. Controls forward and reverse for the AG-ES100 player with a standard Kodak 4-pin cable. 50 programmable memory locations for programmable playback of a 2" floppy disk	175.00

AG-800 Still-Image Recorder/Player

- Present high-resolution color stills on any TV set or monitor • Stores a combination of 25 frame mode or 50 field mode images on each 2" floppy disk, using any standard NTSC signal for input: video camera, camcorder, TV, VCR • 1-shot erase • 350-line horizontal resolution in frame mode • Easy disk updates: replace 1 picture with another, or 1 frame with 2 fields • On-screen display (selectable on or off) • Auto advance (1-8 second adjustable pause)/Auto repeat playback • Forward/reverse manual playback • Dual video out/RF out; RF converter • Direct duplication circuitry and Y/C separate (5-pin) terminal • External sync capability

AG-800		\$1200.00
AG-A80	Wireless remote controller	45.00
100SS	Sync stabilizer	200.00

System Components

AG-A180	Dubbing controller for 1 master/10 slave AG-800s, automatic or 1-shot record mode, monitor indicator, expandable up to 4 controllers (40 slaves), rec. remote, 19" rackmountable	\$975.00
AG-DA180	Video distributor for AG-800 of Y/R-Y, B-Y with loop-through capability via 10 outputs, expandable to 4 units, 19" rackmountable	520.00
AG-IA180	RS-232C interface adaptor for AG-ES100 or AG-800, controls up to 10 AG-ES100s or AG-800s, expandable to 5 adaptors, monitor indicator, 19" rackmountable	\$990.00



Still Video System



AG-C232	AG-IA180 control cable	\$ 75.00
AG-TC180	RGB input adaptor for AG-ES10 or AG-800, linear RGB input, H/HV, V, sync on green, 2 Y/R-Y B-Y outputs, 19" rackmountable	630.00
AG-C18	Remote control cable (AG-ES100, AG-800)	17.00
AG-C19	Dubbing cable (AG-ES100, AG-800)	17.00
AG-C70A	S-Video (Y/C) cable, 10' (AG-800, AG-EP70)	16.00
AG-C71A	S-Video (Y/C) cable, 16.6' (AG-800, AG-EP70)	20.00
FPR-250	Foot peddle control system. For hands-free recording using the AG-800 and printing using the AG-EP70.	325.00
IFP-232SVP	RS-232C recorder/player/printer controller. Can control AG-800/AG-ES100 and AG-EP70 from 1 serial control port. Up to 32 unique interface addresses for security when teleconferencing. Packaged with applications software and protocol manual.	\$375.00
NV-VF50	Video floppy disk (box of 10)	100.00

AG-EP60 Video Printer

- Multiple printing in 4, 9, 16 or 25 squares in 3 modes: (1) up to 25 of the same image, (2) up to 25 different images, (3) 3-second strobe for automatic capture of up to 25 different images • Split Print for cropped wallet size "portrait formatted" pictures • Zoom Print for enlargements of any quarter of the video image • Parallel control port (compatible with IFP232SVP or FPR-250 control systems) • Wireless remote that also controls the AG-1960 or AG-1730 VCRs • RGB, Y/C, composite input memory • Y/C, composite outputs • Memory or E-to-E printing (for the highest possible quality) • Character generator port (NV-CGI Character Generator)

AG-EP60		\$1500.00
VW-VS100	100/box paper	90.00
VW-VS50	50/box paper	50.00
VW-V5550	50/box adhesive back paper	75.00

AG-EP70 Video Printer

- Sharp color image, resolution 6 dots/mm, 448 x 512 dots per image • 128 tones each of yellow, magenta and cyan • Capstan motor drive • Nearly 2.1 million different color tones • Thermal transfer recording • Recording (printing) speed is roughly 80 sec. per image • Frame memory 8-bit, 1 frame, 2 field (at video or S-Video input) • Mirror reverse function • Frame Print/field print • S-Video in/out terminals • RGB input • Auto paper feed • Picture adjustment controls • Wired remote control port • Warning indicators • Print size: 3¹⁵/₁₆" x 5¹³/₁₆" • Image size: 2¹⁵/₁₆" x 3⁷/₈" • Print functions: Continue Print: up to 10; Multi-print: 4, 9, 16, 25, 36

AG-EP70		\$1820.00
AG-PC100	Video printer paper, 100 pcs	100.00
AG-PC50	Video printer paper, 50 pcs	60.00
AG-PH50	Transparency paper for OHP, 50 pcs.	105.00

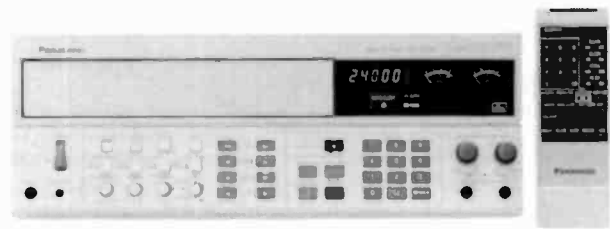
OPTICAL DISC RECORDER/PLAYERS

Panasonic®

TQ-2026F 8" Color Motion Video-Audio/Still Video Optical Disc Recorder/Player

- 300 lines horizontal resolution • 24,000 frames per disc • Quick 0.5 second access time • Built-in genlock circuitry • Motion recording/playback • Computer interfacing RS-232C • Playback mode variety • Playback rate of 30 frames per second; 1 disc can provide over 13 minutes and 20 seconds of continuous playback • Direct captioning • 2 channels • On-screen display • Full-function remote control wired and wireless • Disc ID function • Precision duplication • Serial recording/playback • Video input level control • E-E button • Field button • Headphone jack with volume control • Front panel sync signal selector (external/auto) • External sync in/out terminals • External subcarrier in/out terminals • Dual microphone input jacks for 2-channel recording • Function (L) switches for Beep, Display, Framing Servo, Pre-check, White Flag Detection settings

TQ-2026F \$12,500.00
TQ-2027F Player version only of TQ-2026F 3,995.00



TQ-2026F

TQ-2028F High Resolution Monochrome Optical Memory Disc Recorder/Player

Same features as TQ-2026F except: • 450 lines horizontal resolution • Monochrome • 16,000 frames per disc • Playback rate 30 frames per second; one disc can provide over 8 minutes and 50 seconds of continuous playback

TQ-2028F \$13,900.00

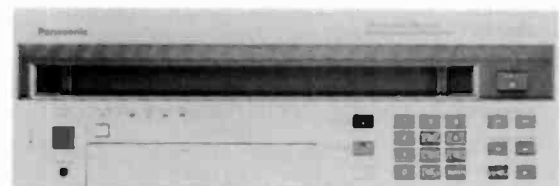


TQ-3031F

TQ-3031F Optical Disc Recorder

- Digital Y/C separation for professional image quality • Analog RGB/Video (NTSC Composite)/S-Video input/output • Either normal or high resolution record/playback in any record/playback mode • 450 lines horizontal resolution in high resolution mode • 400 lines horizontal resolution (max. value) in normal mode • 45dB chroma signal-to-noise • 12" (30cm) single (TQ-FH331) sided disc or double (TQ-FH332) sided disc. Discs allow up to 54,000 frames per side (normal mode) and 36,000 frames per side (high resolution mode) • RS-232C connector equipped. RS-422A available as option • Remote control (option) and online control over multiple functions: replacement picture management, disc ID, self-booting, default setting, deck number assignment, user area partitioning, interface card slot, ROM application support

TQ-3031F \$18,995.00
TQ-3032F Player version only of TQ-3031F 5,495.00



TQ-3038F

TQ-3038F High Resolution Monochrome Optical Disc Recorder/Player

- Large capacity write-once 12" optical disc • Playback and recording of 36,000 still pictures, or 20 minutes of motion • Record any type of B/W image data on an optical disc from a standard video camera or VCR • Over 600 lines resolution • High band 9.7MHz • 1-piece lens • Tilt-servo system for accurate tracking • Genlock • 0.7 second data access time • High-speed scan (50X normal), variable fast forward (1-10X normal), variable automatic frame (1-256 second intervals) and variable slow motion (1/2-1/256 normal), all modes either direction • On-screen display • External computer control capability • External control I/O port • Dubbing function • On-screen setup menus • Disc ID number writing • Deck ID numbers • Alternate picture management (required optional remote control unit or computer control) • Free recording area detection and allocation • Automatic recording mode switch off • 8K byte RAM to memorize programs created by an external computer • User area partitioning • Captioning • Interval recording

TQ-3038F \$19,995.00



TQ-RC330

TQ-RC330 Multi-function Wired Remote Control Unit

• 31 functions • 3VDC (2 AAA batteries) \$ 70.00

TQ-FH331 Single-Sided Disc Cartridge

• 36,000 still frames, or 20 minutes of motion 245.00

TQ-FH332 Double-Sided Disc Cartridge

• 72,000 still frames, or 40 minutes of motion 395.00

LQ-4000 Rewritable Optical Disc Recorder/Player

• Images can be erased and new ones can be written • Also permits trial writing and corrective overwriting • Rearrange or edit contents with ease • Single lightweight optical head for recording, playback and erasure • Erasure is performed separately to avoid error • 450 lines horizontal resolution in hi-res mode • Equipped with 4 input/output signal formats to easily integrate into a wide range of systems • S-Video connectors (Y/C separate) • Analog RGB connectors • Composite video connectors • Dubbing connectors • Unit will output in all signal formats simultaneously • RS-232C interface and I/O port (for external control) are supplied as standard equipment (RS-422A is optional) • 12" magneto-optical discPOR*



LF-5010

LM-A400 Rewritable Single-Sided Disc Cartridge

• Maximum motion of 30 minutes, or 54,000 still frames (normal) • 20 minutes of motion, or 36,000 still frames (hi-res).POR*

Remote Control

• 35 functions • 3VDC (2 AAA batteries)POR*



LF-5010/LF-5014 5 1/4" WORM Optical Disc Drives Single-Sided 470M bytes, Double-Sided 940M bytes

• On a compact, removable double-sided 5 1/4" disc, Panasonic WORM optical disc drives can contain up to 940M bytes • Average seek time is 90ms • Maximum sustained data transfer rate is 655Kbps between the device and the host • Each medium (470M byte/940M byte) has a rated life of more than 10 years for data storage integrity • The drive is designed and manufactured to precisely meet the media characteristics, and has an MTBF of 20,000 hours • Read/write compatibility with 470M byte and 940M byte medium • The optical disc drive is easily integrated as a computer peripheral because the SCSI-2 controller is embedded within 5 1/4" drive form factor

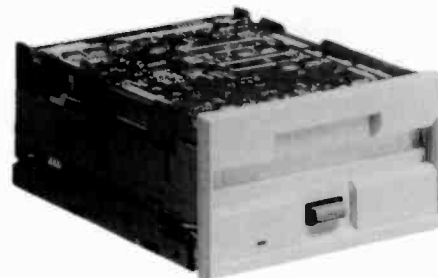
LF-5010 External \$3299.00
LF-5014 Internal 2999.00
LF-S010A Interface for LF-5010 Macintosh 299.00

LM-D501W Optical Disc Cartridge

• 940M byte • 1024 byte sector size • Double sided
. \$149.00

LM-D501 Optical Disc Cartridge

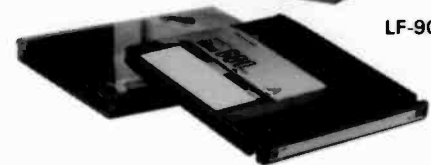
• 470M byte • Single sided \$89.00



LF-5014



LF-9000S



LF-9000S/LF-9004 5 1/4" Rewritable Magneto-Optical Disc Drive

• Continuous composite format • ISO standard compatible
• 326/652M byte • 1042 byte sector size • < 70ms average seek time • SCSI embedded controller

LF-9000S External \$4650.00
LF-9004 Internal 4150.00
LM-D902 512K byte sector size,
optical disc cartridge 250.00
LM-D902W 1024M byte sector size, optical
disc cartridge 250.00

LF-7010/LF-7014 5 1/4" Direct Overwrite Multi-function Optical Disc Drives

• Single drive offering both WORM and rewrite • 1G byte capacity per disc • Compatible with LF-5010, making it suitable for archival storage • 90ms average seek time • SCSI-2 interface • 20,000 hours MTBF • MS-DOS, Macintosh, OS/2, UNIX compatible

LF-7010 External \$3995.00
LF-7014 Internal 3595.00

LM-D702W Optical Disc Cartridge

• Rewritable • 1000M bytes/cartridge • 1024 byte sector size
• Single-sided \$245.00

LM-D501W Optical Disc Cartridge

• Write-once • 940M bytes/cartridge • 1024 byte sector size
• Single-sided \$149.00

Interface Kits for LF-5010/LF-7010/LF-9000

LF-S710M IBM interface for external drive \$495.00
LF-S714M Internal drive 495.00
LF-S710A Apple interface 395.00
LF-S710P Micro-Channel DOS 950.00

*Price On Request

CD-ROMS



CDD200 5 1/4" Half-Height CD-ROM

The CDD200 is a 5 1/4" half-height CD-ROM drive unit which can be mounted in a host computer.

A plug-in board serving as a serial host I/F in PC XT-AT computers is available.

Software support for MS-DOS environments includes both hardware dependent and hardware independent parts of the Microsoft CD Extension server. Thus the CD-ROM can be accessed by the application as a normal storage device like a hard disk. Also, discs which follow high Sierra or ISO 9660 coding rules can be read by the host computer.

Applications

CD-ROM technology is now accepted as an ideal means to distribute information at low costs. Early applications include the distribution of large reference databases such as: • Medical • Legal • Financial • Educational

As a next generation of CD-ROM applications is emerging, CD-ROM discs contain a combination of data bases and customized software specially tailored to offer solutions in vertical markets such as: • Parts catalogs • Telephone directories • Service manuals and diagnostic information

CD-ROM is a powerful tool for micro and minicomputer applications. A removable disc provides random access to mass amounts of information previously not available in a convenient, inexpensive and machine-readable format. For the end user, it means access to vast amounts of information to improve and facilitate computer applications such as: • CAD/CAM • Financial analysis • Legal research • Word processing • Education

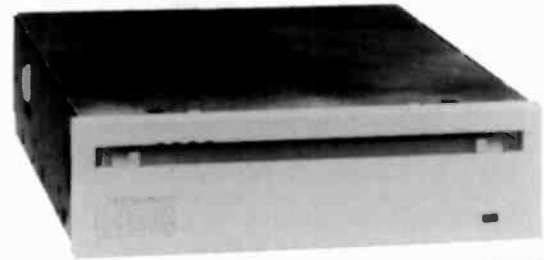
Specifications

- Capacity:** 600M bytes on CD-ROM disc in removable cartridge
- Access Time:** Maximum: < 1 second; Average: < μ500ms including latency
- Transfer Rate:** 153.6K bytes/second Mode 1; 175.2K bytes/second Mode 2
- Interface:** Serial, with option for PC-AT bus or Micro-Channel bus
- Physical:** 5 1/4" form factor, built-in, front load, half-height. Vertical and horizontal operation
- Dimensions:** 1 3/4" H x 5 3/4" W x 8" D; Weight: 4.4 lbs. Disc diameter: 4.72"
- Electrical:** From PC power supply: +5VDC, 1A; +12VDC, 0.4A
- Environmental:** Ambient temperature: Functional 41° to 131° F; Full Specification: 50° to 122° F; Heat Dissipation 14W typical; can be used in either vertical or horizontal orientation
- Reliability:** MTBF 32,000 hrs. (demonstrated)
- Configurations:** CDD200 Package, consisting of: CDD200 built-in CD-ROM drive, internal I/O cable to host interface, installation and operation manual, 2 caddies, CDD200 complete subsystem package, consisting of above, plus: CM153 host interface for PC-AT, 22 SW1300 device driver and MS-DOS Extensions software

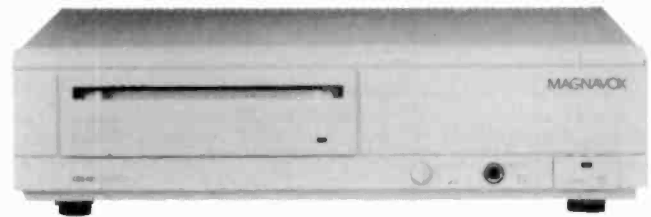
CDD200TBA*

CDD401 Desktop CD-ROM

The CDD401 is a stand-alone desktop drive unit which can be connected to a host computer. Connection facilities include PC-AT computers and PS/2 models with MCA bus via plug-in boards.



CDD200



CDD401

The Hi-Fi stereo audio output (a headphone jack on the front of the unit, or line out jack on the back of the unit which can be connected to an external amplifier) can be used to listen to audio tracks on CD-ROM discs or CD audio discs.

A single CD-ROM stores up to 600M bytes of data. This represents over 200,000 pages of text, or more than a thousand images, or the storage of hours of spoken text. Alternatively, storage may take the form of any of the above combinations.

Software support for MS-DOS environments includes both hardware dependent and hardware independent parts of the Microsoft CD Extension server. Thus the CD-ROM can be accessed by the application as a normal storage device like a hard disk. Also, discs which follow high Sierra or ISO 9660 coding rules can be read by the host computer.

Specifications

- Capacity:** 600M bytes on CD-ROM disc in removable cartridge
- Access Time:** Maximum: < 1 second; Average: < 0.4 second excluding latency
- Transfer Rate:** 153.6K bytes/second Mode 1; 175.2K bytes/second Mode 2
- Interface:** Serial, with option for PC-AT bus or Micro-Channel bus
- Audio:** Stereo audio output at the front (6.3mm jack) with volume control; 2 RCA type output connections at rear for stereo line output 2VRMS @ 2K ohms S/N 90dB
- Reliability:** MTBF 32,000 hours
- Physical:** The desktop drive unit can also be placed in between the PC and the monitor
- Dimensions:** 3" H x 12 1/2" W x 11" D; Weight: 9.9 lbs. Disc Diameter: 4.72"
- Electrical:** 110VAC, 60Hz
- Package**
 - Consists of: CD-ROM drive unit, interface card (CM153), MS-DOS Extensions/Driver software, I/O cable, 2 caddies, interface cable, AC line cord

CDD401TBA*

*To Be Announced

LD-V8000 Industrial LaserDisc™ Player

- A breakthrough Level I, II and III player • 1 hour per side (CLV) of fully interactive video • Can access any frame on a CAV disc in 1/2 second (.05) or less (4 seconds or less in the CLV format) • 12" and 8" discs • Digitally stores video frames for seamless search—no more distracting visual discontinuities • Has 4-track audio capabilities—2 tracks for digital and 2 for analog sound • Can hold a still picture on the screen and play any portion of the 4 audio tracks • 2-field digital memory in its video processing circuitry in which it uses a digital timebase corrector to enhance the picture quality • Stores images in either frame or field mode • Freeze frame and variable speed play, once restricted to CAV discs, are now available on CLV discs • RS-232C interface • Its open architecture allows the interactive system designer to build onto existing hardware • 5 1/2" H x 16 17/32" W x 17 13/16" D • 31.1 lbs. • Remote control not included

LaserVision Videodisc

Max. Capacity	Motion Video	Still Frames	Audio
12" standard play disc:	30 min./side	54,000 frames	2 hours
12" extended play disc:	60 min./side	108,000 frames	4 hours
8" standard play disc:	14 min./side	25,200 frames	56 min.
8" extended play disc:	20 min./side	36,000 frames	80 min.

LD-V8000	\$2280.00
RU-V103 Remote control unit. Enlarged keypad. Membrane style	70.00
RU-V6000T Remote control unit.	70.00
CC-03 RS-232C cable (male DB-15 to male DB-25 DTE)	25.00
CC-04 RS-232C interface cable for Apple Macintosh Plus/SE, Apple II GS and Mac II (male DB-15 to Apple "Circular-8"). . .	25.00
CK-15P Interface cable kit. IBM InfoWindow	50.00

LD-V4200 LaserDisc Player

- Designed for use as an economical but high performance level 3 player • RS-232C interface • Slimline profile • Front panel player controls and player generated 11 line by 20 character text overlay • Long distance frame searches are accomplished in less than 3 seconds • Short searches (less than 100 frames) do not produce a blanked video output • Plays both 12" and 8" standard play (CAV) and extended play (CLV) discs • 5-pin DIN connector • 19.8 lbs. • Monitor-visible self-diagnostics, internal register capabilities • Disc identification code command for up to 60 characters of ID information • Optional hard wired remote control

LD-V4200	\$1095.00
RU-V101 Remote control unit	65.00
CC-03 RS-232C cable (male DB-15 to male DB-25 DTE)	25.00
CC-04 RS-232C interface cable for Apple Macintosh Plus/SE, Apple II GS and Mac II (male DB-15 to Apple "Circular-8"). . . .	25.00
CK-15P Interface cable kit. IBM InfoWindow	50.00

LD-V2200 Industrial LaserDisc Player With Enlarged Keypad Remote Control

- Low cost player with the advantages, features and functionality of more expensive players • Designed with the needs of the professional educator in mind • Offers classroom versatility, wireless remote control capability, RS-232C computer interface and LaserBarcode System support • Compatible with a broad range of existing applications

Remote Control

A wireless remote control unit is packaged with the player. Controls are enlarged, easy to read and simple to use.



LD-V8000



LD-V4200



LD-V2200

Computer Control

The RS-232C interface allows the LD-V2200 to be used with Apple II, Macintosh, IBM and many other computers. The LD-V2200 responds to the same mnemonic command language used to control the LD-V4200, including access to the 11 line by 20 character display. Most programs developed for the LD-V4200 can be used with the LD-V2200 with no modification.

Easy Installation

The LD-V2200 can be connected to the antenna terminals of any television set, or separate audio and video outputs may be used for connection to a video monitor. A single cable allows the LD-V2200 to be connected to a computer. A variety of optional cables is available to accommodate the most frequently used computers.

Accessories

The following optional accessories are available for the LD-V2200: • LaserBarcode Reader (UC-V104BC) • LaserBarcode Tool Kit (MS-DOS barcode printing utilities) • Interface cables for the computers listed below

LD-V2200	\$895.00
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Part #	Computer	Price
CC-03		
(DB-15 male to DB-25 male)	Apple II Super Serial card	
CC-04	IBM PC 25-pin connector	\$25.00
(DB-15 male to circular 8-pin)	Macintosh and Apple II GS	25.00

LASERDISC PLAYER/ BARCODE SYSTEM



LD-V2000 LaserDisc Player

- General purpose level 1 and level 3 player with a slimline profile and automatic disc loading system
- Supports both 12" and 8" discs with complete standard play (CAV) and extended play (CLV) features available during manual and computer modes
- 8-pin DIN connector
- Performs frame searches to any of the CAV disc's 54,000 still frames in less than 8 seconds and will also time search to the nearest second on CLV discs
- A wireless remote control is included
- Pioneer SR external control jack

LD-V2000 \$640.00
 RU-V103 Remote control unit. Enlarged keypad.
 Membrane style 70.00



LD-V2000

UC-V104BC LaserBarcode Reader

- Barcode that is generated with the LaserBarcode Tool Kit conforms to Pioneer's LaserBarcode format and can be read and transmitted by the UC-V104BC
- Trace the scanner pen over the barcode of the video you want to see
- With the option of using the scanner pen as a wireless control or by simply plugging it directly into the LD-V2000 or other compatible LaserDisc Player, you have an interactive LaserBarcode system
- Areas in which the LaserBarcode System has been applied: encyclopedias, hobby magazines, education and training programs, introductory manuals for new products and new technologies, home shopping for visual demonstrations of products in catalogs and entertainment video, such as games of adventure

UC-V104BC \$130.00



UC-V104BC

LaserBarcode Tool Kit

- Easy-to-use, menu driven, automated software utility that simplifies the creation of custom barcodes for LaserDisc player control
- Designed to operate with IBM/MS-DOS compatible computers and printers
- The tool kit creates and prints barcode which can be read by the UC-V104BC LaserBarcode Scanner
- Operates as a TSR (Terminate and Stay Resident) utility that can be called up and used from within a word processing application
- Designed to work with the following commercially available MS-DOS programs: WordStar, MultiMate II, WordPerfect and Microsoft Word

Specifications

The LaserBarcode Tool Kit will operate with IBM/MS-DOS machines that have sufficient RAM to run a word processing program plus an additional 128K.

The LaserBarcode Tool Kit requires DOS 2.0 or above.

Word Processing Programs

The LaserBarcode Tool Kit is designed to work with MS-DOS word processing programs. Although it may operate with a variety of word processors, it has been tested with the programs listed below.

Pioneer recommends using one of the following programs with the LaserBarcode Tool Kit.

- WordStar Professional Releases 3 and 5
- WordPerfect Version 5.0
- MultiMate Advantage II
- Microsoft Word Version 4.0

When using the tool kit, the computer controls the player. However, the actual barcodes that are read and transmitted by the UC-V104BC can only be received by the LD-V2000 or LD-V2200 LaserDisc players.

LaserBarcode Tool Kit \$195.00

Bar'n'coder Software

Bar'n'coder is a software package which allows the user to create barcodes for application with the LaserBarcode Reader. Designed to function with any Macintosh with Hypercard, Bar'n'coder guides the user through several menu screens. The user then selects from the various command choices available. Options include chapter searches, frame searches, play frame(s), audio on or off, and audio channel selection. The only input required is the desired frame numbers and up to 2 lines of descriptive text for each barcode developed.

Command codes can be developed with the LD player connected to the computer, allowing for testing during development.

Bar'n'coder uses any Mac-compatible printer. Page layouts are pre-set and chosen from the menu. Finished barcodes can be cut and pasted into a document manually or, using Macintosh or Hypercard tools, directly into a word processing document. A format has also been included for Avery Laser Printer Labels #5160.

Bar'n'coder Software \$49.95

DD-5101 Series Optical Disc Subsystem

- Integrated, high-performance, 5.25" write-once optical disc system
- 654MB to 1.3GB expandable subsystem • Compact • Extremely fast access time • Organic dye recording material for estimated lifetime greater than 15 years • Unit can be positioned horizontally or vertically

An IBM-Specialized SCSI

A combination of the DD-M5101 optical disc control board (DD-C5101) and SCSI host adaptor board, developed especially for use with IBM PC/AT and compatible personal computers. Slot the DD-C5002 directly into the computer's motherboard, and the DD-M5101 goes in the half-height open slot of the computer, becoming essentially "built-in."

Standard SCSI Computer Interface

For compatibility with the widest possible range of associated computer equipment, the DD-C5101 and DD-C5002 optical disc controller are equipped with the world-standard SCSI high-speed parallel computer interface.

Ultra High Speed Random Access

In other optical disc drive units, the optical head unit is relatively large, including mirror, lens, detector and laser diode. During seek operation, this entire unit has to move, thus slowing access time. The DD-S5101 features a separate optical components system. Laser diode and detector are stationary, the mirror/lens section is separate, moved by a high efficiency linear motor. Average seek time is less than 60ms.

Defect Sector Management

When a write fault occurs, data is automatically rewritten into a reserved sector which is allocated outside the user area. Alternate sector is managed inside the drive controller so that data is always written correctly from the host computer. User capacity of 327MB per side is maintained.

DD-S5101 Optical Disc Drive Subsystem

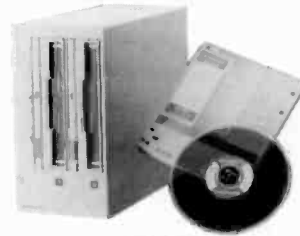
- Consists of DD-M5101 drive unit (1 unit); DD-C5101 controller (1 unit) • 8⁷/₁₆" H x 4¹/₂" W x 10¹/₄" D • 10 lbs. 5 oz. \$3100.00

DD-U5101 Optical Disc Drive (Full Height)

- Consists of DD-M5101 and DD-C5101 • Front loading • 1800 rpm CAV • 5.94Mbps data transfer speed (to/from disc) • 60ms seek time • 3¹/₄" H x 5³/₄" W x 8" D • 4 lbs. 3 oz. \$2800.00

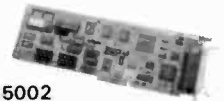
DD-M5101 Optical Disc Mechanical Unit (Half Height)

- Same as DD-U5101 except 1⁵/₈" H x 5³/₄" W x 8" D. . . . \$2100.00


DD-S5101
Disc Actually Enclosed in Cartridge

DD-M5101

DD-U5101

DD-C5101

DD-C5002
DC-502A Optical Disc

- 5.25" disc • 654MB (double-sided, formatted) • Air sandwich disc construction • Spiral track format • 32 sectors/track • 512 bytes/sector • 7⁷/₁₆" H x 5⁵/₁₆" W x 6" D • 160 lbs. • More than 15 years disc life \$145.00

DD-C5101 Optical Disc Controller

- Designed for DD-M5101 • SCSI (to host), IDI (to drive) • Max of 4 drives • 256KB • 512 bytes/block • 1.5Mbps • Less than 10-12 bit error rate \$700.00

DD-C5002 Optical Disc Controller

- Designed for DD-M5101 and PC/AT • 1 board configuration, includes SCSI host adaptor board • SCSI, IDI (to drive) • Max of 1 drive • 256KB • 512 bytes/block • 1.5Mbps data transfer speed (to/from host) • Less than 10-12 bit error rate \$995.00

Cable Accessories

- | | | |
|-----------|--------------------------------------|---------|
| PCA-01 | SCSI cable | \$75.00 |
| PCA-02 | SCSI cable for daisy chain | 75.00 |
| CC-09ID/E | IDI cable for 1 drive | 40.00 |
| CC-10ID/E | IDI cable for 2 drives | 55.00 |

CD-ROM Changer

- Removable disc magazine • Holds up to 6 compact discs (CD-ROM and/or CD audio) • Front-loading mechanism • Drive can be configured as 6 logical devices, or as a single device with up to 6 discs as 1 data source • Data can be retrieved by an automated search through the 6 CD-ROM discs

Standard Disc Formats

- Drive supports playback of CD-ROM discs conforming to the ISO-9660 or High Sierra file formats • Standard compact disc audio discs can also be played

CD-Audio Jukebox

- 1 magazine can be used as a jukebox with more than 6 hours of music from CD-audio discs • Playback can be programmed to resequence selections from the 6 discs • Built-in stereo headphone jack with volume control • Audio connectors on the back allow connection to an external sound system


CD-ROM Changer
SCSI

- Supports an extensive command set: set of standard CD-ROM commands, plus vendor specific extra commands for simple operation • 2 SCSI ports permit daisy-chaining of up to 7 drives • Built-in SCSI terminator can be switched on or off

High Performance Mechanism

- Use of a high speed linear motor reduces access time to a maximum of 0.8 seconds • Heavy-duty, brushless spindle motor provides for high reliability \$1300.00

PRESENTATION STATION



Presentation Station

The Presentation Station creates executive-quality presentation images in a variety of formats, including 35mm slides, overhead transparencies and HP LaserJet or PaintJet hard copy. Featuring concurrent operation, the MS-DOS-based Presentation Station outputs to Digital Palette CI-5000, CI-3000 computer film recorders, the Bravo Computer Slide Maker and other printers. The Presentation Station consists of an AT-class presentation graphics creator card and Presentation Express™ companion graphics software.

Depending on your output devices, Presentation Station can produce Polaroid 35mm instant slides, conventional 35mm slides, overhead transparencies and black-and-white or color paper handouts. Presentation Station automatically adjusts your visuals, depending upon the medium you choose.

Presentation Station includes a proprietary Polaroid Graphics Creator Card that simply plugs into your IBM PC AT, or compatible, with at least 640K RAM and a multisync monitor. Working with Polaroid's Presentation Express software, a complete graphics workstation is created. Adjustments, modifications and complete changes to your presentations can be made right up to the last minute.

Nearly every conceivable type of business chart, graph or word slide has been preformatted into Presentation Station. An array of text, charts, adjacent bar charts, stacked bar charts, line charts, area charts, tabular charts and pie charts have been included. All you do is type the information into the program and press the "F10" key. Your finished graphic is displayed exactly as it will appear in your final output. And you can redisplay the same data in multiple formats without tiresome rekeying.

Presentation Station's built-in Art Director is like having a design studio in a box. You choose from 22 styles of presentation graphics, all professionally designed for maximum business impact. Your entire show is art-directed for you, including type style, color, size, spacing, justification, background color and overall layout. Choose the style you like best, or custom-design your own style. Either way your presentation will automatically appear in one consistent style, regardless of its length or complexity. And you can change the style at any time for a completely different look with just a few keystrokes.

Once your slides are created, you can review them in order, right on the screen. Then arrange and rearrange them in any order you like. Or use this same "Screen Director" feature to run a "slideless" presentation right at your PC or on a big-screen monitor, complete with automatic delays between each slide. Presentation Station will even make handy "speaker's notes" to guide you through your talk.

Switching from 35mm slides to overhead transparencies is also no problem. Presentation Station's built-in Media Director automatically adjusts the proportions of your work to accommodate either 35mm or overhead transparency format.

Presentation Station allows you to make individual modifications to your work.

Create your own palette from 16.8 million available colors. Each graphic can display up to 252 colors for dynamic effects. Select typefaces from 8 high quality fonts, including both serif and sans serif in roman, bold and italic styles. Change size, position, spacing or any other variable you like, within one slide or within all slides.



Using Presentation Station's Draw option, virtually any type of image from simple title charts to the most complex artwork can be created. Use this option to create diagrams, flow charts, organization charts or maps. Or, create logos, symbols or special backgrounds to incorporate into other charts. You can also convert preformatted charts into "Draw" charts, allowing you to manipulate them in virtually limitless ways. Use the program's own "building blocks" to create your images, or draw freehand using a mouse, tablet, or even your PC keyboard.

Presentation Station also includes a handy clip-art file. You choose from a variety of business-related images and incorporate them into your slides as you like. A special "Scrapbook" feature lets you store custom images in the computer's memory, building your own image bank for future reference.

You can bring graphs created in Lotus 1-2-3 or Symphony worksheets directly into Presentation Station. All you do is tell the program where to find the worksheet file. The program does the rest. Once imported, Lotus 1-2-3 or Symphony graphs can be manipulated or modified just as any other Presentation Station graphic.

You can also import images from other applications that work with the CGM (Computer Graphics Metafile) format, including Harvard Graphics, Freelance, Studioworks, Genographics, Powerpoint, MacDraw and others.

For added convenience, you may export graphics from Presentation Station to a wide range of applications, such as desktop publishing, in the PostScript and EPS formats.

Presentation Station features "concurrent operation." While your images are being printed, you can continue to create new slides or switch to another program altogether. You save valuable time and free up your computer for other applications.

Presentations Station is compatible with today's major hardcopy options, including:

- Hewlett-Packard PaintJet or DEC LJ252 Ink Jet Printer. Lets you create full-color or black-and-white paper handouts and transparencies
- Hewlett-Packard LaserJet, LaserJet+ and LaserJet Series II printers. For black-and-white handouts and transparencies
- PostScript and Color PostScript compatible printers. Lets you output your graphics on Apple LaserWriter, IBM Personal PagePrinter, DEC PrintServer 40, DEC LNO3R and professional image-setters such as those from Agfa-Compugraphic and Linotronic

Presentation Station

System includes: graphic display processor, Presentation Express Ver. 1.0 WS software \$2495.00

Bravo Slide Maker Desktop Presentation System

- Makes slides of charts, graphs, photos, illustrations and more
- Simple to operate • Allows confidentiality for high security subjects
- Eliminates the need for many expensive and time-consuming outside services • Operates on normal AC power • Requires little space • Instant results allow for additional planning time, ensure smoother presentations • Eliminates the need for expensive and messy chemicals • Many films to choose from for a variety of slide types • Communicate faster, better and with less cost and effort

With the Bravo Slide Maker you can work from charts, graphs, computer printouts, photographs, magazine pages, books, handwritten documents, photocopies, typewritten/typeset text or any other business document or flat object—whether drawn, printed or sketched. You'll also get the most out of your in-house computer capabilities. Simply print out your presentation and place the print-out on the Bravo Slide Maker. If you've ever faced the deadline pressure of a last-minute presentation, you'll appreciate the Bravo Slide Maker because you can create Polaroid 35mm slides—in full color, white-on-blue or black-and-white—in seconds.

Turn any business document into an instant 35mm slide, overhead transparency or color print in minutes. The Bravo Slide Maker allows you to choose the films that best match your needs and your message. 35mm slides add an air of importance to your presentations and enable you to easily present to larger groups. And you can choose any of 4 Polaroid 35mm Instant Slide Films.

The Bravo Slide Maker also produces Polacolor ER 3 1/4" x 4 1/4" instant prints. They're perfect for documentation, making a hard copy of your presentation and creating meeting handouts. Or use prints to proof your computer-generated graphics before you make 35mm slides. They're ready in just 60 seconds.

Original artwork can be 8 1/2" x 11", A4 size (21 x 29.7cm) or 5" x 7". Other sizes can be cropped or masked to work within these document sizes.

The Bravo Slide Maker is designed to fit almost anywhere you might place an ordinary office copier. It measures just 28" x 25" x 16", weighs only 27 lbs. and operates on normal AC current. It can be set up in minutes and operated by anyone on your staff. Because the system is instant, it requires no replacement of chemicals or other unusual maintenance procedures. Simply plug it in, load your film and you're ready to make great presentation visuals.

Bravo Slide Maker \$3195.00

Bravo Computer Slide Maker Universal Color Film Recorder

- Digital computer film recorder capable of producing boardroom-quality 35mm slides with addressable resolutions of up to 8000 lines from a palette of up to 16.7 million colors • Uses advanced digital technology to create instant or conventionally processed 35mm slides of stunning clarity and brilliance • A fraction of the cost of outside slide services • Uses High-Contrast PolaChrome Instant 35mm Slide Film • When you're not in a hurry, 35mm Presentation Chrome is specially formulated to give you high quality results from your computer graphics • Electronic digital graphic display processor lets the system take full advantage of your PC's ability to produce graphics • Create special effects such as embossed backgrounds, corporate logos and gradation of colors for background hues—important slide features that you used to have to send outside for • 3 versions: IBM version connects to your host computer's parallel printer port, allowing it to be used with many leading graphics packages designed for the IBM PC or PS/2, and the Macintosh version connects to your SCSI port. IBM/Mac universal version also available • Macintosh II driver operates under the "Chooser" menu option and takes full advantage of the color capabilities of the Mac II • Includes: power cord, 35mm Express driver, 35mm camera unit and Presentation Express driver

Bravo Computer Slide Maker \$5995.00



Bravo



PalettePlus

Digital Palette CI 3000 Desktop Film Recorder

- Turn color graphics from your IBM PC AT, PS/2 or compatible into high-resolution, full-color 35mm slides or prints, simply and inexpensively • Images will have the look of an expensive, professionally produced presentation—in a fraction of the time and cost
- 35mm slides created have an image resolution of 2048 pixels by 1366 addressable pixels • Advanced color recording capability provides exceptional color rendition and continuous-tone, shaded backgrounds • Works with a wide range of graphic formats to give you needed flexibility • Polaroid's ImagePrint™ software provides compatibility with a variety of popular software packages including Harvard Graphics and Applause II • Virtually any software generating CGM, TIFF or TARGA file formats is compatible. Or, you can use direct drivers in Polaroid's Presentation Express, 35mm Express or Freelance Plus to generate high-quality slides, prints or overheads
- Just plug the CI 3000 into the parallel port of your computer and you're ready to go. No special boards required • Gives you all the hardcopy formats you'll ever need and allows you to image on 18 different types of film, including Polaroid's instant 35mm films and conventionally-processed Polaroid Presentation Chrome • Includes all the equipment necessary to develop and mount Polaroid instant 35mm films and create small format, full-color overhead transparencies • Includes: CI 3000 color film recorder, 35mm camera unit, 3 1/4" x 4 1/4" pack film camera, 35mm power processor, 35mm illuminated slide mounter, parallel cable, power cord, ImagePrint software, 35mm Express driver, Presentation Express driver, Freelance Plus driver

CI 3000 \$4495.00

Digital Palette CI 5000

Same as CI 3000 except: • For both IBM and Macintosh computers • Image resolution up to 4000 lines • Includes: same as CI 3000 components

CI 5000 \$5995.00

PalettePlus Computer Image Recording System

- Instant computer-generated slides, prints and small-format overhead transparencies • A complete computer slidemaking system for complete security • 640 x 700 pixel resolution hardcopy of images created on personal computer with an Enhanced Graphics Adaptor (EGA) or EGA-compatible board and graphics software packages with PalettePlus drivers • Includes: PalettePlus recorder, 35mm film unit with full/frame lens, 3 1/4" x 4 1/4" film unit, power processor, OneStep graphic software, illuminated slide mounter, Palette software and manual, and all cables

PalettePlus \$2999.00

VIDEO SCAN CONVERTERS/ VIDEO WINDOWING SYSTEMS



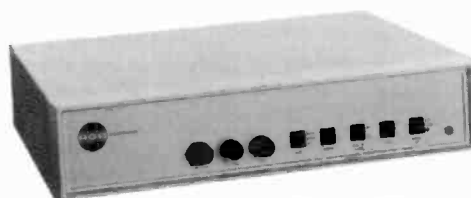
SPECTRUM

RGB/Videolink™ 600A/600AX Scan Converter

- Converts EGA, VGA and Mac II graphics to television format (NTSC or PAL) in real time • Allows recording of computer graphics on any videotape recorder and connection to video projectors, teleconferencing systems and composite monitors
- Automatically synchronizes to any computer RGB signal with horizontal scan rate from 21.5-35.0kHz • Supports all standard VGA modes, the EGA in 640 x 350 mode and the standard Macintosh 640 x 480 display • Proprietary digital signal processing (DSP) circuitry eliminates interlace flicker; thin horizontal lines and menu boxes appear stable • No software drivers or additional software required • Output video may be free run for standalone use or genlocked for studio environments • Eliminates the roll bars and desaturation associated with pointing a camera at the screen • Full 24-bit color processing; over 16 million colors • Simple external connections to the computer; adjustment-free installation • Outputs: NTSC (or PAL) composite video; analog RGB RS-170A; 525 line, 30Hz or EBU standard; 625 line, 25HZ S-VHS/ED Beta • Y, R-Y, B-Y (Betacam/MII) are available on 600AX

600A \$ 9,995.00

600AX with linear keyer for combining computer images with live video, full broadcast quality encoder/sync generator, Betacam/MII output 10,995.00



Model 1450AX
Video Scan Converter



Model 2050 Video
Windowing System

RGB/Videolink 1450AX Scan Converter

- Fully automatic synchronization to input signals from 21.5-80.0kHz, without adjustments or jumper settings • Proprietary digital signal processing (DSP) circuitry eliminates interlace flicker; thin horizontal lines and menu boxes appear stable • Scan conversion occurs in real time • NTSC RS-170A or PAL encoder and sync generator; supports all videotape formats including VHS, S-VHS, ED Beta, 3/4" U-Matic, 1", Betacam/MII • High quality linear keyer overlays computer generated text and graphics onto video, without the "jaggies" associated with 1-bit keyers • Full 24-bit color processing; over 16 million colors • Simple external connections to the computer; adjustment-free installation • No software drivers or additional software required • Eliminates the roll bars and desaturation associated with pointing a camera at the screen • Y,R-Y,B-Y (Betacam/MII) output • Encoder controls: system timing, subcarrier phase, sync timing • User controls: key function, key level

The RGB/Videolink 1450AX accepts non-interlaced RGB signals at resolutions up to 1280 x 1024 pixels. The RGB/Videolink analyzes the input signal from the computer and automatically synchronizes to it. The RGB inputs are digitized, filtered and buffered in a frame store. The digitized image is then converted by digital-to-analog converters to RGB signals at video resolution and encoded into NTSC RS-170A (or PAL EBU standard) composite video. S-Video and RGB outputs at video resolution are also provided: Betacam/MII outputs are available on the Model 1450AX. Complete conversion and encoding are accomplished in real time.

The RGB/Videolink is easily installed using video cables. Loop-through connectors are provided on all inputs; installation does not interfere with normal operation of the computer or its monitor

RGB/Videolink 1450AX \$14,995.00

RGB/View 2050 Video Windowing System

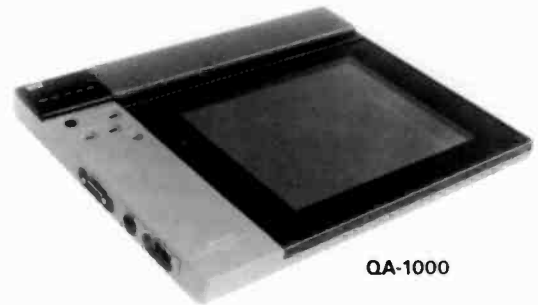
- Compatible with all high resolution computer graphics displays (1024 x 768 to 1280 x 1024 pixel resolution) interlaced or non-interlaced. Synchronizes to video displays with horizontal scan rates of 44-90kHz non-interlaced or 22-45kHz interlaced • NTSC or PAL composite video input. Also, component RGB (RS-170 or EBU standard) input. Other inputs, including EGA, VGA and 875 line interlaced (RS-343), are available by special order • Video window may be positioned, scaled, clipped and overlaid • High resolution video output without flicker (for non-interlaced computer systems) • Output to the computer system's normal monitor or to a high scan rate projector • No burden on computer processing; no impact on computer bus resources • 100% compatible with any application software; no software changes required • No computer slots required; connection via standard video cables • 4 basic window sizes: full screen, 1/4, 1/16 and 1/64 screen • Video window may be of arbitrary size and shape • Comprehensive graphic overlay capability using versatile chroma keyer • Full 24-bit true color processing throughout; highest quality video image available • Video window control from the front panel or via an RS-232 port. Computer callable library functions to manipulate video image size, position, brightness, contrast and color • Optional SCSI port for frame grabbing • Freeze frame • Brightness, contrast and saturation controls • Look-up tables (LUTs) for color mapping • Motion filter

RGB/View 2050 \$9,495.00

QA-1000 True Color Computer Projection Panel

- State-of-the-art 10.4" TFT (Thin Film Transistor) LCD with an active matrix drive system
- Capable of displaying both computer text and full-motion animation graphics in up to 64 brilliant colors
- Replaces the 'shades of gray' used in conventional displays with an array of 64 bright and high-contrast true colors
- Automatic screen centering
- Built-in solid-state EEPROM memory
- Cylindrical cooling fan

The QA-1000 offers outstanding compatibility, as well as auto-setup, for use with virtually all popular PCs, graphics cards and software. A partial list of compatible computers includes the IBM PS/2, PS/1, PC/XT/AT and compatibles (VGA, MCGA, EGA, CGA, MDA and Hercules/+/In-Color), Apple Macintosh (Mac II, Mac SE, Mac +), Apple II family, and AT&T (PC6300WGS, PC6386WGS, PC6312WGS, PC6286WGS)
QA-1000 \$5295.00



QA-1000

**QA-75 Super Bright LCD Computer/Data
Projection Panel**

- 16 true shades of gray (user selectable for either gray scale or pixel patterns)
- Compatibility with auto-setup for PS/2, PC/XT/AT and compatibles (VGA, MCGA, EGA, CGA, MDA and Hercules/+/In-Color), Macintosh family (Mac II, Mac SE, Mac +), AT&T (PC6300wgs, PC6386wgs, PC6312wgs, PC6286wgs), Apple II family (II, II+, IIc, IIe, IIgs). Manual setup also provided to optimize compatibility with an even wider range of computers
- Super-bright 640x480 "TSTN" (Triple Super Twist Nematic) LCD displays page black and white images that are consistently brighter and higher in contrast than conventional LCDs (approx. 2X-3X higher contrast than "colorized" panels)
- 2 easy-access on-screen menus
- 23-key infrared remote control
- Up to 21 computer functions may be controlled using the included remote control
- Comes complete with 9-pin and 15-pin d-Sub RGB signal cables for direct connection with IBM PCs, PS/2s and compatibles. Apple Mac II and AT&T computers require an optional adaptor cable; Apple II and Mac +/SE computers require an optional interface whose output conforms with Sharp's technical specifications

QA-75 \$1595.00



QA-75

XG-50 Video Scanner Presentation System

- Easily connects to video projectors and TV monitors, and allows documents and full-color photographs to be presented to a large audience
- 400 TV lines resolution
- 1/2" CCD with 750,000 pixels (250,000 x RGB) reproduces clear and bright images
- 8X power zoom and focus lens enlarges small and hard to read print
- Built-in video frame image memory
- Wide size capacity, handles everything from 35mm film to B4 paper
- Unique positive/negative reverse function
- Composite, S-Video (Y/C) and analog RGB outputs
- Flicker-less fluorescent lamp included
- Dimensions: set up 26 1/2" H x 26 3/4" W x 23 3/8" D; folded 7 1/2" H x 16 1/2" W x 23 3/8" D
- 22 lbs.
- Included accessories: AC cord, video cable (2m RCA-RCA), audio cable (2m RCA-RCA), dust cover

XG-50 \$3995.00



XG-50

GZ-P21U S-VHS Compatible Color Video Printer

- High resolution
- Inputs for S-VHS, composite and RGB analog video sources
- 600 x 478 dot format
- Digital "freeze frame" memory
- Multi-image print mode allows 2, 4 or 25 reduced size images to be reproduced on a single print sheet
- Grounded (3-wire) AC power cord

GZ-P21U \$1795.00



GZ-P21U

Optional Printer Accessories

- GZ-Y100U Color Print Ink/Paper Set**
Each set includes 100 sheets and ink cassette \$95.00
- GZ-Z20U Color Transparency Ink/Film Set**
Each set includes 20 sheets and ink cassette40.00
- GZ-W100U Monochrome Print Sheets**
Each set includes 100 sheets thermal paper20.00

VIDEO/DATA PROJECTORS

SONY

Business and Professional Group

VPH-1041Q Super Bright™ Color Video Projector

- Factory adjusted for 100" flat screen, 67"-250" adjustable • High resolution (RGB 1000 TVL, Video 650 TVL) • High brightness of 600 lumens
- Displays 2000 characters • PAL/SECAM/NTSC/NTSC 4.43, auto sense
- Y/C input • Built-in speaker • Delta TAC II lens

VPH-1041Q \$5,999.00

VPH-1042Q Super Bright Color Video Projector

- Factory adjusted for 100" flat screen 67"-250" adjustable • High resolution (RGB 1000 TVL, Video 650 TVL) • High brightness of 600 lumens
- Displays 2000 characters • PAL/SECAM/NTSC/NTSC 4.43, auto sense
- Y/C input • HACC/HD-6 lens • Built-in speaker • Excellent corner focus
- Uses VPR-722S remote control and CCQ-__BRS cables

VPH-1042Q \$8,594.00

VPH-1031Q MultiScan™ Color Video/Data Projector

- Factory adjusted for 100" flat screen, 60"-250" adjustable • Automatic locking for computer signals (H: 15-36kHz, V: 40-150Hz) • High resolution (RGB 1100 TVL, Video 650 TVL) • Displays 4000 characters • High brightness of 300 lumens • PAL/SECAM/NTSC/NTSC 4.43 • Auto sense for TV standard
- RGB/video superimpose • 2 RGB inputs • Built-in speaker

VPH-1031Q \$8,575.00

VPH-1270Q MultiScan Color Video/Data Projector

- Factory adjusted for 120" flat screen, 70"-250" adjustable • 1250 TV lines RGB resolution (measured at a horizontal frequency of 15kHz) • Light output: Peak white, 650 lumens; all white, 200 lumens • Remote controlled convergence • NTSC/PAL/SECAM/NTSC 4.43 color system automatically selected • Automatic locking to most computer signals: 15.75kHz to 75kHz horizontal • Built-in speaker • Memory function • On-screen display function • Horizontal and vertical size and shift controls • High performance hybrid lenses, HACC lens • Supplied with IFB-10 interface board, remote control unit, remote control cable, extension board and AC power cord

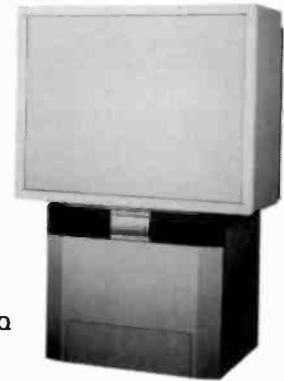
VPH-1270Q \$15,990.00

Accessories

- PSS-10 Projector suspension support for VPH projectors \$ 570.00
- PSS-722 Projector suspension support for ceiling mount for VPH-1030/1040 Series 275.00
- SU-722 Stand for floor mount for VPH-1030/1040 Series 610.00
- ST-72TV TV tuner, 181-channel stereo decoding (MTS) 430.00
- VLC-1040 Carrying case for VPH-1031Q and VPH-1041Q/1042Q 600.00
- VPR-722S Remote control for VPH-1030/1040 Series 600.00
- VPF-720 Ornamental frame for 72" screen (VPS-72HG1) 605.00
- VPS-72HG1 High gain concave screen for VPH Series, Gain = 13 980.00
- PSS-1270 Projector suspension support/mounting bracket for VPH-1270Q 695.00
- VPS-100HG1 High gain concave screen for VPH Series (100" diagonal) includes ornamental frame. Gain = 13 3,795.00
- VPS-100F1 Flat screen (100" diagonal) for VPH Series, includes winding mechanism and stopper. Gain = 2.5 690.00
- VPS-700R Rear projection screen, 70" diagonal, 2-piece black stripe Lenticular/Fresnel construction, for VPH Series. Includes ornamental mounting frame. Gain = 5.2 4,285.00
- IFB-10 Analog RGB/computer interface/input card; RGB input: 5 BNC (R, G, B, Comp/HD, VD); Audio input: 2 RCA phono plug (Left, Right); Bandwidth: 100MHz; for VPH-1270Q/PC-1270 only 300.00
- IFB-20 Analog RGB/computer interface/input card; RGB input: D-Sub 9-pin (R,G,B, HD, VD); Audio input: 2 RCA phono (Left, Right); Bandwidth: 100MHz; for VPH-1270Q/PC-1270 only 370.00
- IFB-30 Digital RGB/computer interface/input card; RGB input: D-Sub 9-pin (R, G, B, r, g, b, HD, VD); Audio input: 2 RCA phono plug (Left, Right); for VPH-1270Q/PC-1270 only 415.00
- RSM-1270 RS-422 interface protocol manual for VPH-1270Q 55.00



VPH-1270Q



RVP-6000Q

IFB-1000 Y/C or composite video input card; Y/C input: 4-pin DIN with loop output; Video input: BNC with loop output; Audio input: 2 RCA phono (Left, Right); for VPH-1270Q/PC-1270 only \$ 300.00
 PC-1270 8-input signal interface switcher for VPH-1270Q 2,145.00

RVP-6000Q Rear Screen Video Projection System

- 60" rear projected screen size • Especially suitable for business presentations and information display which require sophisticated multimedia capabilities • Contains projection head, rear projection screen, reflective mirror and audio system in compact, 1-piece unit which enables convenient, transportable installation • Easy to set up and operate via infrared remote control system, projection system can display a wide variety of input sources including high end graphics computers • Optical coupling system links projection system's lenses and cathode ray tubes (CRTs) to help reduce light refraction and ensure display of high contrast pictures • Images displayed on the RVP-6000Q system are virtually unaffected by ambient light due to the design of the system's rear projection screen • Only 1 mirror used to reflect images, minimizing loss of light intensity • Super Fine Pitch™ screen contains a combination of fresnel and lenticular lenses, helping widen both vertical and horizontal viewing angles • 0.6mm pitch lenticular screen provides precise display of computer images • Black stripes coated on screen's lenticular front surface absorb ambient light and enhance contrast to prevent image "washout" under typical room lighting conditions • Combination of CRT and lens design maximizes projector's light output, generating a bright display of up to 150fL at peak white and 40fL all white. Resolution 1280 x 1024 pixels (RGB input) • Accepts input signals with horizontal scanning frequencies from 15kHz to 65kHz and vertical scanning frequencies from 38Hz to 150Hz • Accepts and automatically adjusts for a wide variety of computer sync signals • Compatible with new high quality video formats including HDTV (High Definition Television) and IDTV (Improved Definition Television) • Provides Y/C and Video inputs, plus input ports for optional IFB-series interface boards • Can be configured for wired or wireless operation to provide easy control of all projection functions including convergence, RGB size and shift, centering, input selection, picture control and volume • Memory function stores adjusted picture settings, retaining this memory even after power has been turned off until further adjustments are made • Adjustment status and information about input signals can be displayed on system's screen for reference

RVP-6000Q \$25,990.00

Business and Professional Group

GVM-1300 (13")/GVM-2000 (20")

Trinitron Graphics Monitors

- Accept composite video from VTRs as well as high-resolution color graphics from personal computers
- Operate over a wide range of horizontal and vertical synchronization frequencies, enabling users to view video images from VTRs and graphics from various types of computers on a single screen
- 2 composite video inputs accommodate the various recording formats
- High-resolution video image of 600 TVL (GVM-1300) and 560 TVL (GVM-2000)
- 2 RGB computer inputs
- Computer resolution is 720 x 480 pixels (GVM-2000) and 900 x 560 pixels (GVM-1300)
- Stable automatic white balance facility
- Built-in speaker for audio input and controls to adjust the horizontal and vertical shift and size

GVM-1300 \$1,495.00
GVM-2000 2,300.00



GVM-2000

GVM-1305TS 13" Multiscan Touchscreen Monitor

- Provides automatic detection of input signal line frequency
- Multiscan capability allows the monitor to automatically adjust its scanning rate to a wide variety of input signals, and to accurately display a picture on its anti-glare screen
- Accepts most computer sync signals, in addition to composite video, Y/C and analog/TTL video signals
- Provides multiple audio and video inputs with loop-through, which facilitates its use in a multipurpose workstation environment
- Includes ELODEV 1.4c software for interrupt-driven, RS-232C touchscreen support, along with language bindings for compilers manufactured by Borland International, Microsoft Corp. and IBM Corp.

GVM-1305TS \$2,800.00



GVM-1305TS

LASER VIDEODISC RECORDER/PLAYERS

SONY®

Business and Professional Group

LVR-5000 Laser Videodisc Recorder/ LVS-5000 Laser Videodisc Processor

The Laser Videodisc Recording System allows the user to record images onto blank optical discs. The recorded images are safe for more than 30 years according to the Sony acceleration test.

High Quality Picture

The adoption of the time compression component recording format ensures that the Laser Videodisc Recording System records and reproduces high quality pictures. The alloy formation techniques used to record onto the optical discs help sustain the image's crispness.

Black and White Mode

The Laser Videodisc Recording System can be set to record and play back only black and white images. Elimination of color components allows an increase in resolution with the bandwidth of 6.7MHz.

Multiple Inputs/Outputs

The LVS-5000 can accommodate multiple types of video inputs and outputs. Its component inputs/outputs (RGB or Y/R-Y/B-Y) can be used for the highest quality recording and playback. The system is also equipped with a composite input/output to enable interfacing with numerous video sources including VTRs and cameras.

Quick Access Time

Any video frame on a disc can be accessed within 0.5 second on the full stroke average.

Semiconductor Diode Laser Pickup

The Laser Videodisc Recording System employs a high-power semiconductor laser diode, which boasts high durability, long life, and low power consumption.

Frame Picture Recording Capability

In addition to its ability to record and play back 24 minutes of continuous video and audio, the Laser Videodisc Recording System allows frame picture recording. A maximum of 43,500 frames in NTSC and 36,250 frames in PAL can be recorded on 1 side of the disc.

Computer Interface

The Laser Videodisc Recording System can be controlled from an external computer via the built-in RS-232C port. The product's software protocol is compatible with that of the Sony LDP series. The optional LDM-5000 Interface Manual will provide detailed protocol information.

Convenient System Expandability

The Laser Videodisc Recording System consists of 2 separate units, a signal processor and a recorder. 1 processor can be interfaced with up to 10 recorders. When recorders are serially connected and controlled by an external computer, several discs can be recorded and played back consecutively. Furthermore, playback of 1 segment can be followed by another segment from a different disc without any recognizable transition noise between the 2 scenes.

Both NTSC and PAL Signal Processing Capability

When the optional DB-W5000P PAL Board is installed in the LVS-5000, the Laser Videodisc Recording System is capable of recording and playing back both NTSC and PAL signals.

PCM Audio Recording

Audio signals are encoded into a digital form by the PCM (Pulse Code Modulation) circuit. The result is high fidelity audio.

User Data

A 64K byte area is reserved on each side of the optical disc for user data. With the assistance of an external computer, user information such as the disc ID, contents and picture index can be recorded.

Noiseless Picture Playback at Variable Speeds

Noiseless pictures can be played back at still and 1/255 to 3 times normal speed in the forward and reverse directions.

Genlock Capability

When a reference video signal (VBS or sync) is input, the playback signal will be synchronized with the reference signal.

LVR-5000 \$ 10,500.00
LVS-5000 10,500.00



LVS-5000

LVR-5000



LVA-7000

LVA-7000 Laser Videodisc Player

- Component time division multiplex recording format
- Can play back 24 minutes of moving pictures or 43,500 frames of still pictures from each side of the disc
- Search mode: The playback picture changes without the video signal muting during the head movement, using a frame memory
- Slow mode: Since a disc is played back frame by frame due to its recording format, fast moving objects may sometimes blur, especially in slow motion mode. The LVA-7000 provides field-by-field slow motion playback capability by using frame memory to minimize picture blurring. This brings added clarity to both slow motion sequences and stills
- User memory mode: Any 2 fields can be stored in the memory for instantaneous reference at any time. The picture quality of the memorized image remains excellent thanks to the component video signal processing
- Equipped with component video output (Y/R-Y/B-Y)/analog RGB output, Y/C separate video output (DIN 4-pin) and composite video output
- Quick access time of 0.5 second
- External computer control capability via the built-in RS-232C port (compatible with Sony LVR/LVS and LDP series protocol)
- Equipped with a 9-pin Remote interface (RS-422 serial) to be controlled by Sony BVE series editing control units
- High resolution black and white mode
- Both NTSC and PAL signal playback capability, using an optional PAL board
- A 64K byte area for user data on each side of the disc
- Noiseless pictures can be played at still and slow motion speeds from 1/255 to normal, and fast motion at 3 times normal speed in forward and reverse
- Index indication on/off switch
- Multi-connection capability using video input connectors
- Genlock capability
- System sync phase adjustment for connection to an SEG or switcher

LVA-7000 \$9,995.00

Business and Professional Group

ProMavica™ STILL VIDEO SYSTEM

MVR-5300 Still Video Recorder/Player

• Records and plays back high quality video images on a 2" video floppy disk • Up to 25 full frame (or 50 field) can be stored on a disk which can be erased and used again and again • Horizontal resolution of more than 500 TV lines • Composite video, analog RGB and Y/C signal input/output facilities • RS-232C interface allows the unit to be connected with a variety of video equipment • Auto play function allows playback of the first picture track to the last picture track sequentially • On-screen display: track information can be displayed on the monitor by pressing the search button, which indicates if the track has been recorded in field or frame mode and which tracks are blank

MVR-5300 \$3715.00

MVP-660/ACP-150 Portable Still Video Player With Battery Charger

• Equipped with both Hi-band and standard mode playback capability with 500 lines horizontal resolution • Equipped with composite Video Out, S-Video Out, RGB Out and a component Video Out • Audio playback capability recorded on still video disk • Erase function • Shuttle dial search • On-screen display of track number, date and time or recording data by pressing Track, Date or Data button • LCD display • Playback duration time for video without audio can be selected from 1-20 seconds • Tracks can be skipped by designating with skip button

MVP-660/ACP-150 \$3060.00

Accessories

10MP-50	Mavipak™ still video floppy disk (10 disks per box)	\$ 105.00
ACP-150	AC and battery charger for MVP-660 .....	.310.00
BC-1WA	Battery charger for 4 NP-1As .....	.435.00
MP-5CL	Cleaning disk .....	.11.00
NP-1A	NiCad battery, 1.7AH .....	.85.00
RM-52	Remote control for MVR-5600 .....	.166.00
RM-2500	Program controller .....	.730.00
RM-E5500	Program editing controller for MVR-5600 .....	.1260.00
RMM-57K	Rackmount kit for MVR-5600 .....	.490.00

MVC-2000 Single Chip Still Video Camera Recorder

• Both Hi-band and normal band still video formats selectable on camera • 2/3" interline transfer CCD switch • 380,000 picture elements • Single lens reflex, 6X zoom lens 12mm-72mm and macro function • Exposure control programmable to AE or shutter priority AE • Self-adjusting auto white balance • Time and date are automatically recorded along with aperture value and shutter speed, all of which can be superimposed on MVP-660 screen • LCD display

MVC-2000 \$3095.00

MVC-5000 2-CCD Still Video Camera Recorder

• Same features as the MVC-2000 • Single lens reflex and exclusive bayonet lens mount for Nikon lenses • Equipped with Video Out for external VTR or video monitor • Records up to 9.6 seconds of audio per track • Equipped with unidirectional electret condenser microphone • Exposure control with programmed AE, shutter priority AE, aperture priority AE or manual exposure control • White balance set to self-adjusting auto, 5800K, 3200K or memory mode • Skip function for skipping designated tracks

MVC-5000	.....	\$7150.00
MCL-913T	Lens for MVC-5000, 9.5-123.5mm, f/1.8 .....	.3495.00
MCL-200N	Lens adaptor for MVC-5000 .....	.1585.00
MCL-06T	Wide angle lens for MVC-5000, 6.5mm, f/1.8 .....	.2095.00

MVC-2000/MVC-5000 Accessories

AC-V55	AC adaptor/battery charger	\$180.00
EBP-9	Battery case for MVC-2000 .....	.240.00
MFL-30	Electronic flash for MVC-5000/2000 .....	.415.00

MVR-5300



MVP-660/
ACP-150



MVC-5000
Shown With
Optional Lens

MKA-1	Hot shoe adaptor for MVC-2000	\$100.00
NP-55	Battery pack (single) for MVC-5000 .....	.38.00
NP-77H	Battery pack (double) for MVC-5000 .....	.90.00
RM-S7	Remote control for MVC-5000 .....	.105.00
VCL-0752C	Wide conversion lens (0.7X) for MVC-2000 .....	.145.00
VCL-1552C	Teleconversion lens (1.5X) for MVC-2000 .....	.130.00

UP-5000 Color Video Printer

• Capable of printing over 16.7 million colors per dot • Hard copy comparable to photographic methods • Produces full size and split images • Capable of producing OHP color transparencies • Accepts almost any video signal, including composite, RGB analog, ProMavica and Betacam color differential signals, and separate Y/C signals • Can print an image in 67 seconds • Can be controlled via RS-232C cable by external computer

UP-5000 \$6995.00

Accessories

UPK-5000	Memory board	\$1300.00
UPC-5010A	Color print pack (100 prints) .....	.125.00
UPC-5020	Monochrome print pack (100 prints) .....	.110.00
UPC-5030	Transparency print pack (50 prints) .....	.100.00
UPC-FRAME50	Transparency frame (50 pcs.) .....	.25.00

Cables

SMF-0131	RS-232C cable for UP-5000, MVR-5600	\$ 80.00
SMF-506	Connector cable (25-pin—BNC) .....	.187.00
VDC-52	Dubbing cable (Mavica to Mavica) .....	.166.00
VDC-62	Connector cable (Mavica to Betacam®) .....	.260.00
FED-0002	RGB and audio 25-pin connector cable .....	.110.00

UP-3000 Color Video Printer

• Multiple inputs such as RGB, Y/C and composite video signals enable the UP-3000 to be used with a variety of video equipment • More than 500 TV lines resolution • An A6 size print (5 5/8" x 4") is produced in approximately 80 seconds • Supplied remote control • 4 split memory print mode • Composite print mode • 25 multi-picture print mode • Mirror print mode • Wide scan mode • Caption setting • Alarm display

UP-3000 \$3895.00

UPC-3010 Color print pack75.00

VIDEO SCANNER/ FRAME MEMORY UNIT

SONY®

Business and Professional Group

UY-T55 Color Video Scanner

- Provides quick, cost effective means of converting flat art to high quality video images
- High speed scanning—approx. 7 seconds per image (normal color mode, A4 size)
- High quality RGB video output—equal to 3-chip camera. High resolution at any portion. No distortion at any corner
- Cropping and zooming—picks out any portion out of whole page
- 24 bits digital process—16.7 million colors
- Overlay memory for superimpose function—can add pre-scanned image onto the picture
- Cursor pointing—useful in presentation
- Easy operation compared with 3-chip camera—no focusing, no lighting, no white balance
- Transportable—lightweight, easy to set up
- Sync-lock capability—synchronization with other video source
- Color adjustment—available for video output
- RGB frame memory plus overlay memory
- Software independent—no need of host computer

Specifications

Scanning System: Flat-bed, linear CCD sensor
1-pass scanning

Input Media: Sheet, card, book

Maximum Scanning

Area: 8¹/₂" x 11³/₄"
Sensor: Linear CCD sensor (8 dots/mm;
1,728 dots)
Light Source: Red LED, green LED, blue
fluorescent lamp
Gradation: 256 gradations/each color
(R, G, B 3-channel)



UY-T55

Scanning Speed: Approx. 7 seconds (normal color mode)
Trimming: 14 magnification levels, free positioning
Frame Memory: 512(V) x 768(H) x 8 bits x 3 colors
for image
Effective image area: 430(V) x 700(H)
512(V) x 768(H) x 4 bits
for superimpose
Effective image area: 430(V) x 700(H)
2 pointers selectable (8 colors/pointer)
Pointer: Norm/Fine/B&W/Title
Scanning Mode: Color/Contrast/Brightness/Hue/
Sharpness/Red/Blue (on rear panel)
Color Adjustment: 4³/₄" H x 13" W x 20" D
Dimensions: Approx. 19.1 lbs.
Weight: UY-T55 \$6495.00

MPU-F100 Frame Memory/Frame Synchronizer

The MPU-F100 accepts asynchronous video signals, locks them with the house sync and outputs synchronous video signals. It also provides time base error correction to eliminate skew errors and jitter. These functions enable video playback sources including ProMavica recorders/players to be used in various video systems such as in computer graphics, CATV, POP and POI operations.

ProMavica recorders/players show video signal muting during the transition of the head movement from 1 picture to another. The MPU-F100 eliminates this phenomenon by storing a picture in the frame memory. Also, using the Lap Dissolve function, 1 picture can switch over to another with 1.2 seconds of transition time. The MPU-F100 and a ProMavica recorder/player should be connected via an optional interface cable, IFC-100 (2m).

In combination with a ProMavica recorder/player, 3 kinds of still video control modes are available.

ON Mode: The MPU-F100 freezes a picture automatically when the ProMavica deck goes into playback mode. Also, when the deck plays back a different track, the MPU-F100 freezes a new picture.

OFF Mode: There is no functional relation between the ProMavica deck and the MPU-F100.



MPU-F100

TIMER STOP Mode: The ProMavica deck goes into the stop mode after continuously playing back the same picture for 10 minutes, without track change. After the deck is in the stop mode, the frozen picture remains.

The MPU-F100 is equipped with an external genlock input connector for composite video or blackburst input. It can control hue and color level of the composite and Y/C separate video signals, and video level and setup level of the input signals. Noise reduction circuit for still pictures provides 4 steps of noise reduction levels. An RS-232C interface is employed for an external computer control.

MPU-F100 \$3995.00

SONY

Business and Professional Group

AVC-D7 Single Chip CCD Monochrome Video Camera

- Provides superior performance of lower lag, electronic shutter and high sensitivity, as well as the traditional CCD advantages of long life, no image burning, zero geometric distortion, freedom from magnetic field interference and high resistance to vibration and shock • 380,000 effective picture elements on sensing area of 8.8 x 6.6mm • Horizontal resolution of 570 TV lines • Signal-to-noise ratio of 50dB • Minimum illumination is only 3 lux (f/1.4) • Automatic Gain Control (AGC) function allows the AVC-D7 to shoot under various light levels • External genlock capability and built-in camera ID generator are useful in multiple camera operations • Accepts various genlock signals of VBS, VS, sync or HD/VD. Also, the identification of cameras is possible by superimposing a 4-digit number on the picture • The camera body is remarkably small and lightweight, only 5" in length and 11.6 oz. in weight • 8-step variable speed electronic shutter ranging from 1/60 to 1/1000 second offers blur-free pictures and improves dynamic resolution when shooting fast-moving objects • Designed to accept C-mount lenses for 2/3" image size cameras with iris control capability • Consumes only 3.3W (using the CCMC-12P multi-core cable) or 6.5W (using coaxial cable) • Aluminum diecast chassis assures durability in severe environments

Supplied Accessories

- Lens mount cap • Operating manual

AVC-D7 \$1200.00

DXC-151 Single Chip CCD Color Video Camera

- Color video camera with mosaic type CCD with primary color filter • Horizontal resolution of 460 TV lines • Minimum illumination 25 lux (f/1.4) • Electronic shutter 1/60-1/10000 sec. • Genlock VBS, BS • White balance ATW, AWB, preset (3200K/5600K) • RGB, Y/C output, composite VBS, connector for computer image capture cards (9-pin D-sub) • High-fidelity color reproduction

DXC-151 \$1565.00

DXC-107 Single Chip CCD Color Video Camera

- IT (Interline Transfer) HAD (Hole Accumulated Diode) sensor CCD chip with 380,000 effective picture elements • 1/2" size contributes to camera's compact and lightweight design • Horizontal resolution of 470 TV lines • High sensitivity is provided through the CCD imager's complementary color mosaic filter • HAD sensor technology considerably reduces dark current, ensuring an excellent signal-to-noise ratio of 48dB • 4 alternate white balance control modes can be selected to meet a wide range of operational conditions • 2 automatic control modes, AWB (auto white balance) or ATW (auto tracing white), or 2 preset modes, indoor (3200K) or outdoor (5600K), can easily be selected by switch on the side panel • CCD iris function automatically controls the exposure by electronically adjusting the shutter speed, instead of using the mechanical auto iris function, which is incorporated in the lens • Only a single coaxial cable is required to transmit the video and sync signals and DC power • The variable speed electronic shutter enables the DXC-107 to capture clear images of moving objects, giving a remarkable improvement in dynamic resolution. Blur-free pictures for extremely clear still or slow-motion playback can be obtained. The shutter speed is easily selected by a switch on the side panel. Shutter speeds: Off, 1/100 (NTSC), 1/250, 1/1000, 1/2000, 1/4000, 1/10000 sec. • A 4-digit ID number can be generated and superimposed on the picture. Each digit can be selected by 4 rotary switches on the side panel. This function is very useful in documentation and multiple camera operations • Only 5 1/8" long and 12.7 oz. Can be installed almost anywhere • Supplied with lens connector and lens mount cap

The DXC-107 color video camera packs outstanding picture taking performance and excellent operational facilities into a remarkably compact body. The CCD chip offers high resolution and high sensitivity for vivid, clear pictures. The CCD iris' function, built into the CCD imager, elec-

MONOCHROME/COLOR CAMERAS/ VIDEO PRESENTATION STAND



AVC-D7



DXC-107



VID-P10

tronically controls exposure, eliminating the need for auto iris control in any shooting environment. Its small and lightweight design combines with its excellent performance and many operational features to meet the demands of various industrial applications.

DXC-107 \$1280.00

VID-P10 Video Presentation Stand

- Integral DXC-101 camera chassis, lens, portable copy stand with lights • 6X macro zoom lens fills screen with 2.4" x 1.75" to 13.5" x 9.9" object • 510 x 392 CCD for clear, burn-free pictures • Mic and phono inputs with volume control; line level output • RF output with optional RFU-89K • Switched AC outlet (300W) • Built-in microphone amplifier • Can be folded and carried like a briefcase • The pictures from the VID-P10 can also be recorded by VTRs and Sony Mavica still video recorders • Can display books, catalogs, even 3-D objects and flat objects. Also, the VID-P10 can display them on TV monitors and projectors

Supplied Accessories

- Soft cover • 2 lamps • AC cable • Operating manual • Operating seal

VID-P10 \$3500.00

PROJECTION SCREENS/FRAMES

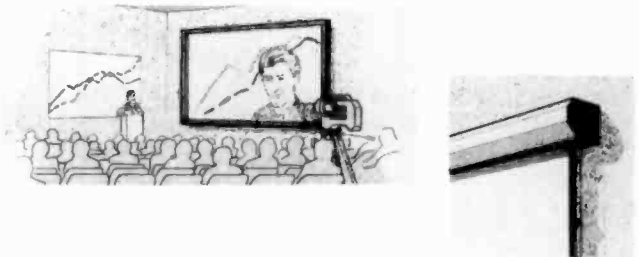
Stewart

Videomatte 2000 With Snap Frame

Choice of wall mount, ceiling hung or completely freestanding. Screen is tensioned on all sides, assuring surface flatness. Aluminum construction with 1 1/2" black masking borders for video overscan. Unit is shipped disassembled, can be assembled and installed in minutes. Disassembles for storage, if required. Custom sizes also available.

Add \$210.00 to list price for adjustable floor stands

Model #	Diagonal	Pic. Height	Pic. Width	Price
VM60SN	60"	36"	48"	\$ 512.00
VM72SN	72"	42"	57"	635.00
VM78SN	78"	47"	63"	716.00
VM84SN	84"	50"	67"	775.00
VM90SN	90"	54"	72"	855.00
VM100SN	100"	60"	80"	983.00
VM120SN	120"	72"	98"	1263.00
VM150SN	150"	90"	120"	1738.00
VM180SN	180"	108"	144"	2080.00



Videomatte 2000 With Electric Rollup

Unit can be wall mounted or ceiling recessed. Standard features include all aluminum construction, 4" diameter roller tube, adjustable limit switches on motor, built-in "J" box for wiring, tab guy system to prevent edge curl, flat black finish and remote control switch. Black masking for overscan. Custom sizes also available.

Model #	Diagonal	Pic. Height	Pic. Width	Price	Optional 12" Black Screen Drop
VM60A	50"	36"	48"	\$1432.00	VM60A12B \$1564.00
VM72A	72"	42"	57"	1540.00	VM72A12B 1697.00
VM78A	78"	47"	63"	1614.00	VM78A12B 1787.00
VM84A	84"	50"	67"	1667.00	VM84A12B 1851.00
VM90A	90"	54"	72"	1737.00	VM90A12B 1935.00
VM100A	100"	60"	80"	1854.00	VM100A12B 2074.00
VM120A	120"	72"	96"	2108.00	VM120A12B 2372.00
VM150A	150"	90"	120"	2545.00	VM150A12B 2691.00
VM180A	180"	108"	144"	2859.00	VM180A12B 3192.00

Options	Price
Video tuner interface or screen trigger	\$ 169.00
Low voltage control with wall switch	275.00
Wireless remote command	399.00

Custom Electricscreens

- No seams to show and no beads to fall off
- Tab-Guy system controls excess stretch yet allows screen to smooth within minutes of unrolling. Also eliminates bothersome edge curl. Entire screen is flat
- Cable-tension system eliminates roller sag, assuring smooth, trouble-free roll-up without center wrinkle pattern during projection
- Sound perforations are available for roll-on speakers behind lowered screen
- All Electricscreen models operate on 115V, 60 cycle power. 220V, 50 cycle models are available for overseas use
- Each screen is custom manufactured to your specifications
- All pricing upon request

Model A—Any size to 9'H x 12'W All metal construction. Intube motor
Base Price \$1020.00 Width Per Foot Price \$70.00

Model A-B—Any size to 14'H x 16'W 5" diameter roller tube. Intube motor
Base Price \$1750.00 Width Per Foot Price \$100.00

Model A-B-T—Any size to 14'H x 16'W Motorized trap door. Dual motor construction. 24V control circuit.
Base Price \$3050.00 Width Per Foot Price \$130.00

Model B—Any size to 18'H x 25'W 6" diameter stressed roller tube. External motor, unlimited cycling. Heavy duty professional unit.
Base Price \$4000.00 Width Per Foot Price \$150.00

Model C—Any size to 25'H x 43'W 8" diameter stressed roller tube. Heavy duty external motor with 25V control circuit. Unlimited cycling.
Base Price \$6000.00 Width Per Foot Price \$250.00

Rigid Rear Projection Screens

Sizes over 120" high and/or 204" wide by quotation only.

	Price Per Sq. Ft.	Jumbo Sizes (Over 90" H and/or 120" W) Price Per Sq. Ft.
1/4" acrylic or glass	\$40.00	N/A
3/8" acrylic or glass	51.00	\$62.00
1/2" acrylic or glass	65.00	72.00

Acrylic sizes are available to 84" x 120". Larger sizes by quotation. Special substrates, color and gains can be manufactured. Please call.

Factory Frames for Rigid Screens

1 3/4" x 4" 6063-T5 aluminum alloy available in dark bronze anodized finish. Screen and frame shipped as one complete unit in smaller sizes—\$34.50 per perimeter foot. Large units shipped with knocked down pre-assembled frame components and hardware, ready for aperture assembly then lifting screen into frame. Large units for 1/2" glass are \$39.80 per perimeter foot.

Flexible Screens

All flexible screens supplied as bound and grommeted, snap edge with matching hardware, web only for staple mount or in small sizes, material only. Overall square footage (including binding) determines price.

Front Projection Screens

Price Per Sq. Ft.	Perforated	Silver 300, 400 Perforated
99 sq. ft. or less	\$11.00	\$12.00
100 sq. ft. or more	9.25	10.25

Rear Projection Screens Lumiflex 130, 180 and Filmscreen 200

Price Per Sq. Ft.	
99 sq. ft. or less	\$12.25
100 sq. ft. or more	11.05

Special gains available at additional cost.

Mounting Systems

Snapper Series Frames

Square aluminum tube acts as mask, screen snaps to back of frame unless otherwise specified. Standard wallmount or fly system.

1 1/2" sq. tube	Clearspan to 20' wide	\$ 24.00 per lineal foot
T-stands with adjustable height feature		210.00 per set
	Adjustable tilt and special systems available	

A-T Frames for Bound and Grommeted Screens

T-stands with adjustable height feature		
2" tube	A-T2M Clearspan to 20' wide, 5" mask	\$450.00 per set 40.00 per lineal foot
3" tube	A-T3M Clearspan to 30' wide, 7" mask	45.00 per lineal foot

Unmasked A-T Studio Frames and Customer Masked Frames

2" tube	A-T2 Clearspan to 20' wide	\$27.00 per lineal foot
3" tube	A-T3 Clearspan to 25' wide	31.00 per lineal foot

Larger sizes available. Please call.

Microgrid® III Graphics Tablet

- For IBM® and Apple® Macintosh® microcomputers and major graphics workstations
- Standard accuracy of 0.005"; optional high accuracy of 0.002"
- Multiple output format—Summagraphics Microgrid UIOF, GTCO and Calcomp compatibility for use with all major software packages
- Dual transducer capability, 16-bit processor, skew correction and built-in ADB support that lets you connect the tablet to an Apple Macintosh II or SE computer
- Input devices—2- or 3-button stylus, 4-button cursor, or 16-button cursor with optional magnifier
- Optional stylus and cursor holders can be mounted on either side of tablet for easy access
- Stylus and 16-button cursor can be simultaneously active, providing on-demand change of transducers. Combining the programming flexibility of the 16-button cursor with the stylus creates a "16-button" stylus
- Easily tailor the following Microgrid features to your specific application: baud rate, output format, resolution, origin location and transducer
- Rugged, ABS non-glare work surface for high durability
- Thin (1.5"), lightweight construction with 1-piece top surface and rounded edges
- Adjustable tilt stand available (17" x 24" and 20" x 20") or easy-to-assemble power or manual lift stand (24" x 36", 36" x 48" and 44" x 60")
- Optional utilities diskette—Autodesk® Device Interface™ (ADI™) driver; Microsoft® 3.0 Windows Driver; Tablet.com™ driver with Microsoft Mouse emulation; diagnostic test, reset and configuration software

Microgrid III 17 x 24/16-button	\$3474.00
Microgrid III 20 x 20/16-button	3474.00
Microgrid III 24 x 36/16-button	4374.00
Microgrid III 36 x 48/16-button	4974.00
Microgrid III 42 x 60/16-button	5674.00

SummaSketch® II Graphics Tablet

- For the IBM family of PCs
- Choose from standard 11.7" x 11.7" active area tablet or the Professional version with an 18" x 12" active area
- The Professional is ideal for applications that require large work areas, or standard work areas with a separate template/menu section
- SummaSketch II tablets come with both a 4-button cursor and 2-button stylus. An optional 16-button cursor is also available
- Utilities diskette includes diagnostic test software; reset software; configuration software; ADI driver; Microsoft Windows driver and Tablet.com, a tablet driver which includes functions specific to absolute pointing devices and Microsoft Mouse emulation
- Interface cable for the IBM PC, PS/2 and AT (and compatibles)
- High resolution—up to 1016 lines per inch, or scale output to match any monitor resolution
- Precise input: 4-button or 16-button cursors. With cross-hair sight for applications requiring precise digitizing
- 2-button stylus with pen-tip switch and barrel button provides a natural pen-to-paper feel for free-hand drawing



Microgrid III



SummaSketch II



LCL

- 1/2" Proximity—state-of-the-art electromagnetic technology allows you to trace documents up to 1/2" thick
- Wedge-shape design allows for comfortable, convenient desktop use. The lightweight design also lets you use the tablet in your lap

SummaSketch II 12 x 12/16-button for IBM PC . . .	\$ 599.00
SummaSketch II 12 x 12/4-button for IBM PC	599.00
SummaSketch II ADB 12 x 12 for Mac	699.00
SummaSketch II ADB 12 x 18 for Mac	1099.00
SummaSketch II Pro 12 x 18/16-button for IBM PC . . .	999.00
SummaSketch II Pro 12 x 18/4-button for IBM PC . . .	999.00

LCL™ Graphics Tablet

- For IBM PC, PS/2 and compatibles and Apple Macintosh personal computers
- Rugged enough to stand up to the rigors of a construction site, its thin design (0.9" profile) and light weight (under 30 lbs.) make it very portable
- The durable, 1-piece, high-pressure laminate surface protects internal components
- Multiple output format—Microgrid® UIOF and GTCO compatibility for use with all major software packages, including cost estimating, CAD and facilities management applications
- Connects the Summagraphics LCL to your Macintosh II or SE using the optional Apple Desktop Bus™ (ADB™) interface
- Input devices—2- or 3-button stylus and 4- or 16-button cursors
- Optional lightweight stand

LCL 36 x 48	\$2499.00
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COLOR PRINTERS

Tektronix
The best and the brightest.

Phaser™ II PXS IPDS Color PostScript Printer

- 300 dpi • Thermal transfer • Color PostScript compatible
- 35 typefaces standard • Downloadable fonts • Compatible with GDDM applications • AppleTalk, RS-232, coax interfaces • 68020, 16MHz, 6-10M byte RAM • Automatic port switching • Same faces as LaserWriter • Use with typefaces from Adobe, Bitstream and others • Ideal for presentations from IBM mainframe software • Also connects to Macs, PCs, PS/2s and compatibles • Serves different computers with no user intervention • Accepts print jobs and prints simultaneously with optional expansion RAM \$10,990.00

Phaser II PXN Color PostScript Printer

- 300 dpi • Thermal transfer • Color PostScript compatible
- HP 7475A emulation built in • Ethernet, RS-232, AppleTalk
- Supports Unix 4.3 BSD and System V with LPR extensions
- 68020, 16MHz, 6-10M byte RAM • Automatic port switching • Multi-tasking (with optional memory expansion)
- Easily connects to workstations, PCs and Macintosh computers \$10,995.00

Phaser II PX Color PostScript Compatible Printer

- Thermal-wax transfer technology • 300 dpi resolution
- PostScript language compatibility • Designed with networks in mind; simultaneously handles input from Macintosh, IBM PC and PS/2 computers and workstations automatically • Proprietary imaging techniques • Certified Pantone® color simulations • Cut-sheet paper and transparency film • HP-GL for applications that do not support PostScript • Multi-tasking
- On-board memory processor • Standard 6M byte RAM expandable to 10M byte RAM • SCSI port for external hard disk
- 3 media choices. \$7,995.00

RGB II Color Screen Printer

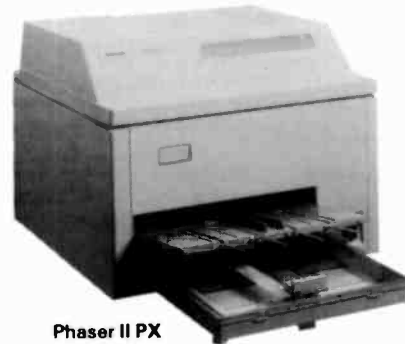
- 300 dpi color • Thermal transfer • 4 sec. offload • Auto calibration • Finished prints in 43 sec. • Fiber optic cable • Windowing • Sheet fed • Up to 8 ports • Multi-tasking \$6,500.00

Phaser II DX/DXN Network Color Image Printer

- 300 dpi • Thermal wax transfer • Thick/thin Ethernet interface • 16 million colors • Sheet fed • 68020 processor • 4-12M byte RAM • Sun Open Look compatible • X-Window compatible \$8,995.00

Phaser II SX Color Printer

- Thermal-wax transfer technology • 300 dpi resolution
- Built-in image decompression data handling • Macintosh printer driver with background printing; access to all QuickDraw compatible applications • Windows 3.0 printer driver for PC environment • Freedom of Press for host-based PC and Macintosh PostScript compatibility • Adobe Type Manager (ATM) for high resolution fonts • TekColor™ compatibility for the Macintosh • 1M byte RAM • SCSI and parallel interfaces
- 3 media choices • Modular construction for upgradeability
- Optional 3-parallel-port multiplexer • 4M byte memory upgrade. \$4,995.00



Phaser II PX



RGB II

ColorQuick™ Ink-jet Printer for PCs

- Drop-on-demand ink-jet technology • 216 dpi resolution
- Up to 16.7 million colors through software dithering • Centronics port on the printer • Tek PC printer drivers • Several media choices: plain paper, coated paper, transparency film
- Wide range of media sizes: paper, cut-sheet: A (8.5" x 11"), legal (8.5" x 14"), B tabloid (11" x 17"), A4 (210mm x 297mm), A3 (297mm x 420mm), oversize (12" x 18"); paper, roll, 11"; transparency film: A and A4 cut-sheet, 11" roll
- Upgrade available for PostScript and HP-GL compatibility
- Different media feed methods: automatic sheet feeder, roll feed, manual feed, optional tractor feed • Special inks • Ink indicators on printer \$2,345.00

ColorQuick Ink-jet Printer for the Macintosh II or Larger

- Drop-on-demand ink-jet technology and Tektronix formulated inks • 216 dpi resolution • Special inks • Ink indicators on the printer and in Macintosh status window • Quick color prints (lettersize with 256-color palette) in about 2 minutes
- SCSI (Small Computer Systems Interface) port for connecting the printer to a Macintosh II • Color printer driver you select through the chooser • Color printer dialog boxes • TekColor matching • 32-bit QuickDraw compatibility • Upgrade available for PostScript compatibility • Precision printing • Up to 16.7 million colors • Font disks with 11 typeface families
- Several media choices: plain paper, coated paper, transparency film • Wide range of media sizes: paper, cut-sheet: A (8.5" x 11"), legal (8.5" x 14"), B tabloid (11" x 17"), oversize (12" x 18"), A4 (210mm x 297mm), A3 (297mm x 420mm); paper, roll, 11"; transparency film: A and A4 cut-sheet, 11" roll
- Different media feed methods: automatic sheet feeder; roll feed, manual feed; optional tractor feed \$2,345.00



LUMENA® 16/32™

LUMENA (version 3.34) is an IBM-PC/AT or 386 based graphics/paint program for the design and production of professional quality images.

Input

• Flat art slides or photographs • Real world 3-D objects including fabrics and textures • Segments from existing videotape • Live video images • Free-hand drawings using stylus and graphics tablet • Image files from other software

Output

• Color hardcopy from printers and plotters • 35mm slides • 4" x 5" and 8" x 10" transparencies • Videotape

User Interface

• Intuitive menus • Customizable menu display • On-line help • Permanently displayed status and prompt areas

Color Selection

• 32,000 or 16.7 million colors • RGB, CYM and HSV numerical color bars • Color palette mixing • Custom palette creation • Color selection from screen image • Gradations with up to 32 control colors for square, rectangular, circular and elliptical fills

Draw

• All standard drawing tools including hollow or filled shapes and T-square • Anti-aliased shapes • Selectable pen-sizes • Image elements selectable for special manipulation (e.g., user-defineable cells for fades, brushes, etc.)

Paint

• Artist brush • Air, chalk, clone, colorrun, smear, custom, pull, stretch, tint, smooth, stir, texture, pressure and water brushes

Image Enhancement

• Emboss, posterize, pixelate, transparency, contrast, perspective, fade, color filters and sharpness

Oasis

Oasis is color image creation software with videographic tools for the Macintosh where ideas can be visualized and explored.

Oasis offers video tools designed to meet the needs of the emerging desktop video market. This unique component includes features such as: HLS color model, video legal palette, graphics overlay, alpha channel support, luminance key and video capture.

Brushes

Customizable attributes let you simulate the effects of virtually any traditional art medium: • Airbrush • Artist brush • Solid brush • Stretch • Tint • Saturate • Value • Soften • Smear • Clipboard brush • Colorize • Eraser • Gradation • Pull • Reveal from underlying document

Brush Attributes

• Continuous • No buildup

Pressure-Sensitive Attributes

• Brush size • Density • Gradation

Artist Brush Attributes

• Color blend • Dry-out speed • Feathered edges • Wetness/stipple

Lines/Shapes

• Circles/eclipses • Filled/hollow shapes • Lines • Open/closed curves • Polygons • Rectangles/squares

Fills/Gradations

• Solid or transparent fill • Fill with special effects • Gradation cycles • Gradation direction • Radial gradation • Linear gradation • Shape gradation

Text

• Any system font • Up to 1000 point type • Justification (L, R, C) • ATM/TrueType compatible • Standard text styles • Anti-alias

Selection

SuperSelect lets you select areas with most tools: • Lasso expands or shrinks past background or touched colors • Marquee • Masks • Reverse selection • Select last operation

Color Palette

• HSV, RGB, CMY color models • Mix with airbrush or smear tools • Color storage boxes • Copy and swatch for color matching • Dynamic color grada-

Layout and Assembly

• Move, copy, size, scale, rotate, spin, remap, warp, rulers, snap-to grids, trim, masks, cut and paste

Text

• Anti-aliasing • Outlined or hollow fonts • Adjustable drop shadows • Tilt, rotate, move or scale functions • Automatic or manual kerning and leading • 54 vector fonts • Text on splines and curves • Prints vector fonts on raster images

Special Effects

• 3 mask modes: Write, Protect and Stencil • 7 special Draw modes, including Saturate, Colorize and Transparent • 10 special Move modes, including Tint, Value, Block, Over, Shadow and Density • Combined with other tools and modes multiply the range of effects • Soft edge masking (Vista)

Animation

• Cell, stop-frame and history • 2-D metamorphosis

Hi-Res Support

• Supports images up to 4K x 4K pixel resolution • Vector output to film recorders up to 4K x 4K resolution • Images may be scanned in at or interpolated up to high resolution

Support

• Over 250-page documentation with separate tutorials • On-line help for all tools • 24-hour Bulletin Board System technical support • 90-day free telephone support to registered end users

LUMENA/16/32/VT/SGT	3.34	\$2495.00
Video-Out	3.34	495.00
LUMENA/VISTA	3.5	3995.00
Video-Out	3.5	495.00

Text Options

Fonts-Pro Classics (16)	795.00
Fonts-Pro Designer (16)	795.00
Fonts-Pro Vogue (16)	795.00

Stand-Alone Modules

Film Factory	1.0	695.00
Print-Out	2.0	495.00

tion • 8 pages of customizable mix and storage areas • Select colors from palette and Image • Tear off gradation bars into color mixing area • Percentages or absolute values • Allows access to system color picker

Special Effects

• Unique before and after dialog boxes give an immediate preview of the effect • Brightness • Contrast • Emboss • Reduce colors • Soften/sharpen • Reveal other documents

Video

• Alpha channel support • Fill screen • Hide menu bar/palettes • HLS color model • Monochrome • Overlay soft-edged text and graphics on video • Soft key/luminance key • Video capture from tape or camera • Video color process • Video field (even, odd or both) • Graphics overlay on video • Video palette locks out "illegal" colors • Video setup

LightBox

• Functions like traditional tracing paper • Set degree of transparency • Trace images from underlying documents • Align documents for reveal operations

User Interface

• Area process gives before and after preview • Current tool preview • Customizable color palette • Tear-off menus • Floating tool palettes

Additional Key Features

• Supports Adobe PhotoShop™ Acquire/Export plug-in modules for input and output • Supports PICT, TGA and TIFF file formats • Chooser level print and film output • Display device independence • Full support of QuickDraw™ accelerators • Memory available indicator • Open multiple documents simultaneously • Personal preferences for system setup • Resize documents

System Requirements

• Macintosh® LC, II, IIx, IIcx, IIsi, Ilic or IIfx • Color or gray scale monitor • 5M bytes of system memory • 32-bit QuickDraw • System 6.0.5 or later • Pressure sensitive tablet and stylus (recommended)

Oasis \$795.00

VIDEO GRAPHICS BOARDS



NuVista +[®] Video Graphics Board

By integrating its powerful video features with the Macintosh[®] II, the NuVista+ video card makes it easy for you to create professional animations, to overlay graphics and text onto a live video source, or to videotape presentations. Simply connect the NuVista+ to your VCR and record. Plus, with features like digital linear and chroma keying, it's simple to achieve professional results.

Making the right connections simplifies most projects. So the NuVista+ offers composite and S-Video encoding and decoding on-board, making it easy for you to connect to any video source. No external peripherals are needed, no extra costs are incurred. And the results are broadcast-quality, thanks to our proprietary third-generation encoder/decoder technology.

The encoder and decoder adjustments are accessible from any application through the control panel. Controls for signal source selection, tint, color, brightness and contrast are all easy to use. Simultaneous output of composite, S-Video and analog RGB allow you to monitor your video project while it's taping.

The linear keying functions are accessible from the control panel and let you fade to any color or blend live video with computer generated text and images. You can specify transparency level and duration for professional transitions. You can choose any color, even in 32-bit/pixel mode, to overlay a computer-generated image or animation onto live video.

The chroma key function lets you dynamically merge live video with computer-generated graphics for special effects. For example, television weather reports use chroma keying by placing the meteorologist in front of a blue screen and then merging the weather maps wherever the blue color appears on-camera.

NuVista+ With 1M byte \$2995.00

Post Sale Upgrade Policy

Upgradable to 2M byte or 4M byte for \$600.00 if at time of purchase, or \$750.00 if after original purchase.

VideoScript Software for NuVista+ \$495.00

TARGA +[®] Video Graphics Board

Digital chroma keying lets you superimpose a live video image over a computer generated graphic for special effects and other uses. Chroma key Capture lets you digitize the composited image.

Memory configurations are upgradeable, so your TARGA+ can grow in power as your needs dictate. Every TARGA+ 16/32 will run all TARGA software, in 16, 24 or 32 bit per pixel modes.

Digital linear keying offers 256 levels of blending, fades to any color and smooth crossfading of images for transitions.

TARGA+ is available for AT and Microchannel (MCA) buses. Existing TARGA software will run on PS/2 machines operating under MS-DOS.

Three 8-bit lookup tables provide color/gamma correction or 8-bit/pixel color cycle effects.

Larger memory options allow off-screen buffering and 'hidden' capture of images, and can be segmented in many different configurations.

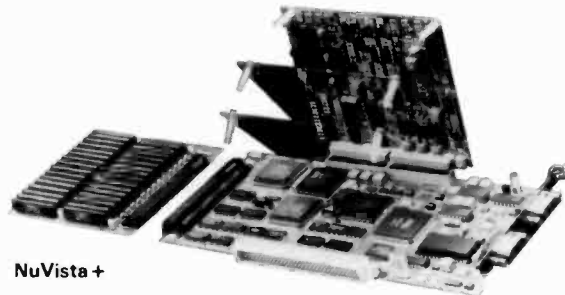
TARGA+ integrates the original TARGA 16, 24 and 32 bit/pixel boards into one card. With enough memory, a TARGA+ board can run any compatible software program, regardless of bit/pixel requirements.

Third generation genlock is more robust, and syncs to virtually any external video source flawlessly.

Composite and S-Video decoding is on board. Simultaneous output of RGB, composite and S-Video is provided for maximum flexibility.

VGA pass-through and overlay capabilities are now on board, so you can overlay VGA animations with TARGA files (non-interlaced modes only). This also allows for a single monitor solution, where you boot up in VGA mode and then switch to TARGA mode using a single keystroke.

TARGA + 16 \$1795.00
TARGA + 32 1995.00
TARGA + 64 2495.00



NuVista +

TARGA + 16-MCA \$1795.00
TARGA + 32-MCA 1995.00
TARGA + 64-MCA 2495.00

Post Sale Upgrade Policy*

16 to 16/32 \$ 400.00
 16/32 to 64 800.00
 16 to 64 1200.00

*Requires return of original memory board.

TARGA M8 Video Graphics Board

Color Resolution: 256 gray levels; or 256 colors from a palette of 16,777,216

Input Signals: 4 RS-170 compatible (black/white) video channels, or analog RGB (for sequential color capture); Digital RGBI input (for pass-through of CGA output)

Output Signals: analog RGB monochrome, RS-170 composite video
 Overlay Capability: overlay live input with memory (1 entry in color look-up table)

Memory: 8 bits/pixel, 256K bytes

Overscan: optional

TARGA M8 \$1995.00

ATVista[®] Video Graphics Board

	ATVista 1M	ATVista 2M	ATVista 4M
PC Host	IBM PC/AT	IBM PC/AT	IBM PC/AT
Data Bus Width	8 or 16	8 or 16	8 or 16
Video Memory	1M byte	2M byte	4M byte
Max. Addressable Resolutions			
32-bit	512x512	1024x512	1024x1024
16-bit	1024x512	1024x1024	2048x1024
8-bit	1024x1024	2048x1024	2048x2048
Look-up Tables	3x2K bytes	4x2K bytes	4x2K bytes
Alpha Channel	No	Yes	Yes
On Board T134010	Yes	Yes	Yes
Row Table	Yes	Yes	Yes
NTSC Compatible	Yes	Yes	Yes
PAL Compatible	Yes	Yes	Yes
Genlock	Yes	Yes	Yes
Zoom (programmable)	Yes	Yes	Yes
Pan	Yes	Yes	Yes
VMX Expansion	2-10M bytes	2-10M bytes	2-10M bytes
Video Memory Upgrade	No	2M bytes	No

ATVista 1M byte \$2995.00
ATVista 2M byte 3595.00
ATVista 4M byte 4795.00
 2M byte VRAM upgrade (2M byte to 4M byte) 1500.00

Upgradeable DRAM as follows:

ATVMX 0M byte \$ 400.00
ATVMX 2M byte 800.00
ATVMX 4M byte 1200.00
ATVMX 6M byte 1600.00
ATVMX 8M byte 2000.00
ATVMX 10M byte 2400.00



VIDEO GRAPHICS BOARDS

VideoVGA™ Video Graphics Board

- 100% register and BIOS compatible in all standard modes • The card is auto-switchable between 8- and 16-bit bus transfer rates, and works with any ISA platform machine • 256 colors are selectable from a palette of 262,144 • Supports all the standard display modes: MDA, CGA, MCGA, EGA, VGA, SuperVGA and Extended VGA—all with 1 card • Available in 2 versions: 512K DRAM and 1M byte DRAM • Software drivers and utilities provide access to all major MS-DOS programs and file conversion utilities for TGA images • User-switchable for booting in either VGA or interlaced NTSC mode • Connectors include: (1) 15-pin D type VGA connector, (1) phono plug for composite video input, (1) phono plug for composite video output, (1) 6-pin DIN connector for S-Video input and output with VideoVGA cable, standard VGA feature connector on top of card • Video overlay and keying let you select a color from the 8 bit/pixel VGA graphic and replace it with true color, live incoming video • Recordable VGA output, so programs like AutoDesk® Animator™ can go directly to VCRs. Use a multi-scan monitor and VideoVGA provides a single monitor solution for viewing your productions. This lets you work in the standard VGA mode, and then record the output to your VCR • Simultaneous output of non-interlaced VGA and interlaced composite and S-Video (Super VHS or ED Beta) NTSC signals so you can view what is being videotaped • Horizontal Underscan mode lets the left and right sides of the VGA graphic appear on a standard television set without any image loss

The VideoVGA features advanced genlock capabilities which let the card synchronize to VCRs, still video cameras and videodisk players with more stability than any other VGA product. VideoVGA automatically detects which incoming signal (composite or S-Video) is active and switches to it.

VideoVGA 512K \$ 995.00
 VideoVGA 1M byte 1195.00

Horizon860-OMB™ Processor Card

The Horizon860-OMB offers you a 33MIPS, 66MFlops microprocessor, up to 64M bytes of dedicated memory and a super-fast data bus, all in a single slot board for your AT.

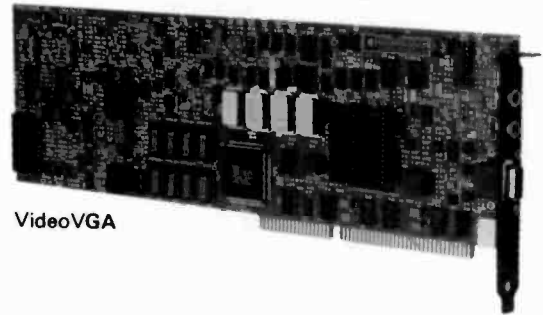
The on-board Intel i860™ microprocessor is known for high speed, and the HorizonBus™ adds unmatched performance. The 64-bit wide, high throughput HorizonBus moves data at a maximum burst rate of 24M bytes/second. Future HorizonLine™ products will use the HorizonBus to offer new realms of power for all data-intensive applications.

Horizon 860-OMB \$5295.00
 Upgradeable DRAM as follows:
 4M byte board 1000.00
 8M byte board 2000.00
 16M byte board 3000.00
 32M byte board 4000.00
 RenderPak™ Includes Horizon860 with 8M byte
 and RenderMan™ 7995.00

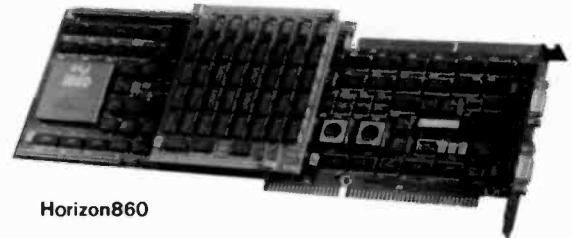
Image Capture Board (ICB)

The ICB is the original frame capture card for the IBM PC, XT, AT or compatible. It lets you capture full-color images from any conventional video source in real time and display them on analog RGB or composite video monitors at resolutions up to 256 x 240 pixels. Its 16 bits per pixel enable the ICB to produce continuous-tone images of striking clarity and realism, while its moderate spatial resolution makes it the right choice for applications where file size is an important consideration.

ICB \$1295.00



VideoVGA



Horizon860

Video Display Adaptor With Digital Enhancement (VDA/D)

When you need an inexpensive, display-only videographics board, choose the VDA/D. You can use the VDA/D with your IBM PC, XT, AT or compatible to create original graphics from scratch or to display images captured with the ICB. Like the ICB, the VDA/D provides resolutions up to 256 x 240 pixels. The VDA/D uses color look-up tables to display 256—or as many as 1008—colors from a palette of over 32,000 colors, giving you amazing picture quality with low memory overhead. And the VDA/D can display your images on analog RGB monitors, composite video monitors and even the standard IBM color display monitor.

VDA/D \$695.00

VIDI/O™ BOX Encoder/Decoder

Our video encoder/decoder is a useful companion to any Truevision videographics adaptor. The VIDI/O BOX is a stand-alone unit full of features providing a range of video input and output options: analog RGB can be encoded to composite video or S-Video, the higher-quality standard for Super VHS and ED Beta; and composite video or S-Video can be decoded to analog RGB. Thus, with the VIDI/O BOX, standard video input and output devices such as cameras, VCRs and monitors can be connected to your Truevision videographics adaptor. Other important features include loophrough of all inputs; subcarrier phase, hue and saturation adjustments; genlock; and blackburst generation capability.

VIDI/O BOX \$995.00

Software

TIPS® for TARGA + 16/32—Including TIPS Typeright .. \$ 795.00
 TIPS for 4M byte ATVista 1795.00

ELECTRONIC PRESENTATION SYSTEMS



Executive Presenter

The Executive Presenter is designed for use in corporate boardrooms, presentation rooms or permanent installations when high quality visuals are needed to support speeches or complete presentations.

The Presenter is a total turnkey playback system for graphics, real "photographic" visuals and live video. Complete with its own wireless remote control, it delivers your electronic presentation with confidence and ease.

The system "plays" all TVL Executive created presentations, or creates shows automatically using any TVL Executive, TVL Producer, VideoShow (.PIC) or Targa (.TGA) visual files. Using the optional Workstation Package, the Presenter is also capable of creating its own visuals with all TVL Executive software creation functions. After the visuals are created, the system presents them with hundreds of special effects and transitions. And, because the Presenter is hard disk based, the size of visuals and length of presentation is never an issue.

Automatic Special Effects

The Presenter creates presentations with hundreds of automatic speed definable transitions and special effects such as true dissolves, wipes, pans and "living" charts that actually "grow" to focus audience attention on your data.

Truly "Live" Presentations

Special effects and transitions—"living" or "growing" charts and graphs, real "photographic" images and the ability to incorporate live video camera or tape—all combine to give you a powerful presentation.

Make Last Minute Changes

Because the Executive Presenter is electronic and has an optional Workstation Package for complete creation capabilities, all you need to do is attach your Presenter monitor, keyboard and mouse to easily make any last minute changes and updates. This represents a major competitive and cost advantage over taped productions, slide shows or any other electronic system available today.

TVL Compatibility

Besides being compatible with all images created on the TVL Executive and TVL Producer, the Presenter is also disk compatible with all .PIC (VideoShow) and .TGA (Targa) file formats. This feature enables the Presenter to directly "play" images created on many popular software packages in use today.

Presentation Options

The Presenter delivers your presentation reliably with its own wireless remote control. The remote control functions include forward, reverse and a "menu" listing of available shows in the system. It also can be directly wired to any permanent remote control system previously installed in a boardroom or presentation room.

Configuration Options

The Executive Presenter is available as a turnkey playback system complete with wireless remote control and rackmounting capabilities for permanent installations. In addition to playback, the Workstation Option gives the Presenter all the Executive creation capabilities by adding its own EGA monitor, keyboard and creation software.

Presentation Software

After presentations are created, the Presenter delivers your visuals with a variety of automatic, speed programmable transitions and special effects. The Presenter also accepts live video with its built-in real time (1/30 second) image capture.

Special Effects

• True dissolves • Pans • "Living" or growing charts • Cube turns • Wipes • Mosaics • Highlights • Tumbles

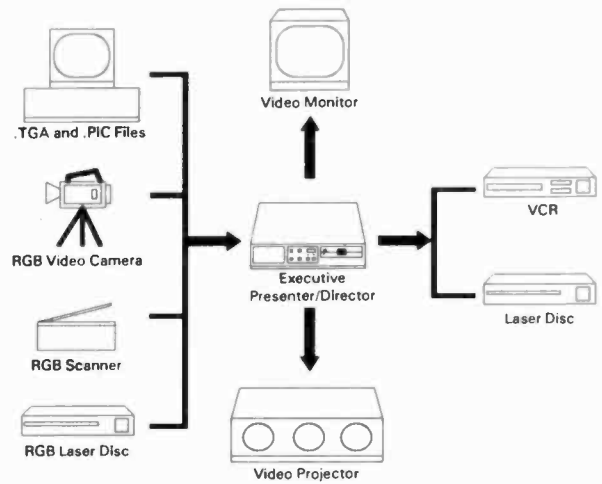
Workstation Option Software

The Executive Presenter Workstation Option software package offers a wide selection of style sheets to choose from and modify to tailor to each specific application. The software comes with its own Text, Chart and Draw packages, and creates real "photographic" visuals with its built-in image capture capability.

Executive Presenter \$5995.00
 Workstation Option for Executive Presenter and Executive Director (includes monitor, keyboard and mouse) 1000.00



Executive Presenter



Executive Director

- 32-bit true-color display
- Video output boosted to 1024 lines (vertical)
- MicroSoft Windows 3.0 operating system
- High-speed image display
- High-resolution text and graphics
- Animated charts and graphs
- Built-in image capture
- Image cropping
- Cut and paste
- Graphics over live video
- Live video in a box
- Exciting special effects library
- Wireless remote control
- Imports Targa files (.TGA)
- Imports VideoShow files (.PIC)

The Executive Director is a complete, desktop video creation and presentation system. With the Executive Director you can create eye-opening computer graphics and high-resolution video pictures and then present them with a variety of special effects.

Designed for the corporate presenter as well as the upscale meeting producer, the Executive Director lets you transform even an everyday meeting into a dazzling special effects experience. With high-resolution text and graphics, animated charts and graphs, high-quality pictures, studio-quality special effects and the ability to put graphics over live video, the Executive Director can make you the star of the show.

Executive Director \$11,995.00



VanSan Corporation

LECTERNS

Floor Model Lecterns

Encore Series 300

Versatility is the key feature of the Encore Series lectern. A unique two-part construction allows the top section to be removed for tabletop use.

Clean architectural lines are accented with brown laminate reveal, base and work surface. Brass reveal and base are available as special order.

Recessed wheels offer ready mobility. Encore options include self-contained AC/DC sound system and "Lectrajust" height control.

300-25	Width 25"	\$1725.00
300G-25	With AC/DC sound system	2325.00
300L-25	With "Lectrajust" height control	2365.00
300LG-25	With "Lectrajust" and AC/DC sound system	2965.00
1300-32	Width 32"	2045.00
1300G-32	With AC/DC sound system	2640.00
1300L-32	With "Lectrajust" height control	2675.00
1300LG-32	With "Lectrajust" and AC/DC sound system	3240.00
1300-40	Width 40"	2185.00
1300G-40	With AC/DC sound system	2785.00
1300L-40	With "Lectrajust" height control	2825.00
1300LG-40	With "Lectrajust" and AC/DC sound system	3425.00



Conference Series 500

This is the basic unit designed to function on a day-to-day schedule.

Equipped with light and digital clock, plus recessed wheels for easy mobility. Available with self-contained AC/DC sound system.

500-25	Width 25"	\$1210.00
500G-25	With AC/DC sound system	1810.00
1500-32	Width 32"	1670.00
1500G-32	With AC/DC sound system	2270.00
1500-40	Width 40"	1795.00
1500G-40	With AC/DC sound system	2395.00



Classic Series 600

The smooth wrap-around curved edges expose the book-matched veneer. Includes recessed wheels, light and digital clock. Available with "Lectrajust" height control and self-contained AC/DC sound system.

600-25	Width 25"	\$1900.00
600G-25	With AC/DC sound system	2500.00
600L-25	With "Lectrajust" height control	2770.00
600LG-25	With "Lectrajust" and AC/DC sound system	3370.00
1600-32	Width 32"	2195.00
1600G-32	With AC/DC sound system	2795.00
1600L-32	With "Lectrajust" height control	3350.00
1600LG-32	With "Lectrajust" and AC/DC sound system	3950.00
1600-40	Width 40"	2375.00
1600G-40	With AC/DC sound system	2975.00
1600L-40	With "Lectrajust" height control	3465.00
1600LG-40	With "Lectrajust" and AC/DC sound system	4065.00

President Series 700

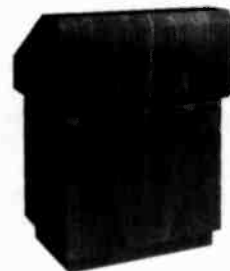
With its deep reveal, a perfect accent to a modern wood decor. Available with "Lectrajust" height control and/or self-contained AC/DC sound system. Includes light and digital clock plus, recessed wheels for easy mobility.

700-25	Width 25"	\$1620.00
700G-25	With AC/DC sound system	2220.00

700L-25	With "Lectrajust" height control	\$2260.00
700LG-25	With "Lectrajust" and AC/DC sound system	2860.00
1700-32	Width 32"	1940.00
1700G-32	With AC/DC sound system	2540.00
1700L-32	With "Lectrajust" height control	2530.00
1700LG-32	With "Lectrajust" and AC/DC sound system	3130.00
1700-40	Width 40"	2080.00
1700G-40	With AC/DC sound system	2680.00
1700L-40	With "Lectrajust" height control	2725.00
1700LG-40	With "Lectrajust" and AC/DC sound system	3325.00

Direction Series 2700

Multi-faceted and multi-dimensional, this lectern expresses a clean architectural concept. Overhang design creates a larger work surface. Includes light and digital clock. Available with "Lectrajust" height control and/or self-contained AC/DC sound system.



2700-25	Top width 28"	\$2425.00
2700G-25	With AC/DC sound system	3025.00
2700L-25	With "Lectrajust" height control	3355.00
2700LG-25	With "Lectrajust" and AC/DC sound system	3955.00
2700-32	Top width 35 1/2"	2725.00
2700G-32	With AC/DC sound system	3325.00
2700L-32	With "Lectrajust" height control	3470.00
2700LG-32	With "Lectrajust" and AC/DC sound system	4070.00
2700-40	Top width 46"	2835.00
2700G-40	With AC/DC sound system	3435.00
2700L-40	With "Lectrajust" height control	3700.00
2700LG-40	With "Lectrajust" and AC/DC sound system	4300.00

Diplomat Series 200

If your interior design uses carpet for more than the floor...this is it. Features chamfered corners and a plinth base to reflect the surface it stands on. Includes work-surface light and recessed wheels for easy mobility. Available with self-contained AC/DC sound system.

200-25	Width 25" carpeted	\$ 920.00
200G-25	With AC/DC sound system	1520.00

Table Model Lecterns

LE-22	Width 25" carpeted with light	\$ 595.00
LE-22G	With AC/DC sound system	1195.00
LE-30	Width 25" with light	915.00
LE-30G	With AC/DC sound system	1515.00
LE-33	Width 19" portable	280.00
LE-33G	With AC/DC sound system	880.00
LE-44	Width 24" with light	415.00
LE-44G	With AC/DC sound system	1015.00
LE-66	Width 25" with light, clock	1040.00
LE-66G	With AC/DC sound system	1640.00
LE-77	Width 25" with light, clock	875.00
LE-77G	With AC/DC sound system	1475.00
LE-88	Width 28" with light, clock	1385.00
LE-88G	With AC/DC sound system	1985.00

Optional Accessories

LP-100	Laser pointer	\$418.00
CTM-18	Microphone, low impedance	175.00
SM-84	Microphone, dynamic lavaller	325.00
SA-8	Microphone adaptor	10.00
MSA-1	Microphone support arm	50.00
EX-15	Speaker, deluxe extension	150.00
CLK-1	Clock, LED with countdown timer	60.00
LT-5572	Light, incandescent	50.00
LT-5572D	Light, incandescent with remote dimmer	70.00
ER-3	Receptacle, electrical, 3 outlet	50.00
NP24-12	Battery, 12V rechargeable	145.00
COV-1	Quilted Pad for lectern:	
	Models 200, 300, 500, 600, 700	150.00
	Models 1300-32, 1500-32, 1600-32, 1700-32	175.00
	Models 1300-40, 1500-40, 1600-40, 1700-40	190.00
	Model 2700-32	195.00
	Model LE-33	80.00
	Model LE-44	90.00
	Models LE-22, LE-30, LE-66, LE-77	95.00

DIGITAL VIDEO ADAPTORS



DVA-4000/Macintosh Full Motion Digital Video Adaptor for Apple Macintosh

- Outstanding picture quality at any window size
- Smooth video, graphics and audio integration
- Freedom to choose sources and standards
- Powerful image capture
- Leading multimedia applications support
- Multiple platform support

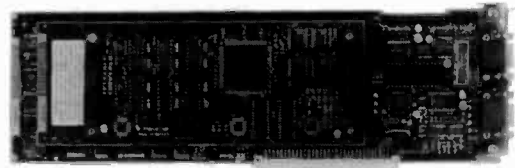
The DVA-4000/Macintosh full motion digital video adaptor integrates and displays high quality live video on any standard Macintosh II monitor. The DVA-4000/Macintosh provides full real-time manipulation of every aspect of moving video images, including size, position, brightness, saturation, contrast, sharpness and hue. It has been developed using advanced design and manufacturing techniques, making extensive use of proprietary VLSI and surface mount technology. The double scanned, non-interlaced output produces a very sharp, high resolution image with absolutely no text or graphics flicker. The DVA-4000/Macintosh accepts input from any source—VCR, camcorder, laserdisc player or tuner in both NTSC and PAL standards.

DVA-4000/Macintosh and M.I.C. System II software support leading Macintosh multimedia development tools such as HyperCard™, Authorware Professional™, MacroMind Director™, MacroMind MediaMaker™ and many others, enabling you to select the right multimedia tool for each job.

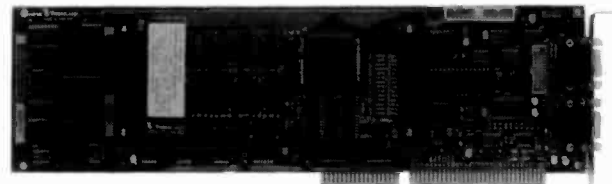
With DVA-4000/Macintosh, video resides in a dedicated place and does not affect graphics. This makes it a straightforward process to convert existing 2-screen multimedia applications to a single screen by fading between separate graphics and video screens to show both on a standard Macintosh 13" RGB monitor . . . \$2995.00

DVA-4000/ISA Full Motion Digital Video Adaptor for PC, XT and AT

- M.I.C. System software support
- Functionally compatible with DVA-4000/MCA
- Uses standard VGA computer monitors
- Full screen VGA overlay in all modes
- No penalty for video—flicker-free non-interlaced display
- Full motion digital video at 30 frames/second (NTSC) or 25 frames/second (PAL)
- Software controllable picture content, hue, saturation, contrast and brightness
- Video, audio and graphics mixing
- Software controllable color attributes—opaque, translucent and transparent available simultaneously
- Software controllable treble and bass
- 2 switchable input sources from NTSC, PAL, composite video, RGB, S-VHS



DVA-4000/Macintosh



DVA-4000/ISA

- Designed to work with future storage technologies such as CD-I and DVI
- Software selectable field or frame mode
- Identical aspect ratios between NTSC and PAL, providing a standards-independent publishing platform
- Image capture onto conventional magnetic media
- Video windowing, scaling, positioning
- Picture in picture
- Multiple live video windows
- Privileged screen areas
- Multiple stills per frame, e.g., quad splits
- Designed for hypermedia applications
- Over 1000 existing off-the-shelf generic applications to choose from

DVA-4000/ISA is based on Digital Video Architecture (DVA). It works with today's analog technologies, such as videodisc, satellite feed, off-air TV and video cameras, and future digital storage technologies such as DVI, CD-I and CD-ROM/XA.

DVA-4000/ISA is designed for use with industry standard architecture (ISA) computers including IBM PC, XT, AT and compatibles with VGA graphics capabilities.

More than a simple VGA overlay card, DVA-4000 is a powerful digital video adaptor providing full, real-time manipulation of every aspect of moving video images including size, position, brightness, saturation, contrast and hue. In addition, DVA-4000's double scan, non-interlaced output produces a very sharp, high resolution image with absolutely no text or graphics flicker. Unlike other systems, DVA-4000 uses standard VGA computer monitors. High quality stereo audio support can be provided by attaching headphones or personal stereo speakers. \$2495.00



DIGITAL VIDEO ADAPTORS

DVA-4000/MCA Full Motion Video Adaptor for PS/2

- Digital video adaptor for the IBM PS/2 and Micro Channel Architecture compatibles
- M.I.C. System software support
- No graphics card required—single slot
- Functionally compatible with DVA-4000/ISA
- Uses standard PS/2 monitors
- Full screen VGA overlay in all modes
- No penalty for video—flicker-free non-interlaced display
- Full motion digital video at 30 frames/second (NTSC) or 25 frames/second (PAL)
- Software controllable picture content, hue, saturation, contrast and brightness
- Video, audio and graphics mixing
- Software controllable color attributes—opaque, translucent and transparent available simultaneously
- Software controllable treble and bass
- 2 switchable input sources from NTSC, PAL, composite video, RGB, S-VHS
- Software selectable field or frame mode
- Identical aspect ratios between NTSC and PAL, providing a standards-independent publishing platform
- Image capture onto conventional magnetic media
- Video windowing, scaling, positioning
- Picture in picture
- Multiple live video windows
- Privileged screen areas
- Multiple stills per frame, e.g., quad splits
- Designed for hypermedia applications
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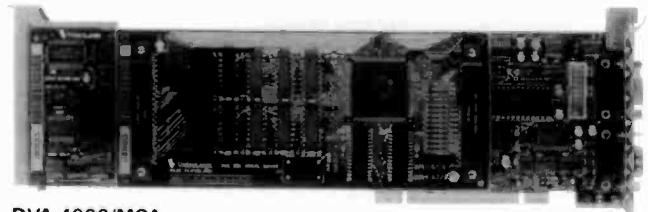
DVA-4000/MCA incorporates Digital Video Architecture (DVA). This technology integrates television sources including videodisc, off-air broadcasts and digital video sources, such as CD technologies, into the world of the personal computer. DVA-4000 has been designed for use with IBM's range of PS/2 computers which have built-in VGA graphics and an MCA bus. Far more than a simple VGA overlay card, DVA-4000 is a powerful digital video adaptor providing full manipulation of every aspect of live video images including size, position, brightness, saturation, contrast and hue in real time. In addition, DVA-4000's double scan, non-interlaced output produces an extremely sharp, very high resolution image with absolutely no text and graphics flicker. DVA-4000's overlay capability, using any standard VGA monitor, extends to all 17 VGA modes.

Until now, interactive video systems have provided a full screen video image, most of which could be overlaid with computer generated text and graphics (even though the size and position of an overlay differs between an NTSC and a PAL system).

Although windows could be placed anywhere on the screen, revealing the portion of the video beneath, current systems have not been able to scale the full screen of video into a window. DVA-4000 changes all this and revolutionizes interactive video by providing total manipulation of a full-motion video image: overlays can now cover the entire screen. NTSC and PAL overlays look exactly the same and a full screen of video can be scaled to any size and placed anywhere on the screen.

DVA-4000 also controls video brightness, saturation, contrast and hue and provides fades, dissolves and other special effects available for the first time anywhere.

DVA-4000/MCA\$2495.00



DVA-4000/MCA

Mediator

- Professional quality NISTC and PAL video output—VHS and S-VHS
- Automatic switching between Macintosh and VGA inputs
- Anti-flicker filtering
- Fast and easy setup
- Genlock facility
- Freeze frame
- Portable

Mediator converts standard analog RGB Macintosh or VGA graphics from your computer to a composite or S-Video signal in either NTSC or PAL. This allows you to record the output onto a wide range of videotape formats, including S-VHS, Hi8, VHS and Video 8. If you don't want to make recordings, you can simply display the video output on a color video projector, LCD video projector, standard video monitor or domestic TV. Mediator is the first portable, multi-standard system which provides professional quality output at an affordable price. Mediator requires no special hardware or software to be installed in your computer and allows you to view the output simultaneously on your computer screen and video monitor.

Mediator can be used together with digital video adaptors such as VideoLogic's DVA-4000 series to produce high quality multimedia presentations at a fraction of the cost of conventional production methods. Applications such as MacroMind MediaMaker™, MacroMind Director™, Authorware Professional™, IBM Storyboard Live™ and Autodesk Animator™ are ideal for use with Mediator.

Mediator can be used in many desktop video application areas including:

- Recording multimedia presentations
- Large screen, live computer/video presentations
- Producing training and promotional videotapes
- TV broadcasting

An intuitive menu ensures that Mediator can be easily set up to give high quality output in a variety of popular formats. The front panel display and 5-button keypad give you control over:

- TV output standard—NTSC or PAL
- Overscan/underscan
- Flicker reduction
- Picture sharpness
- Gamma correction
- Test pattern selection
- Graphics alignment
- Returning to factory settings
- Freeze frame

Mediator automatically detects whether you have connected an Apple Macintosh or an IBM PC XT/AT™ or PS/2™ (or compatible) VGA computer, thus eliminating any complicated setup procedure. The correct TV aspect ratio is maintained for all supported graphics modes in NTSC and PAL.

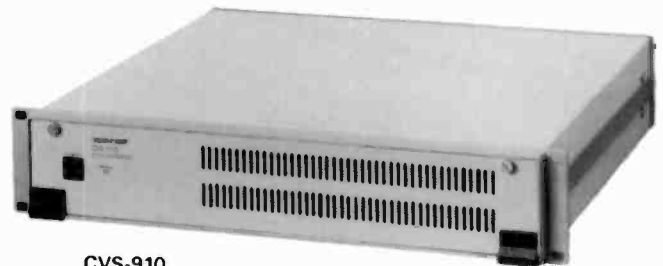
Mediator\$2995.00

SCAN CONVERTERS/ ENCODER



CVS-910 Scan Converter

- Automatically adjusts to various types of computer RGB signals and converts these into broadcast-quality NTSC or PAL television standards
 - Both analog and TTL inputs from non-interlaced and interlaced computers are automatically accepted, as well as horizontal scan frequencies of 15kHz-40kHz
 - Works with CGA, EGA, PSII, Macintosh and IBM 8514A
 - Offers vertical and horizontal sizing and positioning by front panel controls or remote RS-232C
 - With its capability of adjusting the height and width of the converted picture, the CVS-910 solves the gap problem created when converting EGA graphics (350 lines high) to NTSC video (480 visible lines high)
 - Zoom function allows you to enlarge the graphics output of PC-level computers, thus increasing the legibility of text and smaller images which are often difficult to see when converted to NTSC
 - Built-in flicker elimination
 - Freeze and broadcast genlock sync generator and color encoder conform completely to EIA RS-170A or EBU standards
- CVS-910** \$14,995.00



CVS-910

CVS-950A Scan Converter

- Real time auto scan converter
 - Adjustment-free, automatically converts any high resolution non-interlaced workstation to NTSC RS-170A or EBU
 - Horizontal scan frequency: 47kHz-80kHz, automatic locking non-interlaced
 - Automatic locking to sync on green, HD/VD, composite
 - Adjustable aspect ratio and picture position
 - Flicker elimination
 - 8-bit real time processing
 - Color bar output
 - Broadcast quality encoder conforms to EIA, RS-170A and EBU standards
 - Genlock and superimpose functions
 - Outputs: Beta/MII, ED Beta, S-VHS, VHS, 2 channels each of composite and superimpose
 - Frame interpolation to convert all pixels
- CVS-950A** \$15,995.00



CVS-950A

CVS-970 Automatic Down Converter

- Converts high resolution computer graphics and CAD drawings from workstations to HDTV and 30kHz interlaced and non-interlaced formats
 - Real time 24-bit processing
 - Accepts horizontal scan frequencies from 47kHz-80kHz
 - Picture size adjustment to HDTV 16:9 (or any aspect ratio)
 - 16-step flicker elimination, freeze
 - Outputs: RGB/sync, Y, P_b, P_r, HD sync, VD sync
- CVS-970** \$24,995.00

CVS-980 Scan Converter

- Wide range auto-locking scan converter for all interlaced and non-interlaced computers
 - Real time 24-bit processing
 - Accepts horizontal scan frequencies of 15kHz-80kHz from PCs, workstations and mainframes
 - Zoom, 4-position memory, picture size adjustment of height and width
 - 16-step flicker elimination and color encoder
 - Outputs: RGB/sync, Y/C, Y, R-Y, B-Y and composite
- CVS-980** \$18,995.00



ENC-3000

ENC-3000 Color Encoder

- Internal genlock sync generator
 - Sync locked subcarrier function for genlocking to computer output
 - RGB, Y, R-Y, B-Y and Beta input compatibility
 - 4 encoded outputs
 - Automatic sync and burst detector
 - Internal color bar generator
 - Meets EIA RS-170A or EBU standards
- ENC-3000** \$4,295.00

SW-950 Routing Switcher

- 4 inputs by 1 output for RGB, sync, HD/VD signals
 - 100MHz bandwidth
 - High isolation relay switching
- SW-950** \$3,995.00

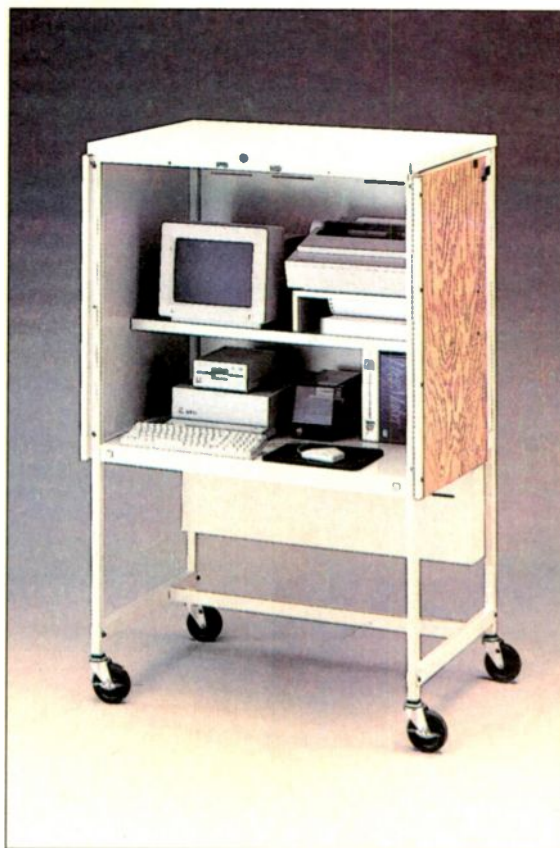
DIA-950 Distribution Amplifier

- Wide bandwidth
 - 1 input by 4 isolated outputs for distribution of RGB, sync, HD/VD. 80MHz + .5dB 75 ohms
 - Companion unit for SW-950
- DIA-950** \$2,995.00

COMPUTER WORKSTATIONS



A



B

A EC4 Computer Workstation is an "all-in-one" unit with enough roomy shelves to house your entire system. Keyboard and printer rest on roll-out, locking shelves. Keyboard shelf adjusts from 25-27" height. Printer shelf adjusts from 14-18" height and includes slot for paper feed.

EC4	24" W x 33" H x 18" D	50 lbs.	\$ 223.00
EC4E	w/ e-unit	52 lbs.	\$ 258.00

EC2 Computer Workstation (not shown) is a two-shelf model featuring a height-adjustable locking keyboard shelf (25-27"). Sliding shelf provides plenty of leg room.

EC2	24" W x 33" H x 18" D	28 lbs.	\$ 159.00
EC2E	w/ e-unit	30 lbs.	\$ 194.00

EC5-PB Computer Workstation (not shown) includes all the great features and design of the model EC10-PB, with the exception of the top shelf. Work surface: 36" W x 24" D. Putty finish only.

EC5-PB	36" W x 27" H x 24" D	59 lbs.	\$ 292.00
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EC7-PB Computer Workstation (not shown) is identical to model EC5, plus we've added a four-outlet electrical assembly with surge protection (as on the EC15-PB). Putty finish only.

EC7-PB	36" W x 27" H x 24" D	59 lbs.	\$ 333.00
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IF YOUR WORKSPACE REQUIRES A SMALLER TABLE FOR YOUR COMPUTER, TRY ONE OF THESE. ALL FEATURE 1" SQUARE TUBULAR STEEL LEGS AND STEEL FRAME. DIE-PRESSED SHELVES. 4" CASTERS (2 LOCK). ALL MODELS EXCEPT EC20 SHIP UPS. DURABLE PUTTY BEIGE POWDER PAINT FINISH. "E" MODELS INCLUDE A UL LISTED, TWO-OUTLET ELECTRICAL UNIT WITH 20-FT. GROUNDED CORD AND BUILT-IN CORD WINDER. ALL ITEMS SHIP DISASSEMBLED.

B EC20-PB Computer Workstation also acts as a security center for your equipment when not in use. Adjustable interior shelf. Ventilated back panel. Medium oak wood doors swing back against putty beige cabinet and are held in place. Includes a 3 outlet electrical assembly, 20 ft. grounded cord and built-in cord winder. Cabinet interior: 36" W x 32" H x 24" D. Work surface is a 27" typing height. Top shelf measures 36" W x 15" D. Dependable two point locking system. Shown with WSPS1 sold below.

EC20-PB	36" W x 58" H x 25" D	146 lbs.	\$ 574.00
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Accessories

EC4PCB Paper Catch Basket for the model EC4. Attaches easily to the back of the unit and neatly catches printer output.

EC4PCB	24" W x 7" H x 13" D	4 lbs.	\$ 33.00
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WSPS1 Mini Printer Stand (shown on model EC20-PB) raises printers with 9½" paper capacities above the work surface. Slotted to accept bottom feed printers. Ships UPS assembled.

WSPS1	14 ½" W x 4½" H x 13" D	7½ lbs.	\$ 29.00
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WSPS2 Mini Printer Stand raises printers with 15" paper capacities. Identical design to the model WSPS1.

WSPS2	21" W x 4½" H x 13" D	11 lbs.	\$ 40.00
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TV MOUNTS

Heavy-gauge formed steel, arc-welded joints



A



Textured Black Powder Paint finish

B

TVM4/
TVM4VCR
complete with
safety belt



C



D

A TVM1 Video Ceiling Mount Bracket holds 17" to 26" monitors on the ceiling for large audience viewing. Load rated to hold up to 200 lbs. when securely mounted. Telescoping center beam allows the width of the yoke to be extended from 20" to 34½" — adjustable lower arms let the yoke extend down from 15" to 27". Mounting plates bolt to lower arms — literally locking monitor cabinet to mount. 20 degree maximum tilt.

► **TVM1** 27 lbs. \$ 221.00

C TVM4VCR Platform Video/VCR Wall Mount allows you the opportunity to mount your VCR directly below your monitor and place all your controls in one location. Identical features as the TVM4. VCR shelf adjusts from 8" -21" wide and accepts front-load or top-load models. Safety belt included.

► **TVM4VCR** 25 lbs. \$ 270.00

BRET FORD'S LINE OF "UNIVERSAL" TV MOUNTS MEANS YOU DON'T HAVE TO SWITCH YOUR MOUNTING HARDWARE WHEN YOU CHANGE MONITORS — BECAUSE THESE MODELS ADJUST TO FIT UP TO 26" DIAGONAL SCREENS.

SELECT WALL OR CEILING MOUNT CONFIGURATION. EACH IS CRAFTED FROM DURABLE, FORMED SOLID STEEL WITH A TEXTURED BLACK POWDER COATING FOR TOTAL STRENGTH AND RELIABILITY. ALL HAVE FULL LEFT/RIGHT SWIVEL CAPABILITY FOR ACCURATE VIEWING POSITION. TILT FEATURE ANGLES SCREEN TO AUDIENCE. ALL MODELS SHIP UPS, DISASSEMBLED. MOUNTING HARDWARE NOT INCLUDED.

C TVM4 Platform Video Wall Mount Bracket features a broad platform to hold and secure the monitor. Ideal for eye-level viewing situations. Platform adjusts to hold up to 26" diagonal monitors and features a 12 degree forward tilt. Load rated to hold up to 150 pounds when securely fastened. Complete with Bretford safety belt for extra security.

► **TVM4** 21 lbs. \$ 206.00

D TVM3 Video Wall Mount Bracket encompasses all the features of the TVM1 and adds a wall bracket adapter for secure wall mounting.

► **TVM3** 37 lbs. \$ 290.00

VIDEO SECURITY CONSOLES



A



B



C

A VTRC50E Video Security Console is our mid-size unit featuring three adjustable shelves and twin dark oak locking doors which run the full length of the black metal cabinet. Recommended for use with up to 19" diagonal monitors. Cabinet interior: 28³/₁₆" W x 45¹/₄" H x 22¹/₂" D.

► **VTRC50E** 30" W x 54" H x 23" D 171 lbs. \$ 861.00

B VTRC70E Video Security Console is our largest cabinet. Four locking dark oak wood doors divide the black cabinet—making it ideal for monitor storage on top with VCR and accessories below. Three adjustable shelves. Recommended for use with up to 26" diagonal monitors. Cabinet interior (top and bottom) measures 31" W x 29" H x 24¹/₂" D.

► **VTRC70E** 33" W x 68" H x 25" D 208 lbs. \$1214.00

VTRC40E Video Security Console (not shown) features the same look as the unit above, but provides one-half the storage space. Two adjustable shelves behind two dark oak locking doors. Cabinet interior: 31" W x 29" H x 24¹/₂" D. Recommended for use with up to 19" diagonal monitors.

► **VTRC40E** 33" W x 38" H x 25" D 140 lbs. \$ 719.00

YOUR EXPENSIVE AV EQUIPMENT CAN BE LOCKED UP SAFE AND SECURE WITH A BRET FORD SECURITY CONSOLE. THEN WHEN YOU'RE READY TO GO TO WORK, SIMPLY UNLOCK AND FOLD BACK THE DOORS TO REVEAL YOUR EQUIPMENT.

EACH UNIT HAS IMPORTANT FEATURES LIKE ADJUSTABLE SHELVES, LOCKING DOORS ON PIANO HINGES, VENTILATED BACK PANELS, HEAVY-DUTY 4" BALL BEARING CASTERS (2 LOCK) AND A UL-LISTED, 2-OUTLET ELECTRICAL UNIT WITH 20-FT. GROUNDED CORD. EACH MODEL SHIPS DISASSEMBLED. ALL ARE MADE OF DURABLE STEEL.

C VTRC20E Video Security Console is a smaller unit that fits up to 19" diagonal monitors. Ivory finish on steel cabinet and twin full-length doors. Two adjustable shelves. Cabinet interior: 22³/₁₆" W x 38¹/₂" H x 18" D.

► **VTRC20E** 24³/₈" W x 48" H x 23" D 107 lbs. \$ 493.00

Accessories

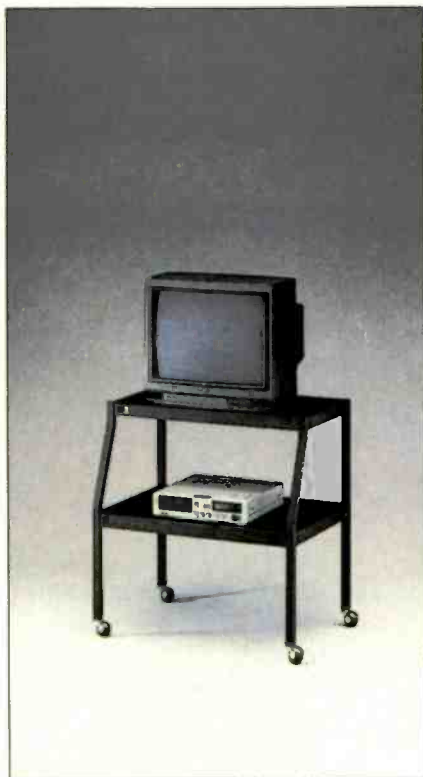
RAS Rolling Accessory Shelf fits models VTRC70E and VTRC40E and mounts easily—slides out of the way when not in use. Mounting hardware included.

► **RAS** 32 lbs. \$ 80.00

RS Rolling Shelf fits model VTRC50E to provide easy access to your equipment. Complete with mounting hardware.

► **RS** 16 lbs. \$ 74.00

TV CARTS



A



B



C



D

A VTR20 TV Cart features a recessed top shelf and wider bottom shelf. 2" ball casters. Top shelf is 30" W x 16" D—13" between shelves.

▶ VTR20	30" W x 32" H x 20" D	34 lbs.	\$ 130.00
▶ VTR20E	w/ e-unit	36 lbs.	\$ 165.00

B MP54DX-P4 TV Cart (shown with big wheel) has five full shelves for the ultimate mobile videotape editing or duplicating rack. 10" between shelves.

MP54DX-P4	30" W x 54" H x 20" D	77 lbs.	\$ 242.00
MP54DX-E4	w/ e-unit	79 lbs.	\$ 277.00
MP54DX-PW	w/ big wheel	87 lbs.	\$ 284.00
MP54DX-EW	w/ e-unit & big wheel	89 lbs.	\$ 319.00

TS54-P4 TV Cart (not shown) features a glare-free top slant shelf. Three shelves—23" from top to middle shelf, 20" from middle to bottom shelf.

▶ TS54-P4	28" W x 54" H x 24" D	59 lbs.	\$ 230.00
▶ TS54-E4	w/ e-unit	61 lbs.	\$ 265.00
TS54-PW	w/ big wheel	70 lbs.	\$ 272.00
TS54-EW	w/ e-unit & big wheel	71 lbs.	\$ 307.00

TS48-P4 TV Cart (not shown) also has top slant shelf feature. Top to middle shelf—17". Middle to bottom—20".

TS48-P4	28" W x 48" H x 24" D	55 lbs.	\$ 221.00
TS48-E4	w/ e-unit	57 lbs.	\$ 256.00
TS48-PW	w/ big wheel	66 lbs.	\$ 263.00
TS48-EW	w/ e-unit & big wheel	69 lbs.	\$ 298.00

AMPLE SHELF SPACE AND EASY MOBILITY MAKE THESE CARTS THE WORLD'S NUMBER ONE CHOICE FOR TRANSPORTING TV MONITORS. RECOMMENDED FOR USE WITH UP TO 19" DIAGONAL TELEVISIONS.

FEATURES INCLUDE DURABLE TEXTURED BLACK POWDER PAINT FINISH, 4" CASTERS (2 LOCK) AND HEAVY-GAUGE STEEL CONSTRUCTION, SMOOTH, ROUNDED EDGES. MODELS VTR20 AND MP54DX SHIP UPS, DISASSEMBLED. "E4" MODELS INCLUDE UL LISTED, 2-OUTLET ELECTRICAL UNIT WITH 20-FT. EXTENSION CORD AND CORD WINDER. "PW" MODELS INCREASE HEIGHT OF CART BY 1" AND INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS.

C T48-P4 TV Cart is a 48" high model. Top to middle shelf—17". Middle to bottom shelf—20".

▶ T48-P4	28" W x 48" H x 24" D	57 lbs.	\$ 210.00
▶ T48-E4	w/ e-unit	59 lbs.	\$ 245.00
T48-PW	w/ big wheel	67 lbs.	\$ 252.00
T48-EW	w/ e-unit & big wheel	69 lbs.	\$ 287.00

D T42-P4 TV Cart has three flat shelves. Top to middle shelf—14". Middle to bottom shelf—17".

▶ T42-P4	28" W x 42" H x 24" D	54 lbs.	\$ 205.00
▶ T42-E4	w/ e-unit	56 lbs.	\$ 240.00
T42-PW	w/ big wheel	64 lbs.	\$ 247.00
T42-EW	w/ e-unit & big wheel	66 lbs.	\$ 282.00

T54-P4 TV Cart (not shown) carries all the features of the model listed above—with a 54" height. Top to middle shelf—23". Middle to bottom shelf—20".

▶ T54-P4	28" W x 54" H x 24" D	59 lbs.	\$ 221.00
▶ T54-E4	w/ e-unit	61 lbs.	\$ 256.00
T54-PW	w/ big wheel	69 lbs.	\$ 263.00
T54-EW	w/ e-unit & big wheel	71 lbs.	\$ 298.00

Accessories

MPS Slant Bar attaches to top shelf of the MP54DX-P4 TV Cart to help eliminate glare from overhead lights.

MPS	4.5 lbs.	\$ 13.00
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AV CARTS



A



B



C



D

A CL5 Cable Lock Security System secures your video equipment to the cart. Includes two 2 $\frac{3}{8}$ " x $\frac{1}{2}$ " adhesive-backed mounting plates, 5' vinyl-coated steel cable with aluminum lock nuts, theft-proof screws and wrench key.

> CL5	1 lb.	\$ 27.00
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B MP34-P4, MP42-P4, MP26-P4 AV Carts (pictured left to right) are all equipped with 20" W x 18" D shelves. Each of these "mini pak" tables has two shelves. Top to bottom shelf measures: MP26-P4: 17"; MP34-P4: 13"; MP42-P4: 21".

MP26-P4	20" W x 26" H x 18" D	26 lbs.	\$ 119.00
MP26-E4	w/ e-unit	28 lbs.	\$ 154.00
MP34-P4	20" W x 34" H x 18" D	28 lbs.	\$ 126.00
MP34-E4	w/ e-unit	30 lbs.	\$ 161.00
MP42-P4	20" W x 42" H x 18" D	30 lbs.	\$ 131.00
MP42-E4	w/ e-unit	32 lbs.	\$ 166.00

C MP30-P4 AV Cart has wider shelves than the "mini pak" tables for bigger loads. Two shelves—14" between.

MP30-P4	30" W x 30" H x 20" D	35 lbs.	\$ 163.00
MP30-E4	w/ e-unit	37 lbs.	\$ 198.00

D 34-P4 AV Cart (shown with big wheel) is one of Bretford's "traditional" mobile equipment tables—designed for a variety of AV applications. Three shelves. Top to middle shelf—13". Middle to bottom shelf—11". Includes ribbed rubber mat.

> 34-P4	24" W x 34" H x 18" D	38 lbs.	\$ 144.00
> 34-E4	w/ e-unit	40 lbs.	\$ 179.00
34-PW	w/ big wheel	48 lbs.	\$ 186.00
34-EW	w/ e-unit & big wheel	50 lbs.	\$ 221.00

REGARDLESS OF THE APPLICATION, BRET FORD HAS THE AV CART TO MEET YOUR NEEDS. EACH OF THESE "MINI" CARTS FEATURES STEEL CONSTRUCTION, DIE-PRESSED SHELVES WITH ROUNDED EDGES, QUIET-GLIDE 4" CASTERS (2 LOCK).

THE "SQUARE LOCK" DESIGN, FEATURED ON OUR MINI PAK CARTS, MEANS EASY ASSEMBLY. TEXTURED BLACK POWDER PAINT FINISH. ALL TRADITIONAL TABLES ARE RECOMMENDED FOR USE WITH UP TO 19" MONITORS. ALL SHIP UPS. "E" MODELS INCLUDE UL LISTED, TWO-OUTLET ELECTRICAL UNIT WITH 20-FT. EXTENSION CORD AND WINDER. "PW" MODELS INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS.

42-P4 Traditional AV Cart (not shown) also has three shelves. Top to middle shelf—14 $\frac{1}{2}$ ". Middle to bottom shelf—17 $\frac{1}{2}$ ". Available with big wheels.

> 42-P4	24" W x 42" H x 18" D	39 lbs.	\$ 150.00
> 42-E4	w/ e-unit	41 lbs.	\$ 185.00

26-P4 Traditional AV Cart (not shown) features two shelves—17 $\frac{1}{2}$ " between. Available with big wheels.

> 26-P4	24" W x 26" H x 18" D	31 lbs.	\$ 130.00
> 26-E4	w/ e-unit	33 lbs.	\$ 165.00

16-P4 Traditional AV Cart (not shown) is a two-shelf model with 7 $\frac{1}{2}$ " between shelves. Each of these traditional models includes the same construction as the model 34-P4 pictured. Available with big wheels.

16-P4	24" W x 16" H x 18" D	25 lbs.	\$ 124.00
16-E4	w/ e-unit	27 lbs.	\$ 159.00

Accessories

CLPA Cable Lock Accessory Kit includes two extra mounting plates for securing additional equipment.

> CLPA	1 lb.	\$ 14.00
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AV CARTS

Textured Black Powder Paint finish is 3-5 times more durable than baked enamel finishes



Plate-mounted 8" pneumatic wheels transport the heaviest load

A



Rugged, heavy-duty steel construction

UL listed electrical unit also acts as a cord winder

B

A VTRPN44-P8 AV Cart is Bretford's largest monitor stand—holding up to 35" diagonal screens. 8" plate-mounted pneumatic wheels (2 lock) support the heaviest of loads. Top shelves—24" D x 37" W. Bottom shelf—27½" D x 37" W. 10½" between top shelves.

VTRPN44-P8	37" W x 44" H x 27½" D	89 lbs.	\$ 495.00
VTRPN44-E8	w/ e-unit	91 lbs.	\$ 530.00

B BBPN48-P8 AV Cart will hold up to 26" monitors. Also features 8" pneumatic wheels for easy transport. Three shelves. Top to middle shelf—12". Middle to bottom shelf—23".

BBPN48-P8	32" W x 48¼" H x 27" D	79 lbs.	\$ 490.00
BBPN48-E8	w/ e-unit	81 lbs.	\$ 525.00

IF YOUR PRESENTATION EQUIPMENT INCLUDES A 35" MONITOR, BRET FORD HAS THE CART TO CARRY IT AND MOVE IT FROM ONE ROOM TO THE NEXT WITH EASE. OUR 8" PNEUMATIC WHEEL CARTS ARE STRONG ENOUGH FOR YOUR BIGGEST LOADS.

ALL ARE MANUFACTURED FROM RUGGED, HEAVY-DUTY STEEL WITH A TEXTURED BLACK POWDER PAINT FINISH. OUR WIDE-BODY "BB" CARTS FEATURE THE PYRAMID-DESIGN FAMOUS FOR EXTRA STABILITY. "E8" MODELS INCLUDE A UL LISTED TWO-OUTLET ELECTRICAL ASSEMBLY WITH 20-FT. GROUNDED CORD AND CORD WINDER. ALL MODELS SHIP UPS, DISASSEMBLED.

Accessories

SB Safety Belt surrounds your monitor like a seat belt and attaches to cart for extra support.

SB	2 lbs.	\$ 30.00
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BBS Slant Bar attaches to top shelf of "BB" tables. Allows monitor to rest at an angle to lessen overhead glare.

BBS	6 lbs.	\$ 16.50
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ES Unit can be substituted for the standard E-unit on any Bretford cart. Includes three outlets, 20' cord, UL-listed.

ES-Unit	3 lbs.	\$ 46.00
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AV CARTS



A



B



C

A BBUL44 UL Listed AV Cart holds up to 27" diagonal televisions. Three shelves. Top shelves measure 32" W x 22" D (10½" between shelves). Bottom shelf measures 32" W x 27" D (23" between shelves). Safety belt included. Meets UL safety standards for institutional AV carts.

BBUL44	32" W x 44" H x 27" D	58 lbs.	\$ 220.00
BBUL44E	w/ e-unit	60 lbs.	\$ 255.00

BB44-P4 AV Cart (not shown) has the same dimensions as the UL listed model above. Wide body design. Three shelves. Top to middle—12". Middle to bottom—23".

▶ BB44-P4	32" W x 44" H x 27" D	58 lbs.	\$ 204.00
▶ BB44-E4	w/ e-unit	60 lbs.	\$ 239.00

BB54-P4 AV Cart (not shown) adds 10" to the model BB44. Three shelves. Top to middle—12". Middle to bottom—32½". Recommended for use with up to 26" monitors.

▶ BB54-P4	32" W x 54" H x 27" D	60 lbs.	\$ 212.00
▶ BB54-E4	w/ e-unit	62 lbs.	\$ 247.00

B BB48-P4 AV Cart (shown with big wheel) has all the important features of a "BB" table with a 48" height. Three shelves. Top to middle shelf—12". Middle to bottom shelf—23". Also recommended for use with up to 26" monitors.

BB48-P4	32" W x 48" H x 27" D	59 lbs.	\$ 208.00
BB48-E4	w/ e-unit	61 lbs.	\$ 243.00
BB48-PW	w/ big wheel	69 lbs.	\$ 250.00
BB48-EW	w/ e-unit & big wheel	71 lbs.	\$ 285.00

WHEN YOU NEED A CART THAT NOT ONLY HOLDS YOUR LARGE MONITOR, BUT IS ALSO TALL ENOUGH FOR THOSE IN THE BACK OF THE ROOM TO SEE, SELECT A 44", 48" OR 54" AV CART.

DURABLE, LONG-LASTING STEEL CONSTRUCTION. TEXTURED BLACK POWDER PAINT FINISH. SELECT THE UNIQUE PYRAMID DESIGN OF OUR "BB" CARTS OR THE STRAIGHT-LEG DESIGN FOUND ON OUR "MP" TABLES. "E4" MODELS INCLUDE UL LISTED, 2-OUTLET ELECTRICAL UNIT WITH 20-FT. EXTENSION CORD AND CORD WINDER. "PW" MODELS INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS FOR EXTRA MOBILITY. ALL MODELS SHIP UPS. DISASSEMBLED.

C MP48-P4 AV Cart features a straight leg design with square lock assembly. Recommended for use with up to 19" diagonal monitors. Three shelves. Top to middle shelf—17". Middle to bottom shelf—20".

MP48-P4	30" W x 48" H x 20" D	52 lbs.	\$ 182.00
MP48-E4	w/ e-unit	54 lbs.	\$ 217.00
MP48-PW	w/ big wheel	62 lbs.	\$ 224.00
MP48-EW	w/ e-unit & big wheel	64 lbs.	\$ 259.00

MP54-P4 AV Cart (not shown) is crafted with the same design features as the MP48-P4 listed above. 54" high. Three shelves. Top to middle shelf—23". Middle to bottom shelf—20".

MP54-P4	30" W x 54" H x 20" D	52 lbs.	\$ 189.00
MP54-E4	w/ e-unit	54 lbs.	\$ 224.00
MP54-PW	w/ big wheel	62 lbs.	\$ 231.00
MP54-EW	w/ e-unit & big wheel	64 lbs.	\$ 266.00

Accessories

BBS Slant Bar attaches to top shelf of "BB" tables—monitor rests at an angle.

▶ BBS	6 lbs.	\$ 16.50
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MPS Slant Bar attaches to top shelf of "MP" carts—holds monitor at an angle to lessen overhead glare.

MPS	4½ lbs.	\$ 13.00
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TV VIDEO CABINETS

Powder paint finish proven environmentally safe



A



Lower locking cabinet is 16 1/4" H

4" casters—two with locking brakes

B

Stable "pyramid" design holds up to 26" monitors



C

A BBULC48 UL Listed TV Video Cabinet holds up to 32" diagonal monitors. Two shelves—32" W x 22" D (20" between shelves). Cabinet interior: 30" W x 16 3/4" H x 26" D. Safety belt included. Meets UL safety standards for institutional AV Carts.

BBULC48	32" W x 48" H x 27" D	90 lbs.	\$ 426.00
BBULC48E	w/ e-unit	92 lbs.	\$ 461.00

B C42-P4 TV Video Cabinet (shown with big wheel) measures 14" between shelves. Cabinet interior: 23" W x 17" H x 17" D. Holds up to 19" diagonal monitors.

C42-P4	24" W x 42" H x 18" D	56 lbs.	\$ 260.00
C42-E4	w/ e-unit	58 lbs.	\$ 295.00
C42-PW	w/ big wheel	66 lbs.	\$ 302.00
C42-EW	w/ e-unit & big wheel	68 lbs.	\$ 337.00

C34-P4 TV Video Cabinet (not shown) carries over same cabinet features as model C42 with 6 1/2" between shelves.

C34-P4	24" W x 34" H x 18" D	53 lbs.	\$ 256.00
C34-E4	w/ e-unit	55 lbs.	\$ 291.00
C34-PW	w/ big wheel	63 lbs.	\$ 298.00
C34-EW	w/ e-unit & big wheel	65 lbs.	\$ 333.00

THESE STURDY CARTS ARE DESIGNED TO TRANSPORT YOUR EQUIPMENT FROM ROOM TO ROOM PLUS, EACH FEATURES A LOWER LOCKING CABINET TO STORE VALUABLE SUPPLIES.

FEATURES INCLUDE STEEL CONSTRUCTION WITH SMOOTH, ROUNDED EDGES, TEXTURED BLACK POWDER PAINT FINISH, 4" CASTERS (2 LOCK), LOCKABLE SECURITY CABINET WITH TWO KEYS. ALL "BB" MODELS SHIP UPS, DISASSEMBLED—ALL OTHERS SHIP ASSEMBLED. "E4" MODELS INCLUDE UL LISTED, 2-OUTLET ELECTRICAL UNIT WITH 20-FT. EXTENSION CORD AND CORD WINDER. "PW" MODELS INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS FOR EXTRA MOBILITY.

C26-P4 TV Video Cabinet (not shown) measures 26" high—identical cabinet features as the model C42-P4.

C26-P4	24" W x 26" H x 18" D	46 lbs.	\$ 250.00
C26-E4	w/ e-unit	48 lbs.	\$ 285.00
C26-PW	w/ big wheel	56 lbs.	\$ 292.00
C26-EW	w/ e-unit & big wheel	58 lbs.	\$ 327.00

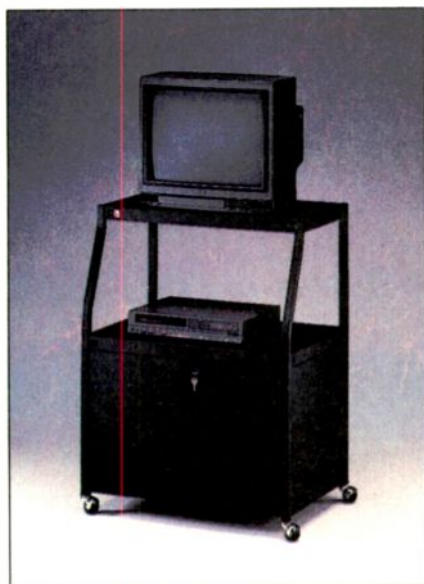
C BBC54-E4 TV Video Cabinet features wide body stability to hold up to 26" diagonal monitors. 26 1/2" from top to middle shelf. Cabinet measures 30" W x 16 1/4" H x 25" D.

BBC54-E4	32" W x 54" H x 27" D	93 lbs.	\$ 445.00
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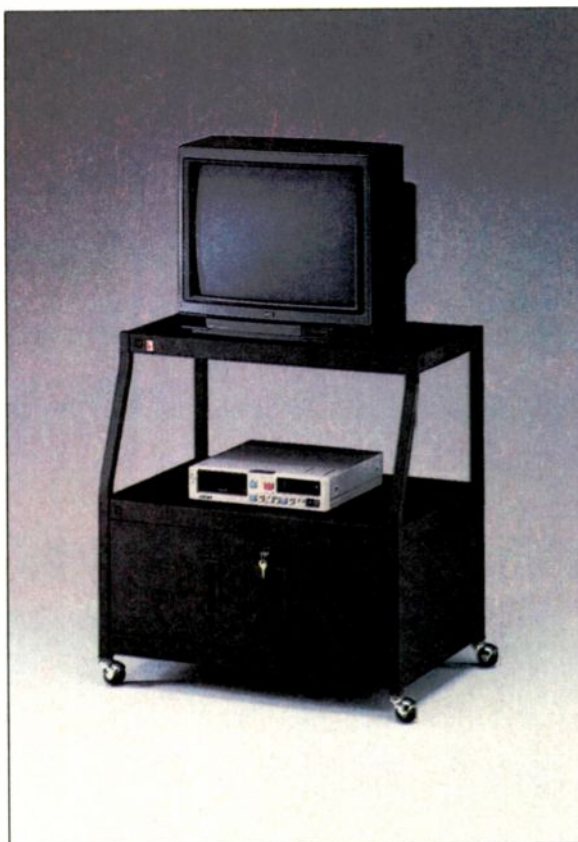
BBC48-E4 TV Video Cabinet (not shown) has the same dimensions as the UL listed model. Includes electrical unit. Wide-body, pyramid design holds up to 26" monitors.

BBC48-E4	32" W x 48" H x 27" D	90 lbs.	\$ 438.00
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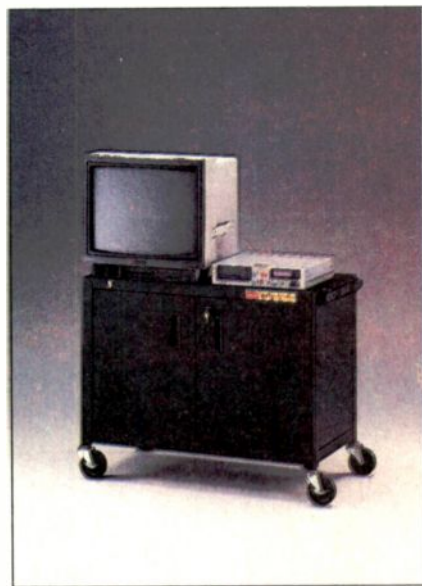
TV VIDEO CABINETS



A



B



C

A MPVC40-E2 TV Video Cabinet features 2" ball casters. Adjustable cabinet shelf. Top shelf: 30" W x 16" D (13" between shelves). Cabinet interior: 28" W x 17" H x 18" D.

MPVC40-E2	30" W x 40" H x 20" D	85 lbs.	\$ 411.00
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B VTRC30E TV Video Cabinet is 32" high for desk-height use. 2" ball casters. Top shelf: 30" W x 16" D (13" between shelves). Cabinet interior: 28" W x 10" H x 18" D.

VTRC30E	30" W x 32" H x 20" D	66½ lbs.	\$ 382.00
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C VTRC29-E4 TV Video Cabinet provides maximum storage capacity and a wide top shelf to transport your equipment. Cabinet interior: 35" W x 21" H x 17" D. 4" casters (2 lock).

VTRC29-E4	36" W x 29" H x 18" D	68 lbs.	\$ 378.00
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RECESSED TOP SHELVES ON THESE CARTS PROVIDE EASY ACCESS TO THE VCR ON THE SHELF BELOW. PLUS, LOWER LOCKING CABINETS SECURELY STORE VIDEO TAPES, SUPPLIES AND OTHER EQUIPMENT.

TEXTURED BLACK POWDER PAINT FINISH ON DURABLE STEEL CONSTRUCTION. "E" MODELS INCLUDE A UL LISTED, TWO-OUTLET ELECTRICAL ASSEMBLY WITH 20-FT. GROUNDED CORD AND BUILT-IN CORD WINDER. MODELS MPVC40-E2 AND VTRC30E SHIP UPS DISASSEMBLED. ALL ARE RECOMMENDED FOR USE WITH UP TO 19" DIAGONAL MONITORS.

VTRC54-E4 TV Video Cabinet (not shown) incorporates a slanted top shelf to lessen glare from overhead lights. 4" casters (2 lock). Top shelf measures 28" W x 17" D (24" between shelves). Cabinet interior: 28" W x 17" H x 21" D.

VTRC54-E4	28" W x 54" H x 24" D	82 lbs.	\$ 410.00
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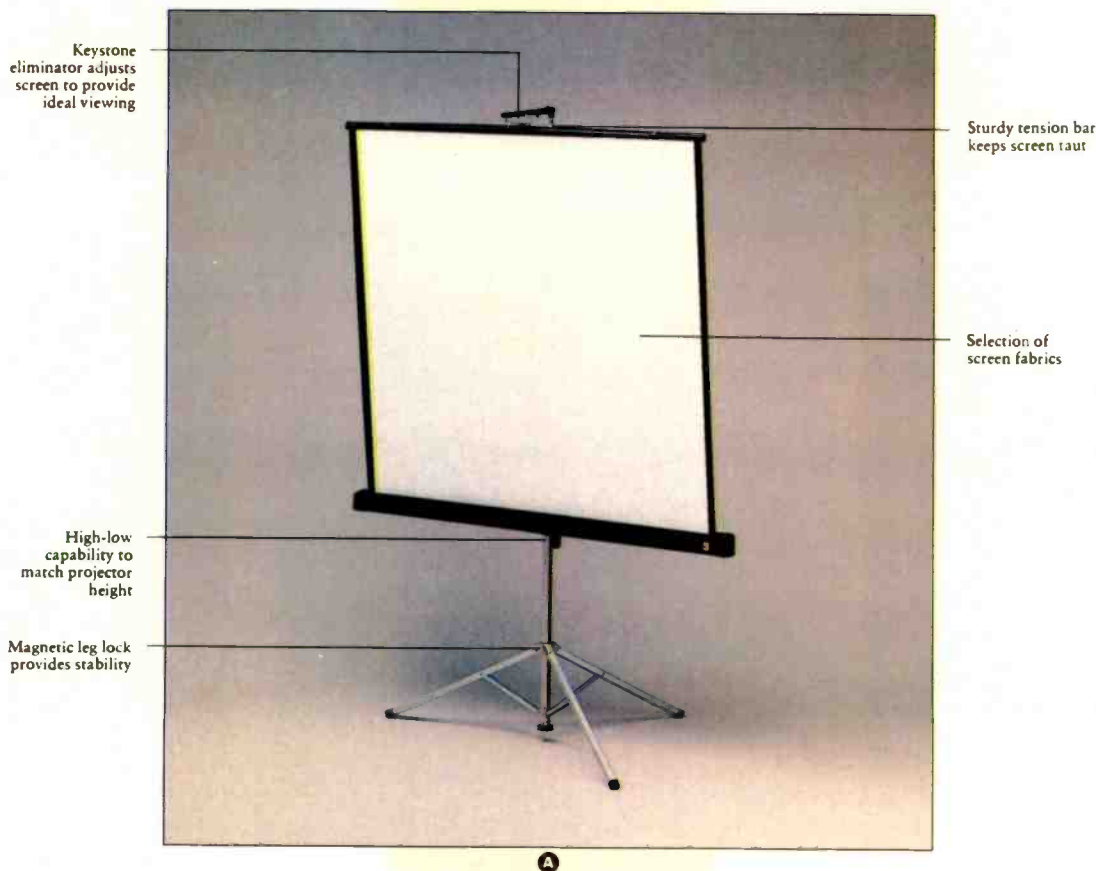
Accessories

SB Safety Belt surrounds your monitor like a seat belt and attaches to cart for extra support.

SB		2 lbs.	\$ 30.00
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TRIPOD PROJECTION SCREENS



A Series 300 Spectator Tripod Screen features a built-in keystone eliminator that allows the viewing surface to tilt forward to avoid distortion often found in slide presentations. High-low adjustable capability lets you match the projector height while screen holds steady where you set it. Die-cast handle and steel slat with tension bar. Strong aluminum legs with secure magnetic locks. Available in three sizes.

▶ 3050-M	58½"	50" x 50"	22 lbs.	\$ 215.00
▶ 3060-M	70"	60" x 60"	26 lbs.	\$ 236.00
▶ 3070-M	79½"	70" x 70"	30 lbs.	\$ 260.00
3050-L	58½"	50" x 50"	22 lbs.	\$ 226.00
3060-L	70"	60" x 60"	26 lbs.	\$ 246.00
3070-L	79½"	70" x 70"	30 lbs.	\$ 271.00

Series 375 Commodore Tripod Screen (*not shown*) includes many of the same features as the Series 300 with the exception of the keystone eliminator.

▶ 3750-M or -B	58½"	50" x 50"	19 lbs.	\$ 145.00
▶ 3760-M or -B	70"	60" x 60"	22 lbs.	\$ 179.00
▶ 3770-M or -B	79½"	70" x 70"	25 lbs.	\$ 201.00
3750-L	58½"	50" x 50"	19 lbs.	\$ 155.00
3760-L	70"	60" x 60"	22 lbs.	\$ 188.00
3770-L	79½"	70" x 70"	25 lbs.	\$ 210.00

A PORTABLE TRIPOD SCREEN IS THE EASIEST WAY TO MOVE YOUR PRESENTATION FROM ONE ROOM TO THE NEXT. BRET FORD TRIPOD SCREENS ARE AVAILABLE IN A VARIETY OF SIZES—SELECT THE BEST ONE BASED ON THE SIZE OF YOUR AUDIENCE.

EACH SCREEN FEATURES A CHOICE OF VIEWING SURFACES (M-MATTE WHITE, B-GLASS BEADED, OR L-SILVER LENTICULAR) AND A TEXTURED BLACK STEEL CASE. CASE LENGTH SHOWN IN CHART. SERIES 300 AND 375 SHIP UPS.

Series 450 Super Vista Tripod Screen (*not shown*) is Bretford's largest portable tripod screen. Suitable for large room viewing. Extruded aluminum legs provide superior strength yet are lightweight for carrying. Positive plunger lock provides secure and accurate height adjustments.

4577-M	91"	84" x 84"	38 lbs.	\$ 377.00
4577-B	91"	84" x 84"	38 lbs.	\$ 377.00
▶ 4588-M	103"	96" x 96"	42 lbs.	\$ 470.00
▶ 4588-B	103"	96" x 96"	42 lbs.	\$ 470.00

Accessories

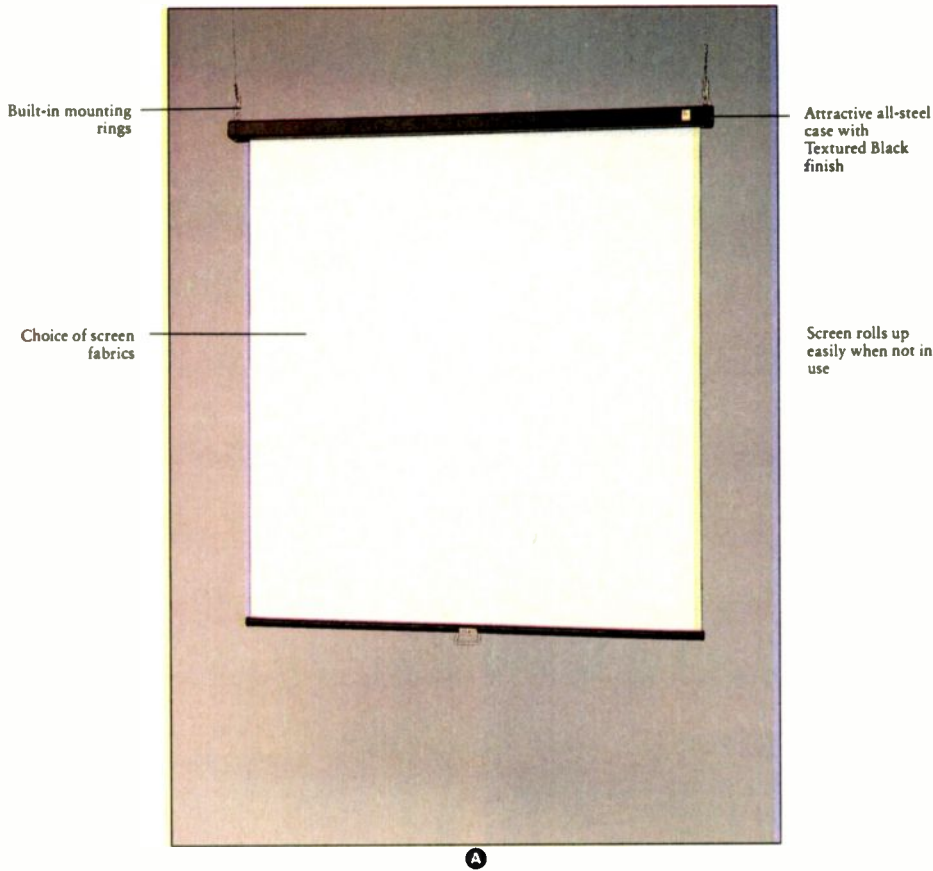
4002 Keystone Eliminator for Series 375 screens allows you to tilt screen to eliminate distortion.

4002	1 lb.	\$ 15.00
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Carrying Cases for tripod screens hold your screen in one neat package—opening for handle to slip through for easy carrying.

4105	50" screen carrying case	2 lbs.	\$ 29.00
4106	60" screen carrying case	2 lbs.	\$ 34.50
4107	70" screen carrying case	2 lbs.	\$ 38.00

MANUAL WALL SCREENS



A Series 65 Monitor Wall Screen is our most economical screen—perfect for classroom use. Three convenient sizes.

> 6550-M	51 3/4"	50" x 50"	10 lbs.	\$ 57.00
> 6560-M	61 3/4"	60" x 60"	12 lbs.	\$ 74.00
> 6570-M	71 3/4"	70" x 70"	14 lbs.	\$ 92.00

Series 100 Commentator Wall Screen (not shown) includes wall brackets that hold screen 4" from the wall for easy access to screen tension adjustment. Taut projection surface eliminates waves.

1050-M or -L	53 3/4"	50" x 50"	16 lbs.	\$ 138.00
1060-M or -L	63 3/4"	60" x 60"	19 lbs.	\$ 157.00
1070-M or -L	73 3/4"	70" x 70"	22 lbs.	\$ 182.00

Series 200 Mercury Wall Screen (not shown) features a matching slat that fits into the case opening to keep out dust and dirt. Strong, durable design provides years of lasting use.

> 2050-M or -B	53 3/4"	50" x 50"	12 lbs.	\$ 86.00
> 2060-M or -B	63 3/4"	60" x 60"	15 lbs.	\$ 109.00
> 2070-M or -B	73 3/4"	70" x 70"	18 lbs.	\$ 140.00

Series 250 Conference Wall Screen (not shown) is recommended for large group viewing. Intermediate sizes make this screen ideal for small auditoriums and conference centers.

2557-M or -B	89"	63" x 84"	24 lbs.	\$ 217.00
2577-M or -B	89"	84" x 84"	25 lbs.	\$ 226.00
2568-M or -B	101"	72" x 96"	29 lbs.	\$ 247.00
2588-M or -B	101"	96" x 96"	33 lbs.	\$ 283.00

FOR CLASSROOM OR OFFICE, SELECT A MANUAL WALL SCREEN THAT CAN BE MOUNTED ON THE WALL, ON A MAP RAIL OR FROM THE CEILING WITH BUILT-IN MOUNTING RINGS OR ACCESSORY MOUNTING BRACKETS.

A RANGE OF SIZES MEETS THE NEEDS OF ANY SIZE AUDIENCE. SELECT FROM A VARIETY OF VIEWING SURFACES (M-MATTE WHITE, B-GLASS BEADED OR L-SILVER LENTICULAR). TEXTURED BLACK SOLID STEEL CASE. CASE LENGTH SHOWN IN CHART. ALL MODELS SHIP UPS EXCEPT FOR SERIES 500.

Series 500 Auditorium Wall Screen (not shown) is our largest manually operated wall screen. Installs easily on mounting rings built right into the heavy gauge steel case with textured black powder paint finish. Accommodates up to 400 viewers.

5057-M or -B	7' 5/4"	5' x 7'	43 lbs.	\$ 331.00
5077-M or -B	7' 5/4"	7' x 7'	45 lbs.	\$ 359.00
5068-M or -B	8' 5/4"	6' x 8'	48 lbs.	\$ 364.00
> 5088-M or -B	8' 5/4"	8' x 8'	50 lbs.	\$ 391.00
5079-M or -B	9' 5/4"	7' x 9'	60 lbs.	\$ 405.00
5099-M or -B	9' 5/4"	9' x 9'	70 lbs.	\$ 418.00
5080-M or -B	10' 5/4"	8' x 10'	75 lbs.	\$ 466.00
5000-M or -B	10' 5/4"	10' x 10'	78 lbs.	\$ 532.00
5092-M or -B	12' 5/4"	9' x 12'	84 lbs.	\$ 618.00
5022-M or -B	12' 5/4"	12' x 12'	91 lbs.	\$ 672.00

Accessories

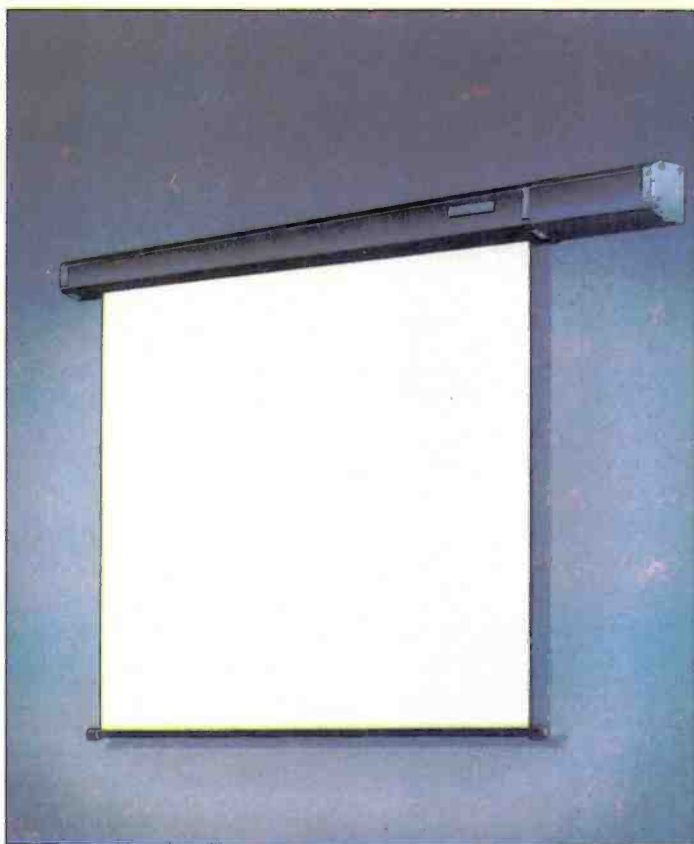
KW18 and KW6 Wall Mounting Brackets are sold in pairs and hold up to 35 pounds. KW18—18" adjustable brackets. KW6—6" fixed brackets.

> KW18	4 lbs.	\$ 25.00
> KW6	1 lb.	\$ 12.00

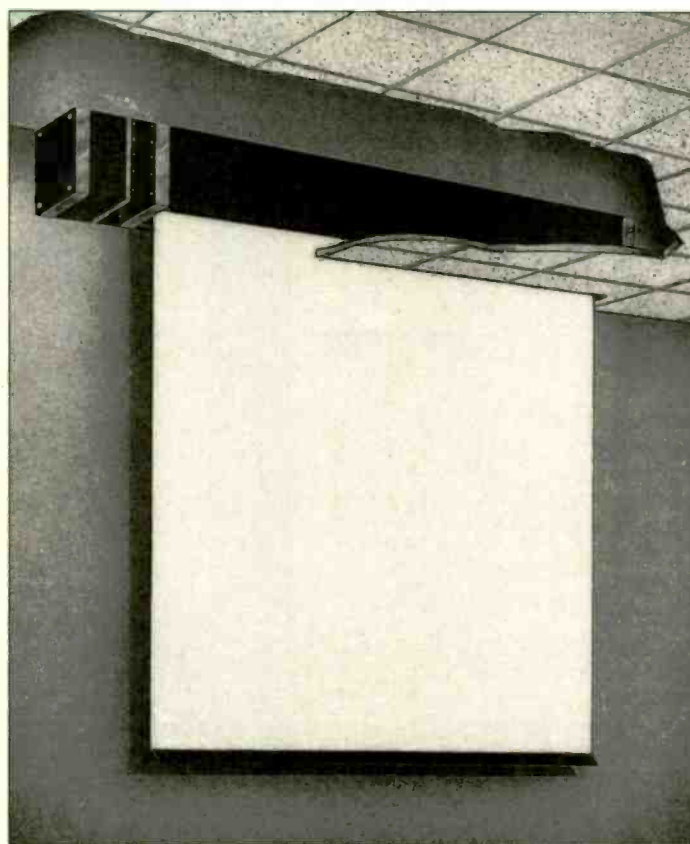
Borders surround your screen with a black edging to guide the eye and enhance overall screen image.

Borders, black, price per square foot of screen surface	\$.70
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ELECTRIC PROJECTION SCREENS



A



B

A Series 700 Auditorium Electric Screen is designed for small to mid-size viewing areas, features are identical to the Series 900 with the exception of the down-limit switch and the Series 700 features a steel case.

7055-M or -B	6' 4 $\frac{3}{4}$ "	60" x 60"	52 lbs.	\$ 813.00
7066-M or -B	7' 2 $\frac{3}{4}$ "	70" x 70"	54 lbs.	\$ 829.00
7057-M or -B	8' 4 $\frac{3}{4}$ "	5' x 7'	58 lbs.	\$ 847.00
7077-M or -B	8' 4 $\frac{3}{4}$ "	7' x 7'	64 lbs.	\$ 879.00
7068-M or -B	9' 4 $\frac{3}{4}$ "	6' x 8'	67 lbs.	\$ 893.00
7088-M or -B	9' 4 $\frac{3}{4}$ "	8' x 8'	70 lbs.	\$ 938.00
7079-M or -B	10' 4 $\frac{3}{4}$ "	7' x 9'	76 lbs.	\$ 952.00
7099-M or -B	10' 4 $\frac{3}{4}$ "	9' x 9'	78 lbs.	\$ 996.00
7080-M or -B	11' 4 $\frac{3}{4}$ "	8' x 10'	81 lbs.	\$1049.00
7000-M or -B	11' 4 $\frac{3}{4}$ "	10' x 10'	85 lbs.	\$1100.00
7092-M or -B	13' 4 $\frac{3}{4}$ "	9' x 12'	99 lbs.	\$1120.00
7022-M or -B	13' 4 $\frac{3}{4}$ "	12' x 12'	104 lbs.	\$1218.00

B Series 900 Auditorium Electric Screen is recommended for large auditoriums, conference centers and meeting facilities. Removable motor module and adjustable down-limit switch for presetting screen length. Black, square wooden case houses screen and 120V AC 60Hz motor. Motor is prewired with plugs for two switches—low voltage control standard. Three-position wall switch.

9001-M or -B	15' 6 $\frac{3}{4}$ "	10' x 14'	275 lbs.	\$1802.00
9002-M or -B	15' 6 $\frac{3}{4}$ "	14' x 14'	290 lbs.	\$1925.00
9003-M or -B	17' 6 $\frac{3}{4}$ "	12' x 16'	307 lbs.	\$2106.00
9004-M or -B	17' 6 $\frac{3}{4}$ "	16' x 16'	322 lbs.	\$2288.00
9005-M or -B	19' 6 $\frac{3}{4}$ "	13' x 18'	343 lbs.	\$2334.00
9006-M or -B	19' 6 $\frac{3}{4}$ "	18' x 18'	372 lbs.	\$2554.00
9007-M or -B	21' 6 $\frac{3}{4}$ "	15' x 20'	387 lbs.	\$2580.00
9008-M or -B	21' 6 $\frac{3}{4}$ "	20' x 20'	400 lbs.	\$2840.00
9009-M or -B	25' 6 $\frac{3}{4}$ "	12' x 24'	460 lbs.	\$3679.00

WHEN A VIEWING AREA ALLOWS THE PERMANENT INSTALLATION OF A PROJECTION SCREEN, SELECT AN EASY-TO-INSTALL BRET-FORD ELECTRIC SCREEN. ONCE INSTALLED, YOU'LL HAVE FINGERTIP CONTROL TO RAISE OR LOWER THE SCREEN TO THE DESIRED HEIGHT.

ALL FEATURE UL LISTED MOTORS AND A CHOICE OF SCREEN FABRICS (M-MATTE WHITE WITH 1.0 GAIN OR B-GLASS BEADED WITH 1.8 GAIN). WALL OR CEILING MOUNTING. CASE LENGTH SHOWN IN CHART. ALL CASES FINISHED IN BLACK.

Series 400 Electric Screen (not shown) is smaller and lighter and features a low-voltage transformer for simple installation. Hand-held, three-position switch controls screen.

4060-M	60 $\frac{3}{4}$ "	60" x 60"	27 lbs.	\$ 419.00
4070-M	79 $\frac{3}{4}$ "	70" x 70"	30 lbs.	\$ 433.00

Accessories

Borders surround your screen with a black "frame" to guide the eye and enhance overall screen image.

Borders, black, price per square foot of screen surface	\$.70
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Wireless Remote Control Package allows you to control the action of the screen from anywhere in the room.

Wireless Remote Control Package	\$ 348.00
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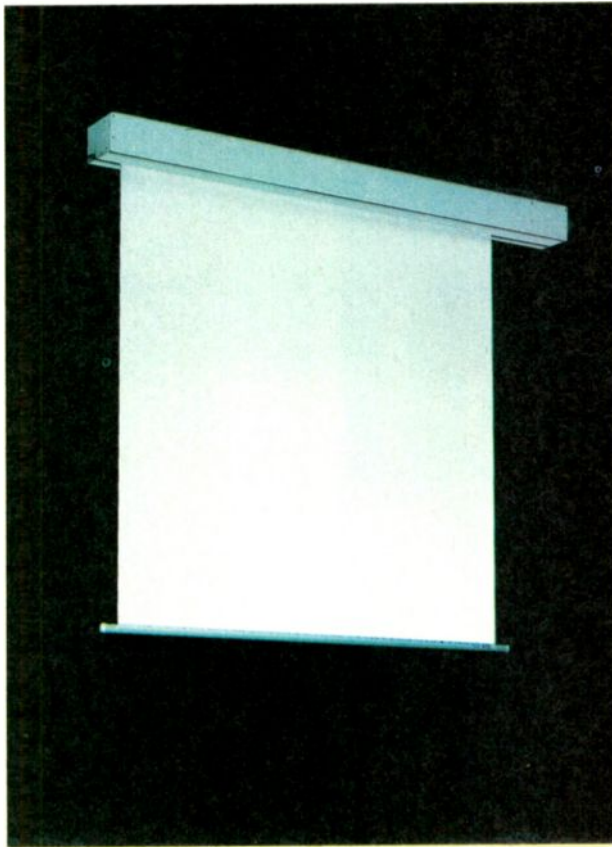
Designer Slat can be added to the Series 700 or Series 900 Electric Screen. This feature allows the screen to be totally hidden from view when retracted. The slat can be finished to match your ceiling.

Designer Slat	\$ 103.00
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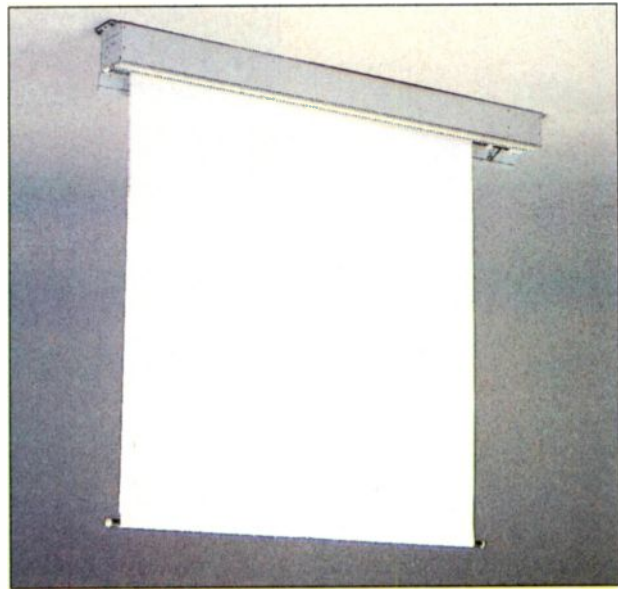
Switching Options allow you to select a key-operated or regular wall switch for your application.

3-position key switch	Series 700 & 900	\$ 114.00
3-position wall switch	Series 700 & 900	\$ 86.00

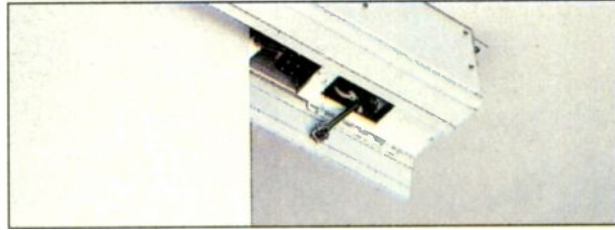
ELECTRIC PROJECTION SCREENS



A



B



A Rollfix Electric Screen features a variety of sizes, screen fabrics and accessories. Your choice of square or video formats. Custom sizes are also available. Blankana (BK) with 1.0 gain or Novalux (NO) with 2.0 gain surface fabrics.

▶ RE6060-BK	60" x 60"	40 lbs.	\$ 702.00
▶ RE7070-BK	70" x 70"	43 lbs.	\$ 720.00
RE0707-BK	7' x 7'	47 lbs.	\$ 753.00
▶ RE0808-BK	8' x 8'	65 lbs.	\$ 857.00
RE0909-BK	9' x 9'	76 lbs.	\$ 914.00
▶ RE1010-BK	10' x 10'	86 lbs.	\$ 944.00
RE0507-NO	5' x 7'	45 lbs.	\$1023.00
RE0507-BK	5' x 7'	45 lbs.	\$ 720.00
RE0608-NO	6' x 8'	56 lbs.	\$1275.00
RE0608-BK	6' x 8'	56 lbs.	\$ 807.00
RE0709-NO	7' x 9'	70 lbs.	\$1444.00
RE0709-BK	7' x 9'	70 lbs.	\$ 857.00
RE0810-NO	8' x 10'	81 lbs.	\$1617.00
RE0810-BK	8' x 10'	81 lbs.	\$ 914.00

B Rollfix Trap Door Electric Screens include a silent "trap door" that closes when the screen is fully retracted—keeping the screen mechanism out of sight when not in use. Blankana (BK) with 1.0 gain or Novalux (NO) with 2.0 gain surface fabrics

▶ RTD6060-EK	60" x 60"	88 lbs.	\$1456.00
▶ RTD7070-EK	70" x 70"	110 lbs.	\$1481.00
RTD0707-EK	7' x 7'	121 lbs.	\$1497.00
▶ RTD0808-EK	8' x 8'	154 lbs.	\$1537.00
RTD0909-EK	9' x 9'	176 lbs.	\$1585.00
▶ RTD1010-BK	10' x 10'	218 lbs.	\$1682.00
▶ RTD1212-BK	12' x 12'	282 lbs.	\$1775.00
RTD0507-MO	5' x 7'	115 lbs.	\$1783.00

FOR THE ULTIMATE IN DESIGN AND VIEWING STANDARDS, SELECT A BRET FORD ROLLFIX OR ROLLFIX TRAP DOOR ELECTRIC SCREEN. THESE HANDSOMELY STYLED SCREENS ADD TO THE DECOR OF A ROOM. PLUS, OUR "TRAP DOOR" MODEL ALLOWS YOU TO TOTALLY HIDE THE SCREEN FROM VIEW WHEN NOT IN USE.

ROLLFIX SCREENS FEATURE MOTOR-IN-THE-ROLLER TECHNOLOGY AND AN ADJUSTABLE LIMIT SWITCH THAT ALLOWS THE SCREEN TO BE FULLY EXTENDED OR RETRACTED AS WELL AS STOPPED AT ANY INTERMEDIATE POSITION. LIGHT GREY STEEL CASE CAN BE INSTALLED IN THE CEILING OR ON A WALL.

RTD0507-BK	5' x 7'	115 lbs.	\$1481.00
RTD0608-NO	6' x 8'	132 lbs.	\$1981.00
RTD0608-BK	6' x 8'	132 lbs.	\$1512.00
RTD0709-NO	7' x 9'	167 lbs.	\$2160.00
RTD0709-BK	7' x 9'	167 lbs.	\$1537.00
RTD0810-NO	8' x 10'	212 lbs.	\$2338.00
RTD0810-BK	8' x 10'	212 lbs.	\$1636.00
RTD0912-NO	9' x 12'	234 lbs.	\$2707.00
RTD0912-BK	9' x 12'	234 lbs.	\$1725.00

Accessories

Borders surround your screen with a black edging to guide the eye and enhance overall screen image.

Borders, black, price per square foot of screen surface \$.70

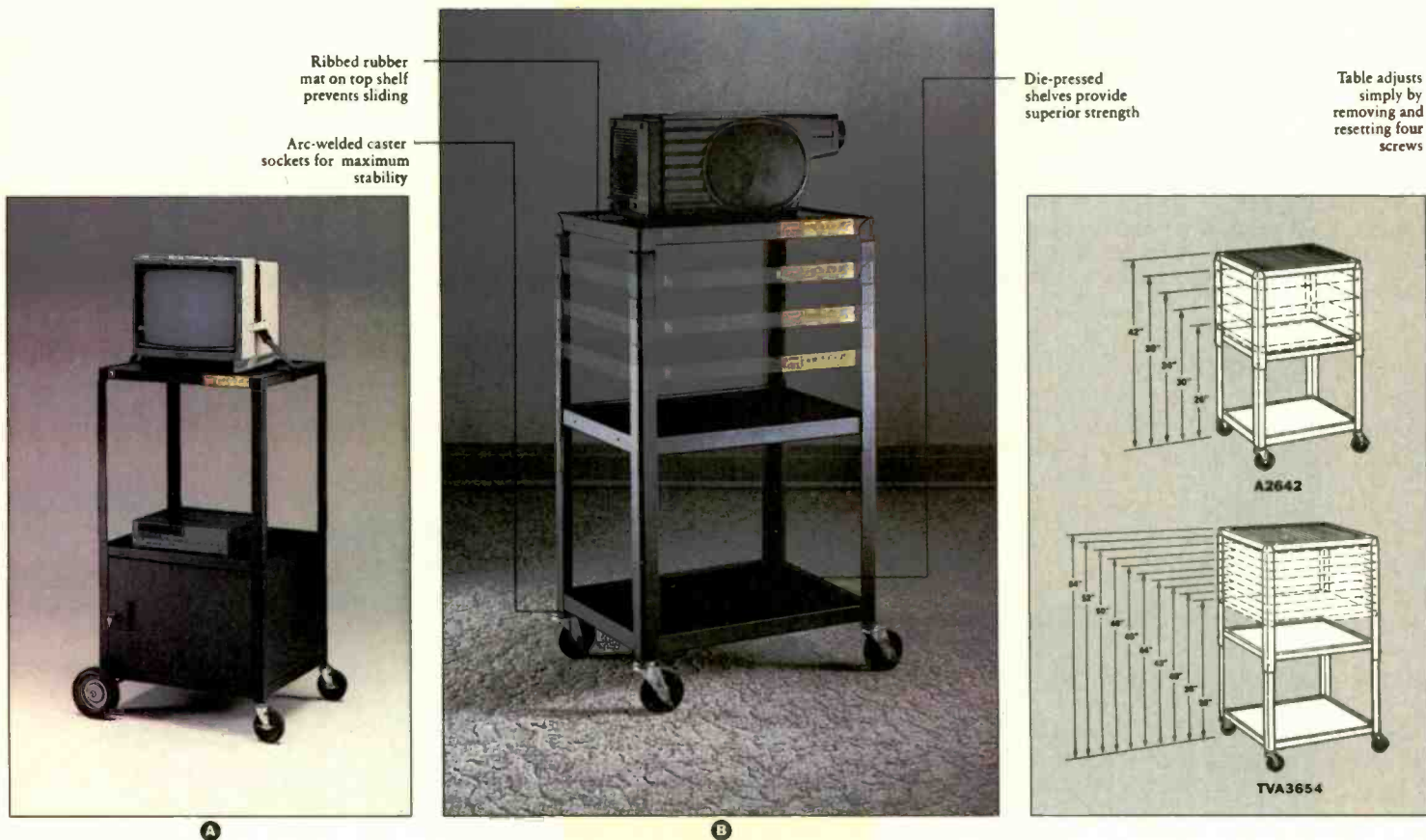
Wireless Remote Control Package allows you to control the action of the screen from anywhere in the room.

Wireless Remote Control \$ 348.00

Designer Slat added to the Rollfix Electric Screen allows the screen to be totally hidden from view when retracted. Can be finished to match ceiling.

Designer Slat \$ 103.00

ADJUSTABLE STANDS



A TVCA3654-P4 Adjustable Cabinet Stand (shown with big wheel) has 10-height capability—from 36 to 54" H (in 2" increments.) Middle to bottom shelf: 17½". Cabinet interior: 25" W x 17½" H x 21" D.

▶ TVCA3654-P4	28" W x 36–54" H x 24" D	66 lbs.	\$ 384.00
▶ TVCA3654-E4	w/ e-unit	68 lbs.	\$ 419.00
▶ TVCA3654-PW	w/ big wheel	76 lbs.	\$ 426.00
▶ TVCA3654-EW	w/ e-unit & big wheel	78 lbs.	\$ 461.00

TVA3654 (not shown) is identical to model TVCA3654-P4 listed above, without the locking cabinet.

▶ TVA3654	28" W x 36–54" H x 24" D	50 lbs.	\$ 227.00
▶ TVA3654E	w/ e-unit	52 lbs.	\$ 262.00
▶ TVA3654-PW	w/ big wheel	60 lbs.	\$ 269.00
▶ TVA3654-EW	w/ e-unit & big wheel	62 lbs.	\$ 304.00

B A2642 Adjustable Stand features five height capability: 26, 30, 34, 38 or 42". Middle to bottom shelf: 15½".

▶ A2642	24" W x 26–42" H x 18" D	42 lbs.	\$ 145.00
▶ A2642E	w/ e-unit	44 lbs.	\$ 180.00
▶ A2642-PW	w/ big wheel	52 lbs.	\$ 187.00
▶ A2642-EW	w/ e-unit & big wheel	54 lbs.	\$ 222.00

BRET FORD'S FUNCTIONAL ADJUSTABLE STANDS SAVE YOU MONEY AND VALUABLE FLOORS-SPACE BECAUSE EACH ADJUSTS TO MULTIPLE HEIGHTS SO YOU ONLY NEED ONE TO MEET ALL YOUR NEEDS! ADJUSTING IS AS SIMPLE AS RESETTING FOUR SCREWS.

ALL-STEEL CONSTRUCTION. TEXTURED BLACK POWDER PAINT FINISH. QUIET-GLIDE 4" CASTERS (2 LOCK), DIE-PRESSED SHELVES. RUBBER MAT. RECOMMENDED FOR USE WITH UP TO 19" DIAGONAL MONITORS. ALL SHIP ASSEMBLED. "E" MODELS INCLUDE TWO GROUNDED OUTLETS, 20 FT. GROUNDED EXTENSION CORD AND CORD WINDER. "PW" MODELS INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS.

CA2642 Adjustable Stand (not shown) adds a lower locking cabinet to the model A2642 above. Cabinet interior: 23" W x 15½" H x 17" D.

▶ CA2642	24" W x 26–42" H x 18" D	55 lbs.	\$ 260.00
▶ CA2642E	w/ e-unit	57 lbs.	\$ 295.00
▶ CA2642-PW	w/ big wheel	65 lbs.	\$ 302.00
▶ CA2642-EW	w/ e-unit & big wheel	67 lbs.	\$ 337.00

Accessories

TVS Slant Bar attaches to top shelf and lets you angle monitor to overcome glare from overhead lights.

▶ TVS	4 lbs.	\$ 15.00
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SB Safety Belt surrounds your monitor like a seat belt and attaches to stand for extra support.

▶ SB	2 lbs.	\$ 30.00
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PLASTIC UTILITY CARTS

24" W x 18" D shelves with textured surface

Roomy handle doubles as a built-in cord winder



PVC pipe legs snap onto shelves

Four outlet electrical unit attaches out-of-the-way under the top shelf



A BP42 Plastic Utility Cart includes three shelves. Top to middle shelf: 14 $\frac{3}{4}$ ". Middle to bottom shelf: 19".

► BP42	24" W x 42" H x 18" D	24 lbs.	\$ 109.00
► BP42E	w/ e-unit	26 lbs.	\$ 140.00
BP42-PW	w/ big wheel	34 lbs.	\$ 151.00
BP42-EW	w/ e-unit & big wheel	36 lbs.	\$ 182.00

BP34 Plastic Utility Cart (not shown) is also equipped with three shelves. 7" from top to middle shelf. 19" from middle to bottom shelf.

► BP34	24" W x 34" H x 18" D	22 lbs.	\$ 105.00
► BP34E	w/ e-unit	24 lbs.	\$ 136.00
BP34-PW	w/ big wheel	32 lbs.	\$ 147.00
BP34-EW	w/ e-unit & big wheel	34 lbs.	\$ 178.00

BP26 Plastic Utility Cart (not shown) with two shelves—19" between shelves.

► BP26	24" W x 26" H x 18" D	17 lbs.	\$ 91.00
► BP26E	w/ e-unit	19 lbs.	\$ 122.00
BP26-PW	w/ big wheel	27 lbs.	\$ 133.00
BP26-EW	w/ e-unit & big wheel	29 lbs.	\$ 164.00

DURABLE, VERSATILE BRET-FORD PLASTIC UTILITY CARTS ARE IDEAL FOR A VARIETY OF SITUATIONS. USE THEM TO TRANSPORT AV EQUIPMENT, LAB MATERIALS, MAILROOM SUPPLIES. TOUGH, HIGH-DENSITY POLYETHYLENE PLASTIC MAKES THEM LIGHTWEIGHT FOR EASY PORTABILITY—RESISTANT TO SCRATCHES AND STAINS.

BLACK PVC PIPE LEGS. TEXTURED FINISH ON SHELVES. HEAVY DUTY 4" CASTERS (2 LOCK). RECOMMENDED FOR USE WITH UP TO 19" DIAGONAL MONITORS. "E" MODELS INCLUDE 4 OUTLET ELECTRICAL ASSEMBLY WITH 20 FT. GROUNDED CORD. "PW" MODELS INCLUDE TWO 5" CASTERS AND TWO 8" RIGID BIG WHEELS.

BPDUO Plastic Utility Cart combines all three heights in one—allowing you to build the right cart for your application and change the cart as your needs change simply by replacing the legs. All necessary parts included.

► BPDUO	24" W x 26—42" H x 18" D	28 lbs.	\$ 117.00
► BPDUOE	w/ e-unit	30 lbs.	\$ 148.00
BPDUO-PW	w/ big wheel	38 lbs.	\$ 159.00
BPDUO-EW	w/ e-unit & big wheel	40 lbs.	\$ 190.00

Accessory

BPE Plastic Utility Cart Electrical Unit can also be purchased separately. UL listed four outlet electrical unit with a 20 ft. grounded cord attaches easily out-of-the-way under top shelf. Roomy, obstruction-free handle acts as a built-in cord winder.

► BPE	3 lbs.	\$ 31.00
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OVERHEAD PROJECTOR TABLES



A



B



C

A OH29 OH Table is desk height for easy access. Folding drop leaves (11" W x 20" D) on either side of projector well. Putty finish. Projector shelf adjusts from 5" to 7^{5/8}" from top of unit. Projector well: 22^{1/2}" W x 20" D.

OH29	22 ^{1/2} " W x 29" H x 20" D	26 lbs.	\$ 146.00
OH29E	w/ e-unit	28 lbs.	\$ 181.00

OH39 OH Table (not shown) is 10" higher than the OH29 and includes a lower storage shelf.

OH39	22 ^{1/2} " W x 39" H x 20" D	30 lbs.	\$ 164.00
OH39E	w/ e-unit	32 lbs.	\$ 199.00

B UCS700-GM OH Workstation is designed for OH/ computer applications. Table easily adjusts from 22^{1/2}" — 33^{1/2}" H. Gray finish. Shown with optional UCSAMS (sold under accessories). Projector well: 17^{1/2}" W x 20^{1/2}" D.

UCS700-GM	48" W x 22 ^{1/2} " — 33 ^{1/2} " H x 30" D	110 lbs.	\$ 456.00
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EFFECTIVE PRESENTATIONS ARE A SNAP WHEN YOU HAVE A BRET FORD TABLE TO TRANSPORT AND DISPLAY YOUR OVERHEAD PROJECTOR. EACH MODEL FEATURES AN ADJUSTABLE PROJECTOR PLATFORM. "E" MODELS INCLUDE A UL LISTED, TWO-OUTLET ELECTRICAL UNIT WITH 20 FT. GROUNDED CORD AND BUILT-IN CORD WINDER.

ALL STEEL CONSTRUCTION, WITH DURABLE, ENVIRONMENTALLY-SAFE POWDER PAINT FINISH. 4" HARD RUBBER CASTERS (2 LOCK). ALL MODELS SHIP UPS DISASSEMBLED WITH THE EXCEPTION OF MODELS AOH2741 AND UCS700.



C AOH2741-P4 Adjustable OH Table can be adapted to stand up or sit down presentations. Work surface adjusts from 27" to 41" high in 2" increments. Projector well adjusts from 6" — 10" in 1" increments and measures 17^{1/2}" W x 20^{1/2}" D. Textured Black finish.

AOH2741-P4	37" W x 27 — 41" H x 22 ^{1/2} " D	59 lbs.	\$ 271.00
AOH2741-E4	w/ e-unit	61 lbs.	\$ 306.00

Accessories

UCSAMS Adjustable Monitor Shelf for the model UCS700 holds monitor at an easy-viewing height. Tilts to allow monitor to be better positioned.

UCSAMS	23" W x 13" H x 11" D	18 lbs.	\$ 105.00
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3560 Surge-Protected Power Strip for the model UCS700 provides 4 grounded outlets, single on/off switch and 20 ft. cord. UL listed.

3560		4 lbs.	\$ 70.00
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STANTRON VIDEO

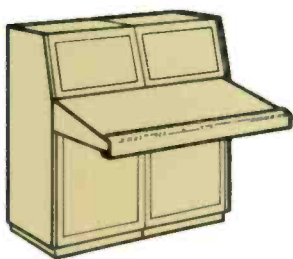
PREASSEMBLED CONSOLES, CABINETS, RACKS AND ACCESSORIES FOR THE VIDEO INDUSTRY

PREDESIGNED CONSOLES

New line of preassembled, modular consoles that include a wide range of up-to-the-minute colors with the choice of light or dark oak wood trim.

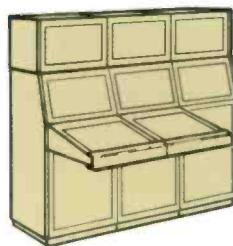


CONSOLES COMPLETELY MODULAR • STANTRON HAS A CONSOLE TO MEET THE REQUIREMENTS OF ALL SYSTEMS
• PREASSEMBLED • WELDED FOR STRENGTH • TAPPED RAILS • CHOICE OF 17 COLORS



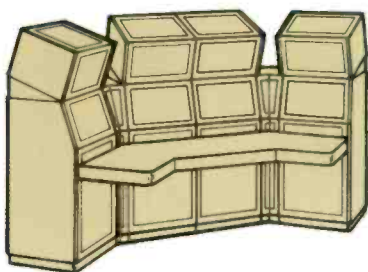
VCAS6019 \$1470.00

QTY.	CATALOG NO.	DESCRIPTION
2	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
2	VCP17	PANELS
2	VCP21	PANELS
1	VCS044	SLOPING DESK



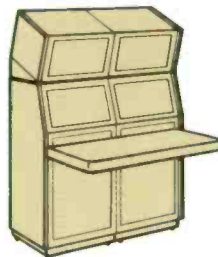
VCAS6003 \$2339.00

QTY.	CATALOG NO.	DESCRIPTION
3	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
2	VCEDS22PE	SLOPING DESKS
2	VCP21	LOWER PANELS
1	VCP28	LOWER PANEL
2	VCAS241022LS	CABINET ASSEMBLIES
1	VCAS241022	CABINET ASSEMBLY



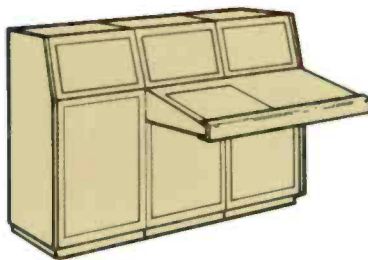
VCAS5025 \$5492.00

QTY.	CATALOG NO.	DESCRIPTION
4	VCSF30025	CABINETS
2	VCSF34525	WEDGE CABINETS
2	VCSS30025	SIDE PANELS
4	VCP31L	LOUVERED REAR PANELS
4	VCP21	BOTTOM PANELS
4	VCP21	FRONT PANELS
4	VCP3	FRONT PANELS
1	VCWD44525	WEDGE DESK
4	VCSB240022	SLOPING BASES
3	VCAS241022	CABINET ASSEMBLIES
1	VCAS241022-LS	CABINET ASSEMBLY
4 Sets	VCC3	3" CASTERS



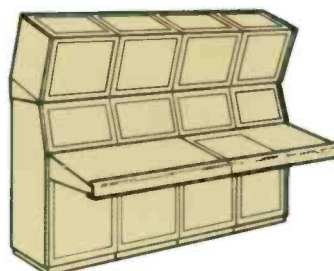
VCAS5023 \$2132.00

QTY.	CATALOG NO.	DESCRIPTION
2	VCSF30025	CABINETS
2	VCSS30025	SIDE PANELS
2	VCP31L	LOUVERED REAR PANELS
2	VCP21	BOTTOM PANELS
2	VCP24	LOWER FRONT PANELS
1	VCEDF2	FLAT EDITOR DESK
2	VCSB240022	SLOPING BASES
1	VCAS241022-LS	CABINET ASSEMBLY
1	VCAS241022	CABINET ASSEMBLY
2 Sets	VCC3	3" CASTERS



VCAS6002 \$1944.00

QTY.	CATALOG NO.	DESCRIPTION
3	VCSF30025	SLOPING CABINETS
1	VCSD44CL	SLOPING DESK WITH CUT OUT
2	VCSS30025	SIDE PANELS
2	VCP21	LOWER PANELS
1	VCP28	LOWER PANEL
3	VCP1	PANELS
2	VCP14	PANELS

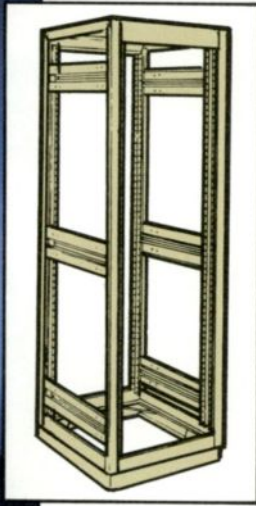


VCAS6037 \$3778.00

QTY.	CATALOG NO.	DESCRIPTION
4	VCSF30025	SLOPING CABINETS
2	VCSS30025	SIDE PANELS
4	VCP1	PANELS
1	VCSD44	SLOPING DESK
1	VCSD44-CR	SLOPING DESK WITH CUT OUT
4	VCP21	LOWER PANELS
3	VCAS241722LS	FRAME ASSEMBLIES
1	VCAS241722	FRAME ASSEMBLY
4	VCSB240022	SLOPING BASES

STANTRON VIDEO VERTICAL EQUIPMENT RACKS

PREASSEMBLED • WELDED FRAMES • TAPPED (10-32) RAILS • CHOICE OF COLORS
• KNOCK-DOWN CABINETS AVAILABLE •



VC200 SERIES CABINETS AVAILABLE IN 25", 30" DEPTHS

ORDERING CHART

FRAME CAT. NO.	*PRICE	SIDE PANEL CAT. NO.	*PRICE	TOP PANEL CAT. NO.	*PRICE	REAR DOOR CAT. NO.	*PRICE
VCSF2007830	\$512.00	VCSS2007830	\$160.00	VCP26L	\$34.00	VCD60078L	\$158.73
VCSF2007825	484.77	VCSS2007825	134.92	VCP21L	26.81	VCD60078L	158.73
VCSF2007030	480.48	VCSS2007030	145.86	VCP26L	33.61	VCD60070L	148.72
VCSF2007025	461.89	VCSS2007025	121.55	VCP21L	26.81	VCD60070L	148.72
VCSF2006130	444.73	VCSS2006130	131.56	VCP26L	33.61	VCD60061L	138.71
VCSF2006125	426.14	VCSS2006125	108.68	VCP21L	26.81	VCD60061L	138.71

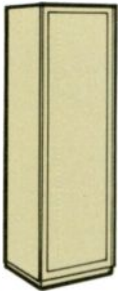
MODEL NUMBER EXPLANATION

VC = Video Cabinet 30 = Depth
SF = Square Frame SS = Side panels
200 = Series P = Panel
78 = Inside Rack Space L = Louvered

SEE BACK PAGE FOR ACCESSORIES

*Prices subject to change without notice

PREDESIGNED VERTICAL EQUIPMENT RACKS



VCAS4991

QTY.	CATALOG NO.	DESCRIPTION
1	VCSF2007025	VERTICAL CABINET
2	VCSS2007025	SIDE PANELS
1	VCP21	TOP PANEL
1	VCD60070LLH	LOUVERED REAR DOOR

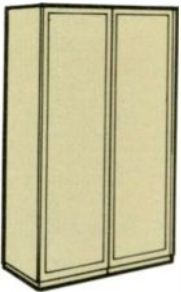
\$879.00



VCAS6008

QTY.	CATALOG NO.	DESCRIPTION
2	VCSF2004325	VERTICAL CABINETS
2	VCSS2004325	SIDE PANELS
2	VCP21	PANELS
2	VCP17	PANELS
2	VCP7	PANELS
1	VCSD44CL	SLOPING DESK WITH CUTOUT CASTERS
2 Sets	VCC3	

\$1611.00



VCAS4993

QTY.	CATALOG NO.	DESCRIPTION
2	VCSF2007025	VERTICAL CABINETS
2	VCSS2007025	SIDE PANELS
2	VCP21	TOP PANELS
2	VCD60070LLH	LOUVERED REAR DOORS

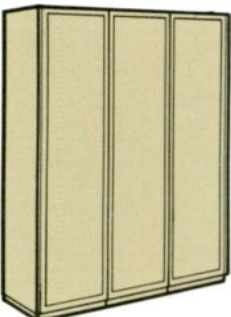
\$1517.00



VCAS6018

QTY.	CATALOG NO.	DESCRIPTION
4	VCSF2007025	VERTICAL CABINETS
2	VCSF2457025	WEDGE FRAMES
2	VCSS2007025	SIDE PANELS
8	VCP21	PANELS
6	VCP3	PANELS
2	VCP7	PANELS
1	VCWD44525-PE	WEDGE DESK

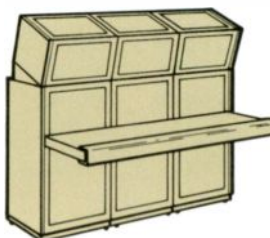
\$4488.00



VCAS4994

QTY.	CATALOG NO.	DESCRIPTION
3	VCSF2007825	VERTICAL CABINETS
2	VCSS2007825	CABINETS SIDE PANELS
3	VCP21	TOP PANELS
3	VCD60078LLH	LOUVERED REAR DOORS

\$2276.00



VCAS6050

QTY.	CATALOG NO.	DESCRIPTION
3	VCSF2003525	VERTICAL CABINETS
2	VCSS2003525	SIDE PANELS
3	VCP21	PANELS
1	VCEDF3PE	FLAT DESK WITH PAOING
3	VCSD240022	SLOPING BASES
1	VCAS241722	FRAME ASSEMBLY
2	VCAS241722LS	FRAME ASSEMBLIES
3 Sets	VCC3	CASTERS

\$2747.00

MODULAR WORK STATIONS

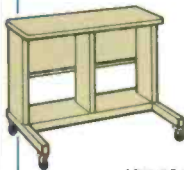
STANTRON'S MOST ECONOMICAL CONSOLES FEATURE ADJUSTABLE SHELVES. EASY ACCESS FOR EQUIPMENT EXCHANGE.



VCAS5627

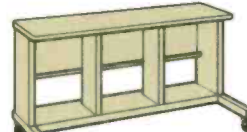
- TOTAL MOBILITY - FIT THROUGH STANDARD DOORWAYS.
- CAN BE SET UP FOR A/B ROLL - CASTERS INCLUDED.

DESIGNED FOR 1/2" and 3/4" FRONT LOADING VTR's



VCMEC48
48" WIDE,
35 1/2" HIGH, 29" DEEP

\$408.00



VCMEC72
72" WIDE,
35 1/2" HIGH, 29" DEEP

\$570.00

CONSULT DEALER FOR OTHER CONFIGURATIONS & PRICES - PRICES SUBJECT TO CHANGE WITHOUT NOTICE.



VCAS7001

QTY.	CATALOG NO.	DESCRIPTION
1	VCMEC72	MODULAR WORK STATION
1	VCMB72	MONITOR BRIDGE
4	VCTS24SL	SLIDING EDITOR SHELVES

\$1294.00



VCAS7002

QTY.	CATALOG NO.	DESCRIPTION
1	VCME72	MODULAR WORK STATION
1	VCMB24	MONITOR BRIDGE
3	VCMS24	FIXED EDITOR SHELVES

\$911.00



VCAS7003

QTY.	CATALOG NO.	DESCRIPTION
1	VCMEC72	MODULAR WORK STATION
1	VCMB24	MONITOR BRIDGE
1	VCTS72	EDITOR SHELF
1	VCTS24	EDITOR SHELF

\$941.00

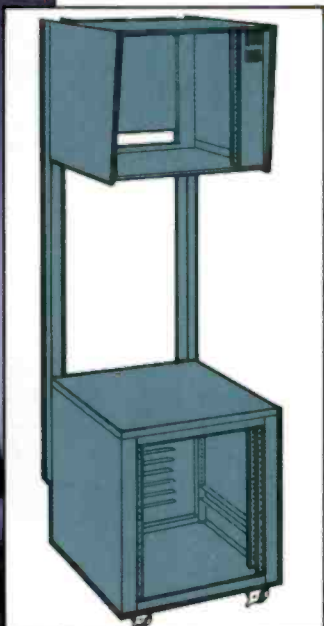


VCAS7004

QTY.	CATALOG NO.	DESCRIPTION
1	VCMEC72	MODULAR WORK STATION
1	VCTS72	EDITOR SHELF
1	VCTS24	EDITOR SHELF

\$840.00

MONITOR BRIDGE CONSOLES



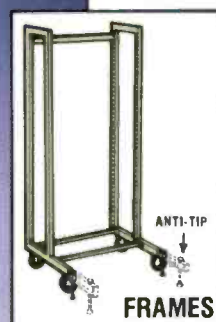
VCMB9000 \$1925.00

- TOTAL WIDTH IS 23 1/4"
- **NOTE:** When ordering, specify height by adding it to the end of the catalog number. For example, if you are ordering a 24" high monitor bridge console, your order number would read: VCMB9000-24.
- The Monitor Bridge is adjustable in height from 19" to 32"
- Base Cabinet panel space: 19 1/8" x 21" high (front/rear)
- Monitor Bridge Cabinet will accept:
 - A 10 1/2" x 19"
 - A 5 1/4" x 19"
 - An additional 3 1/2" x 19"
- Vertical supports may be used as electrical raceways.
- Base Cabinet and Monitor Bridge Cabinet both have removable rear perforated panels for ventilation and access to equipment. Part #VCP14P. Laminate top for base cabinet is included.
- 3" swivel casters (2 with brake) are included.
- **Finish:**
 - Vertical supports: Bright chrome
 - Cabinets: Black textured
 - Laminate Top: Black

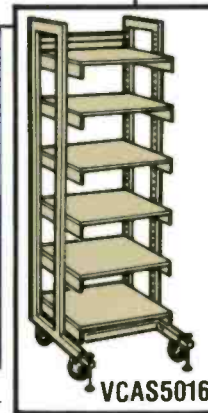
MOBILE VTR RACKS



VCAS5628



ANTI-TIP
FRAMES



VCAS5016

These HIGH QUALITY RACKS feature the added safety of our exclusive ANTI-TIP™ extensions which should be used whenever a component is slid forward. SLIDING SHELVES feature POSI-LATCH™ to further protect your equipment.

FRAMES

CATALOG NO.	HEIGHT	WIDTH	DEPTH
VCRK2723	27 1/2	23	15
VCRK2731	27 1/2	31	15
VCRK5123	51 1/2	23	15
VCRK5131	51 1/2	31	15
VCRK6323	63 1/2	23	15
VCRK6331	63 1/2	31	15
VCRK7523	75 1/2	23	15
VCRK7531	75 1/2	31	15

VCAS5016

QTY.	CATALOG NO.	DESCRIPTION
1	VCRK6323	RACK
6	VCFS23	FIXED SHELVES
1 Set	VCC5	5" CASTERS

\$930.00

VIDEO ACCESSORIES

RACK SLIDE KITS

VCSSK2700
For Sony's BVH-2000 and BVH-2500 VTR's. Designed to be installed in 25 $\frac{5}{8}$ " deep cabinets. **\$266.00**

VCSSK2705
For Sony's Type 5 VTR's. Designed to be installed in 25 $\frac{5}{8}$ " deep cabinets. **\$234.00**

VCSSK2708
For Sony's Type 8 VTR's. Designed to be installed in 25 $\frac{5}{8}$ " deep cabinets. **\$240.00**

VCSSK2707
For Sony's 5020, 7000 and 9000 series VTR recorders. **\$266.00**

SLIDING SHELVES

FOR VIDEO EQUIPMENT
Support up to 75 lbs. Include positive stops. All sliding equipment includes ball bearing slides. Slides bolt to mounting angles. Finish: Black.
\$70.00
VCSL90025A

18" WIDE PANEL OPENING CATALOG NO.	24" WIDE PANEL OPENING CATALOG NO.	INSTALLS IN CABINET DEPTH	SHELF DEPTH
VCSL90022A	VCSL92422A	22 $\frac{1}{8}$ "	19 $\frac{1}{8}$ "
VCSL90025A	VCSL92425A	25 $\frac{5}{8}$ "	22 $\frac{5}{8}$ "
VCSL90030A	VCSL92430A	30 $\frac{7}{8}$ "	27 $\frac{7}{8}$ "

FOR VTR/DUBBING RACKS
Positive latch 75 lb. capacity. Includes ball bearing slides.

CATALOG NO.	INSTALLS IN VTR/DUBBING RACK
VCSS23-11	23" RACK
VCSS31-11	31" RACK

\$218.00
VCSS23-11

FIXED SHELVES FOR VIDEO EQUIPMENT

Bolt directly to mounting angles. Finish: Black.
\$33.00
VCES120025

CATALOG NO.	INSTALLS IN CABINET DEPTH
VCES120025	25 $\frac{5}{8}$ "
VCES120030	30 $\frac{7}{8}$ "

SUPPORTING ANGLES VIDEO EQUIPMENT

- Finish: CADMIUM PLATING
- 2" x 2"
- 12 GA STEEL

CATALOG NO.	INSTALLS IN CABINET DEPTH	LENGTH OF PIECE
VCCA22A	22 $\frac{1}{8}$ "	17 $\frac{1}{8}$ "
VCCA25A	25 $\frac{5}{8}$ "	20 $\frac{5}{8}$ "
VCCA30A	30 $\frac{7}{8}$ "	25 $\frac{7}{8}$ "

\$37.00
VCCA25A

EQUIPMENT DRAWERS

Fit flush into cabinets. Include slides and drawer pulls. 16 gauge steel front panels and 20 gauge steel drawer bodies. If locks are required add suffix LK (i.e. VCED1000325-LK).

VCED100025 \$101.00

USE WITH 18" WIDE PANEL OPENING CATALOG NO.	USE WITH 24" WIDE PANEL OPENING CATALOG NO.
VCED1000325	VCED1024325
VCED1000330	VCED1024330
VCED1000525	VCED1024525
VCED1000530	VCED1024530
VCED1000725	VCED1024725
VCED1000730	VCED1024730
VCED1000825	VCED1024825
VCED1000830	VCED1024830
VCED1001025	VCED10241025
VCED1001030	VCED10241030
VCED1001225	VCED10241225
VCED1001230	VCED10241230
VCED1001425	VCED10241425
VCED1001430	VCED10241430

LOW NOISE FAN TRAY

VCSTA686 \$386.00
HIGH AIR FLOW • UNFILTERED • VOLTAGE 115
1.75" and 3.5" panel heights • 19" and 24" panel widths, EIA notched • Field adjustable fan strips and rear support brackets • 115 & 230 VOLTS AC and 12, 24 & 48 VOLTS DC.

CATALOG NO.	DESCRIPTION
VCSTA683	3 FAN
VCSTA686	6 FAN
VCSTA689	9 FAN

PLUGMOLD WIRE STRIPS

VCPM4051C \$102.00

CATALOG NO.	LENGTH	NO. OF OUTLETS
VCPM4050C	3'	6
VCPM4051C	6'	12

PHILLIPS HEAD PANEL SCREWS

Bright nickel plated or black zinc. Pressed on nylon washer protects finish.
For 5/8" deep formed panels. Screw length 1 $\frac{1}{8}$ "
Nickel - CATALOG NO. VCH99
Black - CATALOG NO. VCH92
VCH100 \$26.00/100

For 1/8" thick flat panels. Screw length 5/8"
Nickel - CATALOG NO. VCH100
Black - CATALOG NO. VCH102

FACE MOUNTED DOORS

VC60017 \$87.00

PLAIN LOUVERED PLEXIGLAS

All panels and doors are 16 gauge steel. Left or right hand hinged doors. They include a key lock with two keys and recessed handles. All doors are installed at the factory. Unless otherwise specified, all doors will be installed L.H. All short doors will be installed at the top of panel opening.

FORMED PANELS

VCPI \$10.00

PLAIN PERFORATED LOUVERED

For front, rear, top and bottom openings in cabinets. All formed panels are 16 gauge steel. 5/8" flanges on all four sides. Fit into recess panel openings.

FLAT PANELS

Available in .125 thick aluminum or 12 gauge steel.
VCPA 4001 \$10.00

CONTACT YOUR DEALER FOR ADDITIONAL PRICES AND SPECS OF PANELS AND DOORS

STANTRON VIDEO CATALOG VC-89 HAS THE FULL LINE SHOWING OF ALL VIDEO PRODUCTS and ACCESSORIES. CONTACT YOUR DEALER FOR CATALOG & PRICE LIST. A STANTRON ENGINEERING STAFF IS READY AVAILABLE TO DESIGN RACKS and CABINETS FOR YOUR SPECIAL APPLICATIONS. PREASSEMBLED DELIVERY

Winsted®

Video Furniture Systems

Winsted offers you more options than any other source



A Model K8634
\$4299.00



B Model K8621
\$1523.00



C Model K8612
\$2641.00

A **Four Bay 10½" Slope Console With 19¼" Top Modules** angled forward for easy viewing of monitors. This system displays a special mounting cradle for the edit controller and a shroud for rack mounting VTRs vertically. Dove Grey and Pearl Grey enamel finish.

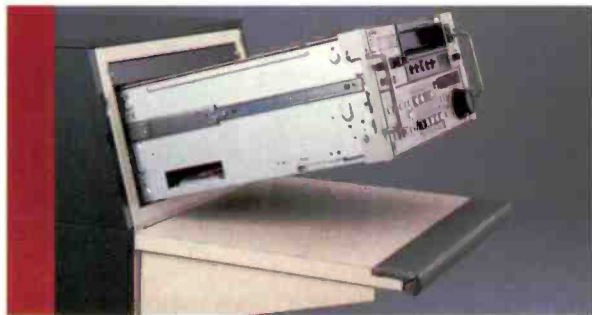
Model K8634 complete. Shpg. wt. 737 lbs \$4299.00

B **Two Bay 10½" Slope Console.** A compact editing system that can be expanded easily for future growth. The front work shelf slopes for operator comfort and the top racks tilt back for easy access to mounted electronics. Dove Grey and Pearl Grey enamel finish.

Model K8621 complete. Shpg. wt. 268 lbs \$1523.00

C **Three Bay Non-Rack Mount VTR Edit Console.** VTRs can be placed in this console with their side panels still on and pulled out on shelves for quick maintenance. Flat, padded work surface offers vast room for electronics and paper work. Monitors of all sizes can rest on top of the console allowing for easy viewing. Dove Grey and Pearl Grey enamel finish.

Model K8612 complete. Shpg. wt. 468 lbs \$2641.00



■ Rack Mount Slide Kits

Order separately. Not included in console prices.

1 **Model F8501.** Rack slide kit. For use with **Sony's** "Type 5" VTRs. Equivalent to **Sony's** RMM-501 kit.
Shpg. wt. 9 lbs. \$235.00

2 **Model F8521.** Rack slide kit. For use with **Sony's** 5020, 7000 and 9000 series VTRs. Equivalent to **Sony's** RMM-507 kit.
Shpg. wt. 9 lbs. \$260.00

3 **Model F8526.** Rack slide kit. For use with **Sony's** BVU-950 VTRs. Equivalent to **Sony's** RMM-950 kit.
Shpg. wt. 9 lbs. \$235.00

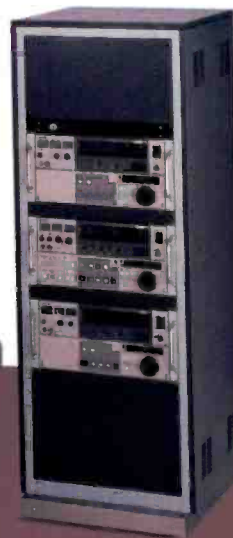
4 **Model F8801.** Rack slide kit. For use with **Sony's** "Type 800 series" BVW-15 and BVW-40 VTRs. Equivalent to **Sony's** BK-805 kit.
Shpg. wt. 10 lbs. \$235.00

Call us for additional Rack Kits.

Winsted

Video Furniture Systems

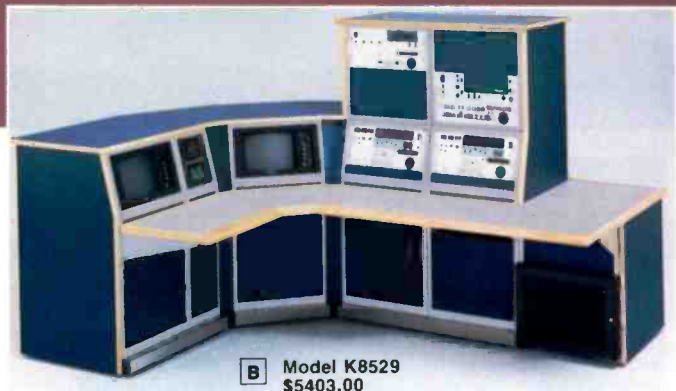
We'll customize a wood trimmed console any way you want it.



Choose laminates and stains to match your studio decor. Other colors on request.

A Model K8632
\$4279.00

Space-Saving Custom Corner Consoles



B Model K8529
\$5403.00



C Model K8642
\$5184.00

A **Three Bay Corner Console.** 10½" slope console with 14" top modules wedged 15° for viewing monitors. System includes a cradle kit for the edit controller and a 56" vertical rack for rack mounting VTRs. Comfortable padded shelves are angled for operator convenience. All consoles can contain 45° corner fillers as shown, utilizing all available floor space.

Model K8632. Shpg. wt. 776 lbs. \$4279.00

B **Atlantis Blue With Light Oak Trim Custom Corner Console.** Wrap-around design keeps all the electronics within reach of a single operator. Customized wood trim creates an elegant, contemporary console whether the racks are old or new. The shelf extension along one side of the console produces space for the non-rack mountable equipment. Work shelf has a beveled oak edge for comfort and durability.

Model K8529. Shpg. wt. 870 lbs. \$5403.00

New Winsted Decorator Top & Side Panels Give Your Console A Handsome New Look

C **Burgundy With Light Oak Trim Custom Console.** New bridge concept makes room for any size controller or audio board. Upper 14" rack space places the monitors at eye level for easy viewing. Corner design keeps all electronics within access of one operator. With the custom wood trim pieces available, any console design can be produced.

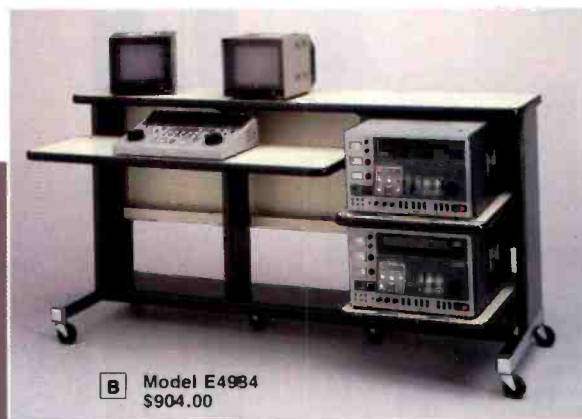
Model K8642. Shpg. wt. 862 lbs. \$5184.00

Compact "mini" editing consoles for both 1/2" and 3/4" front loading VCRs

An economical series of compact editing consoles. All shelves adjust on 1" increments for editing efficiency and user comfort. Pull-out shelf pulls out 13" for use with your VCR or character generator. Compact in size, only 28" deep and rolls easily through doorways.



A Model E4950
\$664.00



B Model E4984
\$904.00



C Model E4835
\$2177.00



D Model E4947
\$855.00

A **Compact, Mobile Editing System** fits most VCRs. Top monitor shelf measures 16"D x 48"W. VCR shelves are 23 1/2"D x 20"W; edit shelf is 16"D x 24"W—adjusts in 1" increments. Includes glides and 3" casters for mobility. Baked on enamel finish in Putty and Pearl Grey. Overall size 35 3/4"H x 28"D x 48"W.

Model E4950. Shpg. wt. 159 lbs \$664.00

B **Three Bay Editing/Post Production Console.** Features 48" wide controller shelf for additional work surface. 23 1/2"D x 20"W VCR shelves can be positioned on the right or left hand side of the console. Both glides and 3" casters are included with the console.

Model E4984. Shpg. wt. 208 lbs \$904.00

C **Extra Deep Dual Cabinet Edit Desk.** Set up to fit most controllers. 49" of rack space below the work surface allow ample space for rack mounting electronics. 19 1/4" vertical racks along the back edge of the work surface offer space for primary control access and monitors. Dove and Pearl Grey enamel finish. Overall size 50 13/16"H x 72"W x 48"D.

Model E4835. Shpg. wt. 429 lbs \$2177.00

Computer Graphics Work Stations

A computer graphics furniture system that applies ergonomic solutions to everyday work place problems.

D **Computer Graphics Station With Adjustable Shelf.** Features a 29"H x 48"W x 20"D table top that will accommodate most CPUs and monitors. Keyboard shelf is 48"W x 16"D and adjusts up/down 3"; pulls in/out 3" and tilts 0° - 5°

Model E4947. Shpg. wt. 135 lbs \$855.00

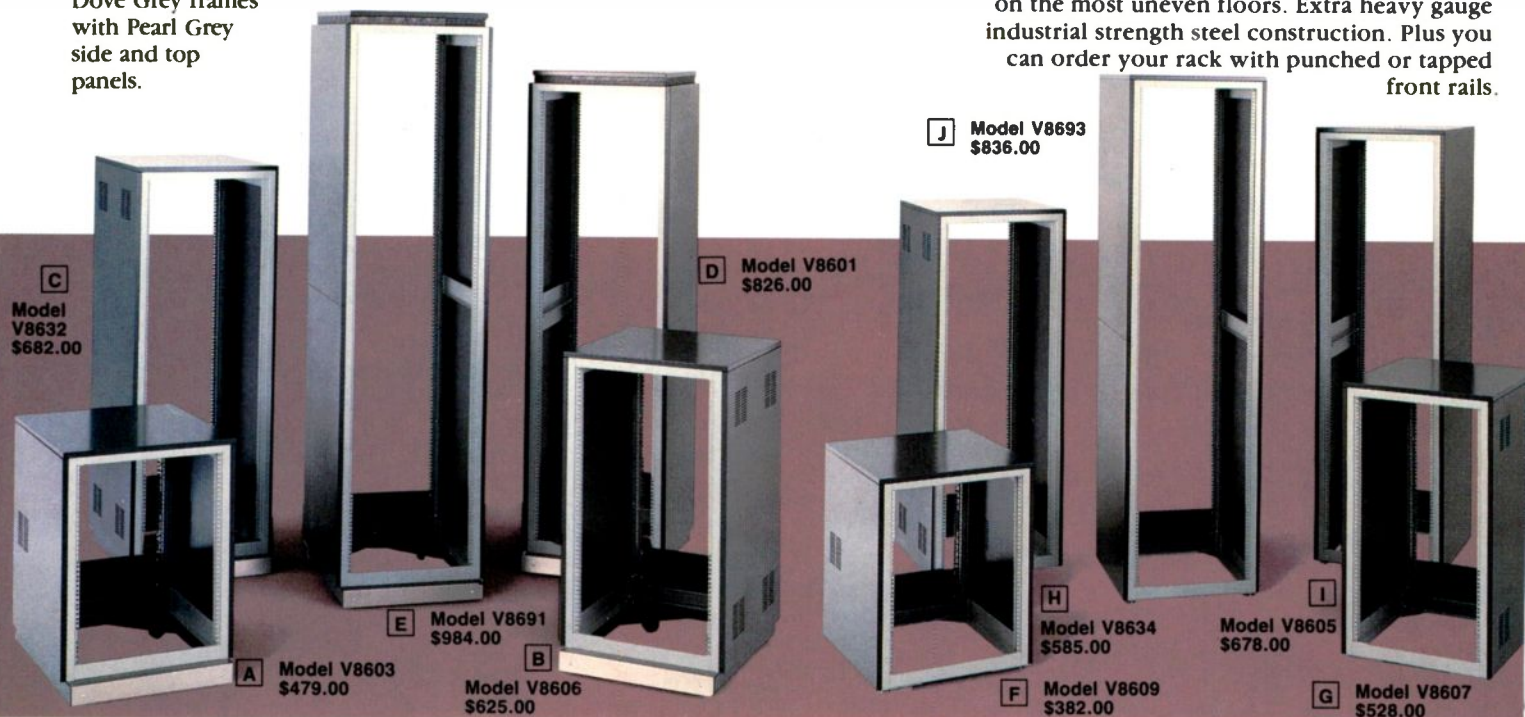
Monitor Riser. Raises monitors 4" for better viewing. Overall size 4"H x 24"W x 16"D.

Model 49084. Shpg. wt. 12 lbs \$55.00

Winsted

Video Furniture Systems

Ruggedly constructed, totally adaptable electronic equipment cabinets. Featuring snap together instant assembly frames, designed to the industry standard of 19"W x 26"D. Open pedestal for cabling. Removable side panels. Some racks feature ventilated tops and open pedestals to keep electronics cool. Dove Grey frames with Pearl Grey side and top panels.



All Winsted rack cabinets have easy lift off side panels for quick servicing or installation of electronics. Side panels are also vented to keep your valuable electronics cool. Leg levelers allow rack to be perfectly square even on the most uneven floors. Extra heavy gauge industrial strength steel construction. Plus you can order your rack with punched or tapped front rails.

Vertical Equipment Cabinets

With removable side panels for installation and servicing convenience.

- A** 24½" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 31½"H x 22⅞"W x 28"D.
Model V8603. Shpg. wt. 87 lbs. **\$479.00**
- B** 35" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 42½"H x 28"D x 22⅞"W.
Model V8606. Shpg. wt. 107 lbs. **\$625.00**
- C** 56" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vents in the sides for cooling. Overall dimensions: 63"H x 28"D x 22⅞"W.
Model V8632. Shpg. wt. 146 lbs. **\$682.00**
- D** 70" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vented top and open bottom for cooling. Overall dimensions: 78½"H x 28"D x 22⅞"W.
Model V8601. Shpg. wt. 198 lbs. **\$826.00**
- E** 78¾" Vertical Rack Cabinet. Dove Grey and Pearl Grey baked enamel finish with vented top and open bottom for cooling. Overall dimensions: 87¼"H x 28"D x 22⅞"W.
Model V8691. Shpg. wt. 223 lbs. **\$984.00**

35" and 70" rack cabinets shipped in 5 days.

Economy Rack Cabinets

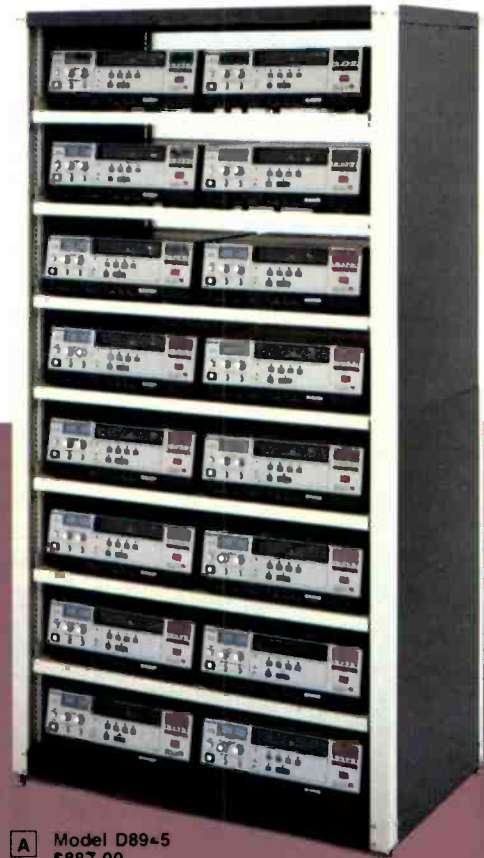
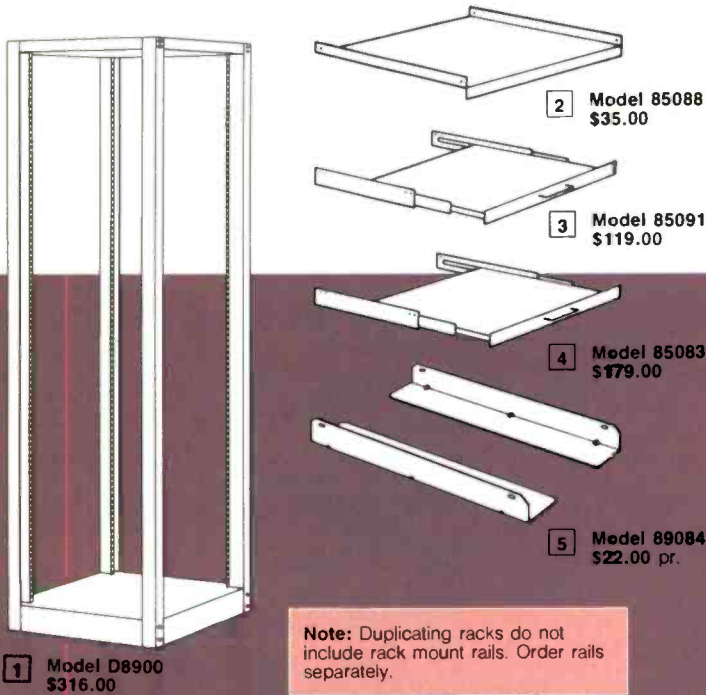
Designed for easy servicing and maintenance.

- F** 24½" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey baked enamel finish. Overall dimensions: 29½"H x 22⅞"W x 26"D.
Model V8609. Shpg. wt. 68 lbs. **\$382.00**
- G** 35" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 40"H x 22⅞"W x 26"D.
Model V8607. Shpg. wt. 88 lbs. **\$528.00**
- H** 56" Economy Rack Cabinet. All steel construction with lift-off vented side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 61"H x 22⅞"W x 26"D.
Model V8634. Shpg. wt. 127 lbs. **\$585.00**
- I** 70" Economy Rack Cabinet. All steel construction with lift-off side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 75"H x 22⅞"W x 26"D.
Model V8605. Shpg. wt. 173 lbs. **\$678.00**
- J** 78¾" Economy Rack Cabinet. All steel construction with lift-off side panels for equipment installation. Open base for cooling and cable management. Pearl Grey with Dove Grey enamel finish. Overall dimensions: 83¾"H x 22⅞"W x 26"D.
Model V8693. Shpg. wt. 193 lbs. **\$836.00**

Stationary & Movable Dubbing Racks for 1/2" and 3/4" Formats

To Design Your Own Add-A-Rack System

To design your own Add-A-Rack duplication system (1) Bolt together two or more single frames and/or double frames without side panels (2) Choose the proper shelves for your needs—stationary, 13" pull-out or 20" full suspension shelves (20" full suspension shelves are available for single width frames only and require an anti-tip base.) (3) Add side panels. Don't forget to order your options.



Design Your Own Duplicating System Components

- 1 **Model D8900.** Single width frame without sides or shelves.
Shpg. wt. 88 lbs. \$316.00
- 2 **Model 85088.** Stationary shelf.
Shpg. wt. 11 lbs. \$35.00
- 3 **Model 85091.** 13" pull-out shelf.
Shpg. wt. 16 lbs. \$119.00
- 4 **Model 85083.** 20" full-suspension shelf. When using this shelf anti-tip base model 89061 must also be used.
Shpg. wt. 19 lbs. \$179.00
- 5 **Model 89084.** 2" x 5" VTR support brackets. Holds duplicating machines and allows full air circulation.
Shpg. wt. 13 lbs. \$22.00 pr.

For full-line catalog of editing, production and dubbing consoles, tape and film trucks, film and videotape storage systems contact your Winsted dealer.

- A **Double Wide Duplication Center.** Set up to hold 16—1/2" duplicating machines. Open back allows easy access to the back of the machines for maintenance. Can be bolted together with another duplicating rack to form an in-line duplicating center. Overall size 78"H x 26"D x 42"W.
Model D8945 shpg. wt. 315 lbs. \$887.00



- B **Single Bay Duplication Console.** Eight stationary shelves adjust in 1/2" increments to fit your VCRs. 14" rack rail included for rack mounting electronics. Overall size 78"H x 26"D x 23 1/8"W.
Model D8912 shpg. wt. 224 lbs. . . \$736.00

Winsted

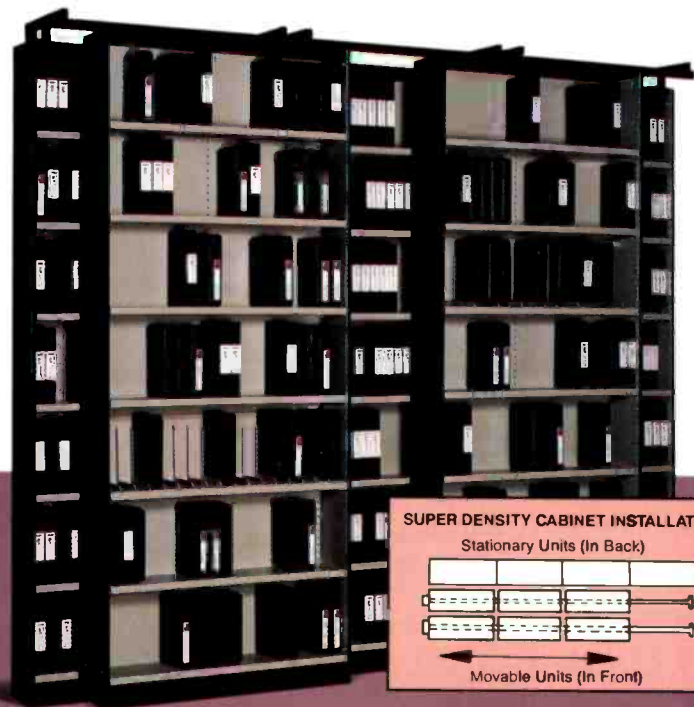
Video Furniture Systems

Movable Storage Systems

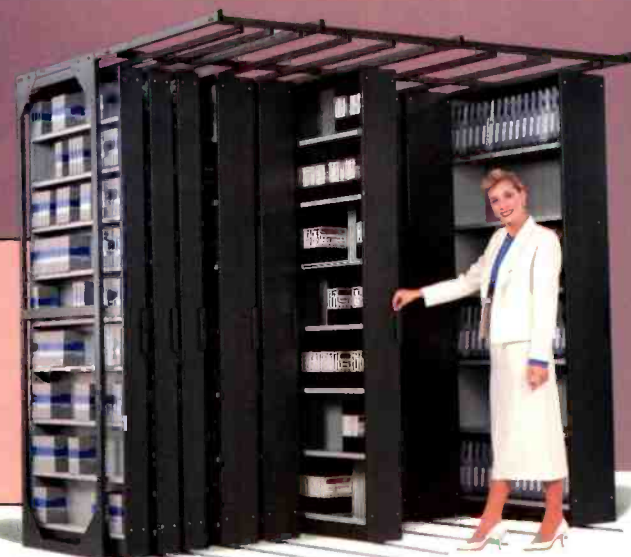
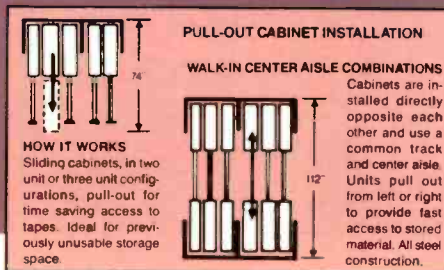
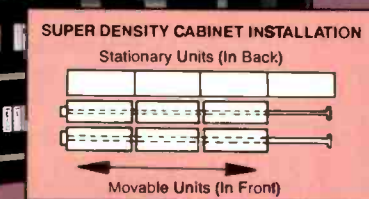
In a variety of designs and 5" to 30" depths to serve your special storage needs.

Winsted Shelf Storage System. Offers organization and storage for most any tape or film storage system. Choose from stock or custom shelving at affordable prices. All designs are completely flexible—can be adapted to a variety of configurations and setups to serve your special storage needs. What's more, Winsted shelving grows as your needs grow. Both stock and custom installations can be expanded, or relocated as your needs change.

A "Super Density" Movable Cabinets. Offered in a range of cabinet depths for maximum storage in a limited space. Front row cabinets move side to side on floor tracks for easy access to rear storage. Ideal for "VHS," "BETA," U-matic and broadcast tape storage.



A



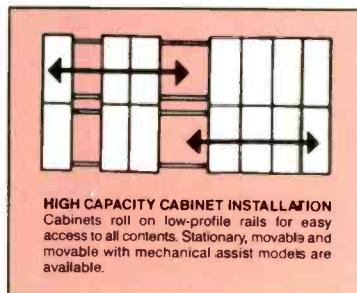
B

B Space-Saving Pull-Out Cabinets. Ideal for "high access" tape storage. May be installed in room alcoves or set-backs. Save floor space, too, by eliminating unnecessary aisles. Gives you 100% storage space efficiency. Units bolt together for any length system. Cabinets pull-out effortlessly on a low-profile track.

C High Capacity Tape Storage System. Affords compact storage in a limited space. Offered in a full range of cabinet depths to meet every storage need. Cabinets move laterally on low-profile rails for easy access to all records instantly, effortlessly.



C



Free Planning Service...

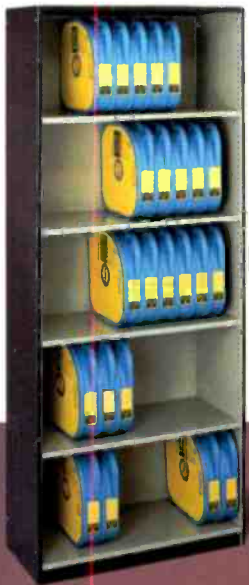
Let our analysts show you how you can save storage space and make your operations more efficient with Winsted's movable storage systems. Just call or write and let us know the quantity and type of tapes to be stored, along with dimensions of available space. We will analyze your storage space problems and provide a design for your particular operation.

Call or write to:

Winsted Tape Storage Design
10901 Hampshire Ave. So.
Minneapolis, MN 55438
800-443-2257

Open Shelf Tape Cabinets

For the organization & storage of all tape formats



C Model T7800
\$519.00



B Model T7700
\$464.00



A Model T7400
\$439.00



D Model 70300
\$247.00



E Model T7100
\$398.00

A **Model T7400.** Ideal videotape storage system for 3/4" U-Matic videocassettes. Eight inch deep cabinet holds 161 videocassettes. Order molded plastic dividers for videocassettes separately (Model 70983—see Optional Accessories). Seven shelves. Overall: 88"H x 8"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 120 lbs. **\$439.00**

B **Model T7700.** Video tape storage system holds 102 1" video tapes. Deeper 12" cabinet depth takes 1" broadcast tapes, 7"10 1/2" quad tapes and 3/4" U-Matic videocassettes. Order molded plastic dividers for video-cassettes separately. Six shelves overall: 88"H x 12"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 138 lbs. **\$464.00**

C **Model T7800.** Quad Tape Storage System. A 16" deep cabinet that is perfect for 2" quad and holds 55 tapes. Five shelves. Overall: 88"H x 16"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 185 lbs. **\$519.00**

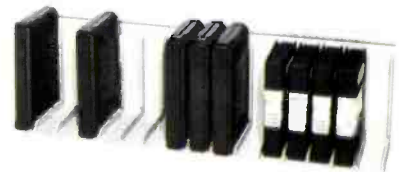
D **Model 70300.** Locking cabinet doors provide security for valuable master tapes. Doors fit all of the Winsted "T" series tape cabinets (except T7200 and T7500 models) and can be added to any existing "T" unit. Full length door hinge and two-point locking system. **Note:** Install cabinet doors only on cabinets that are securely fastened to a wall. Dimensions: 84 1/2"H x 1 1/4"D x 34 1/2"W. Beige baked enamel finish. Shpg. wt. 61 lbs. **\$247.00**

E **Model T7100.** Beta or VHS Storage. Holds 270 Beta tapes or 240 VHS. Ideal for 1/2" videocassette storage. Order molded plastic dividers for videocassettes separately (Model 70986). Overall: 88"H x 4 1/2"D x 36"W. (Inside dimensions: 34 1/2"W x 83"H). Cocoa Brown cabinet with Beige interior. Shpg. wt. 100 lbs. (VHS) **\$398.00**

Model T7104. (Not shown.) Cocoa Brown cabinet with Beige interior. Shpg. wt. 100 lbs. (BETA) **\$419.00**

Optional Accessories

1 **Model 70983.** Molded plastic divider insert (3/4" tapes) for use in T7400, T7600, or T7700. Shpg. wt. 3 lbs. **\$14.00**



2 **Model 70986.** Plastic cassette holder (1/2" tapes) for use in T7100 or T7104 cabinets. Shpg. wt. 2 lbs. **\$13.00**



Winsted

Video Furniture Systems

Mobile Video Centers

Mobile carts and consoles to organize and store your video equipment

Four new economy A/V carts with the same built-in quality you've learned to expect from all Winsted products. Choose from 34" or 54" heights. Shelves are 28⁵/₈"W x 18⁵/₈"D to fit most any electronics. Sturdy, strong, formed and welded steel construction for years of service. Four-inch swivel casters (two locking) for mobility. Textured baked on enamel gray finish with chrome post accents.



A Model R3303
\$180.00



B Model R3353
\$188.00



C Model R3405
\$336.00



D Model R3606
\$759.00



E Model 37509
\$1900.00



F Model R3720
\$598.00



G Model R3740
\$981.00

A **34" High Video Stand.** Features three shelves to fit all of your electronics. 11¹/₂" clearance between shelves leaves plenty of room for equipment access. Measures 34"H x 22"D x 32"W. Shpg. wt. 55 lbs.

Model R3303 \$180.00

B **Portable Video Stand.** Ideal for setup anywhere. Three shelves make a space for your monitor, VCR and accessories. Measures 54"H x 22"D x 32"W. Shpg. wt. 60 lbs.

Model R3353 \$188.00

C **Low-Profile Video Center.** Designed for smaller groups and individual use. Monitor shelf is set back slightly to permit easy access to VTR. Top shelf is 32"W x 15"D. Cabinet is 34¹/₄"H x 32"W x 22"D. Wt. 91 lbs.

Model R3405 \$336.00

D **Compact Portable Video Center.** Provides complete mobility, ease of operation, and key-lock security. Top section takes most 19" (some 21") monitors and VTR units. Locking swing-away doors. Ventilated locking rear panel for full access to video equipment. Bottom section provides safe storage for your expensive video accessories. 59¹/₄"H x 32"W x 22"D. Wt. 185 lbs.

Model R3606 \$759.00

Executive Conference Room Consoles

E **Hand Rubbed Oak VCR Cabinet.** For the VCR center where only the nicest furniture will do. An elegant VCR cabinet sculpted of oak solids with matching oak wood veneers. The look is expensive. The rolled edge design is comfortable and clean. Satin smooth hand rubbed finish with uncommon attention to detail.

Model 37509 \$1900.00

F **Executive Video Console.** Rich medium oak woodgrain. Holds any 3/4" or 1/2" VTR machine and monitor of up to 25". Convenient shelf stores tapes and other video accessories.

VTR shelf pulls out for easy access to controls. Accessory equipment shelf adjusts up or down. Locking cabinet doors for extra security—swing back out of the way. Rear opening provides access to cords, cables and control adjustments. Swivel casters make moving easy. 31¹/₂"W x 33"H x 28¹/₂"D. Wt. 177 lbs.

Model R3720 \$598.00

G **Large Security Cabinet.** With full length locking doors. Provides ample storage space for 25" monitors as well as front loading VTRs. Plate casters for total mobility. Pull-out shelf for accessibility to top, sides and back of your installed equipment. Adjustments and settings may be made without removal. Base compartment offers storage for extra cassettes and video accessories. Measures 63³/₄"H x 31¹/₂"W x 28¹/₂"D. Wt. 276 lbs.

Model R3740 \$981.00

For full-line catalog of editing, production and dubbing consoles, tape and film trucks, film and videotape storage systems contact your Winsted dealer.

Equipment

Alphabetical manufacturer listing:

Acrodyne Industries
ADC Telecommunications
Agfa Matrix
Aldus Corporation
AMX Corporation
Andrew Corporation
Anton/Bauer
Anvil Cases
Apple Computers
AST Computers
AT&T GSL
Atlas/Soundolier
Bencher
Beyer Dynamic
Bogen
Bogner Broadcast Equipment
Bretford Manufacturing
Broadcast Electronics
Broadcast Video Systems Ltd
Cablewave Systems
Canon
Catal
Channel One Lighting
Cine 80
Cinema Products Company
Comprehensive Video Supply
Crown
CV Technologies
Da-Lite Screen Company
Data Translation

Dataton AB
Diaquest Inc
Digidesign Multimedia
Digital F/X
Dubner Computer Systems
Electrohome Limited
Electro-Voice
ELMO
Emcor
EMI
Ensemble Designs
Extron
Frazzolini-PAG
Fujinon
General Instrument (Jerrold)
Grass Valley Group
Grass Valley Telecom
Hale Color Labs
HM Electronics
Howtek
Image North Technologies (Inscriber)
In Focus
ITE
JBL/JREI
Kangaroo
Knox Video
Kurta Systems
Leightronix
Listec
Lowel-Light

LTM
Luxor
Lyon Lamb
3M Company
MacroMind
Matco
Microtime
Microwave Radio Corporation
Mitsubishi Computers
Mitsubishi Monitors
NEC Industrial
Orban
Panasonic
Pelco
PictureWare
Porta-Brace
Porta-Pattern
Q-Tv
Quanta
Quartet Ovonics
Ramsa
Robins
ROH Systems Division
Rohn Tower
Ron Scott Inc
RTS
Sachtler
Scala Electronics
Scientific Atlanta
Sharp Electronics

Shure Brothers
Sigma Electronics
Smith-Victor
Sony Broadcast Products
Sony Conference & Satellite Systems
Sony Pro Audio
Sony Pro Plus
Sony Professional Video
Sony Still Image Systems
Star Case
Sylvania
Symatrix
Tech Electronics
Tektronix
Telex
Time Arts
TouchVision Systems Inc
Truevision
TVL
Vega
Vicon
Videotek
Vinten Broadcast
Wacom
Will-Burt Company
Wilson
Winsted
YEM Technology
York Controls

Manufacturer by product category:

VIDEO TAPE
3M Company
Panasonic
Sony

VIDEO RECORDERS
Panasonic
Sony Broadcast Products
Sony ProMavica
Sony Pro Plus
Sony Professional Video

VIDEO CONFERENCING
Grass Valley Telecom
Sony Conference & Satellite Systems

VIDEO CAMERAS
Panasonic
Sony Broadcast Products
Sony ProMavica
Sony Professional Video

TRANSMITTERS & RF
Acrodyne Industries
Andrew Corporation
Bogner Broadcast Equipment
Cablewave Systems
Catal
General Instrument (Jerrold)
Microwave Radio Corporation
Scala Electronics
Scientific Atlanta

TIME BASE CORRECTORS
Microtime
Panasonic
Sony Broadcast Products
Sony Pro Plus
Sony Professional Video

TEST EQUIPMENT/CHARTS
Hale Color Labs
Porta-Pattern
Sigma Electronics
Tektronix
Videotek

SIGNAL PROCESSING
Grass Valley Group
Microtime
Tektronix

PRODUCTION SWITCHERS
Grass Valley Group
Panasonic
Sony Broadcast Products
Sony Pro Plus
Sony Professional Video

PRESENTATION/REMOTE CONTROL
AMX Corporation
Dataton AB
Quartet Ovonics
York Controls

MONITORS & RECEIVER
Electrohome Limited
Mitsubishi
NEC Industrial
Panasonic
Sharp Electronics
Sony Broadcast Products
Sony Pro Plus
Sony Professional Video
Videotek

LENSES/FILTERS
Canon
Fujinon
Pelco
Vicon

LIGHTING
Anton/Bauer
Channel One Lighting
Comprehensive Video Supply
LTM
Lowel-Light
Smith-Victor
Sylvania

EDIT CONTROLLERS
CV Technologies
Digital F/X
Grass Valley Group
Image North Technologies (Inscriber)
Panasonic
Sony Broadcast Products
Sony Pro Plus
Sony Professional Video
TouchVision Systems

DVE/PAINT/CG
CV Technologies
Dubner Computer Systems
Grass Valley Group
Knox Video
Microtime
Quanta
Sony Professional Video
(see Computer Graphics)

DISTRIBUTION/SWITCHERS
ADC Telecommunications
Broadcast Video Systems
General Instrument (Jerrold)
Grass Valley Group
Panasonic
Sigma Electronics
Videotek

DISPLAY SYSTEMS
VIDEO/DATA PROJECTORS
Bencher
Da-Lite Screen Company
Electrohome Limited
ELMO Overhead Projectors
ELMO Slide Projectors
In Focus
Panasonic
Sharp Electronics
Sony Professional Video
Sony Still Image Systems

COMPUTER GRAPHICS
Agfa Matrix
Aldus Corporation
Apple Computers
AST Computers
AT&T GSL
Howtek
Kurta Systems
Lyon Lamb
MacroMind
Image North Technologies (Inscriber)
Mitsubishi Computers
Panasonic Optical Storage
PictureWare
Time Arts
Truevision
TVL
Wacom
YEM Technology

**COMMERCIAL INSERTION/
AUTOMATION CONTROLLERS**
Channelmatic
Leightronix
Matco
Tech Electronics

CLOSED CIRCUIT TV
EMI
Panasonic
Pelco
Vicon

CASES, CARTS & RACKS
Anvil Cases
Bretford Manufacturing
Emcor
Kangaroo
Luxor
Porta-Brace
Star Case
Wilson
Winsted

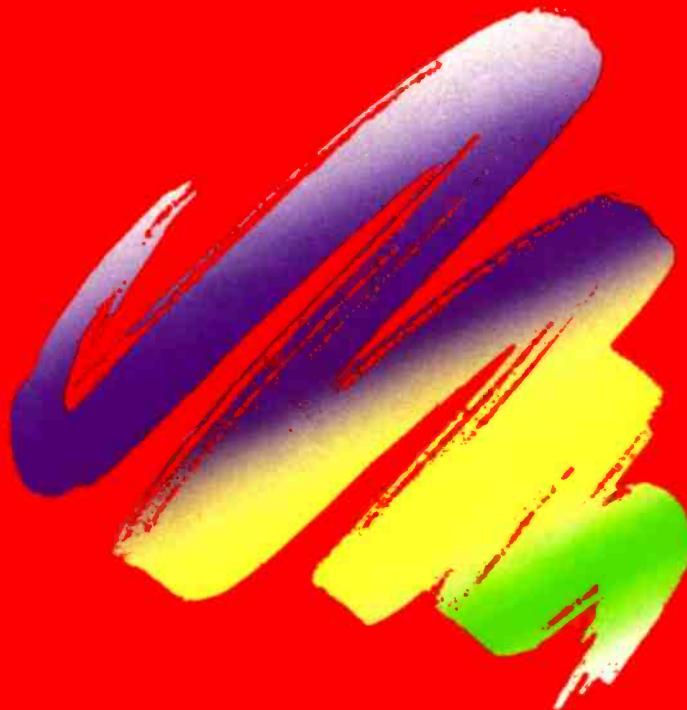
CAMERA SUPPORTS
Bencher
Bogen
ITE
Sachtler
Vinten Broadcast

BATTERIES/CHARGERS
Anton/Bauer
Cine 80
Frazzolini-PAG
Panasonic
Sony

AUDIO
Atlas/Soundolier
Beyer Dynamic
Broadcast Electronics
Crown
Digidesign Audiomedia
Electro-Voice
HM Electronics
JBL/JREI
Orban
Panasonic
Ramsa
ROH Systems Division
RTS
Shure Brothers
Sony Pro Audio
Symatrix
Telex
Vega

AND MORE . . .
Cinema Products Company (prompters)
Comprehensive Video Supply
Ensemble Designs
Leightronix (special adaptors)
Listec (prompter systems)
Q-Tv (prompter systems)
Robins (tape erasers)
Rohn Tower
Custom Video Database Solutions

VIDEO I M A G E S



VIDEO I M A G E S

Milwaukee Office

Video Images, Inc.
285 N. Janacek Road
Waukesha, WI 53186-1924
FAX (414) 785-9264
(414) 785-8998

Madison Office

Video Images, Inc.
2137 S. Stoughton Road
Madison, WI 53716-2851
FAX (608) 221-9252
(608) 221-8888

Chicago Office

Video Images, Inc.
1141 Tower Lane
Bensenville, IL 60106
FAX (708) 766-1106
(708) 766-1100