

BROADCAST[®] engineering

AN INTERTEC PUBLICATION

1991 ANNUAL ISSUE/\$20

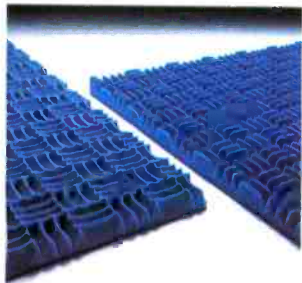
91

*Equipment
Reference
Manual*

THE MOST IMPORTANT AUDIO CONTROL EQUIPMENT WORKS FROM HERE TO HERE



Keeping sound clean and accurate can make or break your audio projects. SONEX from illbruck ensures that you're getting the sound you want. Our complete line of acoustical materials gives you total control—in the studio, the control room, or wherever sound quality is critical. There's a reason SONEX continues to lead—nothing works better. Put the leader to work for you; call today for all our performance specs and application guides—800-662-0032.



SONEX

The only acoustical foam with the illbruck anechoic-wedge—over 400% more surface area than flat materials. Controls reverb, reflections, and resonances—beautifully. The proven performer.



SONEX 1

The same unbeatable performance of SONEX but in materials that meet all Class 1 regulations. For demanding applications where heat or fire are factors. Safe for you but deadly for sound.



SONEX CEILING

Suspended ceiling treatments that deliver new levels of acoustical performance. Unique, contemporary designs. Available in a variety of styles and colors.



BARRIERS & COMPOSITES

When the problem requires more than absorption, illbruck barriers deliver. Single layer vinyls to multi-level laminates. Lead performance without lead price or problems.



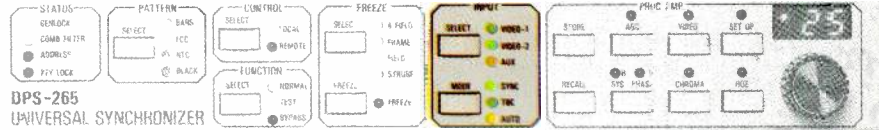
illbruck

Sonex Acoustical Division
5155 River Road N.E.
Minneapolis, MN 55421
1-800-662-0032
In MN: 612-521-3555

The Whole is Greater Than the Sum of Its Parts.

..... The Price is \$13,000 Less.

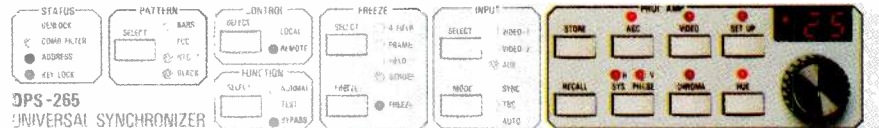
Starting with a Four-Field Wide Band Synchronizer for \$5,995.*



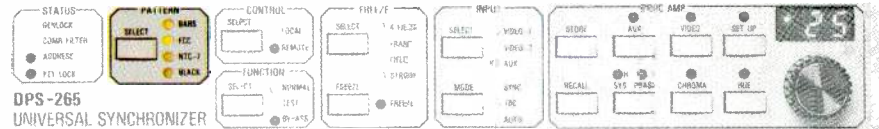
An infinite window TBC for \$4,995.*



A Digital Proc Amp with AGC, Black/White Clip and 10 memory presets for \$2,580.*



A 4-Pattern Digital Test Signal Generator with programmable VITS Inserter will set you back another \$4,995.*

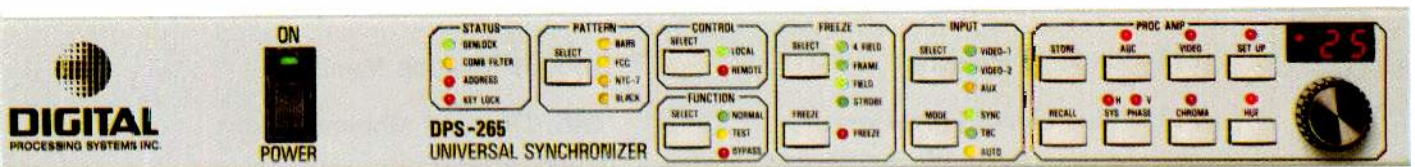


Add it all together and you've spent \$18,565.*

But now you can have all these capabilities. And more. In a single unit. For a single low price.

The DPS-265 Universal Synchronizer TBC. Everything you need. And more. For \$13,000 less.

Just \$5,495



MIDWEST
Communications Corp.

Four Tessenner Drive
Highland Heights, KY 41076
(606) 781-2200

*Based on published list price of leading industry manufacturers.

Circle (3) on Reply Card

6 Letter from the Editors

8 Product directory

A listing of more than 1,000 broadcast manufacturers provides you with the companies that offer the equipment you need. The blue listings indicate advertisers in this issue and the page number of their ads.

58 Manufacturers' addresses

If you ever need the address and/or telephone number to contact a company, this directory provides the most up-to-date information.

95 Dealers/distributors

This directory puts you in close contact with the dealers and distributors within particular states that carry the equipment you need.

113 VIDEO SPECS

113 Color TV Cameras

115 Camera Lenses

117 Video Monitors

120 Standards Converters

121 TBCs/Synchronizers

124 Video Recording
Equipment

124 Videocassette Automation

124 Time Code Generators

127 Editing Controllers

131 Production Switchers

134 Routing Switchers

135 Titlers/Character
Generators

138 Digital Effects Systems

141 Still-Store Systems

141 Video Signal Processors

147 AUDIO SPECS

147 Mixers

156 Audio Processors,
Dynamics Control

158 Audio Recorders

162 Wireless Microphones

164 Shotgun Microphones

164 Telephone Bandwidth
Extenders

166 Distortion Equipment

168 Compact Disc Players

168 Intercom Systems

**173 TRANSMITTING, TEST &
MEASURING SPECS**

173 Transmitters

182 Vectorscopes

183 Waveform Monitors

184 TV Demodulators

185 Modulation Monitors

186 TV Aural Monitors

187 Professional Service Cards

188 Ad Index

The annual Equipment Reference Manual is a comprehensive directory for radio and TV broadcasters. This special BE publication can be used as a guidebook whenever an equipment purchase is being planned. Keep this annual publication on your desk for reference throughout the year. (Cover design courtesy of AT&T Graphics Software Labs. Artwork created by Katherine Hanley, using the RIO software package.)



One of Our CCD Cameras Should Be One of Yours

Presenting the Hitachi SK-F Series...
A Line-up of Five High Performance
Broadcast CCD Cameras.



Use the **SK-F700/710**
for studio & field production
work. A choice of RGB
Triax, Composite Triax or
Multicore gives you total
system flexibility.

The **SK-F3** is our top-of-the-line EFP portable with 400,000 pixel FIT CCD's.

The **SK-F2** is our Broadcast ENG camera featuring IT CCD's with 700 lines of resolution.

The **SK-F1** is our ENG/EFP model that makes FIT technology affordable.

Hitachi Denshi America, Ltd

150 Crossways Park Drive, Woodbury, New York 11797 Tel: (516) 921-7200

Circle (24) on Reply Card

“We chose Ikegami Cameras with an

When it comes to attracting future business to their remote mobile units, NEP understands the critical importance of selecting the right equipment.

Not surprisingly, when it came to selecting Studio Chip Cameras, they chose Ikegami's HK-355.

A long time Ikegami camera user, NEP's national recognition and quality reputation has been earned on such diverse productions as: *The Cosby Show*, *The Goodwill Games*, *Farm Aid Concert*, *The Tyson-Douglas Heavyweight Championship*, and *The Academy of Country Music Awards*.

When it comes to CCD technology, the right equipment for NEP is Ikegami.

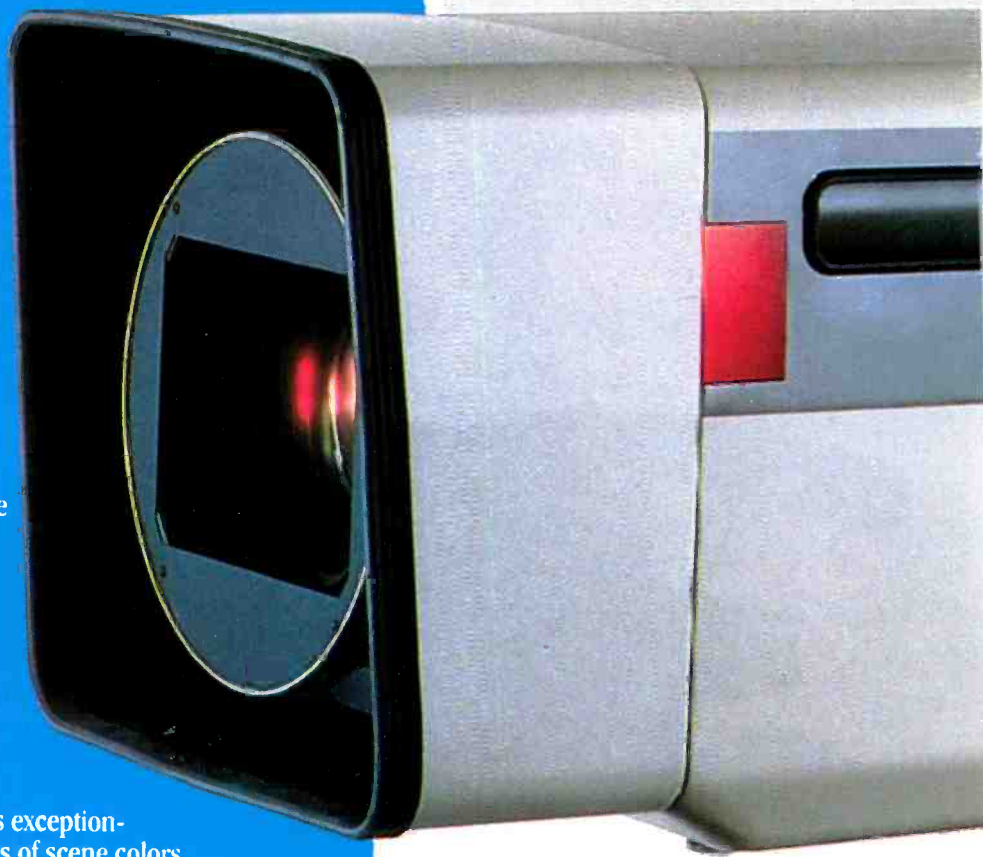
The HK-355 Studio Chip Camera offers many exceptional features:

- Three 2/3" FIT CCDs each with 450,000 pixels, deliver a resolution of 800 TVL and S/N ratio of 62 dB.
- 6-vector Color Corrector provides remote control of camera colorimetry-including a unique Auto Color facility to produce matching colorimetry accurately and automatically.
- Computer Control System enables complete remote control, Full Auto Setup, extensive Diagnostics, and Multiple Filing System.
- Full 3 Channel Detail System reproduces exceptionally fine details in entire picture, regardless of scene colors.
- A hand-held version, the HK-355P, offers extensive remote control, Auto Setup and Diagnostics.

For more information, contact your Regional Ikegami Sales office.

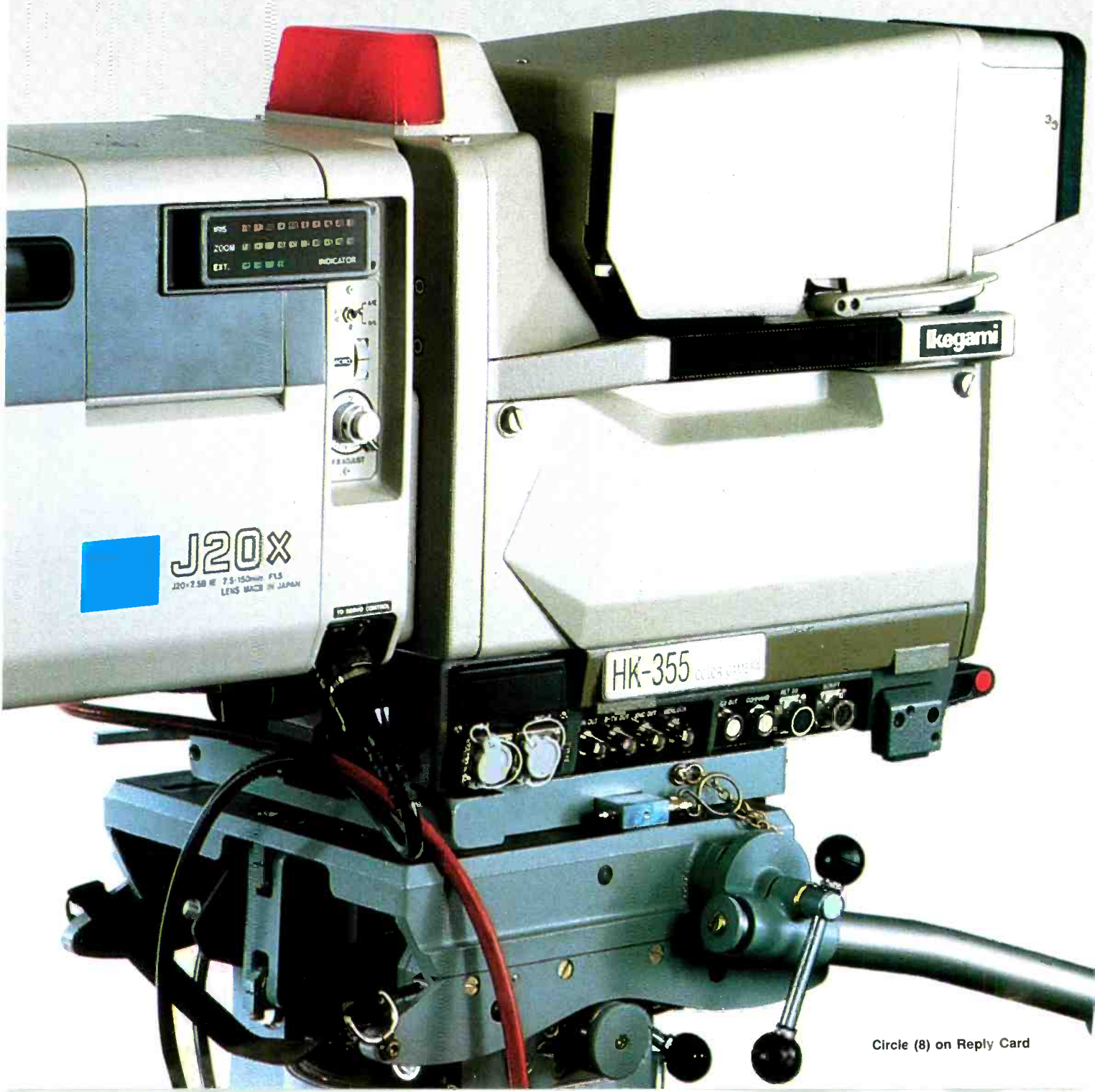
Ikegami

Ikegami Electronics (U.S.A.) Inc., 37 Brook Ave., Maywood, NJ 07607
East Coast: (201) 368-9171 West Coast: (213) 534-0050
Southeast: (305) 735-2203 Southwest: (214) 869-2363
Midwest: (708) 834-9774 Hawaii: (808) 946-5955



HK-355 Studio Chip eye on the future.”

-George Wensel, V.P. Operations, NEP



Circle (8) on Reply Card

1991 Equipment Reference Manual

Tradition continues with the **Broadcast Engineering 1991 Equipment Reference Manual**. Over the past 23 years, we have brought you the most extensive guide to product sources for the industry. Even though many changes have taken place in the industry, the 1991 edition of our annual directory remains the most complete guide we know of. It represents all new information provided by those companies responding to our request for information. Requests were directed to all participants of previous directories, to new companies exhibiting at trade shows and to those appearing in our *New Products* columns during the year. If a company is missing from this compendium, it is because we received no information from that company after repeated requests.

It was 10 years ago, when **Broadcast Engineering** first brought you the *Spec Book*, a unique presentation of com-

parative specifications for a variety of most-sought types of equipment. First, a stand-alone book, the *Spec Book* was later logically incorporated into the *Buyers' Guide*. As part of the long tradition of offering you as much information toward buying decisions as possible, the equipment specifications are included in this volume. These, too, represent new material from responding companies.

Fold-out tab pages quickly guide you to the different sections of this issue: *Buyers' Guide product listings*, *Manufacturers' addresses* and *Dealers & Distributors*. Throughout the product listings, color highlighting alerts you to advertisements in this issue. In addition, fold-outs are used to designate the beginning of *Audio Products*, *Video Products* and *RF & Test Products*. Within the specifications comparisons, company names are color highlighted to indicate advertisers.

As always, the staff of **Broadcast Engineering** is interested in serving you to the best of our ability. We enjoy bringing you this reference information and remain open to your suggestions of ways that we can help you in streamlining your research in future equipment purchases.

Pat Blanton

Pat Blanton, directory editor

Carl Bentz

Carl Bentz, special projects editor

BROADCAST ENGINEERING

Editorial and advertising correspondence should be addressed to: P.O. Box 12901, Overland Park, KS 66212-9981 (a suburb of Kansas City, MO); (913) 888-4664. Telex: 42-4156 Intertec OLPK. Circulation correspondence should be sent to the above address, under P.O. Box 12937. RAPIDFAX: (913) 541-6697.

EDITORIAL

Brad Dick, *Editor*
Carl Bentz, *Editor of Special Projects*
Rick Lehtinen, *Technical Editor*
Skip Pizzi, *Technical Editor*
Tom Cook, *Senior Managing Editor*
Dawn Hightower, *Senior Associate Editor*
Tim McNary, *Associate Editor*
Stefanie Cudnik, *Editorial Assistant*
Pat Blanton, *Directory Editor*

ART

Stephanie Chiles, *Graphic Designer*

EDITORIAL CONSULTANTS

Fred Ampel, *Audio*
Nils Conrad Persson, *Electronics*
Ned Soseman, *Video*
Michael Heiss, *Consulting Editor*

BUSINESS

Cameron Bishop, *Group Vice President*
Duane Hefner, *Group Publisher*
Jerry Whitaker, *Associate Publisher*
Tom Brick, *Marketing Director*
Evelyn Hornaday, *Promotions Manager*
Jon Newman, *Promotions Coordinator*
Dee Unger, *Advertising Business Manager*
Mary Birnbaum, *Advertising Production Supervisor*
Sally Nickoley, *Advertising Coordinator*

ADMINISTRATION

R.J. Hancock, *President*
Chuck Rash, *Corporate Circulation Director*
Sandra Stewart, *Circulation Director*
Doug Wilding, *Circulation Manager*
Customer Service: 913-541-6633
Kevin Callahan, *Creative Director*

TECHNICAL CONSULTANTS

Eric Neil Angevine, *Broadcast Acoustics*
John H. Battison, *Antennas/Radiation*
Dennis Ciapura, *Radio Technology*
Dane E. Ericksen, *Systems Design*
Howard T. Head, *European Correspondent*
Wallace Johnson, *FCC/Bdct. Engineering*
John Kean, *Subcarrier Technology*
Donald L. Markley, *Transmission Facilities*
Harry C. Martin, *Legal*
Robert J. Nissen, *Studio/Communications*
Hugh R. Paul, *International Engineering*
Art Schneider, A.C.E., *Post-production*
Elmer Smalling III, *Cable/Satellite Systems*
Vincent Wasilewski, *Communications Law*

MEMBER ORGANIZATIONS

SUSTAINING MEMBERS OF:

- Acoustical Society of America
- Society of Broadcast Engineers
- Society of Motion Picture and TV Engineers

Member,
Association of Business Publishers

ABP

Member,
Business Publications
Audit of Circulation

BPA

BROADCAST ENGINEERING is edited for corporate management, engineers/technicians and other station management personnel at commercial and educational radio and TV stations, teleproduction studios, recording studios, CATV and CCTV facilities and government agencies. Qualified persons include consulting engineers and dealer/distributors of broadcast equipment.

BROADCAST ENGINEERING (ISSN 0007-1794) is published monthly (except in the fall, when two issues are published) and mailed free to qualified persons within the United States and Canada in occupations described here by Intertec Publishing Corporation, 9221 Quivira Road, Overland Park, KS 66215. Second-class postage paid at Shawnee Mission, KS, and additional mailing offices. POSTMASTER: Send address changes to **Broadcast Engineering**, P.O. Box 12960, Overland Park, KS 66212.

SUBSCRIPTIONS: **Broadcast Engineering** is mailed free to qualified persons in occupations described above. Others may subscribe at the following rates: United States, one year, \$50; all other countries (surface mail), one year, \$60. Rates include postage. Foreign air mail and Canadian First Class options are available at the annual subscription rate of \$115. Single copy price \$4.50, except for the annual Equipment Reference Manual back issues \$20. Adjustments necessitated by subscription termination at single copy rate. Allow six to eight weeks delivery for change of address or new subscription.

Photocopy rights: Permission to photocopy for internal or personal use is granted by Intertec Publishing Corporation for libraries and others registered with Copyright Clearance Center (CCC), provided the base fee of \$2.00 per copy of article is paid directly to CCC, 21 Congress St., Salem, MA 01970. Special request should be addressed to Cameron Bishop, group vice president. ISSN 0007-1794 \$2.00 + \$0.00.

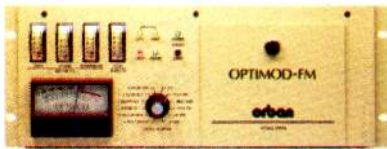
©1990 by Intertec Publishing.
All rights reserved.

Advertising offices listed on page 143.

**INTERTEC
PUBLISHING**

The Orban Family of Broadcast Products

OPTIMOD-FM



8100A1 OPTIMOD-FM Audio Processor: The dominant choice for highest quality FM audio processing, on all continents.



XT2 Six Band Limiter: Accessory to OPTIMOD-FM. Adds more competitive loudness, punch, and brightness.



222A Stereo Spatial Enhancer: Gives your station the competitive *leading edge* sound by naturally magnifying the stereo image.

OPTIMOD-AM/HF



9100B OPTIMOD-AM Audio Processor: Achieves extraordinarily natural audio quality on both voice and music, with loudness, intelligibility, remarkable source-to-source consistency, and FM-like brightness. Mono or stereo.



9105A OPTIMOD-HF Short-wave Audio Processor: Louder than OPTIMOD-AM; punches through noise, fading, and interference with outstanding intelligibility.

OPTIMOD-TV



8182A OPTIMOD-TV Audio Processor: For both stereo and mono television; works with all stereo systems (BTSC, NICAM, dual-carrier, EIAJ). Controls levels from any source artfully and automatically, without audible processing artifacts. Effectively controls loudness of commercials.

BTSC TV Stereo (for NTSC countries): BTSC TV Stereo, Second Audio Program (SAP) and Professional Channel (PRO) Generators. Meets the highest specifications.

AND OUR NEW TRANSMISSION LIMITER



4000A Transmission Limiter: We aimed for undetectable peak limiting... And we reached our goal. The sound is so transparent that you can't hear it work.

Orban OPTIMOD products are used by tens of thousands of broadcast stations all around the world, by local broadcasters and the world's most influential national broadcast organizations. Orban products are known for their high standard of construction and reliability. We're proud of our products and stand behind them with technical support from broadcast engineers who understand your needs.

Orban, a division of AKG Acoustics, Inc.
1525 Alvarado Street, San Leandro, CA 94577 USA
Tel 415/351-3500 Fax 415/351-0500

orban[®]
LISTEN TO THE DIFFERENCE.

Buyers' Guide product listings

Audio Products

Color highlighting denotes advertisers and ad page numbers

AMPLIFIERS, DISTRIBUTION

1-in/N-out; stand-alone, modular, rack frame with power supply; may include multiple sections.

Acron Ltd.
 ADA Signal Processors
 Advanced Video Associates
 AEQ-Aplicaciones Electronicas Quasar
 Aiphone Intercom Systems
 Allen Avionics
 Aphex Systems Ltd.
 API-Audio Products
 Arrakis Systems 93
 ATI-Audio Technologies 165
 Audio Developments Ltd.
 Auditronics
 AutoPatch/XN Technologies 10
 Avitel Electronics Corp.
 AVS France
 Benchmark Media Systems 108
 BFE AG
 BGW Systems
 Brabury International
 Broadcast Devices
 Bryston Vermont Ltd. 107
 BTS 111
 Canford Audio plc
 Central Dynamics
 Channelmatic
 Datatek Corp. 69
 dbx Professional Products/AKG
 Acoustics 146
 Di-Tech IBC
 Drake Electronics Ltd., Philip 52
 Dukane Corp.
 DYMA Engineering
 DYNALR Electronics 35
 EDCOR
 EELA Audio
 ESE 169
 FM Acoustics Ltd.
 FM Systems
 FSR
 Gentner Electronics Corp. 149
 Grass Valley Group
 Grunder & Associates, James
 HEDCO 43
 Henry Engineering
 Hit Design
 Icon Electronics Corp.
 Image Video Ltd.
 Intelix Corp.
 IRP, A Knowles Div.
 ITAME, S.A. 75
 JNS Electronics
 Laird Telemedia
 Lectronics 91
 Leitch Video 87
 Logitek Electronic Systems
 LPB
 MBI Broadcast Systems Ltd.
 McCurdy Radio Industries
 McCurdy Telecommunication Products
 McMartin
 Modular Audio Products/Modular
 Devices
 MTC/Mycomp Technologies Corp.
 Multidyne Electronics

Neumade Products Corp.
 NTP Elektronik
 NVision
 Omicron Video 100
 Opamp Labs
 OpTex
 Pacific Recorders & Eng. Corp.
 Peavey Electronics
 Pro-Bel Ltd.
 ProTech Audio Corp.
 Radio Systems
 Ram Broadcast Systems
 Ramko Research
 Rane Corp.
 Reliance Comm/Tec
 Richmond Sound Design
 ROH Products
 ROOD Megatronics B.V.
 RTS Systems/Telex Communications
 Scantex Labs
 Schafer World Communications Corp.
 Seem Audio
 Sescom
 Shintron Co.
 Sigma Electronics
 Skotel Corp.
 Societe Anonyme Des Techniques
 Digitales Digitec S.A.
 Solutec (H.A.)
 Soundmaster USA
 Spectra Sonics
 Summit Audio
 Target Technology
 Tech Electronics
 Telex Communications
 Video Accessory Corp.
 Videoquip Research Ltd.
 Videotek
 Vortex Communications Ltd.
 Ward-Beck Systems Ltd. BC
 Wheatstone Corp.

AMPLIFIERS, MONITOR, POWER

ADA Signal Processors
 AEQ-Aplicaciones Electronicas Quasar
 Arakis Systems 93
 Ashly Audio
 ATI-Audio Technologies 165
 AVS France
 Benchmark Media Systems 108
 BFE AG
 BGW Systems
 Biamp Systems
 Bogen Communications
 Bryston Vermont Ltd. 107
 Canford Audio plc
 Carver Professional
 Crown International 55
 Discrete Technology Labs
 Drake Electronics Ltd., Philip 52
 Dukane Corp.
 DYMA Engineering
 EDCOR
 Electro-Voice
 FM Acoustics Ltd.
 Furman Sound

Industrial Strength industries
 IRP, A Knowles Div.
 ITAME, S.A. 75
 ITI Electronics
 JBL Professional
 JNS Electronics
 KINTEK
 Logitek Electronic Systems
 McCurdy Radio Industries
 McCurdy Telecommunication Products
 McMartin
 Mobile-Cam Products
 Modular Audio Products/Modular
 Devices
 Multidyne Electronics
 Numark Electronics
 Opamp Labs
 Peavey Electronics
 ProTech Audio Corp.
 QSC Audio Products
 Ram Broadcast Systems
 Ramko Research
 Ramsa/Panasonic 9
 Rane Corp.
 Renkus-Heinz
 Richmond Sound Design
 ROH Products
 RTS Systems/Telex Communications
 Schafer World Communications Corp.
 Seem Audio
 Sescom
 Societe Anonyme Des Techniques
 Digitales Digitec S.A.
 Spectra Sonics
 Symetrix
 Target Technology
 Tech Electronics
 Telex Communications
 TOA Electronics
 UREI, JBL Professional
 US Audio
 Videoquip Research Ltd.
 Wohler Technologies 169
 World Video
 Yamaha/Professional Audio

CABLE, AUDIO, MIC

1-/multiple-pair, shielded.
 Arcor Broadcast Products
 Audio-Technica U.S.
 AVS France
 Barco-EMT
 Berk-Tek
 Beyer Dynamic
 Bi-Tronics
 Black Audio Devices
 C.A.E.
 Canare Cable 143
 Canford Audio plc
 Chester Cable/Alcatel n.a.
 Clark Wire & Cable
 Comprehensive Video Supply Corp.
 Connectronics Corp.
 Crouse-Hinds CAM-LOK Products
 Discrete Technology Labs
 Dukane Corp.
 Electro-Voice
 FM Acoustics Ltd.
 Gotham Audio Corp.
 JNS Electronics
 Marshall Electronics
 Mohawk Wire & Cable Corp. 109
 NEK Cables Ltd.
 Nema Electronics International
 Neutrik USA
 OpTex
 Peavey Electronics

Ramko Research
 Seam-Tech
 Sescom
 Teledyne Thermatics
 TOA Electronics
 Videoquip Research Ltd.
 Whirlwind
 Wireworks Corp.

CD PLAYERS

Barco
 Barco-EMT
 Broadcast Automation
 Canford Audio plc
 Carver Professional
 Century 21 Programming
 Denon America
 Discrete Technology Labs
 DKW Systems
 Leonardo Software
 Numark Electronics
 Ram Broadcast Systems
 Ramsa/Panasonic 9
 Sony Business & Professional
 Group 14-15, 128-129
 Studer Revox America
 TASCAM/Teac Corp. of America

DELAY SYSTEMS

Systems and devices introducing audio delays to compensate for signal delays in video processing; excludes audio effects, reverb.

AMS Industries
 Audio/Digital
 Barco-EMT
 Digital Audio Research
 Eventide
 IRP, A Knowles Div.
 Klark-Teknik
 Leitch Video 87
 Lexicon 77
 MacroMedia Design
 Urban Associates/AKG
 Acoustics 7, 146
 Peavey Electronics
 Ram Broadcast Systems
 Spectra Sonics
 TC Electronic
 Tektronix 119, 171, 172
 Yamaha/Professional Audio

DUPLICATORS, AUDIO

Accurate Sound Corp.
 Canford Audio plc
 Gauss
 Lyrec Mfg. A/S
 Magnetax International
 Otari Corp.
 RTS Systems/Telex Communications
 TASCAM/Teac Corp. of America
 Telex Communications

DYNAMICS PROCESSORS

Including compression, limiting, expansion, noise reduction, de-essing, spectral enhancements.

AKG Acoustics 146
 Antex Electronics
 Aphex Systems Ltd.
 Ashly Audio
 ATI-Audio Technologies 165
 Audio Animation 59
 Audio Developments Ltd.

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to: **BE Directory Editor**, PO Box 12901, Overland Park, KS 66212.

You can't afford less on a DAT. You can't afford 1

PRODUCT LISTINGS

Introducing the new, improved Pro-DAT "Improved?" Aren't those just overused buzz words? But the SV-3700 is new, and it is improved, a new generation technology as directly as we can.

You know the sonic and performance excellence the audio industry doesn't? The new SV-3700 incorporates silicon DACs, converters, digital-to-analog converters, transport control interface technology. In the SV-3700, one bit A-D conversion performance and linearity compared to conventional 16-bit ADCs. These high-performance one-bit ADCs reduce both distortion and noise, cleaner, clearer audio at low as well as high levels.

Subjectively, these technical advances translate into more "space" around instruments that form the most "correct" sound.

Oh yes, there's another very important improvement. As a dealer, you'll find that in professional applications you can't afford less. And you certainly don't have to spend more. For more information, call 714-373-7655. 6550 Katella Avenue, Cypress, CA 90630. 714-373-7655.

Especially for
budget-conscious

A

Making

AutoPatch matrix capabilities for:

- ❖ VIDEO (band width 140, and 200 MHz)
- ❖ AUDIO (line level 100 kHz)
- ❖ AUDIO (mic level mic out; mic in and line)
- ❖ DATA (digital and analog)
- ❖ AFV and full BR/REC AWAY multi-level



or
as CES...

First,
there were
patchbays...

Then,
there were
routing switchers...

Now,
there's
AutoPatch™

ing 21st Century connections...  ...TODAY.

es provide
tribution

ths: 12, 40,

: 5 Hz-

: mic in and
d line out)

l analog)

EAK-

l control

The Y Series

- ❖ 3 ru enclosures can contain any mixture of signal types
- ❖ **CONTROLS:** full x-y local and remote panels; single bus remotes; RS232, 422, 485, and MIDI interfaces; modem
- ❖ **2YDM:** non-expandable as 4x4, 8x4, 4x8, and 8x8
- ❖ **4YDM:** field expandable in increments of 4: 4x4 thru 32x128

❖ **8YDM:** field expandable in increments of 8: 8x8 thru 64x256

❖ **Larger matrix?** Please call.

The X Series

- ❖ Line level audio (+22 dBu; 5 Hz - 50 kHz)
- ❖ Line level video (>2.5 v p-p; 12 mHz)
- ❖ Expansions: 4x4 thru 16x48
- ❖ Prices start under \$1100

AutoPatch A/V Division

XN Technologies, Inc.

14 Calispell, Box 350 Cheney, WA 99004

FAX: 509-235-2646 Phone: 509-235-2636

Circle (6) on Reply Card

**Customer Service:
800-622-0246**

Audio Products

Color highlighting denotes advertisers and ad page numbers

Barco-EMT
BBE Sound
Biamp Systems
CRL Systems-Circuit Research Labs
D&R Electronica b.v.
dbx Professional Products/AKG Acoustics 146
Delta Electronics
Dolby Laboratories 13
Dorrough Electronics
Electro-Voice
Eventide
FM Systems
Focusrite Audio Eng. Ltd.
Furman Sound
Gentner Electronics Corp. 149
GML George Massenburg Labs
Gotham Audio Corp.
Hit Design
Inovonics 38
ITAME 75
JNS Electronics
Kahn Communications
Klark-Teknik
Lectrosystems 91
Logitek Electronic Systems
McCurdy Telecommunication Products
Modular Audio Products/Modular Devices
Multidyne Electronics
Neve
NTP Elektronik
Numark Electronics
Opamp Labs
Optical Disc Corp.
Orban Associates/AKG Acoustics 7, 146
Peavey Electronics
ProTech Audio Corp.
Quest Marketing
Ram Broadcast Systems
Rane Corp.
Richmond Sound Design
Rocktron/RSP Technologies
Seem Audio
Somich Engineering
Summit Audio
Symetrix
Tayo Industries
Tectan
Texar Div./Gentner Electronics Corp.
TOA Electronics
Valley International
Wheatstone Corp.
Yamaha/Professional Audio

IMC/Akai
Lexicon 77
MacroMedia Design
MotionWorks
New England Digital Corp.
Otari Corp.
Schafer World Communications Corp.
Solid State Logic
Soundmaster USA
Studer Editech
Studer Revox America
Symetrix
Time Logic
Wheatstone Corp.

EFFECTS PROCESSORS

Plate/room simulation, reverb, flanging, chorus functions; profanity delays; may include simple delay function but excludes delay-only compensation.

AKG Acoustics 146
AKG Akustische u. Kino-Geräte
AMS Industries
Audio Developments Ltd.
Barco-EMT
BBE Sound
D&R Electronica b.v.
Eventide
Gotham Audio Corp.
Klark-Teknik
Lexicon 77
Numark Electronics
Peavey Electronics
Soundmaster USA
Studio Technologies
TC Electronic
TOA Electronics
Yamaha/Professional Audio

EQUALIZERS

HP-/LP-Filters, parametric, psophometric, swept.
AKG Acoustics 146
AMEK Systems & Controls
API-Audio Products
Ashly Audio
Audio Developments Ltd.
Biamp Systems
Carvin Corp.
CRL Systems-Circuit Research Labs
D&R Electronica
dbx Professional Products/AKG Acoustics 146
Discrete Technology Labs
Dukane Corp.
Electro-Voice
Focusrite Audio Eng. Ltd.
Furman Sound
GML George Massenburg Labs
Hamison by GLW
Hit Design
Industrial Strength Industries
IRP, A Knowles Div.
ITAME 75
JBL Professional
JNS Electronics
Klark-Teknik
Lectrosystems 91
Matthey Electronics
McCurdy Telecommunication Products
MicroAudio
Modular Audio Products/Modular Devices
NTP Elektronik
Numark Electronics
Opamp Labs
Orban Associates/AKG Acoustics 7, 146
Peavey Electronics
Ram Broadcast Systems
Rane Corp.

Richmond Sound Design
Rocktron/RSP Technologies
Sescom
Spectra Sonics
Summit Audio
Symetrix
TC Electronic
TOA Electronics
Trident Audio USA
TTE
UREI, JBL Professional
Valley International
Vortex Communications Ltd.
Wheatstone Corp.
White Instruments Div. of C. Van R.
Yamaha/Professional Audio

FADERS, ATTENUATORS

Console replacement and automated faders; audio attenuator pads.
AMEK Systems & Controls
Canford Audio plc
D&R Electronica b.v.
GML George Massenburg Labs
Henry Engineering
IGM Communications
Intelix Corp.
McCurdy Telecommunication Products
Neve
NTP Elektronik
Penny & Giles
Ramko Research
Richmond Sound Design
Schafer World Communications Corp.
Shallco
Spectra Sonics
Vortex Communications Ltd.

HEADPHONES, HEADSETS

AKG Acoustics 146
AKG Akustische u. Kino-Geräte
Audio-Technica U.S.
Beyer Dynamic
Birns & Sawyer
Broadcast Electronics 17
Canford Audio plc
Cine 60
Clark Co., David
Clear-Com Intercom Systems ... 105
Countryman Associates
Drake Electronics Ltd., Philip 52
Dynatech Tatical Communication
EDCOR
Fostex Corp. of America 51
Hamaphot KG
Multidyne Electronics
Nady Systems
Numark Electronics
OpTex
R-Columbia Products Co.
Ram Broadcast Systems
ROH Products
RTS Systems/Telex Communications
Sennheiser Electronic Corp. 85
Setcom Corp.
Stanton Magnetics
Systems Wireless Ltd.
Target Tuning
Technical Projects
Television Equipment Associates
Telex Communications
Telfax Communications
TOA Electronics
Valcom Ltd.
VXI Corp.
Yamaha/Professional Audio

INTERCOMS

Aiphone Intercom Systems
Atlas/Soundolier

AVEC
AVS France
Bogen Communications
Brabury International
Canford Audio plc
Clark Co., David
Clear-Com Intercom Systems 105
Drake Electronics Ltd., Philip 52
Dukane Corp.
Heikki Malkki Ltd.
HM Electronics
Intelix Corp.
JNS Electronics
Lee Dan Communications
Marti Electronics
McCurdy Radio Industries
McMartin
Nady Systems
Professional Sound Corp.
R-Columbia Products Co.
Ram Broadcast Systems
ROH Products
ROOD Megatronics B.V.
RTS Systems/Telex Communications
Setcom Corp.
Societe Anonyme Des Techniques
Digitales Digitec S.A.
Studio Technologies
Swintek Enterprises
Systems Wireless Ltd.
Technical Projects
Telectro Systems Corp.
Television Engineering Corp.
Television Equipment Associates
Telex Communications
Telos Systems
TOA Electronics
Vega/Mark IV
Vortex Communications Ltd.
Ward-Beck Systems BC
Wheatstone Corp.

MIC ACCESSORIES

Windscreens; direct boxes; booms, stands
AKG Acoustics 146
API-Audio Products
Atlas/Soundolier
Audio Visual Assistance
Audio-Technica U.S.
Beyer Dynamic
Birns & Sawyer
Black Audio Devices
Bogen Communications
Broadcast Electronics 17
Bruel & Kjaer Instruments
Canford Audio plc
Carvin Corp.
Cine 60
Countryman Associates
Da-Lite Screen Co.
Dukane Corp.
Dynatech Tatical Communication
Electro-Voice
Gotham Audio Corp.
Heitz, Karl
Keith Monks Ltd.
OpTex
Peavey Electronics
Professional Sound Corp.
Ram Broadcast Systems
ROH Products
RTS Systems/Telex Communications
Schoeps Schalltechnik
Schoeps/Posthom Recordings
Seam-Tech
Sennheiser Electronic Corp. 85
Shure Brothers 153
Technical Projects
Telex Communications
Whirlwind

EDITORS, DIGITAL WORKSTATIONS

Hard disk recorders, software.
Adams-Smith
AGAP
AKG Acoustics 146
Allied Broadcast Equipment
Alpha Audio
AMS Industries
Antex Electronics
Ariel Corp.
Cipher Digital 109
Comprehensive Video Supply Corp.
CompuSonics Corp.
Computer Concepts Corp.
Concept Productions
Corporate Computer Systems Audio Products Div.
Dalanco Spray
Digital Audio Research
Digital Dynamics
Digital Support Group
Ediflex Systems
FOR.A Corp. of America 73
Fougerolle Audio
GENERIC Designs
Hybrid Arts

Audio Products

Color highlighting denotes advertisers and ad page numbers

MICROPHONES, HAND-HELD, STAND

AKG Acoustics 146
 AKG Akustische u. Kino-Geräte
 AMS Industries
 Audio-Technica U.S.
 Beyer Dynamic
 Birns & Sawyer
 Bogen Communications
Broadcast Electronics 17
 Bruel & Kjaer Instruments
 Canford Audio plc
 Carvin Corp.
 Cine 60
 Countryman Associates
Crown International 55
 Da-Lite Screen Co.
 Electro-Voice
Fostex Corp. of America 51
 Hamaphot KG
 Milab Microphones
 Numark Electronics
 OpTex
 Peavey Electronics
 Ram Broadcast Systems
Ramsa/Panasonic 9
 RTS Systems/Telex Communications
 Sanken Microphones/Audio Interviewal Design
 Schoeps Schalltechnik
 Schoeps/Posthom Recordings
Sennheiser Electronic Corp. 85
Shure Brothers 153
Sony Business & Professional Group 14-15, 128-129
 Swintek Enterprises
 Telex Communications
 TOA Electronics
 Vega/Mark IV
 Yamaha/Professional Audio

MICROPHONES, LAVALIER

AKG Acoustics 146
 AKG Akustische u. Kino-Geräte
 Audio-Technica U.S.
 Beyer Dynamic
 Bogen Communications
Broadcast Electronics 17
 Cine 60
 Countryman Associates
 Da-Lite Screen Co.
 Electro-Voice
 Hamaphot KG
 Micron Audio Products Ltd.
 OpTex
 Peavey Electronics
 R-Columbia Products Co.
 Ram Broadcast Systems
Ramsa/Panasonic 9
 Rapp Associates, Tram Microphones
 RTS Systems/Telex Communications
 Sanken Microphones/Audio Interviewal Design
 Schoeps/Posthom Recordings
Sennheiser Electronic Corp. 85
Shure Brothers 153
Sony Business & Professional Group 14-15, 128-129
 Swintek Enterprises
 Telex Communications
 TOA Electronics
 Vega/Mark IV

MICROPHONES, WIRELESS SYSTEMS

AKG Acoustics 146
 AKG Akustische u. Kino-Geräte
 Audio-Technica U.S.
 Beyer Dynamic
 Canford Audio plc

Comtek Communications Technology
 Countryman Associates
 Da-Lite Screen Co.
 EDCOR
 Electro-Voice
 HM Electronics
Lectrosonics 91
 Micron Audio Products Ltd.
 Nady Systems
 OpTex
 Peavey Electronics
 R-Columbia Products Co.
 Ram Broadcast Systems
 ROH Products
 RTS Systems/Telex Communications
 Samson Technologies Corp.
Sennheiser Electronic Corp. 85
Shure Brothers 153
Sony Business & Professional Group 14-15, 128-129
 Swintek Enterprises
 Systems Wireless Ltd.
 Telex Communications
 TOA Electronics
 Vega/Mark IV

MIXERS, ON-AIR RADIO/TV

AEQ-Aplicaciones Electronicas Quasar
 AMEK/TAC US Operations
 AMS Industries
 API-Audio Products
Arrakis Systems 93
ATI-Audio Technologies 165
 Audiotronics
 Barco-EMT
Broadcast Electronics 17
 Carvin Corp.
 Cellcast Remote Broadcast Studio
 Div. of Tri-Tech
 D&R Electronica
 DDA
Drake Electronics Ltd., Philip 52
 EELA Audio
 Hallikainen & Friends
 Harris Allied Broadcast Equipment
 Harrison by GLW
 IRP, A Knowles Div.
ITAME 75
 Kaitronics Corp.
Lectrosonics 91
 Logitek Electronic Systems
 LPB
 MBI Broadcast Systems Ltd.
 McCurdy Radio Industries
 McMartin
 Micro Controls
 Neve
 Numark Electronics
 Pacific Recorders & Eng. Corp.
 Pro-Bel Ltd.
 ProTech Audio Corp.
 Radio Systems
 Ram Broadcast Systems
 Ramko Research
 RTS Systems/Telex Communications
 Schafer World Communications Corp.
 Seem Audio
Shure Brothers 153
Sierra Automated Systems 104
 Societe Anonyme Des Techniques
 Digitales Digitec S.A.
 Solid State Logic
 Sonosax SA
 Soundcraft Electronics
 Soundtracs PLC
 Spectra Sonics
 Studer Revox America
 TASCAM/Teac Corp. of America
 Telex Communications
Ward-Beck Systems BC
 Wheatstone Corp.

MIXERS, PORTABLE, ENG, MIC

AEQ-Aplicaciones Electronicas Quasar
 Allen & Heath
 AMEK Systems & Controls
 API-Audio Products
 Ashly Audio
ATI-Audio Technologies 165
 Audio Developments Ltd.
 Audio-Technica U.S.
 Biamp Systems
 Canford Audio plc
 Carvin Corp.
 Comrex Corp.
 D&R Electronica
 Dukane Corp.
 EELA Audio
 Electro-Voice
Gentner Electronics Corp. 149
 Grass Valley Group
 Hallikainen & Friends
 Hamaphot KG
ITAME 75
JVC Professional Products Co. 21
 Kaitronics Corp.
 Logitek Electronic Systems
 MBI Broadcast Systems Ltd.
 MicroAudio
 Neve
 Numark Electronics
 OpTex
 Professional Sound Corp.
 ProTech Audio Corp.
 Ram Broadcast Systems
 Ramko Research
 Richmond Sound Design
 Schafer World Communications Corp.
 SECK
 Seem Audio
 SESCO
Shure Brothers 153
 Societe Anonyme Des Techniques
 Digitales Digitec S.A.
 Sonosax SA
 Soundcraft USA
 Soundtracs PLC
 Studer Revox America
 TASCAM/Teac Corp. of America
 Telfax Communications
 Unitronic
 US Audio
 Vidicraft
 Vortex Communications Ltd.
Ward-Beck Systems BC
 Wheatstone Corp.
 Yamaha/Professional Audio

MIXERS, PRODUCTION, RECORDING, ESAM

Allen & Heath
 AMEK Systems & Controls
 AMS Industries
 Analog Digital Synergy
 API-Audio Products
Arrakis Systems 93
 Ashly Audio
 Audio Developments Ltd.
 Barco-EMT
 Biamp Systems
 Canford Audio plc
 D&R Electronica
 DDA
Drake Electronics Ltd., Philip 52
 EDCOR
 Electro-Voice
ESE 169
 Focusrite Audio Eng. Ltd.
FORA Corp. of America 73
 Furman Sound
 Grass Valley Group
 Hamaphot KG

Harrison by GLW
 Henry Engineering
 MBI Broadcast Systems Ltd.
 Neotek Corp.
 Neve
 Numark Electronics
 Opamp Labs
 OpTex
 Otari Corp.
 Peavey Electronics
 Radio Systems
 Ramko Research
Ramsa/Panasonic 9
 Rane Corp.
 Samson Technologies Corp.
 Scantex Labs
 SECK
 Seem Audio
 SESCO
Shure Brothers 153
 Societe Anonyme Des Techniques
 Digitales Digitec S.A.
 Solid State Logic
 Sonosax SA
Sony Business & Professional Group 14-15, 128-129
 Soundcraft Electronics
 Soundmaster USA
 Soundtracs PLC
 Studer Revox America
 TASCAM/Teac Corp. of America
 TOA Electronics
 Trident Audio Developments
Ward-Beck Systems BC
 Wheatstone Corp.
 Yamaha/Professional Audio

PRE-AMPLIFIERS, MIC, PHONO

Allen Avionics
 API-Audio Products
Arrakis Systems 93
 Ashly Audio
ATI-Audio Technologies 165
 Audio Developments Ltd.
 Audiotronics
 AVS France
Benchmark Media Systems 108
 BFE AG
 Biamp Systems
 Bogen Communications
 Broadcast Devices
Bryston Vermont Ltd. 107
 Canford Audio plc
 CRL Systems-Circuit Research Labs
 D&R Electronica
 Discrete Technology Labs
 Dukane Corp.
 DYMA Engineering
 EDCOR
 FM Acoustics Ltd.
 Furman Sound
 GML George Massenburg Labs
 Harris Allied Broadcast Equipment
 Hit Design
 ITI Electronics
 Jensen Transformers
 JNS Electronics
Lectrosonics 91
 Logitek Electronic Systems
 McMartin
 Modular Audio Products/Modular Devices
 Multidyne Electronics
 NTP Elektronik
 Opamp Labs
 Pacific Recorders & Eng. Corp.
 ProTech Audio Corp.
 Radio Systems
 Ram Broadcast Systems
 Ramko Research
 Richmond Sound Design

Dolby SR improves the medium for your message.

TAPE RECORDERS

Dolby SR provides the performance attributed to digital systems while maintaining such analog virtues as economy, editing ease, and tape interchange.

CARTS

Along with their familiar ruggedness and all-around utility, carts with Dolby SR capture the full dynamics of all your source material, digital or analog.

1-INCH VTR'S

With Dolby SR, video can sound as good as it looks. Signal purity is maintained through the multiple tape generations necessary in today's post-production techniques.



DISCRETE STL'S AND RPU'S

Dolby SR improves headroom and lowers noise, while suppressing the effects of interference and fade.

TV STL AUDIO SUB-CARRIERS

With Dolby SR, there's no need to re-allocate subcarrier frequencies or replace existing equipment in order to deliver high quality audio to the transmitter.

SATELLITE AUDIO

Dolby SR improves analog channels without audible side effects yielding performance rivaling digital systems.

Listeners today expect better sound wherever they go — at home, at the movies, in the car. To keep up with their expectations, you need Dolby SR. Two channels, with the compact, easy-to-operate Dolby Model 363 (shown). Or up to 24 channels, with Dolby Laboratories' multitrack products.

Dolby SR dramatically reduces noise, increases headroom, and lowers distortion from initial production to final transmission. That means you can deliver your message today with the clarity you've been expecting from the technology of tomorrow.



SONY

The Instrument For Those Who Thought
They Could Only Imagine Perfection.
The BVP-370.



For a demonstration of the studio camera that can live up to your imagination, call 1-800-635-SONY.

SONY[®]

BROADCAST PRODUCTS

Audio Products

ROOD Megatronics B.V.
Schoeps/Posthum Recordings
Seem Audio
Secsom
Shure Brothers 153
Spectra Sonics
Stanton Magnetics
Studio Technologies
Summit Audio
Symetrix
TC Electronic
Telectro Systems Corp.
Valley International
Vortex Communications Ltd.
World Video

RECORDERS, CARTRIDGE

NAB; includes digital products emulating standard cart machines.

AMS Industries
Asaca/Shibasoku Corp. of America
Audi-Cord Corp.
Barco-EMT
Broadcast Automation
Broadcast Electronics 17
Canford Audio plc
Cartridge Technology Professional Recording Eqpt.
CompuSonics Corp.
Corporate Computer Systems Audio Products Div.
Fidelipac Corp.
Granite Telecom Corp.
Hall Electronics
International Tapetronics Corp.
MacroMedia Design
Management, The
Otari Corp.
Pacific Recorders & Eng. Corp.
Radio Systems
Ram Broadcast Systems
Ramko Research
Schafer World Communications Corp.
Sonifex Ltd.
Soundmaster USA
360 Systems
Wheatstone Corp.

RECORDERS, CASSETTE

Accurate Sound Corp.
Canford Audio plc
IMC/Akai
OpTex
Peavey Electronics
Ram Broadcast Systems
Sharp Electronics Corp. Professional Products Div.
Sony Business & Professional Group 14-15, 128-129
Studer Revox America
TASCAM/Teac Corp. of America
Telectro Systems Corp.
Tiffen Mfg. Corp.
Uher of America
Yamaha/Professional Audio

RECORDERS, DIGITAL

All formats
Apogee Electronics Corp.
Asaca/Shibasoku Corp. of America

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to:
BE Directory Editor, PO Box 12901, Overland Park, KS 66212.

Barco-EMT
Canford Audio plc
CompuSonics Corp.
Concept Productions
Fostex Corp. of America 51
Fougerolle Audio
Gotham Audio Corp.
IMC/Akai
Kudelski S.A.
MacroMedia Design
Management, The
Neve
Otari Corp.
Radio Systems
Ram Broadcast Systems
Ramsa/Panasonic 9
Sharp Electronics Corp. Professional Products Div.
Sony Business & Professional Group 14 15, 128-129
Soundmaster USA
Studer Revox America
TASCAM/Teac Corp. of America
360 Systems

RECORDERS, REEL, ANALOG

Accurate Sound Corp.
Broadcast Automation
Canford Audio plc
Fougerolle Audio
Funke & Associates
Kudelski S.A.
Lyrec Mfg. A/S
Otari Corp.
Ram Broadcast Systems
Rangertone Research
Societe Anonyme Des Techniques Digitales Digitec S.A.
SONDOR Willy Hungerbuhler AG
Sony Business & Professional Group 14-15, 128-129
Studer Revox America
TASCAM/Teac Corp. of America
Uher of America

RECORDING HEADS

Auteri Associates
International Electro-Magnetics
JRF Magnetic Sciences
Northern Magnetics
Nortronics Co. c/o Applied Magnetics
Otari Corp.
Saki Magnetics
Studer Revox America

RECORDING TAPE

Agfa Corp.
Ampex Recording Media Corp. 60
Audiopak
Canford Audio plc
Cine 60
Coarc/Video
Fidelipac Corp.
International Tapetronics Corp.
Polyline Corp.
Ramsa/Panasonic 9
Sony Magnetic Products Co.
3M Professional A/V & Specialty Products
Western Int'l. Communications Ltd.
Aristocart Div.
Zonal Ltd.

ROUTING SWITCHERS

Audio signal distribution; includes A/V combination systems, excludes video-only.
Adrienne Electronics Corp.

Color highlighting denotes advertisers and ad page numbers

API-Audio Products
Arrakis Systems 93
Asaca/Shibasoku Corp. of America
ATI-Audio Technologies 165
AutoPatch/ XN Technologies 10
AVS France
Barco-EMT
Broadcast Devices
BTS 111
Canford Audio plc
Central Dynamics
Channellmatic
Computer Concepts Corp.
Cox Associates Ltd.
Datatek Corp 69
Di-Tech IBC
DKW Systems
Drake Electronics Ltd., Philip 52
DYNAIR Electronics 35
ETI Systems
FSR
Gentner Electronics Corp. 149
Ghielmetti
Grass Valley Group
Harrison by GLW
HEDCO 43
IGM Communications
IMC/Akai
Intelix Corp.
International Tapetronics Corp.
JNS Electronics
Key Video Ltd.
Laird Telemedia
Leitch Video 87
Logitek Electronic Systems
MBI Broadcast Systems Ltd.
McCurdy Radio Industries
Monroe Electronics
Multidyne Electronics
NTP Elektronik
NVision
Omicron Video 100
Opamp Labs
Pacific Recorders & Eng. Corp.
Patch Bay Designation
Pro-Bel Ltd.
ProTech Audio Corp.
Ram Broadcast Systems
Ramko Research
Richmond Sound Design
ROH Products
ROOD Megatronics B.V.
Seem Audio
Shintron Co.
Sierra Automated Systems 104
Sigma Electronics
Skotel Corp.
Societe Anonyme Des Techniques Digitales Digitec S.A.
Sony Business & Professional Group 14-15, 128-129
Target Technology
Telfax Communications
360 Systems
Titus Technological Labs
Utah Scientific
Videoquip Research Ltd.
Videotek
Vortex Communications Ltd.
Ward-Beck Systems BC
Whirlwind

Canford Audio plc
Carvin Corp.
Clear-Com Intercom Systems 105
Dukane Corp.
Electro-Voice
Fostex Corp. of America 51
Gauss
JBL Professional
Keith Monks Ltd.
KINTEK
Klark-Teknik
Nady Systems
Numark Electronics
Peavey Electronics
Quest Marketing
Ram Broadcast Systems
Ramsa/Panasonic 9
Renkus-Heinz
ROH Products
Samson Technologies Corp.
Spectra Sonics
Target Technology
Telectro Systems Corp.
Tiffen Mfg. Corp.
TOA Electronics
Turbosound Ltd.
UREI, JBL Professional
Westlake Audio Pro Products Group
Wohler Technologies 169
Yamaha/Professional Audio

STEREO CORRECTORS, SYNTHESIZERS

Includes audio phase correction systems.
AKG Acoustics 146
Broadcast Devices
Drake Electronics Ltd., Philip 52
FM Systems
Harris Allied Broadcast Equipment
JNS Electronics
KINTEK
Matthey Electronics
Modulation Sciences
Orban Associates/AKG Acoustics 7, 146
Ram Broadcast Systems
Studio Technologies
Titus Technological Labs

TELEPHONE BANDWIDTH EXTENDERS

Canford Audio plc
Comrex Corp.
Gentner Electronics Corp. 149
ITAME 75
Kahn Communications
McCurdy Telecommunication Products
Multidyne Electronics
Ram Broadcast Systems
ROOD Megatronics B.V.
Telfax Communications
Titus Technological Labs

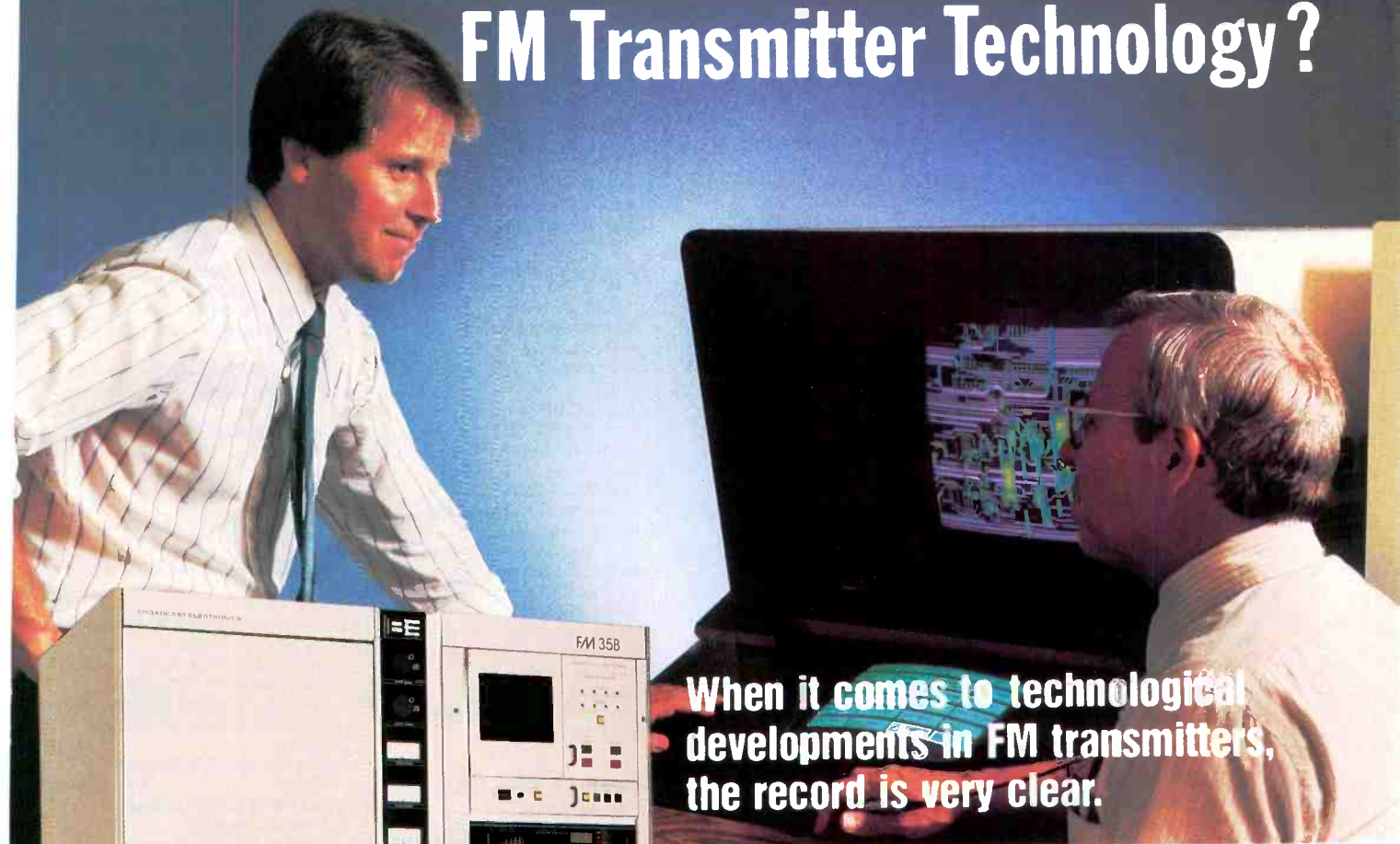
TELEPHONE HYBRIDS

AEQ-Aplicaciones Electronicas Quasar
AVEC
Canford Audio plc
Clear-Com Intercom Systems 105
Comrex Corp.
D&R Electronica
EELA Audio
Gentner Electronics Corp. 149
Henry Engineering
ITAME 75
ITI Electronics
McCurdy Radio Industries
McCurdy Telecommunication Products
Multidyne Electronics
NTP Elektronik
Ram Broadcast Systems

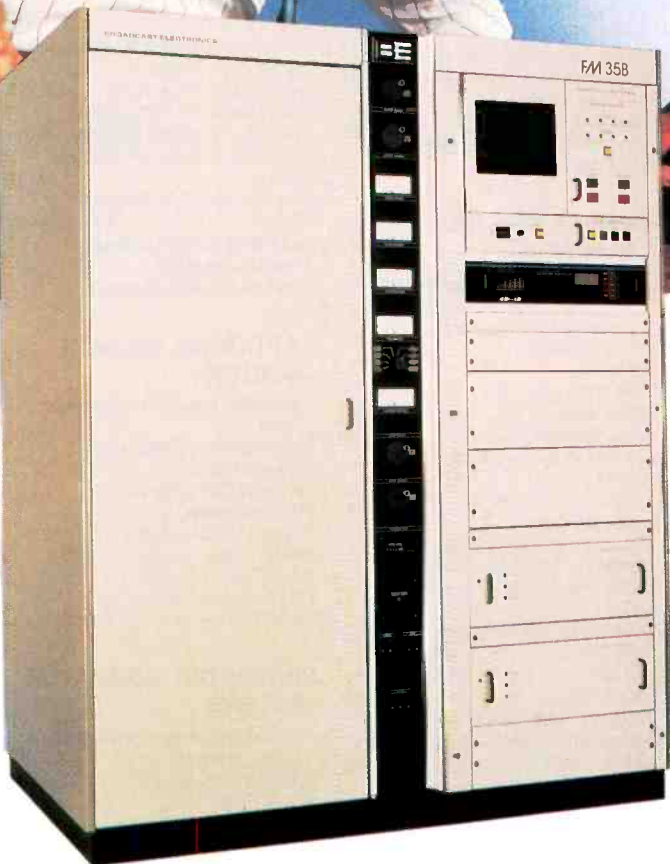
SPEAKERS, ENCLOSURES

Includes integrated amplifier-speaker units.
ADA Signal Processors
AKG Akustische u. Kino-Gerate
Atlas/Soundolier
Audio-Technica U.S.
Auernheimer Labs & Co.
Auratone Corp.
AVS France
Bogen Communications

Who's Setting The Pace For FM Transmitter Technology?



When it comes to technological developments in FM transmitters, the record is very clear.



Patented Innovations

Broadcast Electronics has the largest and most skilled engineering staff dedicated to the radio broadcast equipment industry. Significant FM transmitter design patents awarded to B.E.:

- Folded Half-wave Output Cavity, patented 1982.
- Internal Second Harmonic Suppressor, patented 1982.
- Broadband Input Impedance Matching Circuit, patented 1985.

Broadcast Electronics:

- First** to introduce a Proportional VSWR Foldback System.
 - First** to introduce "PWM Automatic Power Control" with "Soft Start".
 - First** to offer a built-in synchronous AM test port.
 - First** to design a single tube high power 30kW FM Transmitter.
 - First** to introduce a single tube 10kW FM Transmitter with a 4CX7500A tube.
 - First** to introduce a single tube 35kW FM Transmitter with a 4CX3500A tube.
 - First** to introduce a Microprocessor Video Diagnostic System.
 - First** to offer built-in, PC based, transmitter remote control
 - First** to offer a standard synchronous FM booster option.
- And**, Broadcast Electronics again sets the world standard for FM Exciters with the new FX 50 which stands alone in audio performance with 93 dB S/N and .003% THD and IMD.

State of the Art Leadership

Stereo technology, only B.E. designs AM, FM and TV stereo generators.

Broadcast Electronics is the only major FM transmitter manufacturer who designs and builds its own solid state intermediate power amplifier (IPA).

All products are backed by B.E.'s 24 hour parts and service and a strict quality assurance program.

The result of this commitment to state-of-the-art innovation is a complete line of RF products, designed to provide you with years of reliable service. Certainly it's clear who is setting the standards for FM transmitter technology!

Circle (9) on Reply Card

BE® **BROADCAST
ELECTRONICS INC.**

4100 N. 24th ST., P.O. BOX 3606, QUINCY, IL 62305, (217) 224-9600, TELEX: 250142, FAX: (217) 224-9607

Audio & Video Products

Color highlighting denotes advertisers and ad page numbers

Reach Electronics
ROH Products
Seem Audio
Sonifex Ltd.
Telfax Communications
Telos Systems

TEST, ALIGNMENT RECORDS, TAPES, CDs

Asaca/Shibasoku Corp. of America
Audio Control Industrial
Canford Audio plc
Delta Electronics
Geneva Group of Companies
Pro-Bel Ltd.
Schmid Telecommunication 175
Sennheiser Electronic Corp. 85
Sonifex Ltd.
Sound Technology
Standard Tape Lab 184
Tentel
Titus Technological Labs

TRANSFORMERS, MATCHING, SPLITTING

ATI-Audio Technologies 165
Audio-Technica U.S.
Bi-Tronics
Bogen Communications
Canford Audio plc
Carver Professional
Deerfield Lab
Dukane Corp.
EDCOR
FSR
ITI Electronics
Jensen Transformers
McCurdy Telecommunication Products
Microtran Co.
Modular Audio Products/Modular
Devices
Neutrik USA
North Hills Electronics 44
Opamp Labs
ProTech Audio Corp.
Sescom
Spectra Sonics
Telectro Systems Corp.
TTE
Valley International
Whirlwind

TURNTABLES & CARTRIDGES, PHONO

Barco-EMT
Broadcast Electronics 17
Canford Audio plc
EELA Audio
Gotham Audio Corp.
Numark Electronics
Ram Broadcast Systems
Shure Brothers 153
Stanton Magnetics

Video Products

AMPLIFIERS, DISTRIBUTION

Video, Pulse, Clamp, EQ
Acron Ltd.
Advanced Video Associates
Allen Avionics
Antex Electronics
AutoPatch/ XN Technologies 10
Avitel Electronics Corp.
AVS France
BPI/Porta-Pattern

Brabury International
BTS 111
CCTV Corp.
Central Dynamics
Channematic
Datatek Corp. 69
Di-Tech IBC
Digital Processing Systems
Drake Electronics Ltd., Philip 52
DYMA Engineering
DYNAIR Electronics 35
Electrocraft Consultants Ltd.
ESE 169
FM Systems
FOR.A Corp. of America 73
FSR
Grass Valley Group
HEDCO 43
I-Den Videotronics Corp.
Icon Electronics Corp.
Image Video Ltd.
JNS Electronics
Laird Telemedia
Leitch Video 87
Mobile-Cam Products
MTC/Mycomp Technologies Corp.
Multidyne Electronics
Omicron Video 100
Opamp Labs
OpTex
Panasonic Broadcast Systems 64-65
PESA America
Pro-Bel Ltd.
QSI Systems
Ram Broadcast Systems
Shintron Co.
Sierra Video Systems 101
Sigma Electronics
Solutec (H.A.)
Tech Electronics
Technology Resource Group
Thomson Video Equipment
TRW LSI Products
Utah Scientific
VGV
Video Accessory Corp.
Videotek
Videotek
Vortex Communications Ltd.

ANIMATION EQUIPMENT

Film, digital video.
Bencher
Birns & Sawyer
Blue Feather Co.
Chyron Corp.
Computer Graphics Lab
Digital Arts
Dubner Computer Systems
Dynatech ColorGraphics
Electronic Graphics
Getris Images
Grass Valley Group
Hotronic
Interactive Motion Control
Kavouras
Lazerus
MPB Technologies
Neilson-Hordell Ltd.
Pinnacle Systems
Pioneer Technology Corp.
Quantel
Roberts Film Services, Mark
Stardent Computer
TDI America
United Media
Videssence

CAMCORDERS

1-piece camera recorder products;
includes still video acquisition
products.

Amplex Corp. 112
BTS 111
Ikegami Electronics (USA) 4-5
OpTex
Panasonic Broadcast Systems 64-65
Sharp Electronics Corp. Professional
Products Div.
Sony Business & Professional
Group 14-15, 128-129
Teledac
Thomson Broadcast
Thomson Video Equipment

CAMERA CABLES

Multicore, triaxial.
Arcor Broadcast Products
AVS France
Bi-Tronics
C.A.E.
Canare Cable 143
Canford Audio plc
Chester Cable/Alcatel n.a.
Cine 60
Clark Wire & Cable
Comprehensive Video Supply Corp.
Connectronics Corp.
Hitachi Denshi America 3
Marshall Electronics
Mohawk Wire & Cable Corp. 109
NEK Cables Ltd.
Nemal Electronics International
Panasonic Broadcast Systems 64-65
Seam-Tech
Telemetrics 45
Thomson Video Equipment
VDO-PAK

CAMERA REMOTE CONTROLS

For remote camera adjustments,
lens control; may include camera
positioning, CCU capability.
A.F. Associates 97
AMX Corp.
Birns & Sawyer
CCTV Corp.
Cohu, Electronics Div.
Concept W Systems/CAMPLEX
Fujinon
Hitachi Denshi America 3
Innovision Optics
JVC Professional Products Co. 21
Matthews Studio Equipment
Neilson-Hordell Ltd.
OpTex
Roberts Film Services, Mark
Sony Business & Professional
Group 14-15, 128-129
Telemetrics 45
Thomson Video Equipment
Vicon Industries Professional Products
Vinten Broadcast 63

CAMERA STABILIZERS

Specialized lens systems and
camera support products to reduce
image vibration, operator or mount-
ing instability.
Carter Cartop, Harry
Miller Fluid Heads (USA)
O'Connor Engineering
OpTex
Peter Lisand
Technology Resource Group

CAMERA IMAGING DEVICES

Tubes, CCDs.
BURLE INDUSTRIES 137
CCTV Corp.
EEV 71

Hitachi Denshi America 3
Philips Components
Richardson Electronics Ltd.
Teltron
Thomson Tubes Electroniques ... 53

CAMERAS, ENG, EFP

Portable; may include docking
cameras; excludes camcorder sys-
tems.
Amplex Corp. 112
BTS 111
BURLE INDUSTRIES 137
Hitachi Denshi America 3
Ikegami Electronics (USA) 4-5
JVC Professional Products Co. 21
OpTex
Panasonic Broadcast Systems 64-65
Panasonic Industrial A/V Systems
Group 46-47
Sony Business & Professional
Group 14-15, 128-129
Telemetrics 45
Thomson Broadcast
Thomson Video Equipment

CAMERAS, STUDIO TV

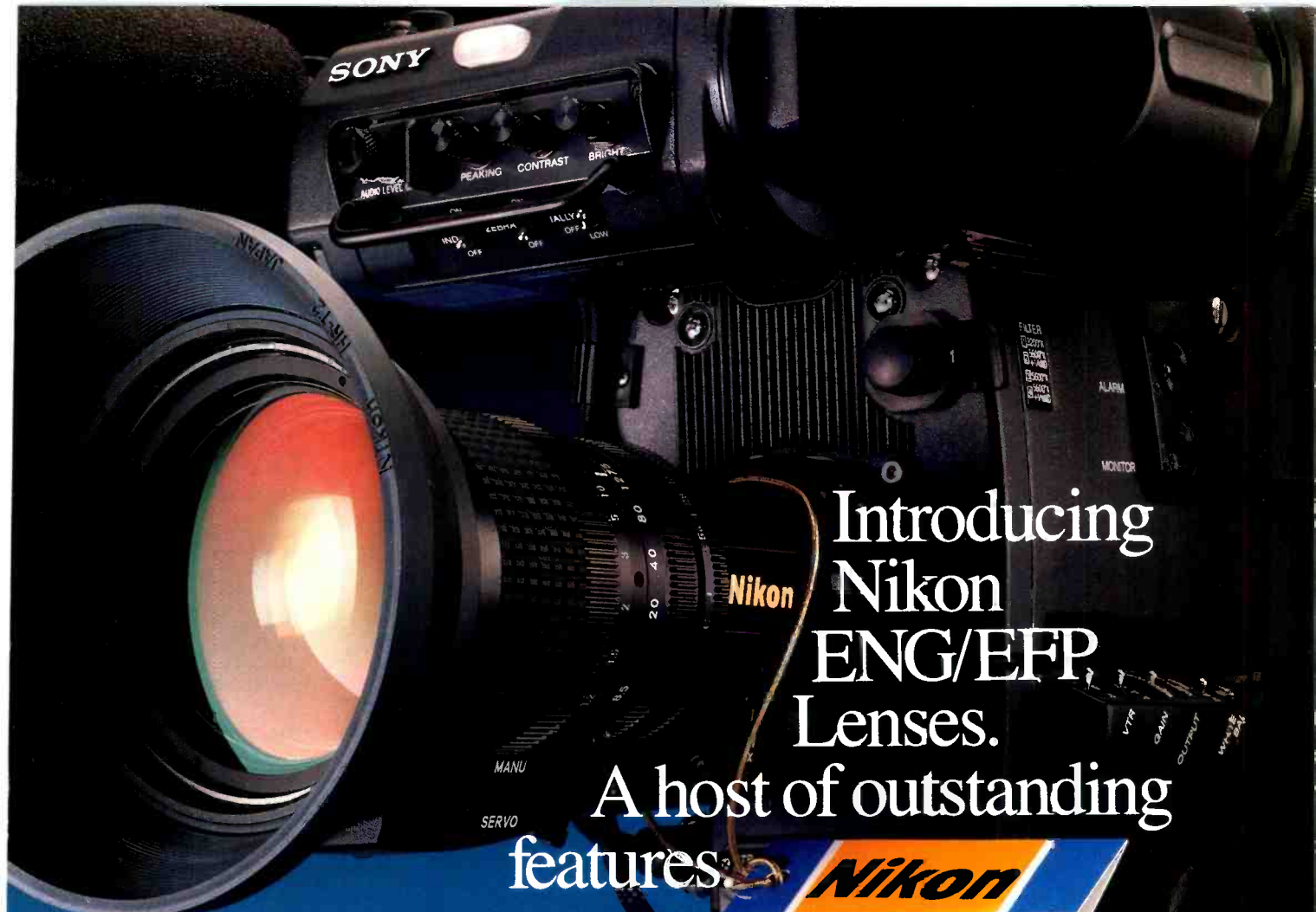
BTS 111
GE Support Services/ RCA Broadcast
Hitachi Denshi America 3
Ikegami Electronics (USA) 4-5
JVC Professional Products Co. 21
Panasonic Broadcast Systems 64-65
Panasonic Industrial A/V Systems
Group 46-47
Sony Business & Professional
Group 14-15, 128-129
Technology Resource Group
Thomson Broadcast
Thomson Video Equipment

CAPTIONING, VBI DATA SYSTEMS

Includes Teletext, Videotext equip-
ment.
Aston Electronic Designs Ltd.
Colorado Video
Computer Prompting Corp.
EEG Enterprises
Jasmin Electronics Ltd.
Norpak Corp.
Skotel Corp.
VG Electronics Ltd.
Video Data Systems

CHARACTER GENERATOR, TITLERS

Video titling systems; excludes time
code character insertion.
Abekas Video Systems 23
Amplex Corp. 112
Aston from Paltex Imaging Systems
AVS Broadcast Ltd.
AVS France
BTS 111
CCTV Corp.
Chyron Corp.
Comprehensive Video Supply Corp.
Croma Research Ltd.
Dubner Computer Systems
ESE 169
Evertz Microsystems Ltd.
FOR.A Corp. of America 73
Getris Images
Grass Valley Group
Hamaphot KG
Jasmin Electronics Ltd.
Laird Telemedia
Lazerus



Introducing Nikon ENG/EFP Lenses.

A host of outstanding features.

And one you'll probably never use.



Selecting an ENG/EFP lens for your $\frac{2}{3}$ " CCD camera is a creative decision. It should be lightweight, responsive and zoom smooth as silk at any speed. Its design should utilize Extra-low Dispersion Glass to minimize chromatic aberration. It should include an anti-reflection coating for improved spectrum transmission ratio. And it should have an advanced design that improves corner resolution and produces a high, flat MTF curve. In short, it should be a Nikon.

But selecting an ENG/EFP lens is also a business decision. And on that score we provide something almost as compelling as Nikon quality — our unique Express Loaner Service. Simply register the Warranty, then in the unlikely event your lens needs service we'll get you a loaner lens overnight. All your investment in equipment and crews is more secure than ever before.

A service like this is remarkable in itself. But not quite as remarkable as our lenses.

As with all Nikon products, our new ENG/EFP lenses have all our renowned quality, tradition and technology built right in. Our growing line is also fully accessorized, including adapters that allow the use of your entire arsenal of Nikkor 35mm SLR camera lenses for special effects.

To find out more, call or write for our complete brochure: Nikon Electronic Imaging, Dept. D1, 101 Cleveland Avenue, Bayshore, NY 11706, (516) 222-0200 Ext. 324. Or call 1-800-NIKON-US (645-6687) for the dealer nearest you.

Nikon
ELECTRONIC IMAGING

© 1990 Nikon Inc.

Circle (10) on Reply Card

Video Products

MFJ Enterprises
MPB Technologies
Multidyne Electronics
Multiplex Technology
Nexus Engineering Corp.
OpTex
PESA America
Polar Video Ltd.
QSI Systems
Quanta Corp.
Quantel
Ram Broadcast Systems
Ryley Communications
Sigmacon Industries
Teledac
VG Electronics Ltd.
Video Data Systems
Vortex Communications Ltd.
World Video

COLOR CORRECTION EQUIPMENT

Providing color balance, component level adjustments, color enhancement.

Allen Avionics
Broadcast Systems Design
Croma Research Ltd.
Dynatech ColorGraphics
Electrocraft Consultants Ltd.
Faroudja Labs
FOR.A Corp. of America 73
Grunder & Associates, James
Intelvideo
Laird Telemedia
MFJ Enterprises
Quantel
Rank Cintel
Rank Cintel-Unimedia
Thomson Broadcast
Thomson Video Equipment
VGV
Vidicraft

DELAYS, PULSE/VIDEO

Includes simple delay-lines and packaged delay systems.

Allen Avionics
Avitel Electronics Corp.
Brabury International
Broadcast Video Systems 167
Di-Tech IBC
Drake Electronics Ltd., Philip 52
DYMA Engineering
Eventide
Intelvideo
Leitch Video 87
Matthey Electronics
Omicron Video 100
Pro-Bel Ltd.
RF Technology
Shintron Co.
Sigma Electronics
Television Equipment Associates
Vortex Communications Ltd.

DIGITAL EFFECTS SYSTEMS

Abekas Video Systems 23
AKG Akustische u. Kino-Geräte
Alta Group
Ampex Corp. 112
CEL Electronics 25
Chyron Corp.
Digital Support Group
ECHOlab
Electronic Graphics
FOR.A Corp. of America 73
Fougerolle Video
Grass Valley Group

Hotronic
I-Den Videotronics Corp.
Imaging Systems
Jazz Systems Electrohome
Lazerus
Leitch Video 87
Microtime
MPB Technologies
Nova Systems 125
Numark Electronics
Pinnacle Systems
Prime Image
Processor Sciences
Quantel
Sony Business & Professional Group 14-15, 128-129
Thomson Video Equipment
Videoplex
Vistek Electronics Ltd.

DUPLICATORS, VIDEO

Cavendish Co., Dwight
Hamaphot KG
JVC Professional Products Co. 21
Matco Mfg. & Test Co. 98
Panasonic Broadcast Systems 64-65
Recortec
Sharp Electronics/Professional Products
Tech Electronics

EDITING CONTROLLERS

Includes cuts-only, A/B roll, large scale on-line, off-line; ATR and transport synchronizer (not frame synchronizer) equipment.

Abekas Video Systems 23
Adams-Smith
ADX Systems
Ampex Corp. 112
Amtel Systems
Audio Kinetics UK Ltd.
BASYS
BHP
BTS 111
CEL Electronics 25
Channelmatic
Chyron Corp.
Cipher Digital 109
CMX
Comprehensive Video Supply Corp.
Convergence Editing/Paltex Int'l
CV Technologies
Ediflex Systems
Editing Machines Corp.
Ensemble Designs
FOR.A Corp. of America 73
Grass Valley Group
Hamaphot KG
JVC Professional Products Co. 21
M&R Data Services
NEC America Broadcast Equipment
NTSC Productions
OpTex
Paltex Editing Systems
Panasonic Broadcast Systems 64-65
Panasonic Industrial A/V Systems Group 46-47
Quantel
Sigmacon Industries
Sony Business & Professional Group 14-15, 128-129
Time Logic
TimeLine
United Media
Vac Systems Corp.
Videomedia

ENCODERS, DECODERS

Scan conversion; component-to-composite, composite-to-com-

ponent; computer-to-video.

Accom
Acron Ltd.
Allen Avionics
Asaca/Shibasoku Corp. of America
BFE AG
BPI/Porta-Pattern
Brabury International
Broadcast Systems Design
Broadcast Video Systems 167
BTS 111
CEL Electronics 25
Central Dynamics
Cox Associates Ltd.
Croma Research Ltd.
Electrocraft Consultants Ltd.
Faroudja Labs
FOR.A Corp. of America 73
Fougerolle Video
Grunder & Associates, James
Icon Electronics Corp.
Ikegami Electronics (USA) 4-5
Intelvideo
Jasmin Electronics Ltd.
Kryptocom
Laird Telemedia
Leitch Video 87
Magni Systems 79
Omicron Video 100
Optical Electronics
Polar Video Ltd.
RGB Spectrum
Shintron Co.
Sierra Video Systems 101
Sigma Electronics
System Video
Thomson Video Equipment
VGV
Vistek Electronics Ltd.
Vortex Communications Ltd.

FILM CAMERAS/EDITORS

Includes motion picture film cameras and editing equipment.

Arriflex Corp.
Birns & Sawyer
CMX
Ediflex Systems
J&R Film
Mitchell Camera Corp.
MPB Technologies
Neumade Products Corp.
OpTex
Pioneer Technology Corp.
Roberts Film Services, Mark
Steenbeck
Time Logic

FILTERS, OPTICAL

Includes visual effect, ND illumination level compensation and color correction.

Birns & Sawyer
Hamaphot KG
Lee Filters Ltd.
OpTex
The Great American Market
Tiffen Mfg. Corp.

FORMAT TRANSLATORS

For inter-format conversions among video component types.

Avitel Electronics Corp.
Brabury International
Broadcast Systems Design
Broadcast Video Systems 167
Cox Associates Ltd.
Digital Processing Systems
I-Den Videotronics Corp.
Nova Systems 125
Omicron Video 100

Panasonic Broadcast Systems 64-65
Shintron Co.
Sierra Video Systems 101
Vistek Electronics Ltd.

GENERATORS, SAFE AREA/SOURCE ID

Asaca/Shibasoku Corp. of America
AVS France
Boland Communications
Broadcast Video Systems 167
Cox Associates Ltd.
Digital Processing Systems
Gray Engineering Labs 107
Icon Electronics Corp.
Leitch Video 87
Magni Systems 79
Multidyne Electronics
OpTex
Polar Video Ltd.
QSI Systems
Queue Systems
Rohde & Schwarz 159
Sigma Electronics
Target Technology
Video Data Systems
Videolex Research Ltd.
Vortex Communications Ltd.

GRAPHICS SYSTEMS

Dedicated and PC-based products; software packages

Accu-Weather
Advanced Designs Corp.
Artel Communications Corp.
Aston Electronic Designs Ltd.
Aydin Controls
Chyron Corp.
Commodore Business Machines
Comprehensive Video Supply Corp.
Computer Graphics Lab
Digital Arts
Dubner Computer Systems
Dynatech ColorGraphics
Electronic Graphics
Getris Images
Imaging Systems
Kavouras
Laird Telemedia
Lazerus
Media Computing
MPB Technologies
Pinnacle Systems
Processor Sciences
Quantel
Recortec
Stardent Computer
Thomson Video Equipment
Time Arts
Video Data Systems

HARDCOPY PRINTERS, VIDEO

Hitachi Denshi America 3
Mitsubishi Electronics America Pro Electronics Div.
Nikon Photo/Electronic Imaging Products 19
Sharp Electronics Corp. Professional Products Div.
Sony/Still Image Systems

HDTV, ATV EQUIPMENT

Forming images of more than 1,000-line structure; interlace, sequential scans; excludes computer CAD and non-video products.

A.F. Associates 97
Adrienne Electronics Corp.

No Camcorder Compares...



... In size and weight

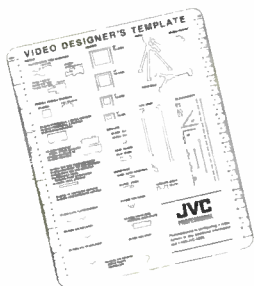
JVC's new X-1 is the smallest, lightest professional 3-CCD camcorder in the world.

... In quality and performance

The X-1 combines rugged JVC construction with features not found on any other camcorder.

... In cost

The X-1 is less expensive, and the S-VHS format makes it more economical to use.



Measure the difference yourself. Call JVC at 1-800-JVC-5825 to find out why people are calling the X-1 "The Exciting One" ... and receive a **free** Video Designer's Template.

Circle (11) on Reply Card

JVC[®]
PROFESSIONAL

Video Products

Asaca/Shibasoku Corp. of America
 Aston Electronic Designs Ltd.
 Avitel Electronics Corp.
 Barco
 BTS 111
 Chyron Corp.
 Di-Tech IBC
 Electronic Visuals Ltd.
 Faroudja Labs
 FOR.A Corp. of America 73
 Fujinon
 Grass Valley Group
 Hitachi Denshi America 3
 Ikegami Electronics (USA) 4-5
 Kaitronics Corp.
 Magni Systems 79
 Melford Electronics Ltd.
 NVision
 Omicron Video 100
 Opamp Labs
 Pro-Bel Ltd.
 Quantel
 Rank Cintel
 Rank Cintel-Unimedia
 Shintron Co.
 Sigma Electronics
 Snell & Wilcox 94
 Sony Business & Professional
 Group 14-15, 128-129
 Tektronix 119, 171, 172
 Thomson Broadcast
 Thomson Video Equipment

KEYERS

DSK, chroma, linear, luminance,
 compositing
 Aston from Paltex Imaging Systems
 Automation Associates
 AVS France
 Beaveronics
 Broadcast Video Systems 167
 Central Dynamics
 Cox Associates Ltd.
 Florical Systems
 Getris Images
 Graham-Patten Systems
 Imaging Systems
 Omicron Video 100
 OpTex
 Paltex Editing Systems
 Polar Video Ltd.
 Sierra Video Systems 101
 Thomson Video Equipment
 ULTIMATTE Corp.
 Videotek
 Vistek Electronics Ltd.
 Vortex Communications Ltd.

LAMPS

Light sources for telecine projectors,
 studio lighting equipment.
 Apollo Audio Visual/Lighting
 Birns & Sawyer
 Cine 60
 Gray Supply Co.
 Lamp Technology
 Lumitrol
 Mole-Richardson Co.
 Nelson Sales Corp., L.E.
 Neumade Products Corp.
 OpTex
 Packaged Lighting Systems

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to:
BE Directory Editor, PO Box 12901, Overland Park, KS 66212.

Philips Lighting
 RADMAR
 Snell Associates, George R.
 Strand Lighting

LENS SYSTEMS

Fixed and zoom units for video
 cameras, including adapters, ex-
 tenders.
 Birns & Sawyer
 Buhl Optical Co.
 Canon USA Broadcast Equipment Div.
 CCTV Corp.
 Century Precision Optics
 Film/Video Equipment Service Co.
 Fujinon
 Hamaphot KG
 Innovision Optics
 Neumade Products Corp.
 Nikon Photo/Electronic Imaging
 Products 19
 OpTex
 Peter Lisand
 Tamron Industries
 Tiffen Mfg. Corp.
 VMI-Visual Methods

LIGHTING CONSOLES, DIMMERS

Includes dimmer units and control
 systems.
 CAE
 Celco
 Crouse-Hinds CAM-LOK Products
 Electronics Diversified
 Lee Colortran
 Lumitrol
 Mole-Richardson Co.
 Omni Q
 OpTex
 Packaged Lighting Systems
 Peavey Electronics
 Strand Lighting
 The Great American Market
 Threatre Vision
 Union Connector Co.
 Videssence

LIGHTING INSTRUMENTS, KITS

Arriflex Corp.
 Birns & Sawyer
 Brabury International
 Broadcast Marketing International
 CAE
 Celco
 Cine 60
 Cool-Lux Lighting Industries
 Dedotec USA
 Frezzolini Electronics
 Hamaphot KG
 Innovision Optics
 Lee Colortran
 Lee Filters Ltd.
 Lowel-Light Mfg.
 LTM Corp. of America
 Lumitrol
 Matthews Studio Equipment
 Mole-Richardson Co.
 OpTex
 Packaged Lighting Systems
 Paco Electronics USA
 PERROTT Engineering Labs
 Sachtler AG
 Sachtler Corp. of America
 Strand Lighting
 The Great American Market
 Threatre Vision
 VDO-PAK
 Videssence

Color highlighting denotes advertisers and ad page numbers

MONITORS, MONO, COLOR

Aiphone Intercom Systems
 Asaca/Shibasoku Corp. of America
 Aydin Controls
 Barco
 Brabury International
 BURLE INDUSTRIES 137
 CCTV Corp.
 Conrac Display Products Group
 Cromma Research Ltd.
 Delcom USA
 Dotronix
 Electronic Visuals Ltd.
 Hitachi Denshi America 3
 Hoodman Corp.
 Ikegami Electronics (USA) 4-5
 JVC Professional Products Co. 21
 Melford Electronics Ltd.
 MicroTouch Systems
 Mitsubishi Electronics America Pro
 Electronics Div.
 Panasonic Broadcast Systems 64-65
 Panasonic Industrial AV Systems
 Group 46-47
 Recortec
 Sharp Electronics Corp. Professional
 Products Div.
 Sony Business & Professional
 Group 14-15, 128-129
 Video Display Corp.
 Videoplex
 Videotek
 Vistek Electronics Ltd.
 World Video

NOISE REDUCTION SYSTEMS

A.F. Associates 97
 Accom
 Allen Avionics
 BTS 111
 CEL Electronics 25
 Control Concepts Corp. 42
 Deerfield Lab
 Digital Processing Systems
 Electrocraft Consultants Ltd.
 FM Systems
 I-Den Videotronics Corp.
 Industrial Acoustics Co.
 North Hills Electronics 44
 Nova Systems 125
 Optical Electronics
 Ram Broadcast Systems
 Rank Cintel
 Rank Cintel-Unimedia
 Transtector Systems
 Video Accessory Corp.

PAN/TILT HEADS, CONTROLS

Including automated camera
 positioning products.
 Arriflex Corp.
 BURLE INDUSTRIES 137
 Canon USA Broadcast Equipment Div.
 CCTV Corp.
 Davis & Sanford Co.
 Fujinon
 Heitz, Karl
 Innovision Optics
 Matthews Studio Equipment
 Miller Fluid Heads (USA)
 Mitchell Camera Corp.
 Mobile-Cam Products
 Neilson-Hordell Ltd.
 O'Connor Engineering
 Penny & Giles
 Precision Specialties
 Radamec EPO Ltd.
 Roberts Film Services, Mark

Sachtler AG
 Sachtler Corp. of America
 Telemetrics 45
 TSM
 ULTIMATTE Corp.
 Vicon Industries Professional Products
 Vinten Broadcast 63
 Will-Burt Co., The

PEDESTALS, TRIPODS, DOLLIES

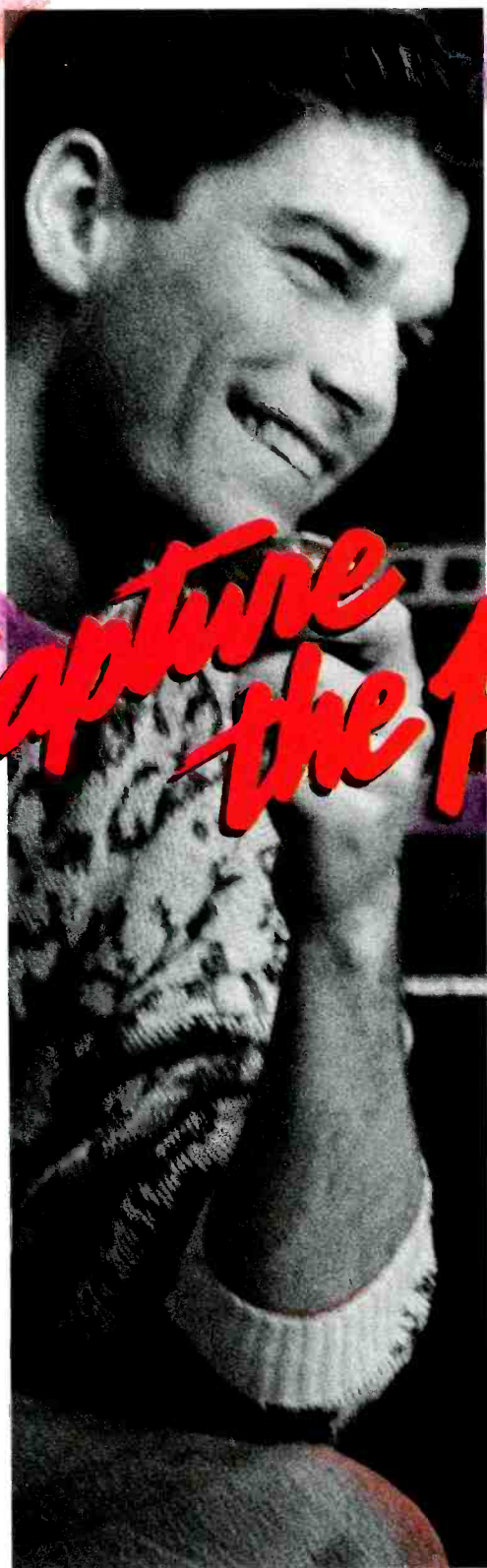
Including automated camera sup-
 port products.
 Arriflex Corp.
 Bencher
 Birns & Sawyer
 Bogen Photo Corp.
 Broadcast Microwave Services
 Canon USA Broadcast Equipment Div.
 Davis & Sanford Co.
 Heitz, Karl
 Matthews Studio Equipment
 Miller Fluid Heads (USA)
 Mitchell Camera Corp.
 Neilson-Hordell Ltd.
 O'Connor Engineering
 OpTex
 Panther Corp. of America
 Peter Lisand
 Precision Specialties
 Radamec EPO Ltd.
 Sachtler AG
 Sachtler Corp. of America
 Technology Resource Group
 Telemetrics 45
 TSM
 Velbon International Corp.
 Vinten Broadcast 63

PRODUCTION SYSTEMS, INTEGRATED

May include functions of time base
 correction, switching, effects,
 graphics.
 FOR.A Corp. of America 73
 Getris Images
 Grass Valley Group
 MPB Technologies
 Pro-Bel Ltd.
 Quantel
 Thomson Video Equipment
 Utah Scientific
 Vistek Electronics Ltd.

PROJECTORS, VIDEO

Large screen systems using CRT,
 LCD light sources.
 Barco
 Buhl Optical Co.
 Delcom USA
 EEV 71
 GE Co., Projection Display Products
 Gretag Image Systems
 Hitachi Denshi America 3
 Ikegami Electronics (USA) 4-5
 Lazerus
 Mitsubishi Electronics America Pro
 Electronics Div.
 Neumade Products Corp.
 Nytone
 Panasonic Industrial AV Systems
 Group 46-47
 RADMAR
 RTS Systems/Telex Communications
 Sharp Electronics Corp. Professional
 Products Div.
 Snell Associates, George R.
 Sony Business & Professional
 Group 14-15, 128-129
 Telex Communications



Capture the power

1:45 Wednesday, having fun.
Your client cracks you up.
One hour into the session he
laughs, takes another bite of apple,
says...“this looks better than
the piece we did last week.
What’s changed?”

You could tell him the only change
is your new Abekas A82 composite
digital switcher—its speed, digital
keyers, status monitor, digital
framestores, modular design—



A82 Composite Digital Switcher

and lots more.
But you don't.

Abekas

A Carlton Company

Leading in Digital Innovation

For details: (415) 369-5111 Atlanta (404) 451-0637 Chicago (708) 699-9400
Dallas (214) 385-4544 Los Angeles (818) 955-6446 New York (516) 829-0820 San Francisco (415) 369-6791

Circle (12) on Reply Card

Video Products

Color highlighting denotes advertisers and ad page numbers

PROMPTING SYSTEMS, SOFTWARE

Dedicated and PC-based.
BASYS
 Beacon Software
 Blue Feather Co.
 Broadcast Developments/Autoscript
 Comprehensive Video Supply Corp.
 Comprompter
 Computer Prompting Corp.
 Listec Video Corp.
 maney_logic
 Media Computing
 MPB Technologies
 OpTex
 Q-TV
 Tekskil Industries
 Telescript
 Video Data Systems

RECORDERS, 1/2"

All formats.
Ampex Corp. 112
AVEC
BTS 111
Hitachi Denshi America 3
 Instant Replay
JVC Professional Products Co. ... 21
 Mitsubishi Electronics America Pro
 Electronics Div.
 OpTex
Panasonic Broadcast Systems 64-65
Panasonic Industrial A/V Systems
Group 46-47
 Sharp Electronics Corp. Professional
 Products Div.
 Thomson Video Equipment
 Wide Range Electronics Corp.

RECORDERS, 3/4"

AVEC
OpTex
Sony Business & Professional
Group 14-15, 128-129
 Thomson Video Equipment
 Wide Range Electronics Corp.

RECORDERS, 1"

Ampex Corp. 112
BTS 111
Hitachi Denshi America 3
Sony Business & Professional
Group 14-15, 128-129
 Wide Range Electronics Corp.

RECORDERS, DIGITAL

D-1, D-2 and 1/2"
Abekas Video Systems 23
Ampex Corp. 112
BTS 111
 Dynatech ColorGraphics
Hitachi Denshi America 3
Panasonic Broadcast Systems 64-65
Sony Business & Professional
Group 14-15, 128-129
 Thomson Video Equipment

RECORDERS, STILL STORES

Includes still video reproduction
 products; optical and magnetic
 videodisc systems.
Abekas Video Systems 23
Accom
 Asaca/Shibasoku Corp. of America
 Aston from Paltex Imaging Systems
 Chyron Corp.

Leitch Video 87
 Logica Communications/Broadcast
Nikon Photo/Electronic Imaging
Products 19
 Oktel, LP
 Optical Disc Corp.
 Quantel
 Rank Cintel
 Sony/Still Image Systems
Sony Business & Professional
Group 14-15, 128-129
 TEAC Div. of Teac Corp. of America
 Thomson Video Equipment
 Wide Range Electronics Corp.

RECORDING HEADS

Ampex Corp. 112
 CMC Technology/ Datatape
 International Electro-Magnetics
 JRF Magnetic Sciences
Panasonic Broadcast Systems 64-65
 Saki Magnetics
 Wide Range Electronics Corp.

RECORDING TAPE

Agfa Corp.
Ampex Recording Media Corp. ... 60
 Cine 60
 CoarcVideo
 Fuji Photo Film Magnetic Products Div.
JVC Professional Products Co. ... 21
Panasonic Broadcast Systems 64-65
 Polyline Corp.
 Sony Magnetic Products Co.
 3M Professional A/V & Specialty
 Products

SIGNAL ENHANCERS

Detail correction, enhancement
 equipment.
 Digital Processing Systems
 Faroudja Labs
 Geneva Group of Companies
 Intelvideo
 Multidyne Electronics
 Optical Electronics
 Shintron Co.
 Vidicraft

STANDARDS CONVERTERS

Inter-standard conversion between
 composite video; NTSC, PAL/-N/-M,
 SECAM; may include video com-
 ponent input and output capabilities.
A.F. Associates 97
 Allen Avionics
 AVS Broadcast Ltd.
CEL Electronics 25
 Fougerolle Video
 Grunder & Associates, James
 I-Den Videotronics Corp.
 Instant Replay
Leitch Video 87
 LNR Communications
 OKI Electric Industry Co.
 Quantel
Snell & Wilcox 94
Sony Business & Professional
Group 14-15, 128-129
 Thomson Video Equipment
 Video International Development Corp.
 Vistek Electronics Ltd.
 Vortex Communications Ltd.

SWITCHERS, MASTER CONTROL

TV on-air switching.
AVS France

BASYS
BTS 111
 Channelmatic
Drake Electronics Ltd., Philip ... 52
 Grass Valley Group
 Image Video Ltd.
 IRIS Technologies
 Kaitronics Corp.
 Key Video Ltd.
Omicron Video 100
 Pro-Bel Ltd.
 Tech Electronics
 Thomson Video Equipment
 Utah Scientific

SWITCHERS, PRODUCTION

Studio, edit suite video mixers.
Abekas Video Systems 23
Alta Group
Ampex Corp. 112
AVS France
BTS
 Central Dynamics
 Cox Associates Ltd.
 ECHOlab
 Electrocraft Consultants Ltd.
FOR.A Corp. of America 73
 Grass Valley Group
 Grunder & Associates, James
 Jazz Systems Electrohome
JVC Professional Products Co. ... 21
 Multidyne Electronics
Panasonic Broadcast Systems . 64-65
 Polar Video Ltd.
 Prime Image
 Pro-Bel Ltd.
 Ross Video Ltd.
Sony Business & Professional
Group 14-15, 128-129
 Thomson Broadcast
 Thomson Video Equipment
 Universal Video Electronics
 Utah Scientific
 VGV
 Videotek
 Vistek Electronics Ltd.

SWITCHERS, ROUTING

Video distribution; includes A/V, data
 types, excludes audio-only.
 Adrienne Electronics Corp.
 Allen Avionics
 Arnel Systems
 Artel Communications Corp.
 Asaca/Shibasoku Corp. of America
AutoPatch/XN Technologies 10
 Avitel Electronics Corp.
AVS France
 Barco
 Brabury International
Broadcast Video Systems 167
BTS 111
CEL Electronics 25
 Central Dynamics
 Channelmatic
 Cox Associates Ltd.
Datatek Corp. 69
Di-Tech IBC
Drake Electronics Ltd., Philip ... 52
DYNAIR Electronics 35
 ETI Systems
 FSR
 Gennum Corp.
 Grass Valley Group
HEDCO 43
 Image Video Ltd.
 IMC/Akai
 Integrated Switching Systems
 Intelvideo
 IRIS Technologies
 Jem-Fab Corp.
 Kaitronics Corp.

Key Video Ltd.
 Laird Telemedia
Leitch Video 87
 Melford Electronics Ltd.
 Monroe Electronics
 Multidyne Electronics
 Novadyne
Omicron Video 100
 Opamp Labs
 Patch Bay Designation
 PESA America
 Pro-Bel Ltd.
 Professional Sound Corp.
 Shintron Co.
Sierra Video Systems 101
 Sigma Electronics
Sony Business & Professional
Group 14-15, 128-129
 System Video
 Target Technology
 Thomson Broadcast
 Thomson Video Equipment
 Utah Scientific
 VGV
 Videotek Research Ltd.
 Videotek
 Vidicraft
 Vortex Communications Ltd.

SYNC/PATTERN GENERATORS

Produces video drive pulses, subcar-
 rier, blackburst, color bar, test pat-
 terns.
 Acron Ltd.
 Asaca/Shibasoku Corp. of America
AVS France
 Brabury International
 BTC Test & Measurement
 Cox Associates Ltd.
 Digital Processing Systems
 Electrocraft Consultants Ltd.
 Faroudja Labs
 Grass Valley Group
HEDCO 43
 Horita Co.
 Icon Electronics Corp.
Leitch Video 87
Magni Systems 79
 Multidyne Electronics
Omicron Video 100
 Optical Electronics
 PESA America
 Philips TV Test Equipment
 QSI Systems
Rohde & Schwarz 159
 Shintron Co.
 Sigma Electronics
 System Video
Tektronix 119, 171, 172
 Telcom Research
 Thomson Video Equipment
 Video Accessory Corp.
 Videotek
 Vortex Communications Ltd.

TBCs, SYNCHRONIZERS

Video signal timing correction equip-
 ment.
Alta Group
Ampex Corp. 112
 Broadcast Systems Design
CEL Electronics 25
 Digital Processing Systems
 Electrocraft Consultants Ltd.
 Ensemble Designs
FOR.A Corp. of America 73
 Fougerolle Video
 Grunder & Associates, James
 Hotronic
 I-Den Videotronics Corp.
JVC Professional Products Co. ... 21

A DIGITAL EFFECTS SYSTEM THAT CAN'T BE OUTGROWN

The CEL range of digital effects units forms an organic system with full compatibility and single, dual, or multichannel capability. The breadth



of our range means we can fulfil all requirements; the depth of our research means you can rely on our technology. And the efficiency of our design makes outstanding quality – and some unique features – available at a remarkably low price. The high level of modularity of our products gives you the room to evolve your own system as your needs expand.

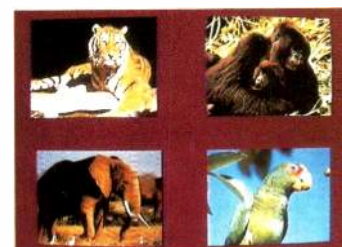
Meanwhile, at CEL the evolution continues – by design.

The Art of Image Control



CEL Electronics Inc., 4550 W. 109th Street, Suite 140
Overland Park, KS 66211 Tel: (800) 325-CEL1 Fax: (913) 345-2771

Circle (13) on Reply Card



Video & RF Products

Color highlighting denotes advertisers and ad page numbers

Leitch Video 87
 Marconi Communication Systems Ltd.
 Microtime
 Midwest Communications Corp.
 Nova Systems 125
 Polar Video Ltd.
 Prime Image
 Tektronix 119, 171, 172
 TimeLine
 Videotek
 Vistek Electronics Ltd.

TELECINE SYSTEMS

Film-to-video presentation, transfer systems.
 BTS 111
 Buhl Optical Co.
 Ikegami Electronics (USA) 4-5
 Image Transform
 Laird Telemedia
 Marconi Communication Systems Ltd.
 RADMAR
 Rangertone Research
 Rank Cintel
 Rank Cintel-Unimedia
 SONDOR Willy Hungerbuhler AG
 Steenbeck
 Tamron Industries
 Thomson Video Equipment
 Time Logic
 Wide Range Electronics Corp.

TELECONFERENCING SYSTEMS

American Laser Systems
 Artel Communications Corp.
 Canon USA Broadcast Equipment Div.
 DMC Digital Video Div. of Digital Microwave Corp.
 DYNAIR Electronics 35
 Fujinon
 Microdyne Corp.
 Nytone
 Orchard Communications
 PESA America
 Radamec EPO Ltd.
 Snell Associates, George R.
 Telemetrics 45
 Telos Systems
 Vortex Communications Ltd.

TEST CHARTS, SLIDES

Includes illuminators.
 Asaca/Shibasoku Corp. of America
 Birns & Sawyer
 BPI/Porta-Pattern
 Brabury International
 Nalpak Video Sales
 OpTex

TEST, ALIGNMENT TAPES

Ampex Corp. 112
 Geneva Group of Companies
 Tentel

TIME CODE EQUIPMENT

Generators, readers, character insertion; film frame counting, film data products.
 Adams-Smith
 Adrienne Electronics Corp.
 ADX Systems
 Audio Kinetics UK Ltd.
 Avitel Electronics Corp.
 AVS France
 Calculated Industries
 CEL Electronics 25

Cipher Digital 109
 Comprehensive Video Supply Corp.
 Denecke
 ESE 169
 Evertz Microsystems Ltd.
 Fast Forward Video
 FOR.A Corp. of America 73
 Gray Engineering Labs 107
 Horita Co.
 JVC Professional Products Co. 21
 Kinemetrics/Truetime
 Leitch Video 87
 Magna-Tech Electronic Co.
 Multidyne Electronics
 Multiplex Technology
 OpTex
 Otari Corp.
 Polar Video Ltd.
 Pro-Bel Ltd.
 Queue Systems
 Rangertone Research
 Shintron Co.
 Skotel Corp.
 SONDOR Willy Hungerbuhler AG
 Telecom Research
 Time Logic
 TimeLine
 United Media
 Vid-Video
 Video Data Systems
 VideoLab
 Vortex Communications Ltd.
 Wide Range Electronics Corp.

TIME MODIFICATION DEVICES

Products permitting time compression, expansion of recorded material.
 Allen Avionics
 Eventide
 Quantel
 Time Service Systems

WEATHER DISPLAYS, RADAR

Dedicated weather graphics display systems and radar electronics.
 Accu-Weather
 Advanced Designs Corp.
 Alden Electronics
 Dubner Computer Systems
 Dynatech ColorGraphics
 EEV 71
 Grass Valley Group
 Jasmin Electronics Ltd.
 Kavouras
 MPB Technologies
 Teledac
 Texas Electronics

RF Products

ANTENNA POSITIONING SYSTEMS

Microwave and ES/TVRO antenna controllers.
 Broadcast Microwave Services
 Comtech Antenna Systems
 Diversified Marketing
 Dynetic Systems Co.
 Hallikainen & Friends
 Kathrein-Werke KG
 Microdyne Corp.
 Mobile-Cam Products
 Precision Specialties
 Radamec EPO Ltd.
 RF Technology
 Vizcom/California Tube Labs

Will-Burt Co., The

ANTENNA REMOTE INDICATORS

Delta Electronics
 Geleco Electronics Ltd.
 Gorman-Redlich Mfg. Co.
 Hallikainen & Friends
 Nurad
 Precision Specialties
 RF Technology
 Vizcom/California Tube Labs

ANTENNA SAMPLING EQUIPMENT

Continental Electronics 48
 Delta Electronics
 Eagle Radio Frequency Filters
 Geleco Electronics Ltd.
 Harris Allied Broadcast Equipment
 Kintronic Labs
 LBA Technology
 Vector Technology

ANTENNA TUNING UNITS

Audiolab Electronics 50
 Continental Electronics 48
 Delta Electronics
 Elcom Bauer
 Geleco Electronics Ltd.
 Harris Allied Broadcast Equipment
 ITAME 75
 Kintronic Labs
 LBA Technology
 Lightning Prevention Systems
 Marconi Communication Systems Ltd.
 Telefunken Sendertechnik GmbH
 Vector Technology

ANTENNAS, AM DIRECTIONAL ARRAYS

Audiolab Electronics 50
 Cablewave Systems 37
 Central Tower
 Continental Electronics 48
 Geleco Electronics Ltd.
 Harris Allied Broadcast Equipment
 Harrison Systems Ltd. RF Systems Engineering
 Kahn Communications
 Kintronic Labs
 LBA Technology
 Lightning Prevention Systems
 Marconi Communication Systems Ltd.
 Telefunken Sendertechnik GmbH
 United Systems
 Vector Technology

ANTENNAS, FM TRANSMITTING

Broadcast Electronics 17
 Central Tower
 Comad Communications Ltd.
 Comark Communications/A Thomson-CSF Co. 67
 Dielectric Communications
 Harris Allied Broadcast Equipment
 Harrison Systems Ltd. RF Systems Engineering
 ITELCO
 Jampro Antennas 102
 Kathrein-Werke KG
 LDL Communications
 Marconi Communication Systems Ltd.
 Micro Communications

Rohde & Schwarz 159
 ROOD Megatronics B.V.
 Scala Electronic Corp.
 Shively Labs Div./Howell Labs
 SIRA s.r.l.
 S.W.R. 50
 Telefunken Sendertechnik GmbH
 Tennaflux Systems Ltd.
 Valcom Ltd.
 Vector Technology

ANTENNAS, MICROWAVE

ENG, ITFS, MDS, STL/ICR
 Andrew Corp.
 Audiolab Electronics 50
 Broadcast Communications
 Broadcast Electronics 17
 Broadcast Microwave Services
 Comwave Div. of Communication Microwave Corp
 Conifer Corp.
 DMC Digital Video Div. of Digital Microwave Corp.
 EMCEE Broadcast Products
 Gabriel Electronics
 Harris Allied Broadcast Equipment
 Harrison Systems Ltd. RF Systems Engineering
 Ikegami Electronics (USA) 4-5
 ITELCO
 Loral Microwave-Narda
 Marti Electronics
 Microwave Radio Corp.
 Nurad
 OpTex
 Precision Specialties
 Racon
 Radiation Systems/Mark Antennas 98
 RF Technology
 Scala Electronic Corp.
 SIRA s.r.l.

ANTENNAS, SATELLITE R/T, TVRO

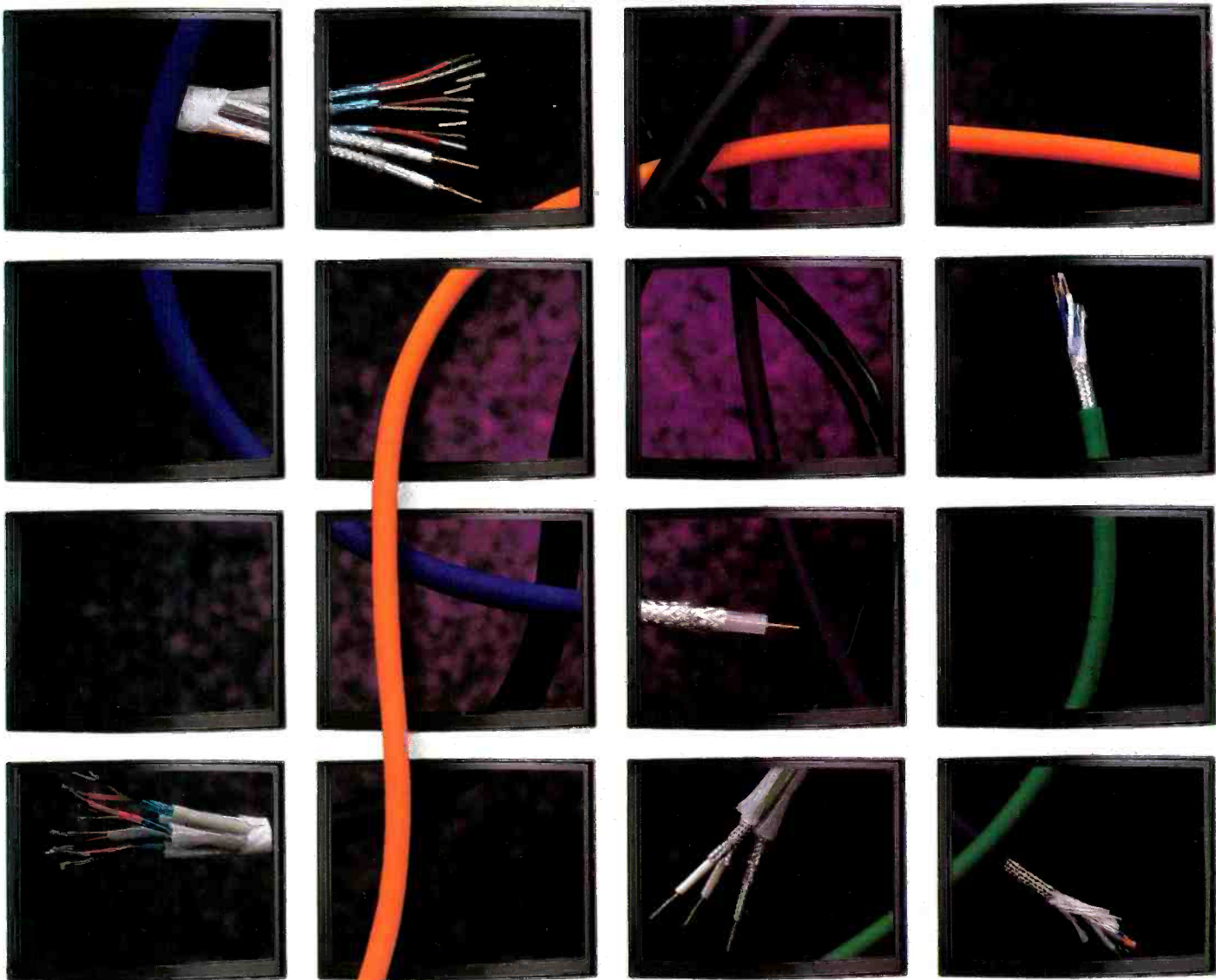
Advent Communications
 Andrew Corp.
 Blonder-Tongue Labs
 Comtech Antenna Systems
 Kathrein-Werke KG
 Radiation Systems SatCom Technologies Div.
 Vizcom/California Tube Labs

ANTENNAS, TV TRANSMITTING

Andrew Corp.
 Astre Systems
 Comad Communications Ltd.
 Dielectric Communications
 EMCEE Broadcast Products
 Harris Allied Broadcast Equipment
 Harrison Systems Ltd. RF Systems Engineering
 ITELCO
 Jampro Antennas 102
 Kathrein-Werke KG
 LDL Communications
 Marconi Communication Systems Ltd.
 Micro Communications
 Rohde & Schwarz 159
 Scala Electronic Corp.
 SIRA s.r.l.
 S.W.R. 50
 Telefunken Sendertechnik GmbH
 Tennaflux Systems Ltd.

ATTENUATORS, RF

Bird Electronic Corp.



Just as no performer can stay on top without innovation, no company can retain its reputation for performance without product innovation. The standards we've set with our broadcast cables are a reflection of our commitment to product innovation - something that continues today with Brilliance®.

Named for the sound and picture brilliance obtainable through product innovation and improved signal integrity, Brilliance products range from exciting audio/video cable assemblies to the four new cable products below:

Soft, flexible Microphone Cables.

The debut of Belden's four-conductor microphone cable

BELDEN BRINGS THE LIGHT OF INNOVATION TO BROADCAST CABLE

sets an industry standard. Featuring matte finish jackets in a wide range of colors, these new cables are designed to increase cable flexibility while enhancing performance.

High-Flex and CL 2 Rated Precision Video Cables.

To solve the problems of rack installations and CCTV systems, Belden has developed a

new 75 ohm precision video cable. High-Flex combines Belden® 8281 electrical performance with improved flexibility and longer flex life.

Audio Snake Cables.

Belden now offers a line of multi-pair snake cables. Featuring individually jacketed and shielded pairs, Belden snake cable provides maximum pro-

tection against signal loss. Features include loose tube construction and a non-reflecting black matte finish.

Audio and Video Composite Cables.

For systems combining audio and video, Belden has specifically designed cables for ENG and camera applications. They combine off-the-shelf availability with specialty design center technology and fiber/copper composition.

Call your local Belden distributor for our Broadcast Catalog, or contact us directly: BELDEN Wire and Cable P.O. Box 1980 Richmond, IN 47375

1-800-BELDEN-4
(in Indiana, call 317-983-5200)

There is no equal.™

Copyright © 1989 Cooper Industries, Inc.

Circle (14) on Reply Card



BELDEN

RF Products

Blonder-Tongue Labs
Coaxial Dynamics
Comark Communications A Thomson-CSF Co. 67
Electro Impulse Lab
JFW Industries
Kay Elemetrics Corp. 104
Kintronic Labs
Loral Microwave-Narda
Microwave Development Labs
Penstock
RF Industries
SIRA s.r.l.
Tech Labs
Tennaplex Systems Ltd.
Trompeter Electronics
Wide Band Engineering Co.

DE-ICER SYSTEMS

Comtech Antenna Systems
Dielectric Communications
Environmental Technology
Jampro Antennas 102
Shively Labs Div. of Howell Labs

ENG COMPONENTS, ELECTRONICS

Broadcast Microwave Services
C.A.E.
Diversified Marketing
DMC Digital Video Div. of Digital Microwave Corp.
Ikegami Electronics (USA) 4-5
Marti Electronics
Microwave Radio Corp.
Mobile-Cam Products
Nucomm (Formerly Nurad Radio Div.)
Radiation Systems SatCom Technologies Div.
RF Industries
RF Technology
Richardson Electronics Ltd.
Swintek Enterprises
Tectan

EXCITERS, GENERATORS, AM/STEREO

Broadcast Electronics 17
Continental Electronics 48
Delta Electronics
EMCEE Broadcast Products
Harris Allied Broadcast Equipment
ITAME 75
Kahn Communications
LNR Communications
McMartin
Motorola AM Stereo
Rohde & Schwarz 159
Telefunken Sendertechnik GmbH

EXCITERS, GENERATORS, FM/STEREO, SCA

AKG Acoustics 146
Bext
Broadcast Electronics 17
Cemty's S.A.
Comad Communications Ltd.
Continental Electronics 48
CRL Systems-Circuit Research Labs
Elcom Bauer
EMCEE Broadcast Products
Energy-Onix
Gentner Electronics Corp. 149
Harris Allied Broadcast Equipment
Inovonics 38
ITAME 75
ITELCO

JNS Electronics
Leaming Industries
LNR Communications
Marcom
Marconi Communication Systems Ltd.
Marti Electronics
McMartin
Micro Controls
Modulation Sciences
Moseley Associates 83
QEI Corp.
Rohde & Schwarz 159
ROOD Megatronics B.V.
SCA Data Systems
Spectrum Communications Corp.
Telefunken Sendertechnik GmbH
TFT
TVT Div.
Vector Technology

EXCITERS, GENERATORS, TV/STEREO, SAP, PRO

AKG Acoustics 146
Astre Systems
Bext
Broadcast Electronics 17
BTC Test & Measurement
Comark Communications A Thomson-CSF Co. 67
CRL Systems-Circuit Research Labs
DMC Digital Video Div. of Digital Microwave Corp.
Funke & Associates
Harris Allied Broadcast Equipment
Harrison Systems Ltd. RF Systems Engineering
ITELCO
LDL Communications
Leaming Industries
LNR Communications
Marconi Communication Systems Ltd.
Modulation Sciences
Nexus Engineering Corp.
Philips TV Test Equipment
Rohde & Schwarz 159

FILTERS, MICROWAVE, RF

Allen Avionics
Bird Electronic Corp.
Broadcast Microwave Services
Cablewave Systems 37
Coaxial Dynamics
Comad Communications Ltd.
Conifer Corp.
Continental Electronics 48
Deerfield Lab
Dynatech Microwave Technology
Eagle Radio Frequency Filters
EEV 71
EMCEE Broadcast Products
ITELCO
Loma Scientific
Matthey Electronics
Micro Communications
Microwave Development Labs
Microwave Filter Co.
Multiplex Technology
North Hills Electronics 44
Nucomm (Formerly Nurad Radio Div.)
OpTex
Penstock
Shively Labs/Howell Labs
SIRA s.r.l.
S.W.R 50
Television Equipment Associates
Tepco Corp.
TTE
UTE Microwave
Wide Band Engineering Co.

Color highlighting denotes advertisers and ad page numbers

ISOCOUPLERS

Audiolab Electronics 50
Dielectric Communications
Kintronic Labs
Marti Electronics
Moseley Associates 83
Shively Labs/Howell Labs
UTE Microwave

ITFS, MDS COMPONENTS, ELECTRONICS

Cablewave Systems 37
Comwave Div. of Communication Microwave Corp.
Conifer Corp.
EMCEE Broadcast Products
Loma Scientific
Micro Communications
Microwave Filter Co.
Richardson Electronics Ltd.

KLYSTRONS, TWTs

Microwave frequency and uplink power devices.
Advent Communications
Astre Systems
California Tube Lab
Econco
EEV 71
MCL 103
Philips Components
Richardson Electronics Ltd.
Thomson Tubes Electroniques 53
Varian Associates Microwave Equipment Products
Varian Associates Microwave Power Tube Products
Varian Associates Traveling Wave Tube Products
Varian Associates Canada Microwave Products
Vizcom/California Tube Labs

MOBILE RADIO, CELLULAR PHONES

Utility communications products.
Ace Communications
Cellcast Remote Broadcast Studio Div. of Tri-Tech
Marconi Communication Systems Ltd.
Motorola, Communications Sector
OKI Electric Industry Co.
Periphex
Rohde & Schwarz 159
ROOD Megatronics B.V.
SIRA s.r.l.
Solid Electronics Labs
Standard Communications
Systems Wireless Ltd.

MODULATORS, TV

Advent Communications
Astre Systems
Bext
Blonder-Tongue Labs
BTC Test & Measurement
Comark Communications A Thomson-CSF Co. 67
EMCEE Broadcast Products
ISS Engineering
ITELCO
Loma Scientific
Marconi Communication Systems Ltd.
MFJ Enterprises
Multiplex Technology
Nexus Engineering Corp.
OpTex

Philips TV Test Equipment
Rohde & Schwarz 159
Standard Communications
Television Technology Corp. 177
TVT Div.

POWER AMPLIFIERS, CAVITIES

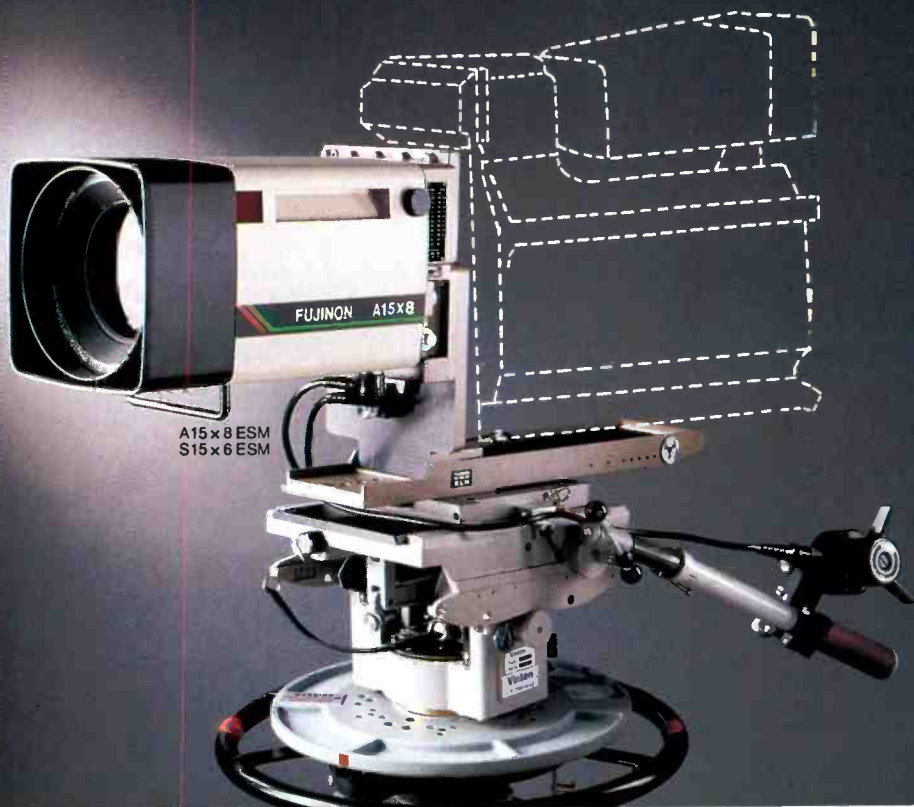
Astre Systems
Bext
Cemty's S.A.
Comark Communications A Thomson-CSF Co. 67
Continental Electronics 48
EEV 71
Elcom Bauer
EMCEE Broadcast Products
Harris Allied Broadcast Equipment
ITAME 75
ITELCO
Loma Scientific
Marconi Communication Systems Ltd.
Marti Electronics
MCL 103
Multiplex Technology
QEI Corp.
Richardson Electronics Ltd.
Rohde & Schwarz 159
Shure Brothers 153
Societe Anonyme Des Techniques Digitales Digitec S.A.
Spectrum Communications Corp.
Telefunken Sendertechnik GmbH
Thomson Tubes Electroniques 53
TVT Div.
Varian Associates Microwave Equipment Products
Varian Associates Power Grid & X-Ray Products

POWER COMBINERS, DIPLEXERS

Advent Communications
Astre Systems
Blonder-Tongue Labs
Comad Communications Ltd.
Comark Communications A Thomson-CSF Co. 67
Continental Electronics 48
Dielectric Communications
Dynatech Microwave Technology
EMCEE Broadcast Products
ITAME 75
ITELCO
Jampro Antennas 102
Kintronic Labs
LDL Communications
Loral Microwave-Narda
Marconi Communication Systems Ltd.
Marti Electronics
Micro Communications
Microwave Development Labs
Microwave Filter Co.
North Hills Electronics 44
Penstock
Rohde & Schwarz 159
Shively Labs Div. of Howell Labs
SIRA s.r.l.
Telefunken Sendertechnik GmbH
Tennaplex Systems Ltd.
TVT Div.
UTE Microwave
Vector Technology

POWER DIVIDERS

Andrew Corp.
AVCOM of Virginia 167
Blonder-Tongue Labs
Comad Communications Ltd.



A15 x 8 ESM
S15 x 6 ESM



A18 x 8 ESM
S18 x 3 ESM



A20 x 7 ESM
S20 x 5.4 ESM



A55 x 9.5 ESM
S55 x 7.3 ESM



A44 x 9.5 ESM
S44 x 7.3 ESM



A34 x 10 ESM
S34 x 8 ESM

FUJINON'S FOCUS ON THE FUTURE.

THE BEST LENSES FOR TODAY'S CCD STUDIO CAMERAS.

The reason FUJINON delivers all the performance advantages of the new 1990 CCD studio cameras is our *focus on the future*.

Long before anyone seriously considered CCD cameras for studio use (more than 3 years ago), FUJINON was developing and perfecting lenses in anticipation of today's cameras. To meet their far higher transmission requirements, the drastically lower distortion, and advanced electro-mechanical demands, FUJINON made the commitment and the investment. The same resources

and experience responsible for making FUJINON the leader in HDTV optics make FUJINON first in CCD lenses today.

Every studio and field lens shown above — for 2/3" and 1/2" cameras — is available now. And every one delivers maximum performance, total compatibility. That's a FUJINON exclusive. So is our focus on the future.

If new CCD studio cameras are in your future, focus on FUJINON. For more information or a demonstration, call your nearest FUJINON representative.

FOCUSED ON THE FUTURE.

FUJINON INC. 10 High Point Drive, Wayne, New Jersey 07470 (201)633-5600
Southern 2101 Midway, Suite 250, Carrollton, Texas 75006 (214)385-8902
Midwestern 3 N. 125 Springvale, West Chicago, Ill. 60185 (708)231-7888
Western 129 E. Savarona Way, Carson, California 90746 (213)532-2861



FUJINON

10 High Point Drive, Wayne, N.J. 07470

Circle (15) on Reply Card



THOMSON-L.G.T. TRANSMITS THE

When the Berlin Wall fell, we were there. Would it have fallen if the world wasn't watching? On that day in November a chapter in world history was written while millions of TV viewers looked on.

When it comes to recording history in the making, you have to be the best throughout the world. And to achieve

that position, you have to offer the most extensive range of products in the world. Thomson-L.G.T. does just that.

You have to be present in over 113 countries, from Abu Dhabi to Zimbabwe. Thomson-L.G.T. is there.

You have to have experts able to study, analyse, build and install systems

BECAUSE TO US AT THOMSON - L.G.T., OUR WORK IS

THOMSON-L.G.T. - 1, rue de l'Hautil - BP 150 - 78702 Conflans



SIGHTS AND SOUNDS OF HISTORY.

24 hours a day. Thomson-L.G.T. has them.

You have to be able to broadcast from -40 to +6000 metres, and from -40° to +58° C. Thomson-L.G.T. does it.

You have to be a top performer in advanced technology. Thomson-L.G.T. is certainly that.

Recording history in the making

means ensuring an image chain that is complementary all the way down the line.

It means building complete systems and networks from video signal to transmitter, transposer and transmitting antenna.

It also means having a team of men and women who are completely dedicated to the work they do.

MORE THAN A CHALLENGE, IT'S A TOTAL COMMITMENT.



THOMSON-LGT

Sainte-Honorine Cedex - France - Tél.: (33-1) 34 90 31 00 - Téléx: 696 833 F - Fax: (33-1) 34 90 30 00

Circle (16) on Reply Card

Comark Communications A Thomson-CSF Co. 67

Dielectric Communications

Dynatech Microwave Technology

Eagle Radio Frequency Filters

EMCEE Broadcast Products

Geleco Electronics Ltd.

ITELCO

Jampro Antennas 102

JFW Industries

Kintronic Labs

LDL Communications

Loral Microwave-Narda

Marconi Communication Systems Ltd.

Marti Electronics

Micro Communications

Microwave Development Labs

MYAT 181

North Hills Electronics 44

Penstock

Rohde & Schwarz 159

Scala Electronic Corp.

Shively Labs/Howell Labs

SIRA s.r.l.

S.W.R. 50

Tennaplex Systems Ltd.

TVT Div.

United Systems

Vector Technology

Wide Band Engineering Co.

PRESSURIZATION EQUIPMENT

Andrew Corp.

Cablewave Systems 37

Comad Communications Ltd.

Dielectric Communications

Environmental Technology

Gabriel Electronics

RF Technology

Shively Labs/Howell Labs

SIRA s.r.l.

S.W.R. 50

Vector Technology

RECEIVERS, AM, FM, SCA

Bext

Bogen Communications

Comad Communications Ltd.

Croma Research Ltd.

EMCEE Broadcast Products

Emergency Alert Receiver (EAR)

FM Systems

Gorman-Redlich Mfg. Co.

ITELCO

JNS Electronics

Kahn Communications

Leaming Industries

Marti Electronics

McMartin

Micro Controls

Modulation Sciences

Moseley Associates 83

Reach Electronics

Rohde & Schwarz 159

ROOD Megatronics B.V.

SCA Data Systems

Singer Products

Spectrum Communications Corp.

Swintek Enterprises

Target Tuning

RECEIVERS, SATELLITE

Includes associated LNA, LNC products.

Advent Communications

Andrew Corp.

AVCOM of Virginia 167

Blonder-Tongue Labs

DMC Digital Video Div. of Digital

Microwave Corp.

EMCEE Broadcast Products

Intraplex 99

ISS Engineering

ITELCO

Kathrein-Werke KG

LNR Communications

Marconi Communication Systems Ltd.

McMartin

Microdyne Corp.

Rohde & Schwarz 159

Standard Communications

Tennaplex Systems Ltd.

Wegener Communications

REMOTE PICKUP COMPONENTS, ELECTRONICS

EEV 71

ITAME 75

Kintronic Labs

LNR Communications

Moseley Associates 83

RF Technology

Richardson Electronics Ltd.

ROOD Megatronics B.V.

Spectrum Communications Corp.

Systems Wireless Ltd.

TFT

SATELLITE COMPONENTS, TRANSMIT/RECEIVE ELECTRONICS

Excludes antennas.

Advent Communications

Andrew Corp.

Corporate Computer Systems Audio Products Div.

Dolby Laboratories 13

EEV 71

Intraplex 99

Kathrein-Werke KG

Marconi Communication Systems Ltd.

MCL 103

Microdyne Corp.

Microwave Filter Co.

Richardson Electronics Ltd.

Tectan

Varian Associates Microwave Equipment Products

Vizcom/California Tube Labs

Wegener Communications

STL COMPONENTS, ELECTRONICS

Excludes antennas.

Bext

Broadcast Electronics 17

Broadcast Microwave Services

Corporate Computer Systems Audio Products Div.

Diversified Marketing

DMC Digital Video Div. of Digital Microwave Corp.

Dolby Laboratories 13

EMCEE Broadcast Products

Graham-Patten Systems

Ikegami Electronics (USA) 4-5

Intraplex 99

ITAME 75

JNS Electronics

Leaming Industries

Marti Electronics

Microwave Filter Co.

Microwave Radio Corp.

Modulation Sciences

Moseley Associates 83

Nucomm (Formerly Nurad Radio Div.)

Orban Associates/AKG Acoustics 7, 146

QEI Corp.

RF Technology

Richardson Electronics Ltd.

ROOD Megatronics B.V.

Tectan

Television Technology Corp. 177

TFT

Vector Technology

Wegener Communications

SWITCHERS, RF COAXIAL

Astre Systems

Broadcast Electronics 17

Comad Communications Ltd.

Comark Communications A Thomson-CSF Co. 67

Continental Electronics 48

Delta Electronics

Dielectric Communications

Dynatech Microwave Technology

EMCEE Broadcast Products

ETI Systems

Henry Radio

ITAME 75

ITELCO

JFW Industries

Kay Elemetrics Corp. 104

Loral Microwave-Narda

Marconi Communication Systems Ltd.

Micro Communications

Micro Controls

Monroe Electronics

MYAT 181

North Hills Electronics 44

Pro-Bel Ltd.

Shively Labs/Howell Labs

SIRA s.r.l.

Telefunken Sendertechnik GmbH

Tennaplex Systems Ltd.

TVT Div.

Vector Technology

TOWER LIGHTING SYSTEMS

Central Tower

Crouse-Hinds Airport Lighting Products

E&G Electro-Optics

EMCEE Broadcast Products

Flash Technology

Kline Towers

Microreflect Co.

Moseley Associates 83

PiRod

SSAC 183

Tower Network Systems

Transmission Structures

Trylon Mfg. Co. Ltd.

TWR Lighting

Utility Tower Co.

Will-Burt Co., The

TOWERS, ANTENNA S & SUPPORT STRUCTURES

Allied Tower Co.

Aluma Tower Co.

Andrew Corp.

Broadcast Communications

Central Tower

EMCEE Broadcast Products

Express Tower Co.

Fort Worth Tower Co.

Kline Towers

LDL Communications

Magnum Towers

Marconi Communication Systems Ltd.

Microreflect Co.

Nudd Corp., Fred A.

PiRod

Rapid Deployment Towers

RTS Systems/Telex Communications

SIRA s.r.l.

Stainless

Telex Communications

Transmission Structures

Trylon Mfg. Co. Ltd.

Utility Tower Co.

Will-Burt Co., The

TOWER ACCESSORIES, GUYS, INSULATORS, HARDWARE

Allied Tower Co.

Aluma Tower Co.

Andrew Corp.

Broadcast Communications

Central Tower

EMCEE Broadcast Products

Express Tower Co.

Fort Worth Tower Co.

Kline Towers

LBA Technology

LDL Communications

Lightning Prevention Systems

Magnum Towers

Marconi Communication Systems Ltd.

Microreflect Co.

PiRod

Racal-Decca Canada/Insulators Div.

Rapid Deployment Towers

RTS Systems/Telex Communications

Stainless

Telefunken Sendertechnik GmbH

Telex Communications

Transmission Structures

Trylon Mfg. Co. Ltd.

United Ropeworks (USA) Phillystran

Utility Tower Co.

TOWERS, PORTABLE MASTS

Aluma Tower Co.

EMCEE Broadcast Products

Express Tower Co.

Fort Worth Tower Co.

LDL Communications

Marconi Communication Systems Ltd.

Nudd Corp., Fred A.

Rapid Deployment Towers

RF Technology

RTS Systems/Telex Communications

Telex Communications

Transmission Structures

Will-Burt Co., The

TRANSFORMERS, POWER, MODULATION

Dahl Co., Peter

Henry Radio

Telefunken Sendertechnik GmbH

TRANSLATORS, TRANSPOSERS, FM

Receiving, retransmitting systems.

Bext

Comad Communications Ltd.

Energy-Onix

ITAME 75

ITELCO

Marti Electronics

Nexus Engineering Corp.

OpTex

Shively Labs/Howell Labs

Telefunken Sendertechnik GmbH



A POWERFUL FORCE IS SURFACING IN COMPONENT GENERATORS

Take full advantage of component television's many capabilities with the powerful new component generator, Model 425 from Leader. First, though, we should explain what the 425 is doing in the jaws of this primitive, half-ton killing machine. The generator develops a number of test signals tailored to gauge distortion and relative timing in component systems. Among these is a new timing signal we call the "shark fin." It exposes relative timing errors over a 2 MHz bandwidth rather than at a single frequency.

The 425 generates both component and composite test signals. These include a number of test signals dedicated to component analysis (available in GBR, Y/R-Y/B-Y,

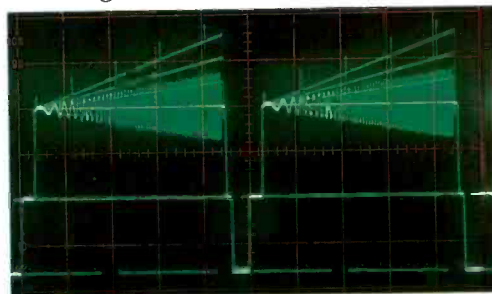
and Y/Time-Compressed Chroma) as well as the more familiar test signals applied to the composite feeds. You can order the 425 in either Betacam or MII format.

No matter what end of the business you're in—from ENG to post-production—if you're going to swim with the sharks, do it with the help of a cutting-edge component generator, the new Model 425 from Leader.

For our full-line catalog, in NY call 516 231-6900. Or call toll free:

1 800 645-5104

LEADER
FOR PROFESSIONALS WHO KNOW
THE DIFFERENCE



Leader Instruments Corporation, 380 Oser Avenue, Hauppauge, New York 11788
Regional Offices: Chicago, Dallas, Los Angeles, Boston, Atlanta. In Canada call Omnitronix Ltd., 416 828-6221.

Circle (17) on Reply Card for product information.
Circle (18) on Reply Card for product demonstration.

Television Technology Corp. 177
 Tepco Corp.
 Thomson-LGT 30-31

TRANSLATORS, TRANSPOSERS, TV

Receiving, retransmitting systems.
Acrodyne Industries 57
 Comad Communications Ltd.
 EMCEE Broadcast Products
 ITELCO
 LDL Communications
 Loma Scientific
 Multiplex Technology
 Nexus Engineering Corp.
 OpTex
 PESA America
 Television Technology Corp. 177
 Tepco Corp.
 Thomson-LGT 30-31

TRANSMISSION LINE, WAVEGUIDE

Andrew Corp.
 Astre Systems
 Broadcast Communications
Cablewave Systems 37
 Comark Communications A Thomson-CSF Co. 67
 Dielectric Communications
 EMCEE Broadcast Products
 Harrison Systems Ltd. RF Systems Engineering
 ITELCO
 Loral Microwave-Narda
 Marconi Communication Systems Ltd.
 Micro Communications
 Microflect Co.
 Microwave Development Labs
MYAT 181
 RF Technology
 Shively Labs/Howell Labs
 SIRA s.r.l.
SWR 50
 Vector Technology

TRANSMITTER REMOTE CONTROL, TELEMETRY

Includes transmitter logging systems.
 Astre Systems
Broadcast Electronics 17
 Burk Technology
 Delta Electronics
 EMCEE Broadcast Products
 Energy-Onix
Gentner Electronics Corp. 149
 Hallikainen & Friends
 Harris Allied Broadcast Equipment
ITAME 75
 ITELCO
 M&R Data Services
 Marconi Communication Systems Ltd.
 Marti Electronics
 Micro Controls
Moseley Associates 83
 NCA Microelectronics
 OpTex
 RF Industries

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to:
BE Directory Editor, PO Box 12901, Overland Park, KS 66212.

Spectrum Communications Corp.
 Telefunken Sendertechnik GmbH
 TFT
 TVT Div.
 Vector Technology

TRANSMITTERS, AM, SW

Includes carrier current type equipment for wired AM distribution.
 CCA Electronics
 Cemtys S.A.
 Comark Communications A Thomson-CSF Co. 67
Continental Electronics 48
 Elcom Bauer
 Energy-Onix
 Harris Allied Broadcast Equipment
ITAME 75
 LPB
 Marconi Communication Systems Ltd.
 McMartin
Nautel Maine 54
 Radio Systems
 Singer Products
 Telefunken Sendertechnik GmbH

TRANSMITTERS, FM

Excludes FM translators.
 Bext
Broadcast Electronics 17
 CCA Electronics
 Cemtys S.A.
 Comad Communications Ltd.
Continental Electronics 48
 Elcom Bauer
 Energy-Onix
 GE Support Services/ RCA Broadcast
 Harris Allied Broadcast Equipment
 Henry Radio
ITAME 75
 ITELCO
 Marconi Communication Systems Ltd.
 McMartin
 Micro Controls
 Nexus Engineering Corp.
 QEI Corp.
Rohde & Schwarz 159
 Singer Products
 Spectrum Communications Corp.
 Swintek Enterprises
 Telefunken Sendertechnik GmbH
 Television Technology Corp. 177
 Thomson-LGT 30-31
 TVT Div.
 Vector Technology

TRANSMITTERS, TV

Excludes TV translators.
Acrodyne Industries 57
 Astre Systems
 Bext
 Comad Communications Ltd.
 Comark Communications A Thomson-CSF Co. 67
 Comwave Div. of Communication
 Microwave Corp.
 EMCEE Broadcast Products
 GE Support Services/ RCA Broadcast
 Harris Allied Broadcast Equipment
 Harrison Systems Ltd. RF Systems Engineering
 ITELCO
 LDL Communications
 Loma Scientific
 Marconi Communication Systems Ltd.
MCL 103
 Midwest Communications Corp.
 Nexus Engineering Corp.
 PESA America
Rohde & Schwarz 159

Supercircuits
 Telefunken Sendertechnik GmbH
 Television Technology Corp. 177
 Thomson-LGT 30-31
 TVT Div.

TUBES, RECTIFIERS

EEV 71
 Geleco Electronics Ltd.
 Henry Radio
 Richardson Electronics Ltd.
 Television Technology Corp. 177

TUBES, RF POWER DEVICES

Astre Systems
BURLE INDUSTRIES 137
 California Tube Lab
 Comark Communications A Thomson-CSF Co. 67
 Econco
EEV 71
 Geleco Electronics Ltd.
 Harrison Systems Ltd. RF Systems Engineering
 Henry Radio
 Richardson Electronics Ltd.
Thomson Tubes Electronics 53
 Varian Associates Power Grid & X-Ray Products
 Vector Technology

VACUUM CONTACTORS

Astre Systems
 Geleco Electronics Ltd.
 Kintronic Labs
 Richardson Electronics Ltd.
 Vector Technology

Automation

BAR CODE EQUIPMENT

And supporting software.
 AVS France
 Connolly Systems Ltd.
 Integral Systems Group
Nesbit Systems 56
Sony Business & Professional Group 14-15, 128-129

BUSINESS AUTOMATION

And supporting software.
 AVS France
 BASYS
 CBSI-Custom Business Systems
 Columbine Systems
 Computer Concepts Corp.
 DKW Systems
 Integral Systems Group
 Intelix Corp.
 Leonardo Software
 Management, The
 Multidyne Electronics
Nesbit Systems 56
 OrCad Systems Corp.
 Schafer World Communications Corp.
 Summit Software Systems
 Time Logic
 Xymox Systems

COMMERCIAL INSERTION SYSTEMS

VCR sequencing systems; includes

control, switching and distribution for video, audio signals for LPTV, CATV, etc.

ADX Systems
 AGAP
 Alamar Electronics USA
 American Broadcast Systems
 Asaca/Shibasoku Corp. of America
 AVS France
 BASYS
 Channelmatic
 Connolly Systems Ltd.
 Cox Associates Ltd.
 EMCEE Broadcast Products
 Florical Systems
Matco Mfg. & Test Co. 98
 Monroe Electronics
 MotionWorks
 Nexus Engineering Corp.
Odetics 49
 Pitts Co., T.R.
 Richmond Sound Design
 Solutec (H.A.)
 Tech Electronics
 Teledac
 Video Data Systems
 Videomedia

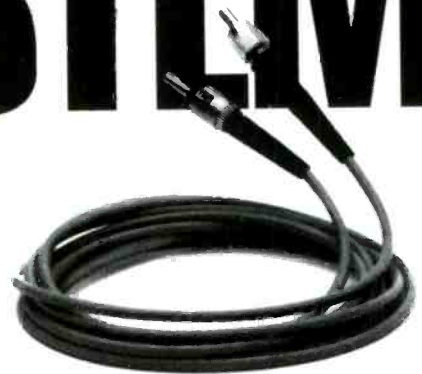
COMPUTERS, PERIPHERALS

Includes PCs, VDT terminals, touch-screen control adaptations, other control accessories; engineering management, maintenance and non-production software.
 Adrienne Electronics Corp.
 AGAP
 Allied Broadcast Equipment
 American Broadcast Systems
 Antex Electronics
 Artel Communications Corp.
 Aydin Controls
 B&B Electronics Mfg., Co.
 BASYS
 Columbine Systems
 Commodore Business Machines
 Comprompter
 Computer Assisted Technologies
 Computer Concepts Corp.
 Concept Productions
 Connolly Systems Ltd.
 Dalanco Spry
 DKW Systems
 EDX Engineering
 Hewlett-Packard Co.
 Integral Systems Group
 Lazerus
 Luxor Corp.
 M&R Data Services
 Management, The
 Media Computing
 MicroTouch Systems
 Multidyne Electronics
 Netcom
 Recortec
 Richmond Sound Design
 Schafer World Communications Corp.
Sony Business & Professional Group 14-15, 128-129
 Stardent Computer
 Teledac
 Time Logic
 Video Design Pro

CONTROLLERS, SIGNAL ACTIVATED

Includes tone encoding, decoding equipment.
 AGAP
 Analog Digital Synergy
 Broadcast Automation

SEE WHAT A LITTLE FIBER CAN DO FOR YOUR SYSTEM.



No doubt about it. Adding fiber to your system can put you in great shape. Especially if you need to fit more signals in cable trays or conduits. Run cable up to 5km. Eliminate EMI interference and ground loops. And ensure signal security.

And *especially* at \$900 per link. Because now there's the DYN AIR Series 400 and Series 1200 video distribution system. With the industry's best differential phase/gain and signal-to-noise.

Consider our Series 400, stand-alone fiber links that fit anywhere, go anywhere. Building-to-building, on-location, in the studio. With our fully compatible Series 1200, running both fiber and coax is a snap. Run fiber in/coax out. Or coax in/fiber out. Or fiber to fiber. And coax to coax. All in one modular package.

You can upgrade to serial D2 and wideband, too. Without changing frames or power supplies. Of course, all this is just to whet your appetite. For the full DYN AIR fiber story, call or fax us today.



DYN AIR

Call 800-854-2831. Or fax 619-264-4181.

Circle (19) on Reply Card

Automation & Test Products

Color highlighting denotes advertisers and ad page numbers

Broadcast Devices
Channelmatic
Computer Concepts Corp.
Concept Productions
Connolly Systems Ltd.
GENERIC Designs
HEDCO 43
IGM Communications
Intelix Corp.
JNS Electronics
Leightronix
MacroMedia Design
Monroe Electronics
NCA Microelectronics
ProTech Audio Corp.
Richmond Sound Design
Schafer World Communications Corp.
Vortex Communications Ltd.

NEWSROOM AUTOMATION

Dedicated, PC-based, supporting software packages.
Asaca/Shibasoku Corp. of America
BASYS
Columbine Systems
Comprompter
Computer Prompting Corp.
Corporate Computer Systems Audio Products Div.
Cox Associates Ltd.
DKW Systems
IGM Communications
Image Video Ltd.
Leitch Video 87
Management, The
maney logic
Media Computing
Multidyne Electronics
Nesbit Systems 56
Porter Communications
Ramko Research
Richmond Sound Design
Time Logic
Wynford Technologies

PLAYBACK AUTOMATION

Audio/radio systems, including random-access audio cart equipment.
Alamar Electronics USA
Alpha Audio
AMX Corp.
Asaca/Shibasoku Corp. of America
AVS France
BASYS
Broadcast Automation
Broadcast Electronics 17
Century 21 Programming
CompuSonics Corp.
Computer Concepts Corp.
Concept Productions
Connolly Systems Ltd.
Corporate Computer Systems Audio Products Div.
Cox Associates Ltd.
DKW Systems
ESE 169
Fougerolle Audio
Granite Telecom Corp.
IGM Communications
Leonardo Software
MacroMedia Design
Management, The
Matco Mfg. & Test Co. 98
McCurdy Radio Industries
MotionWorks
Richmond Sound Design
Schafer World Communications Corp.
Sentry Systems
Sierra Automated Systems 104
Systemation Corp.
Time Logic
Wheatstone Corp.
Wide Range Electronics Corp.

RECORD/PLAYBACK AUTOMATION

Video/TV systems; including sequenced and random-access, single-event and multi-event per videocassette equipment.
ADX Systems
Alamar Electronics USA
American Broadcast Systems
AMX Corp.
Asaca/Shibasoku Corp. of America
AVS France
BASYS
Channelmatic
Connolly Systems Ltd.
Cox Associates Ltd.
DKW Systems
ESE 169
Florical Systems
Hotronic
Image Video Ltd.
Leightronix
Leitch Video 87
Logica Communications/ Broadcast
Matco Mfg. & Test Co. 98
McCurdy Radio Industries
Media Computing
MotionWorks
MPB Technologies
Odetics 49
Panasonic Broadcast Systems 64-65
Richmond Sound Design
Sony Business & Professional Group 14-15, 128-129
Tech Electronics
Time Logic
Video Data Systems
Videoquip Research Ltd.
Wide Range Electronics Corp.

STATION AUTOMATION

Program, presentation automation systems, software; may support interfaced traffic, scheduling, music, station business and other related functions.

AGAP
Alamar Electronics USA
Allied Broadcast Equipment
American Broadcast Systems
Asaca/Shibasoku Corp. of America
AutoPatch/XN Technologies 10
BASYS
Broadcast Electronics 17
BTS 111
Century 21 Programming
Columbine Systems
Computer Concepts Corp.
Concept Productions
Connolly Systems Ltd.
Cox Associates Ltd.
Datacount
DKW Systems
Florical Systems
Generic Computer Systems
Granite Telecom Corp.
IGM Communications
Image Video Ltd.
Key Video Ltd.
Logica Communications/Broadcast
MacroMedia Design
Management, The
McCurdy Radio Industries
Media Computing
Nesbit Systems 56
Odetics 49
Panasonic Broadcast Systems 64-65
Pro-Bel Ltd.
Radamec EPO Ltd.
Ramko Research
Richmond Sound Design
Schafer World Communications Corp.

Schmid Telecommunication 175
Sony Business & Professional Group 14-15, 128-129
Summit Software Systems
Systemation Corp.
Teledac
Time Logic
Utah Scientific
Video Data Systems
Videoquip Research Ltd.

ANTENNA IMPEDANCE BRIDGE

Eagle Radio Frequency Filters
Wide Band Engineering Co., Inc.

AUDIO GENERATORS

Stand-alone systems.

Amber Electro Design 185
Asaca/Shibasoku Corp. of America
Audio Control Industrial
Audio Precision 145
AVS France
B&K Precision Maxtec International
Boonton Electronics Corp.
Delta Electronics
Digital Audio Research
Hewlett-Packard Co.
JNS Electronics
Leader Instruments Corp. 33
Leitch Video 87
Lyrec Mfg. A/S
Multidyne Electronics
Neutrik USA
NTP Elektronik
Opamp Labs
Pro-Bel Ltd.
Rohde & Schwarz 159
Sescom
Sound Technology
Tektronix 119, 171, 172
Vortex Communications Ltd.

Measurement & Test Products

ANALYZERS, AUDIO SYSTEM

includes distortion measurement and automated test systems.
Amber Electro Design 185
Ariel Corp.
Asaca/Shibasoku Corp. of America
Audio Control Industrial
Audio Precision 145
Barco-EMT
Boland Communications
Boonton Electronics Corp.
Broadcast Electronics 17
Bruel & Kjaer Instruments
Consultronics
Dorough Electronics
FM Systems
Hewlett-Packard Co.
Ivie Technologies
Jasoni Electronics
Klark-Teknik
Leader Instruments Corp. 33
MicroAudio
Neutrik USA
ROH Products
Rohde & Schwarz 159
Schmid Telecommunication 175
Sencore
Sennheiser Electronic Corp. 85
Sound Technology
Systems Wireless Ltd.
TC Electronic
Tektronix 119, 171, 172
TFT
Titus Technological Labs
White Instruments Div. of C. Van R.

BENCH POWER SUPPLIES

B&K Precision Maxtec International
Beckman Industrial/Instrumentation Products Div.
Behlman, A Fiskars Co.
Calex Mfg. Co.
Hewlett-Packard Co.
Leader Instruments Corp. 33
Plastic Capacitors
Sorensen Co., Div. of Switchcraft A Raytheon Co.
Tektronix 119, 171, 172

DEMODULATORS, TV PRECISION

Asaca/Shibasoku Corp. of America
BTC Test & Measurement
Comark Communications A Thomson-CSF Co. 67
Funke & Associates
Modulation Sciences
Nexus Engineering Corp.
OpTex
Philips TV Test Equipment
QSI Systems
Rohde & Schwarz 159
Tektronix 119, 171, 172
Videotek

DETECTORS, NON-IONIZING RADIATION

Loral Microwave-Narda

DIGITAL DIAGNOSTIC SYSTEMS

B&B Electronics Mfg., Co.
Broadcast Electronics 17
Telecommunications Techniques Corp.

FREQUENCY COUNTERS

B&K Precision Maxtec International
Beckman Industrial/Instrumentation

ANALYZERS, RF SPECTRUM, SIDEBAND

A.F. Associates 97
AVCOM of Virginia 167
Delta Electronics
EIP Microwave
Hewlett-Packard Co.
Kay Elemetrics Corp.
Modulation Sciences
Rohde & Schwarz 159
Tektronix 119, 171, 172
White Instruments Div. of C. Van R.

ANALYZERS, VIDEO SYSTEM

includes automated test systems.

Boland Communications
BTC Test & Measurement
ETI Systems
Modulation Sciences
Rohde & Schwarz 159
Sencore
System Video
Tektronix 119, 171, 172



BOGNER[®]
antennas

acquired and now manufactured
at our Connecticut facility by:

Cablewave Systems

**OUR TEAM PROVIDES ONE VENDOR
RESPONSIBILITY WITH TURNKEY
SOLUTIONS FOR YOUR RF
SUBSYSTEM NEEDS**

- HIGH, MEDIUM AND LOW POWER ANTENNAS
- MMDS/ITFS ANTENNAS
- FM/VHF TV ANTENNAS
- RF FLEXWELL[®] TRANSMISSION LINES TO
12" DIAMETER
- PRESSURIZATION SYSTEMS AND ASSOCIATED
ACCESSORIES
- SITE PREPARATION
- TOWERS AND SHELTERS
- ON-SITE SUPERVISION
- INSTALLATION
- FINAL TESTING AND SIGN-OFF



PARTNERS IN TOTAL QUALITY



Cablewave Systems

DIVISION OF RADIO FREQUENCY SYSTEMS, INC.

60 DODGE AVE., NORTH HAVEN, CT. 06473
TEL: 203-239-3311 • FAX: 203-234-7718

Circle (20) on Reply Card

Test & Maintenance Products

Color highlighting denotes advertisers and ad page numbers

Products Div.
Black Star Ltd.
EIP Microwave
Fluke Mfg. Co., John
Hewlett-Packard Co.
Leader Instruments Corp. 33
OpTex
Schmid Telecommunication 175
Sencore
Simpson Electric
Tektronix 119, 171, 172
Tracor Instruments Austin Industrial
Instruments Div.
Triplet Corp.

METERS, AC/POWER PHASE

Biddle Instruments
Dranetz Technologies
Rohde & Schwarz 159
Simpson Electric

METERS, AUDIO LEVEL INDICATOR

ATI-Audio Technologies 165
Audio Control Industrial
AVS France
Benchmark Media Systems 108
Beyer Dynamic
Boland Communications
BPI/Porta-Pattern
D&R Electronica
Dorough Electronics
Electronic Systems Labs

FM Systems
Gotham Audio Corp.
Hamlet Video International Ltd.
Inovonics 38
Leader Instruments Corp. 33
Logitek Electronic Systems
McCurdy Radio Industries
McCurdy Telecommunication Products
NTP Elektronik
Radio Systems
Rohde & Schwarz 159
Scantex Labs
Selco Products Co.
Sencore
Simpson Electric
Solutec (H.A.)
Symetrix
Target Technology
Titus Technological Labs
Videotek
Wohler Technologies 169
World Video

METERS, DVMS, DMMs, VOMs, VTVMs

B&K Precision Maxtec International
Beckman Industrial/Instrumentation
Products Div.
Black Star Ltd.
Cox Associates Ltd.
Fluke Mfg. Co., John
Hand Tool Industries
Hewlett-Packard Co.
Leader Instruments Corp. 33
Simpson Electric
Sperry Instruments, A. W.

Tektronix 119, 171, 172
Triplet Corp.

METERS, FIELD STRENGTH, RF LEVEL

Bird Electronic Corp.
Blonder-Tongue Labs
Coaxial Dynamics
Dranetz Technologies
Holaday Industries
Kathrein-Werke KG
Leader Instruments Corp. 33
Rohde & Schwarz 159
Sencore
Simpson Electric

METERS, PHOTOGRAPHIC LIGHT

Includes monitor color balance
measurement, adjustment systems.
Birns & Sawyer
BTC Test & Measurement
Melford Electronics Ltd.
OpTex
Philips TV Test Equipment

METERS, RF POWER

Bird Electronic Corp.
Boonton Electronics Corp.
Coaxial Dynamics
Dranetz Technologies
Henry Radio
Hewlett-Packard Co.

ITELCO
Loral Microwave-Narda
MFJ Enterprises
Rohde & Schwarz 159
Simpson Electric

MODULATION MONITORS

AM, FM radio, TV aural
Belar Electronics Lab 106
Boonton Electronics Corp.
Broadcast Electronics 17
FM Systems
Harris Allied Broadcast Equipment
Hewlett-Packard Co.
ITAME 75
JNS Electronics
Kahn Communications
Marcom
McMartin
Modulation Sciences
Motorola AM Stereo
QEI Corp.
Rohde & Schwarz 159
ROOD Megatronics B.V.
Tektronix 119, 171, 172
TFT

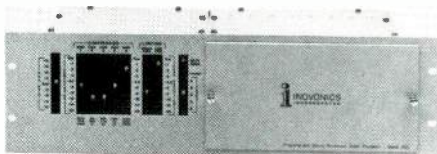
OSCILLOSCOPES, ACCESSORIES

B&K Precision Maxtec International
Beckman Industrial/Instrumentation
Products Div.
Black Star Ltd.
Fluke Mfg. Co., John
Hewlett-Packard Co.

i INOVONICS . . . an industry leader in broadcast audio since 1972!

Since 1972, Inovonics has provided disarmingly affordable, top-quality equipment to broadcast and audio professionals worldwide. Our dedication to innovative, leading-edge technologies is demonstrated in the 1982 introduction of programmable audio processing, extensive use of pulse modulation and other digital techniques, and our pioneering work with the FMX™ system.

As we enter a new decade, Inovonics reaffirms its commitment to cost-effective excellence in professional audio.



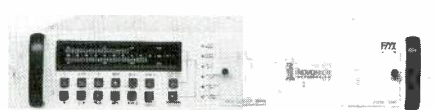
250—Programmable Stereo Processor for AM, FM and TV. AGC, 5-band Compressor/EQ, Split-band FM or Matrix AM Peak Control. Five separate processing setups, or may be computer-controlled.

255—Triband/PWM Stereo Processor for aggressive FM-Rock for mats. AGC, 3-band Compressor/Limiter.

260—Multifunction Stereo Processor for FM and TV. AGC and Split-band Compressor/Limiter.



222—"NRSC" Mono Processor for AM to increase intelligibility and coverage. Exceeds NRSC-1 spec. Also available in European and Shortwave versions.



705 and 706—Stereo Generators with patented overshoot compensation and overmodulation protection. CBS/NAB FMX™ Coverage-Extension System available as a plug-in option.



"TVQ"—Puts VU/PPM Audio Level Monitoring on a video monitor where it can't be missed!

Inovonics Inc.

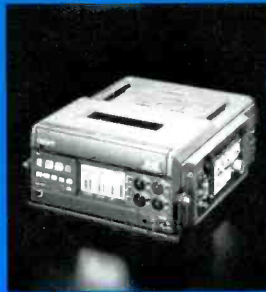
1305 Fair Avenue
Santa Cruz, CA 95060

CALL: 1-800-733-0552
FAX: (408) 458-0554



Circle (26) on Reply Card

BERC® PRESENTS COAST TO COAST RENTAL RELIABILITY



We know that the most important video productions

start with superior video equipment. That's why when you rent BERC® equipment, you're renting the reliability of over seventeen years of experience in the rental industry. We demand that every piece of gear is proof-of-performance tested prior to every rental and that it's packaged properly and accurately. And we stay technologically ahead of the game so you don't have to. So, from one Betacam to multiple camera air-pack systems, BERC® in Burbank, Boston and San Diego can provide your every video requirement.

BERC®

BROADCAST EQUIPMENT RENTAL COMPANY

818-841-3000

SAN DIEGO, CA
619-272-3000
4903 Morena Blvd. Ste 1206
San Diego, CA
FAX 619-272-2061

BURBANK, CA
818-841-3000
4545 Chermak
Burbank, CA 91505
FAX 818-841-7919

BOSTON, MA
617-229-7799
Sullivan Video Services
111 S. Bedford St. #205
Burlington, MA 01803
FAX 617-229-1533

Test, Ancillary & Support Products

Color highlighting denotes advertisers and ad page numbers

Hitachi Denshi America 3
 Leader Instruments Corp. 33
 OpTex
 Rohde & Schwarz 159
 Sencore
 Sperry Instruments, A. W.
 Tektronix 119, 171, 172
 Vortex Communications Ltd.

Leitch Video 87
 PESA America
 Rohde & Schwarz 159
 Sigma Electronics
 System Video
 Vortex Communications Ltd.
 World Video

Digital Processing Systems
 Leitch Video 87
 Optical Disc Corp.
 Philips TV Test Equipment
 Rohde & Schwarz 159
 System Video
 Tektronix 119, 171, 172
 Video Data Systems

Anton/Bauer
 Birns & Sawyer
 Christie Electric Corp.
 Cine 60
 Energen Systems Corp.
 Film/Video Equipment Service Co.
 Frezzolini Electronics
 G&M Power Products
 Gray Supply Co.
 Motorola, Communications Sector
 OpTex
 Paco Electronics USA
 PAG Ltd.
 Panasonic Broadcast Systems . 64-65
 Periphex
 PERROTT Engineering Labs
 Pro Battery Co.
 Reliance Comm/Tec
 Target Tuning
 Tungstone Batteries
 VDO-PAK
 Whirlwind

RECORDER TEST SYSTEMS

Excludes general categories of distortion analyzer, audio generator, level, noise measurement equipment; includes tension and alignment products.

Amber Electro Design 185
 Asaca/Shibasoku Corp. of America
 Audio Precision 145
 Consultronics
 Rohde & Schwarz 159
 Sound Technology
 Tentel

RF GENERATORS

Stand-alone; excludes products designed used as part of a transmitter.

Boonton Electronics Corp.
 Fluke Mfg. Co., John
 Hewlett-Packard Co.
 Kay Elemetrics Corp. 104
 Leader Instruments Corp. 33
 MCL 103
 Rohde & Schwarz 159
 Sencore
 TRW LSI Products

RF LEAD RESISTORS, DUMMY LOADS

Altronic Research
 Bird Electronic Corp.
 Coaxial Dynamics
 Continental Electronics 48
 Dielectric Communications
 Electro Impulse Lab
 Harris Allied Broadcast Equipment
 ITAME 75
 ITELCO
 JFW Industries
 Kintronic Labs
 Loral Microwave-Narda
 Marconi Communication Systems Ltd.
 MFJ Enterprises
 Micro Communications
 Penstock
 Rohde & Schwarz 159
 SIRA s.r.l.
 UTE Microwave
 Vector Technology
 Wide Band Engineering Co.

SC/H PHASE MEASUREMENT, DISPLAYS

excludes waveform, vector monitors with SC/H phase measurement capability.

BPI/Porta-Pattern
 Hamlet Video International Ltd.
 Icon Electronics Corp.

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to:
BE Directory Editor, PO Box 12901, Overland Park, KS 66212.

SEMICONDUCTOR TESTERS

Beckman Industrial/Instrumentation Products Div.
 Hewlett-Packard Co.
 Leader Instruments Corp. 33
 Sencore

TIME DOMAIN REFLECTOMETERS

Beckman Industrial/Instrumentation Products Div.
 Biddle Instruments
 Delta Electronics
 Riser-Bond Instruments
 Tektronix 119, 171, 172

VECTORSOPES

A.F. Associates 97
 BPI/Porta-Pattern
 BTC Test & Measurement
 Electronic Visuals Ltd.
 Hamlet Video International Ltd.
 Hitachi Denshi America 3
 Leader Instruments Corp. 33
 Magni Systems 79
 OpTex
 Philips TV Test Equipment
 Snell & Wilcox 94
 System Video
 Tektronix 119, 171, 172
 Videotek

VIDEO GENERATORS

Pattern, blackburst, color bar; includes programmable systems.
 AVS France
 B&K Precision Maxtec International
 Black Star Ltd.
 Boland Communications
 BPI/Porta-Pattern
 Brabury International
 BTC Test & Measurement
 Cox Associates Ltd.
 Electronic Communication Systems
 Fluke Mfg. Co., John
 Horita Co.
 Leader Instruments Corp. 33
 Leitch Video 87
 Magni Systems 79
 Multidyne Electronics
 OpTex
 Philips TV Test Equipment
 Polar Video Ltd.
 QSI Systems
 Rohde & Schwarz 159
 Sigma Electronics
 System Video
 Tektronix 119, 171, 172
 Video Accessory Corp.
 Videotek
 Vortex Communications Ltd.

VITS, VIRS GENERATORS, INSERTERS

Aston Electronic Designs Ltd.
 AVS France
 BTC Test & Measurement

VSWR INDICATORS, DETECTORS

Bird Electronic Corp.
 Coaxial Dynamics
 ITELCO
 MFJ Enterprises
 Shively Labs/Howell Labs
 Wide Band Engineering Co.

WAVEFORM MONITORS

A.F. Associates 97
 Beckman Industrial/Instrumentation Products Div.
 BPI/Porta-Pattern
 BTC Test & Measurement
 Dranetz Technologies
 Electronic Visuals Ltd.
 Hamlet Video International Ltd.
 Hewlett-Packard Co.
 Hitachi Denshi America 3
 Leader Instruments Corp. 33
 Magni Systems 79
 OpTex
 Philips TV Test Equipment
 Snell & Wilcox 94
 Tektronix 119, 171, 172
 Videotek

Support Products

ACOUSTIC MATERIALS

Acoustic Systems
 ASC-Tube Traps
 Azonic
 Canford Audio plc
 Discrete Technology Labs
 Illbruck Sonex Acoustical Div.
 Alpha Audio IFC
 Industrial Acoustics Co.
 Island Cases
 ITELCO
 Ram Broadcast Systems
 RPG Diffusor Systems
 Systems Development Group

ATTENUATORS, FIXED, IMEPDANCE MATCHING

Allen Avionics
 Dukane Corp.
 Eagle Radio Frequency Filters
 EEV 71
 FSR
 JFW Industries
 Kintronic Labs
 Matthey Electronics
 Penstock
 Shaico
 Tech Labs
 Wide Band Engineering Co.

BATTERIES, CHARGERS, ANALYZERS & RECONDITIONERS

Alexander Batteries

BLOWERS, FANS

Ventilation products; includes facilities air-conditioning systems.
 Amco Engineering Co.
 Winsted Corp.

CAPACITORS, HV

Continental Electronics 48
 EEV 71
 Plastic Capacitors
 Surcom Associates
 Voltronics Corp.

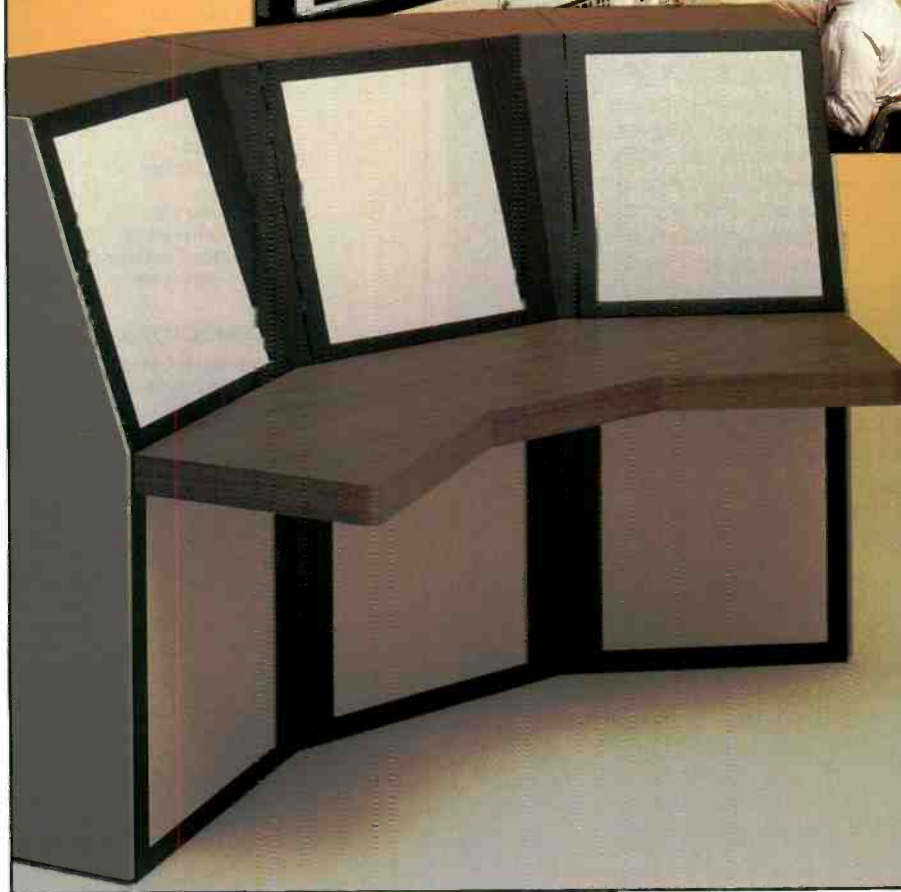
CARTS, A/V EQUIPMENT UTILITY

Advance Products Co.
 Apollo Audio Visual/Lighting
 Audiopak
 Birns & Sawyer
 Brettford Mfg.
 Canford Audio plc
 Cine 60
 Ferno-Washington
 Luxor Corp.
 Neumade Products Corp.
 OpTex
 Parsons Mfg. Corp.
 Star Case Mfg. Co.
 Wheelit
 Winsted Corp.

CASES, EQUIPMENT TRANSPORT

Aarmor Case Co.
 Anvil Cases/Subsidiary Zero Corp. 99
 Bagton (USA) Ne
 Calzone Case Co.
 Canford Audio plc
 Cine 60
 Dago Cases
 EDAK
 Hand Tool Industries
 Hardigg Industries
 Heitz, Karl
 Island Cases
 Jensen Tools
 K&H Products-Porta-Brace
 Keystone Metal Products
 Nalpak Video Sales
 Neumade Products Corp.
 O'Connor Engineering
 OpTex
 Parsons Mfg. Corp.
 Plastic Reel Corp. of America

When your broadcast specs call for consoles, call for *Emcor*[®]



You know what the station needs in its control room; now you want the right enclosures. Emcors modular design allows you to customize a console to fit your needs. Choose from slope front, vertical and low silhouette enclosures and much more — just what you need to mount your control panels, switchers and preview monitors. In all, there are 6 distinct product lines and more than 9,000 standard items, including a full range of accessories such as drawers, equipment shelves, slide out shelves and hundreds of console writing top configurations.

Emcor enclosures are attractive as well as rugged. Consider your appearance options — decorative trim in a variety of styles, 16 standard paint colors in a smooth or textured finish, and 14 standard laminates from which to choose. Also, our ACS Digital Color Computer allows us to match any color you desire.

If you need it extra fast, Instant Emcors, our off-the-shelf stock program, has a large variety of our most popular items ready to ship in just 5 working days. If you have a custom requirement, count on Emcors to provide you with the best design engineering and manufacturing services available anywhere.

No matter what your requirement, Emcors has what broadcasters want!



Crenlo, Inc.

1600 - 4th Ave. N.W.
Rochester, MN 55901
Phone 507-289-3371
FAX #507-287-3405

EMCOR[®]

Ancillary & Support Products

Color highlighting denotes advertisers and ad page numbers

Polyline Corp.
Professional Label Service
Ram Broadcast Systems
Reliance Plastics & Packaging Div.
Star Case Mfg. Co.
Strand Lighting
Telfax Communications
Thermodyne International
Tiffen Mfg. Corp.
Viking Cases

CHEMICALS

Cleaning, conditioning treatment products.
CAIG Labs

DW Electrochemicals
Geneva Group of Companies
Micro-Circuits Co.
Mitchell Co., E.C.
Ram Broadcast Systems
Tayo Industries
TECH-SA-PORT

CLOCKS

Master, synchronized studio time displays.
AVS France
Beaveronics
BPI/Porta-Pattern
Broadcast Automation

Canford Audio plc
ChronTrol Corp.
Dukane Corp.
DYMA Engineering
ESE 169
Evertz Microsystems Ltd.
Leitch Video 87
maney Logic
Ram Broadcast Systems
Seem Audio
Time Service Systems
Torpey Controls & Eng. Ltd.
Vistek Electronics Ltd.
Vortex Communications Ltd.

COAXIAL CABLE

RF, video; excludes transmission line products rated greater than 1kW.
Alpha Wire Corp.
Andrew Corp.
Arcor Broadcast Products
AVA Electronics Corp.
AVS France
Belden Wire & Cable 27
Berk-Tek
Bi-Tronics
C.A.E.
Canare Cable 143
Canford Audio plc
CCTV Corp.
Chester Cable/Alcatel n.a.
Clark Wire & Cable
Comprehensive Video Supply Corp.
DYMA Engineering
Gabriel Electronics
Mohawk Wire & Cable Corp. 109
Nemal Electronics International
OpTex
Penstock
Shively Labs /Howell Labs
Teledyne Thermatics
Trompeter Electronics
Wireworks Corp.

COMPONENTS, ELECTRONIC

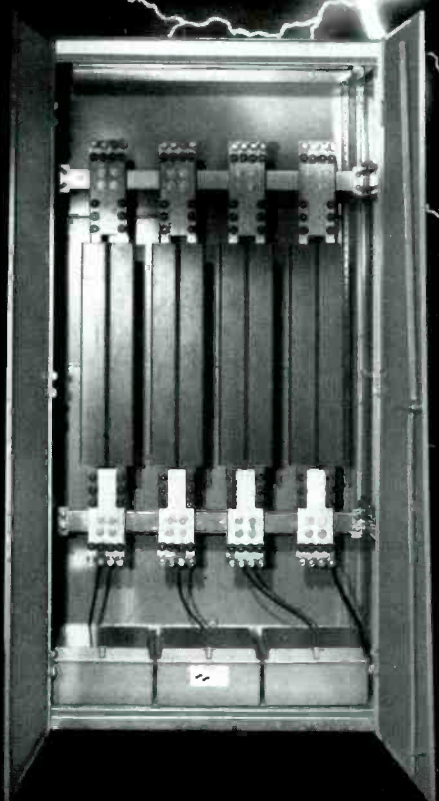
Resistors, capacitors, inductors; solid-state devices; panel indicators.
Allen Avionics
Alpha Wire Corp.
Altronic Research
Boland Communications
Calex Mfg. Co.
EEV 71
Gennum Corp.
Kintronic Labs
Lamp Technology
Ledtronics
Norlake Mfg. Co.
Philips Components
Richardson Electronics Ltd.
Target Technology

CONNECTORS, ALL TYPES

Including RF, electrical, fiber-optic and data communications.
Alpha Wire Corp.
AMP
Andrew Corp.
Arcor Broadcast Products
Audio-Technica U.S.
AVA Electronics Corp.
AVS France
Belden Wire & Cable 27
Beyer Dynamic
Bi-Tronics
Bird Electronic Corp.
Blonder-Tongue Labs
C.A.E.
Canare Cable 143
Canford Audio plc
CCTV Corp.
Chromatic Technologies
Clark Wire & Cable
Comprehensive Video Supply Corp.
Connectronics Corp.
Crouse-Hinds CAM-LOK Products
ITELCO
ITT Cannon, Canada
Jensen Tools
Kings Electronics Co.
Mohawk Wire & Cable Corp. 109
Nemal Electronics International
Neutrik USA
OFTI
Penstock

Islatron®

before the "damage" is done...




Islatron power line protection safeguards both your income and your broadcast investment.

Islatron's patented Active Tracking® technology not only protects your station from lightning induced voltages, but also from the cumulative daily degradation of your equipment caused by electrical disturbances present on your distribution systems. This constant protection means longer equipment life and less maintenance.

I.E.E.E. studies indicate every location has at least 3 damaging disturbances per day. Remote control systems, satellite links, VCR's, switchers, carts, microprocessors and solid state equipment all need Islatron protection. Units are available for your lowest power requirements up to the largest FM and TV transmitters. MTBF more than Ten Years, 5 Year Warranty.

Free: Get the facts on the exclusive Islatron Active Tracking system...before the damage is done.



CONTROL CONCEPTS CORPORATION

CONTROL CONCEPTS BROADCAST GROUP
P.O. BOX 1380
328 WATER STREET
BINGHAMTON, NY 13902
(607) 724-2484

See us at SBE Booth #601 and at NAB Booth #5246

Circle (23) on Reply Card

The 16x Router Series offers:

system compatibility

This latest family of broadcast quality 16 x 16 switchers allows video, audio and data routing in the same system, all operating on a common control bus.

Fill your routing requirements now and add on as you grow. Single or multiple units up through 8 levels can be controlled from one or more locations with a variety of control panels or the optional RS-232 interface.



FEATURES

Video

- Available in 16 x 16, 16 x 8, 16 x 4, 8 x 8, and 4 x 4 composite; 8 x 8, 5 x 5 and 4 x 4 component
- Vertical interval switching
- Terminating inputs
- Differential inputs/outputs
- Expandable

Audio

- Available in 16 x 16, 16 x 8, 16 x 4, 8 x 8, and 4 x 4
- Stereo, dual, or monaural in 1 RU
- Balanced Inputs/Outputs
- Expandable

Data*

- True 4-wire system providing 2-way digital paths for routing of RS-422 signals
- ANSI/SMPTE 207M-1984 interface standard pin-out using 9-pin subminiature "D" connector
- Regenerative, operationally transparent
- Expandable

Control

- Proprietary RS-485 compatible
- Panels available in local/remote 16 x 16, 16 x 8, 16 x 4, 8 x 8, 4 x 4, single/dual bus, and breakaway
- Alpha-numeric remote
- Thumbwheel (single, dual or triple bus)
- Optional RS-232 interface module

Contact your HEDCO dealer for information or call:

HEDCO (800) 433-2648

Fax: (304) 366-0522

HEDCO

A SUBSIDIARY OF LEITCH VIDEO LIMITED

Circle (28) on Reply Card

825K Greenbrier Circle, Chesapeake, VA 23320

Ancillary & Support Products

Reliance Comm/Tec
RF Industries
Shively Labs/Howell Labs
Siecior Corp.
Superior Electric Co., The
Switchcraft
Target Technology
Trompeter Electronics
Union Connector Co.
Veam/Litton Systems
Whirlwind
Wireworks Corp.

FIBER-OPTIC EQUIPMENT

Cable and terminal equipment.
ADC Telecommunications

American Laser Systems
American Lightwave Systems
AMP
Artel Communications Corp.
Belden Wire & Cable27
Berk-Tek
Bi-Tronics
Chromatic Technologies
Clark Wire & Cable
COMLUX
DMC Digital Video Div. of Digital
Microwave Corp.
DYNNAIR Electronics35
Grass Valley Group
Integrated Switching Systems
Intraplex99
Kathrein-Werke KG

Color highlighting denotes advertisers and ad page numbers

LNR Communications
Mohawk Wire & Cable Corp. 109
National Photonics
NVision
OFTI
Orchard Communications
Ortel Corp.
PCO
Penstock
RF Technology
Siecior Corp.
Veam/Litton Systems

FILM INSPECTION, CLEANING, EQUIPMENT

Birns & Sawyer

Lipsner-Smith Co.
Neumade Products Corp.
RTI-Research Tech. International
Steenbeck

FILTERS, VIDEO HUM-REDUCTION

Allen Avionics
Audio-Video Engineering Co. 101
Broadcast Video Systems 167
Deerfield Lab
Eagle Radio Frequency Filters
FM Systems
Matthey Electronics
Multidyne Electronics
North Hills Electronics 44
Shintron Co.
Vortex Communications Ltd.

LABELS

Cart, cassette, ID, cabling, panel;
adhesive-backed.
Audio Chicago
AVS France
Canford Audio plc
Catamount Mfg.
CoarcVideo
Markertek Video Supply
Patch Bay Designation
Professional Label Service

LIGHTS, STUDIO ON-AIR WARNING

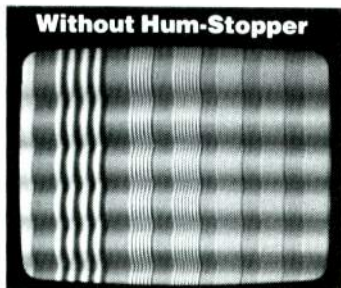
AVS France
Brabury International
Canford Audio plc
Fidelipac Corp.
Frezzolini Electronics
Henry Engineering
Philips Lighting
Titus Technological Labs

PATCH PANELS, CABLES ACCESSORIES

ADC Telecommunications
Audio Accessories, Inc. 106
Avitel Electronics Corp.
AVS France
Belden Wire & Cable 27
Bi-Tronics
Boland Communications
Brabury International
C.A.E.
Canare Cable 143
Canford Audio plc
Clark Wire & Cable
Connectronics Corp.
D&R Electronica
Drake Electronics Ltd., Philip 52
Ergo Industries
ITI Electronics
Jem-Fab Corp.
Kings Electronics Co.
Kintronic Labs
Lumitrol
McCurdy Radio Industries
McCurdy Telecommunication Products
Micro Communications
Nemal Electronics International
Packaged Lighting Systems
Penny & Giles
Ram Broadcast Systems
Seam-Tech
Seem Audio
Shively Labs Div. of Howell Labs
Siecior Corp.
Switchcraft
Trompeter Electronics



- Eliminate ground-loop problems (hum, cross-talk, voltage differentials, etc.) on video and other wideband data lines.
- Insure outstanding signal transmission with over 120 dB attenuation of interference at power line frequencies.



For the ultra-wide bandwidth and low, flat insertion loss needed by broadcast or remote TV lines. For security, CCTV or Industrial Process Control systems. For high-speed Data Lines or Medical Imaging Equipment. Whatever your needs, there's a North Hills Isolation Transformer designed to meet them. Engineered for unmatched reliability. Standard insulated BNC connectors for easy installation. Backed by a 3-year warranty — it's the widest selection of Wideband Isolation Transformers available anywhere. And it's available now! Competitively priced! Right off the shelf!

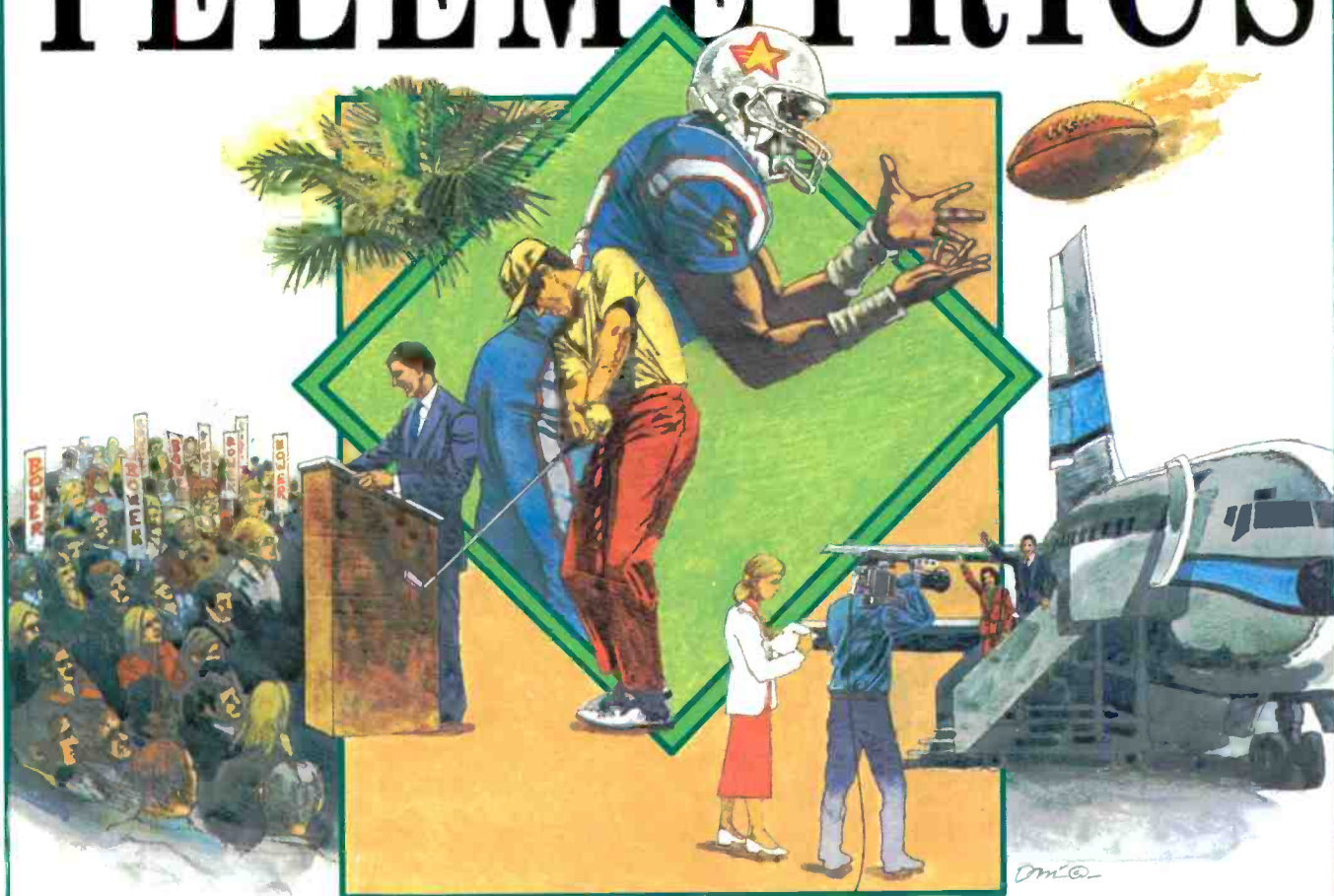
For details, dial: 516-671-5700. Or write for our new catalog.

North Hills Electronics, Inc.

1 Alexander Place, Glen Cove, NY 11542-3796 (516) 671-5700 Telex: 46-6886 FAX 516-759-3327

Circle (29) on Reply Card

TELEMETRICS



Takes You Where The Action Is.

On the football field. In the streets. At the convention. When it's happening live, Telemetrics is there...and we have been for more than 20 years.

The innovative and economical Telemetrics Camera Control System consists of a portable Triax Adaptor linked via Triax or Coax cable to a compact, one-rack unit Base Station. All signals are transmitted on one cable—Video, Audio, Control, Interphone, Genlock, Tally and Power—with a range of up to 5,000 feet.

No matter what camera you use, we have a Triax Unit that's customized to complement its unique features.

All of them. Lightweight, portable and easy-to-operate, our Triax Adaptors are completely compatible with serial data for Pan/Tilt-Zoom/Focus and Remote Control.



For ENG and EFP-type cameras—
Sony, Panasonic, Hitachi,
Ikegami and BTS.

Telemetrics. We take you where the action is.

Reducing your operating costs.

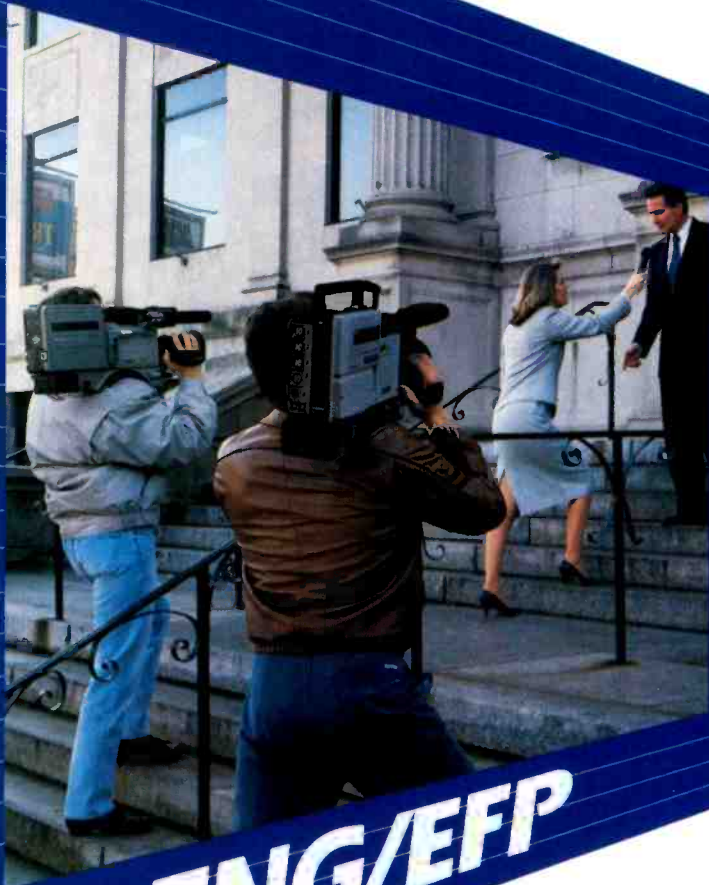
Increasing your programming flexibility.

With complete, unparalleled reliability.

Telemetrics Inc.

7 Valley Street, Hawthorne, N.J. 07506
Tel. (201) 423-0347 Fax (201) 423-5635
Ask for info on Pan/Tilt Systems.

Panasonic Has Down To



ENG/EFP



STUDIO

Selecting the most comprehensive video production system has never been easier. The Panasonic® Professional Video Production System is designed for total systems operation in the field, studio, editing suite and for virtually any playback operation.

The SVHS recording format is at the heart of Panasonic's comprehensive video production system. It provides a new level of high performance and cost efficiency across the spectrum of video recording and playback. One look at the numbers tells it all. Five generations of signal integrity, 400 lines of resolution and two-hour operation on a single cassette.

It is Panasonic performance you'll benefit from in the field. Panasonic's compact SVHS camcorders feature component signal technology and the efficiency of half inch cassettes. Including both

dockable and fully integrated one-piece units. And only Panasonic has SVHS camcorders available with three, two and single CCD image sensors. So you can specify the configuration that best satisfies your requirements. Panasonic lets you decide what's best for you.

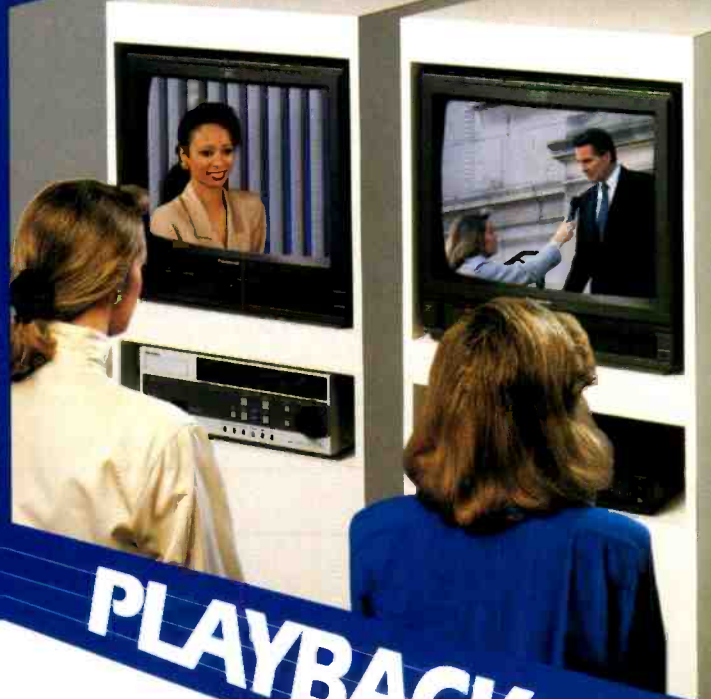
Panasonic also captures all the details in the studio. With CCD cameras that feature component outputs to take full advantage of the SVHS recording format. And to make sure all the action you're recording looks its absolute best, Panasonic monitors allow you to easily analyze any video signal from any video source. A safeguard you'll appreciate during postproduction and final playback.

You can complement the performance of SVHS with the sophistication of Panasonic's MII recording format. The MII format delivers the operational characteristics you need for demanding broadcast

Video Production A System.



EDITING



PLAYBACK

and postproduction applications. Like a luminance bandwidth of 4.5MHz, a K factor of 2% and a signal-to-noise ratio in excess of 50dB. It provides images that equal one inch VTRs with signal integrity that exceeds five generations of recording.

The integration of SVHS and MII video production components adds a new dimension to video system specialization. Because you can select the Panasonic components you need for the highest degree of performance and flexibility for specific system applications.

Panasonic SVHS and MII editing components provide a host of sophisticated features designed for virtually any application. From programmable 128 event A/B roll systems with time base correction to highly accurate insert and assembly systems. In addition, Panasonic speaks the industry's language with RS-422 VCR control interface components and video signal transcoders

for inter-format editing

And for highly efficient playback operation, there's Panasonic's line of professional SVHS, MII and VHS VCRs, monitors and projection systems.

Make Panasonic your choice. After all, Panasonic has video production down to a system.

For more information and your local dealer,
call your nearest regional office.

Eastern Zone: (201) 348-7620 • Central Zone: (708) 981-4826

Southern Zone:

Dallas Region: (817) 685-1117 • Atlanta Region: (404) 717-6841

Western Zone:

Seattle Region: (206) 285-8883 • Los Angeles Region: (714) 373-7275

Panasonic
Professional/Industrial Video

Ancillary & Support Products

Color highlighting denotes advertisers and ad page numbers

Union Connector Co.
Videoquip Research Ltd.
Whirlwind
Wireworks Corp.

POWER GENERATORS, STANDBY

Motor-generator, solar, power in-
verters, UPS.
Alpha Technologies
Behlman, A Fiskars Co.
Best Power Technology
Dynamote Corp.
Fort Worth Tower Co.
Kalglo Electronics
Neumade Products Corp.
Nexus Engineering Corp.
Northern Power Systems
Nova Electric
Perma Power Electronics
Reliance Comm/Tec
Sine Control International Corp.
Sola/General Signal
Staco Energy Products 100
Teledyne Energy Systems

POWER LINE CONDITIONERS

Includes surge suppression, lightn-

ing protection products; grounding
products.
Alpha Technologies
Bi-Tronics
Control Concepts Corp. 42
Current Technology
Discrete Technology Labs
Kalglo Electronics
Lightning Eliminators & Consultants
Lightning Prevention Systems
Lyncole XIT Grounding
MCG Electronics
Nexus Engineering Corp.
Northern Technologies
Perma Power Electronics
PolyPhaser Corp.
Power Integrity Corp.
Sine Control International Corp.
Sola/General Signal
Staco Energy Products 100
Strand Lighting
Superior Electric Co., The
Transtector Systems
United Systems

RACKS, EQUIPMENT ENCLOSURE

Aarmor Case Co.
Amco Engineering Co.
Andrew Corp.

Arrakis Systems 93
Atlas/Soundolier
AVS France
BFE AG
Bi-Tronics
Broadcast Automation
Calzone Case Co.
Canford Audio plc
Clark Wire & Cable
D&R Electronica
Dukane Corp.
Emcor Products Orenlo 41
Ergo Industries
General Devices Co.
GKM Mfg. Corp.
Hem-Fab Corp.
Harris Allied Broadcast Equipment
Island Cases
Jem-Fab Corp.
Keystone Metal Products
Kintronic Labs
Luxor Corp.
McCurdy Telecommunication Products
Mobile-Cam Products
Modular Audio Products/Modular
Devices
Neumade Products Corp.
Newton Instrument Co.
Nexus Engineering Corp.
OpTex
Packaged Lighting Systems
Parsons Mfg. Corp.
Perma Power Electronics
Ram Broadcast Systems
Recortec
RTI-Research Tech. International
Ruslang Corp.
Skaggs Telecommunications Service

Sonifex Ltd.
Thermodyne International
Union Connector Co.
Viking Cases
Winsted Corp.
Zero Stantron Cabinets

RECORD CARE PRODUCTS

Audiolab Electronics 50
CoarcVideo
Geneva Group of Companies
Keith Monks Ltd.

RECORDER ACCESSORIES

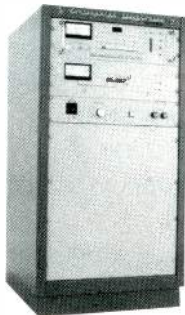
Includes head-cleaning products, re-
placement parts, transport motors.
Annis Co., R.B.
CAIG Labs
Geneva Group of Companies
Inovonics 38
TECH-SA-PORT

REELS, CABLE

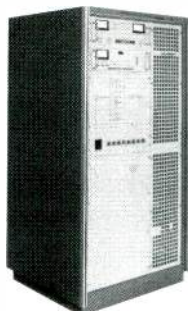
AVS France
Bi-Tronics
C.A.E.
Canare Cable 143
Canford Audio plc
Connectronics Corp.
Keith Monks Ltd.
Mobile-Cam Products
Mohawk Wire & Cable Corp. 109
OpTex
Plastic Reel Corp. of America

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to: **BE Directory Editor**, PO Box 12901, Overland Park, KS 66212.

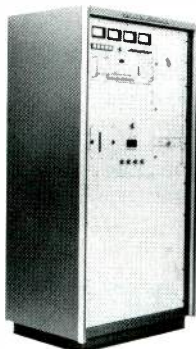
COMPLETE YOUR DEFINITION OF "CLASS A," CALL CONTINENTAL ELECTRONICS



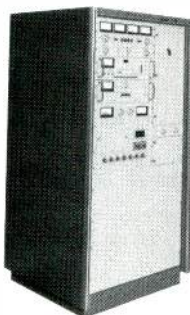
500/1000W



3.8 kW



2.5 kW



5 kW

Continental Electronics is here to assist you with your new definition of "Class A." You can increase power, increase revenue base, and expand your listening audience by upgrading your transmitting facility.

Continental has engineered four transmitters to meet your needs. The 500/1000 Watt transmitter is single phase and is only 42 inches tall. This transmitter and the 3.8 kW are totally solid-state and designed for high efficiency and reliability.

The 2.5 kW and the 5 kW transmitters are single tube transmitters. All Continental FM transmitters include an internal harmonic filter and the Ultimate 802A Exciter.

For service after the sale, call the Continental 24-hour tech line. At Continental, service is an attitude, not a department.

So, call your Continental Sales Manager to get the complete definition of "Class A."

varian®

continental electronics division

P.O. Box 270879 Dallas, Texas 75227
Telephone: 214-381-7161 Fax: 214-381-4949 Telex: 73398





“For Dependability and Quality, You Can’t Beat the Odetics Cart Machine...”

“Since we switched over to the Odetics TCS2000 Cart Machine, on-air discrepancies have dropped from about six per day to virtually none. And the quality has improved dramatically .

Our old machines were labor intensive. Too much time was spent daily pulling carts from storage and programming. We needed a machine that would do away with human effort...and human error.

I shopped and compared for over two years before I settled on the TCS2000. The other machines I researched didn’t have the Odetics level of automation, and they were not nearly as dependable.

I’ve been especially impressed with the Odetics machines ability to download from our traffic computer and generate a play list. Not only does that feature save time and effort, it eliminates

the error factor. And, of course, if we don’t have on-air failures, we don’t worry about makegoods.

The on-air appearance of the station is 100% better now. That’s a big morale booster for everyone here. And the machine has certainly made my job easier. I don’t miss those phone calls about our old machines problems at all hours of the night.

I didn’t know a lot about Odetics before I bought their equipment, so I asked for a factory tour and demonstration. After I saw the large-scale robotics work the company was doing for the space industry as well as the broadcast business, I knew Odetics had the automation expertise I needed. In fact, I would strongly recommend that any chief engineer looking at cart machines take that factory tour. Also, I knew

Odetics had already installed about 80 machines at other stations, so I called some of those chief engineers. I didn’t talk to anyone who wasn’t happy with the Odetics machine.

Most of the engineers I talked to emphasized the exceptional after-sale service and support Odetics provided. We found that out for ourselves when our new machine was installed. The training and support our operations people got was efficient, thorough and highly professional.

If you’d like to know about what the Odetics cart machine has done for KPHO, why not get some firsthand information? Feel free to give me a call at (602)264-1000.”

**Bill Strube, Director of Engineering
KPHO, Phoenix**

Odetics Broadcast

1515 South Manchester Avenue, Anaheim, California 92802-2907 Phone (800) 243-2001 or (714)774-2200

Circle (33) on Reply Card

Support Products

Professional Label Service
Rapid Deployment Towers
Roll-A-Reel Co.
Seam-Tech

SHIELDING, RF/EMI

Current Technology
Equipto Electronics Corp.
Industrial Acoustics Co.
LBA Technology
Micro-Circuits Co.

STATIC SUPPRESSORS, ENVIRONMENTAL CONTROLS

Cortana Corp.
Equipto Electronics Corp.
Lightning Prevention Systems
Micro-Circuits Co.
Sine Control International Corp.
Solder Absorbing Technology
TECH-SA-PORT
3M Electrical Specialties Div.

STORAGE SYSTEMS

Including racks and shelves for
videocassettes, cartridges, CDs, etc.
Canford Audio plc
CoarcVideo
Continental Electronics 48
Equipto Electronics Corp.
Fidelipac Corp.
Kintronic Labs
Neumade Products Corp.

Plastic Reel Corp. of America
Ruslang Corp.
Storeel Corp.
Video Storage Concepts
Western Int'l. Communications Ltd.
Aristocart Div.
Winsted Corp.
Zero Stantron Cabinets

STUDIO SCENERY, DRAPERIES, SETS

Arrakis Systems 93
Canford Audio plc
Hoffend & Sons
Lumitrol

TAPE CLEANERS, EVALUATORS, CONDITIONERS

Accurate Sound Corp.
Allsop
Geneva Group of Companies
Recortec
RTI-Research Tech. International

TAPE, HEAD DEGAUSSERS

Conveyor, non-moving types.
Ampex Corp. 112
Annis Co., R.B.
Audiolab Electronics 50
Canford Audio plc
Data Security
Garner Industries
Geneva Group of Companies

Color highlighting denotes advertisers and ad page numbers

Ram Broadcast Systems
RTI-Research Tech. International
Sanix Corp.
Sonifex Ltd.
Videomagnetics
Weircliffe International Ltd.
Wide Range Electronics Corp.

Paladin Corp.
Panasonic Broadcast Systems 64-65
Royal Soldering Systems
Techni-Tool
VideoLab
Western Electronic Products Co.
White Co., Brian R.

TIMERS

Audico Chicago
AVS France
Beaveronics
Canford Audio plc
ChronTrol Corp.
Conex Electro Systems 184
ESE 169
Evertz Microsystems Ltd.
QSI Systems
Radio Systems
Ram Broadcast Systems
Solder Absorbing Technology
Torpey Controls & Eng. Ltd.
World Video

TOOLS, KITS

Arcor Broadcast Products
AVS France
Bi-Tronics
Black Audio Devices
Canare Cable 143
Canford Audio plc
Contact East
Hand Tool Industries
Jensen Tools
Micro-Circuits Co.
OrCad Systems Corp.

VEHICLES, PRODUCTION, ENG/SNV

A.F. Associates 97
Advent Communications
AVS France
BAF Communications Corp.
Cycle-Sat
Harris Allied Broadcast Equipment
Midwest Communications Corp.
Mobile-Cam Products
OpTex
Roscor Corp.
Shook Electronics USA
Societe Anonyme Des Techniques
Digitales Digitec S.A.
Television Engineering Corp.
Wolf Coach

VOLTAGE REGULATORS

High-power systems transmitter
operation.
Hipotronics Power Products Div.
Northern Technologies
Sine Control International Corp.
Sola/General Signal
Superior Electric Co., The

AVOID COSTLY TRANSMISSION LINE FAILURES...

with our patented K-Line thermo-coupler
and state-of-the-art rigid coaxial
transmission lines.

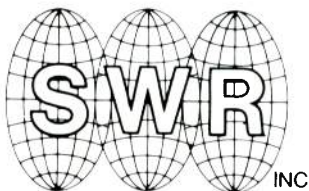
*In our early years, servicing others company's products,
we found inherent weaknesses in every design.*

*We resolved to find solutions to those problems and we
did just that.*

*Our patented K-Line has replaced other manufacturers'
lines, however, to our knowledge, no other company's line
has ever replaced ours.*

*That says something. And so does our 5 year warranty,
an industry first.*

Call or write for a solution to your transmission problems.

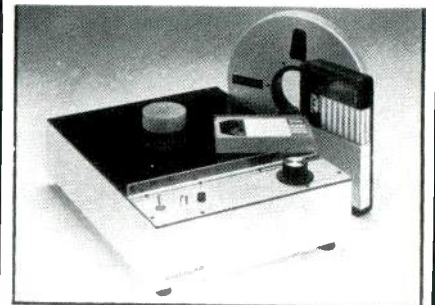


Systems With Reliability, Inc.
TRANSMISSION LINES AND ANTENNAS

P.O. Box 856
Ebensburg, PA 15931-0856
1-800-762-7743
FAX: 1-814-472-5552

Circle (34) on Reply Card

HIGH ENERGY DEGAUSSER Model TD-5



Erases all formats including:

Beta SP, D1 & D2
MII
Reels up to 2" x 16"

Features:

High Gauss Field
Gauss Field Orientation
Continuous Duty Capability
Built-in Timer
Thermal Overheat Protection

Call to arrange your Free Demo Tape

Manufactured by:

**AUDIOLAB
ELECTRONICS, INC.**

5831 Rosebud Ln., Bldg. C
Sacramento, CA 95841
Phone (916) 348-0200
FAX (916) 348-1512

Circle (35) on Reply Card



Face the Truth.

The only sure way to know if a DAT recorder meets your professional needs is to turn it around and see if it has the right connections.

The Fostex D-20 does. It operates just like much more expensive open reel 2-channel recorders with SMPTE/EBU capability.

Synchronize • Monitor Tape • Punch-In/Out • Control Pitch

You can post-stripe time code on an existing DAT tape (recorded on any DAT machine), or you can record time code and stereo audio on the D-20 and play that tape back on any other DAT machine with complete compatibility.

The 20-pin synchronizer port allows interface with our synchronizer system (others as well) and there's an RS-422 port for control which requires serial communication.

Then there's an external sync input for composite video, plus Word Sync Input and Output capability - all standard on the D-20.

In our unique 4-head system, two pairs of heads are positioned around the drum at 91.5° intervals. One pair is for record, the other for reproduce; but it's the revolutionary ability to reverse functions that opens up the format for true professional use.

Thus the D-20 features off-the-tape monitoring - a very important feature considering the DAT's ability to record for two straight hours (no more multiple reels and alignment hassles).

You'll be able to control all transport functions by remote control - including instant punch-in/out. Built-in cross-fade timing gives you seamless punches.

There's even a pitch control complete with digital read-out. It's on our front panel (not shown), along with other professional touches.

The D-20 has been shipping since last year and it's being used daily in audio and video post-production suites. It works.

And it will keep on working as future software is developed, thanks to the built-in flexibility of the DIP switches and an additional 40-pin connector.

Most important of all, the D-20 sounds great. It records and reproduces all the music completely, faithfully, and better than analog alternatives.

So when it comes down to professional *performance*, plug into the digital master recorder that faces the truth, back against the wall.

D-20 Digital Master Recorder FOSTEX®

Complete technical information is available in the form of reprints of "A Professional R-DAT Recorder", presented at the 85th AES Convention, November 6, 1988. Please send a check or money order in the amount of \$2.00 to cover shipping and handling.

© 1989 Fostex Corporation of America, 15431 Blackburn Ave., Norwalk, CA 90650
(213)921-1112 • FAX (213)802-1964

Circle (97) on Reply Card

Services

**ANTENNA, MAINTENANCE
TOWER INSTALLATION**

Alpha Tower Design
Andrew Corp.
Antenna Technology Corp.
Aries Antennas
Broadcast Communications
DSI Communications
DYMA Engineering
Express Tower Co.
Fort Worth Tower Co.
Gabriel Electronics
Horizon Towerz
Kline Towers
La Cie D'Electronique Normex Ltee
LDL Communications
Marcom
Microlect Co.
Nudd Corp., Fred A.
Rapid Deployment Towers
S.W.R. 50
SG Communications
Southern Illinois Antennas
Teletech
Tenco Tower Co.
Tower Network Systems
Transmission Structures
Will-Burt Co., The

CONSULTING, DESIGN

Facilities, system and custom equipment designs

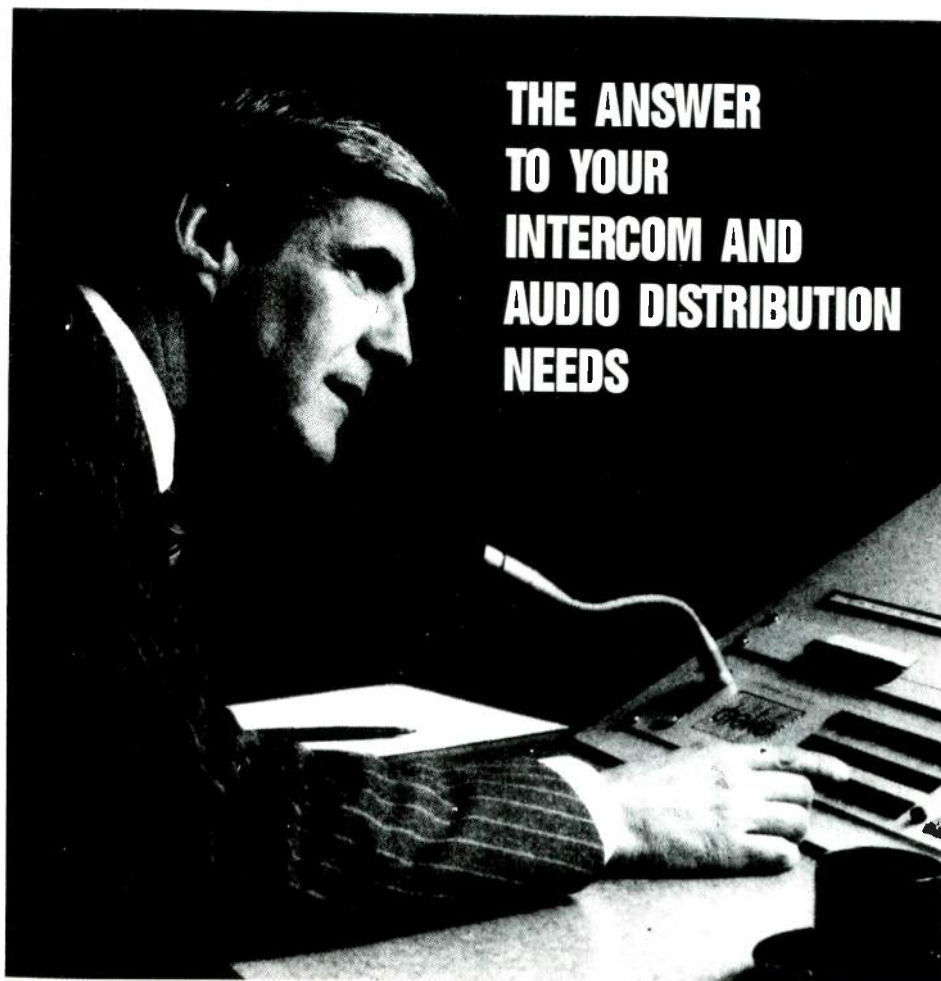
A.F. Associates 97
Acrobatic Muffin Works
Allen Airspace Consultant, John P.
Angevine P.E., Eric Neil
Aries Antennas
ASC-Tube Traps
Astre Systems
AVS France
B&B Systems
Baranti Group
Beemish & Co., Franklyn R.
Behr Associates, Lawrence
Broadcast Aids
Broadcast Communications
Broadcast Devices
Broadcast Systems Design
Burden Associates, Richard W.
Carvin Corp.
CompuSonics Corp.
Continental Electronics 48
Dataworld
Davis & Associates, John J. Consulting Engineers
DeSantis Associates
Discrete Technology Labs
DKW Systems
Drake Electronics Ltd., Philip 52
DSI Communications
Dukane Corp.
DYMA Engineering
East Coast Video Systems
EIP Microwave
Ergo Industries
Evans Associates Consulting Telecom, Engineers
Funke & Associates
GE Broadcast Systems Integration
GEE Broadcast Systems Ltd.

Harris Allied Broadcast Equipment
Harrison Systems Ltd. RF Systems Engineering
Henry Radio
HN Engineering
Ingram & Associates, J. Boyd
Integral Systems Group
Intraplex 99
Jem-Fab Corp.
JP Associates
Key Systems International
Kintronic Labs
Knudson-Benson Associates
Lakeside Associates
LDL Communications
Lloyd Group, James
Lumitrol
Lyncole XIT Grounding
Markley & Associates, D.L. Consulting Engineers
MBI Broadcast Systems Ltd.
Meades, Kenneth R.
Micro Communications
Midwest Communications Corp.
Mitchell Associates, Jay
Morton Associates, Lawrence L.
MTC/Mycomp Technologies Corp.
Multi Electronic Services Ltd.
Newman-Kees Measurements Engineering & Installations
Nissen Group, The
Old Dominion Broadcast Eng. Service
Owl Engineering
Pro Video & Film Equipment Group
Radiotechniques Engineering Corp.
Ring PC, A.D.
ROH Products
Roscor Corp.

Rosner TV Systems
RPG Diffusor Systems
RPS Communications
SCA Data Systems
Seem Audio
Shook Electronics USA
Skaggs Telecommunications Service
Smith & Powstenko
Snell Associates, George R.
Southern Illinois Antennas
Standard Frequency Measuring Service
Teletech
Televideo San Diego
Television Technology Corp. 177
Theta Scientific
Thomson Video Equipment
Tiffen Mfg. Corp.
Time Logic
United Systems
V.D.O. Ltd.
Videssence
Vir James Consulting Engineers
Vizcom/California Tube Labs

**EQUIPMENT REBUILDING,
RECONDITIONING,
CUSTOMIZING**

Antenna Technology Corp.
Astre Systems
AVS France
Broadcast Automation
Center Video Industrial Co.
Discrete Technology Labs
EIP Microwave



**THE ANSWER
TO YOUR
INTERCOM AND
AUDIO DISTRIBUTION
NEEDS**

drake

NOW YOU'RE TALKING

Philip Drake Electronics Ltd.
37 Broadwater Road
Welwyn Garden City
Hertfordshire AL73AX England
Telephone: (0707) 333866
Telex: 25415 DRAKE G
Fax: 371266

USA Call Redwood Marketing
(615) 254-7400

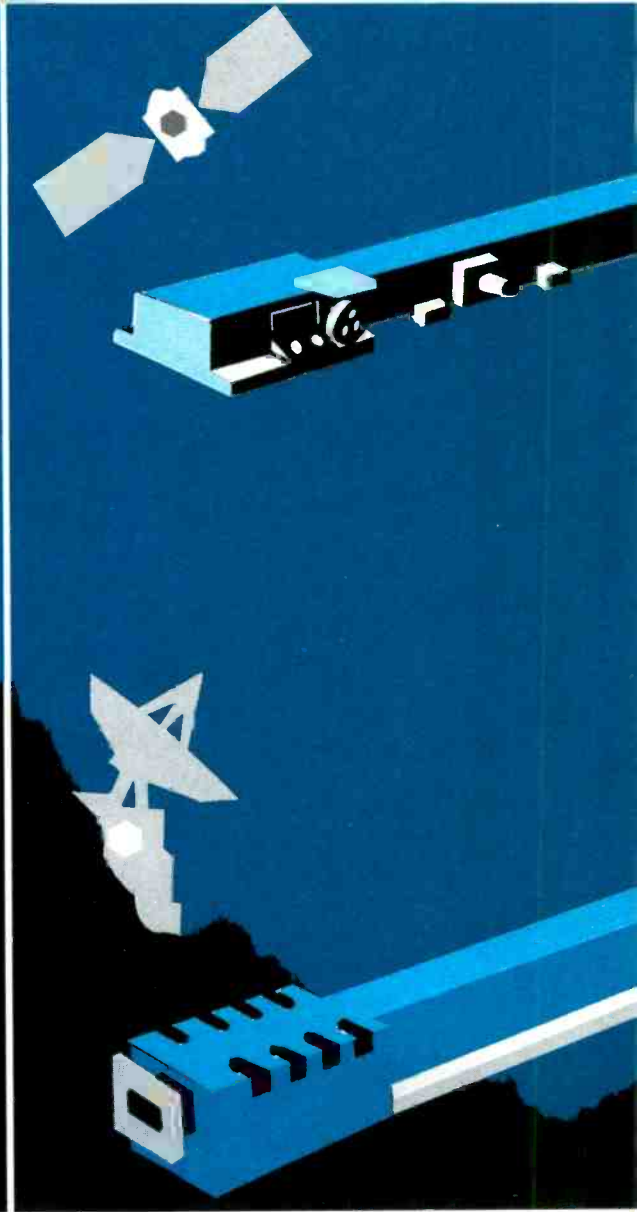
**9000 Series Video Audio
Distribution modules.**

**6000 Series
Microprocessor control,
Talkback and Intercom
system.**

**8000 Series Talkback
including the definitive
Compact range and
Compact systems.**

**400 Series Radio
Talkback modules.**

Circle (38) on Reply Card



WHO'S AT THE HEART OF BROADCAST PERFORMANCE?

Thomson Tubes Electroniques!

A world leader in electron tube technology, our tetrodes benefit from advanced Thomson technologies such as Pyrobloc[®] pyrolytic grids and Hypervapotron[®] cooling. They deliver the power you need: up to 50kW for television, up to 1.2 MW for radio. Thomson tetrodes are technical and price performers. Indeed, our 500 kW TH558 tetrode has been providing problem-free radio transmission worldwide for more than 15 years. And it's been chosen by Voice of America and other demanding customers.

For VHF and UHF television transmitters and

translators, you'll find a range of tetrodes featuring reliability and precision. Each tetrode is available with its cavity.

For DBS, we can equip the entire Ku-band transmission chain with top-performance earth station tubes, as well as a full range of satellite TWTAs from 70W to 130W ready today for next-generation transmissions.

On earth or in space, we're at the heart of radio and television transmitting with the performance you depend on!

 **THOMSON TUBES
ELECTRONIQUES**

For additional information, mention code **TV**

Circle (39) on Reply Card

France : BOULOGNE-BILLAN COURT
Tel.: (33-1) 49 09 28 28
Fax: (33-1) 46 04 52 09

Brasil : SAO-PAULO
Tel.: (55-11) 542 47 22
Fax: (55-11) 61 50 18

Deutschland : MÜNCHEN
Tel.: (49-89) 78 79-0
Fax: (49-89) 78 79-145

España : MADRID
Tel.: (34-1) 519 45 20
Fax: (34-1) 519 44 77

Hong-Kong : WANCHAI
Tel.: (852) 865 32 33
Fax: (852) 865 31 25

Inde : NEW DEHLI
Tel.: (91-11) 644 7883
Fax: (91-11) 644 7883

Italie : ROMA
Tel.: (39-6) 639 02 48
Fax: (39-6) 639 02 07

Japan : TOKYO
Tel.: (81-3) 264 63 46
Fax: (81-3) 264 66 96

Singapore :
Tel.: (65) 284 34 55
Fax: (65) 280 11 57

Sverige : TYRESÖ
Tel.: (46-8) 742 02 10
Fax: (46-8) 742 80 20

United Kingdom : BASINGSTOKE
Tel.: (44-256) 84 33 23
Fax: (44-256) 84 29 71

U.S.A. : TOTOWA, NJ
Tel.: (1-201) 812-9000
Fax: (1-201) 812-9050

Service Products

Freeland Products
 GE Support Services/ RCA Broadcast
 Hall Electronics dba: Hall Electronics
 Harris Allied Broadcast Equipment
 Kintronic Labs
 Multi Electronic Services Ltd.
 Newman-Kees Measurements
 Engineering & Installations
 NTSC Productions
 Old Dominion Broadcast Eng. Service
 OpTex
 PERROTT Engineering Labs
 Pro Video & Film Equipment Group
 Rohde & Schwarz 159
 Schafer World Communications Corp.
 Strand Lighting
 Televideo San Diego

Universal Video Electronics
 Vizcom/California Tube Labs
 Wide Range Electronics Corp.

EQUIPMENT RENTAL, LEASING, BROKERS

Acrobatic Muffin Works
 Altronic Research
 BCS
 BERC39
 Center Video Industrial Co.
 EIP Microwave
 Film/Video Equipment Service Co.
 Funke & Associates
 Gordon Enterprises, Alan

Color highlighting denotes advertisers and ad page numbers

Harris Allied Broadcast Equipment
 Harrison by GLW
 High Fidelity Productions
 Lighting & Shadows A Div. of Phoebus
 Matthews Studio Equipment
 Maze Broadcast
 Media Concepts
 Midwest Communications Corp.
 Musco Mobile Lighting
 NTSC Productions
 Old Dominion Broadcast Eng. Service
 OpTex
 Pro Video & Film Equipment Group
 Roscor Corp.
 Schoeps/Posthorn Recordings
 Siecor Corp.
 Solid Electronics Labs

Steenbeck
 System Associates
 Systems Wireless Ltd.
 Teledac
 Televideo San Diego
 Toy Specialists, The
 Universal Video Electronics
 US Instrument Rentals
 Videssence
 Vision Quest
 Vistek Electronics Ltd.
 Wide Range Electronics Corp.

FILM-TO-TAPE TRANSFER

Center Video Industrial Co.
 Image Transform
 Media Concepts
 RADMAR
 Wide Range Electronics Corp.

FREQUENCY MEASURING, COORDINATION

Broadcast Signal Lab
 Discrete Technology Labs
 EIP Microwave
 HN Engineering
 Ingram & Associates, J. Boyd
 Johnson Measurement Service
 McQuatters, Phil Frequency
 Measurement Service
 Morton Associates, Lawrence L.
 Newman-Kees Measurements
 Engineering & Installations
 Old Dominion Broadcast Eng. Service
 Standard Frequency Measuring
 Service
 Theta Scientific
 Ziehl Electronic Service

HEAD REFURBISHING, RELAPPING

Auteri Associates
 CMC Technology, Video Operation of
 Datatape
 GEE Broadcast Systems Ltd.
 International Electro-Magnetics
 JRF Magnetic Sciences
 Newman-Kees Measurements
 Engineering & Installations
 Northern Magnetics
 Oktel, LP
 Saki Magnetics
 Videomagnetics
 Wide Range Electronics Corp.

INSTRUMENT CALIBRATION

Bruel & Kjaer Instruments
 EIP Microwave
 Holaday Industries
 Ingram & Associates, J. Boyd
 Newman-Kees Measurements En-
 gineering & Installations
 Pro Video & Film Equipment Group
 Rohde & Schwarz 159
 Televideo San Diego
 Tracor Instruments Austin Industrial
 Instruments Div.
 US Instrument Rentals

LENS REPAIR

Birns & Sawyer
 Canon USA Broadcast Equipment Div.
 Century Precision Optics
 Jem-Fab Corp.
 OpTex
 Pro Video & Film Equipment Group



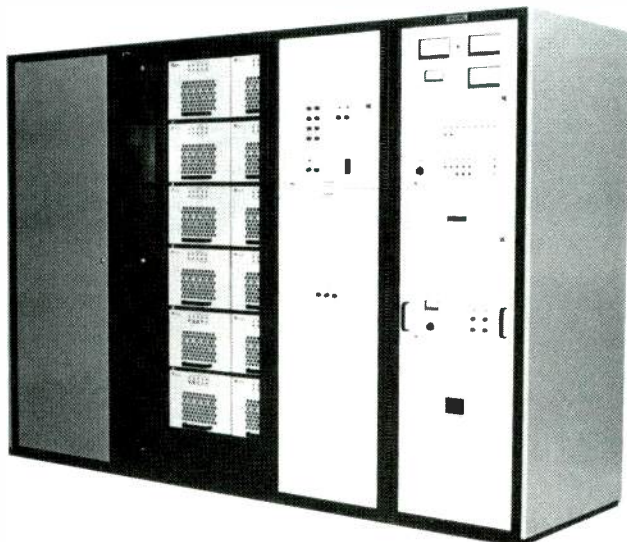
INTRODUCING :



NAUTEL AMPFET ND25/50, 25 KW & 50 KW

SECOND GENERATION ALL SOLID STATE AM TRANSMITTERS

- Solid state design utilizing digital circuit techniques results in superior audio performance and high efficiency
- Specifically designed for NRSC Standards compatibility and AM Stereo operation in support of improved AM radio
- Parallel modular configuration provides true active reserve without need for operator intervention
- On air serviceability features allow module removal without interruption in broadcasting
- Built-in duplicate exciter sections offer complete backup of critical low level control circuitry



ALL SOLID STATE AMPFET ND SERIES AM MEDIUM WAVE TRANSMITTERS

POWER RANGE UP TO 100 KW

Phone:(902)823-2233 Canada-Fax:(902)823-3183-Tlx:019-22552



NAUTEL
 (Nautical Electronic Laboratories Limited)
 RR#1, Tantallon, Halifax County
 Nova Scotia, Canada B0J 3J0

Nautel Maine Inc.
 201 Target Industrial Circle
 Bangor, Maine
 04401 U.S.A.





Both methods record incredible stereo. Crown's SASS™-P makes it fast and easy.

Crown's new Stereo Ambient Sampling System™ (SASS™) and the DAT recorder combine to create a new generation of stereo recording. Unlike traditional recording methods, this powerful new combination is easy to use, more dependable and less expensive. The result is a system that records natural, beautifully imaged stereo just as your ears would hear it.

Crown's SASS-P* eliminates traditional stereo recording compromises in sound quality, ease-of-use, and cost. No longer do you have to settle for weak low-end or off-axis coloration common to Midside, X-Y and near-coincident pair mics. Assembly and positioning time is also reduced significantly compared with conventional stereo micing techniques.

Lightweight and easy to set up, the SASS/DAT combination is a high-quality portable recording system that goes everywhere.

The SASS-P features switchable battery or phantom power and Crown's finest studio-grade PZM® capsules. You'll enjoy full ambience without coloration, excellent sum to mono, and extraordinary broad frequency response. With SASS's superb imaging capabilities, every sound is audibly reproduced in its precise position, resulting in a stereo experience of uncanny realism.

Readily adaptable to all common stands, the SASS includes a carrying case and accessories.

No matter what your stereo recording requirements—from sampling to electronic news gathering to remote recording of live events—you'll find the SASS-P the clear choice.

See your Crown representative for more information or call toll-free: 1-800-535-6289.

SASS Sample CD!

Now you can hear for yourself just how great SASS sounds. This CD includes a wide selection of live and studio music, stereo sound effects and samples, including A-B comparisons with some of the best stereo mics available. The SASS CD is free, but we must charge \$4.95 for shipping and handling charges. Send check or money order to: Crown SASS CD, P.O. Box 1000, Elkhart, IN 46515-1000. Please allow 3-4 weeks for delivery.



Name _____
 Title _____
 Company _____
 Street _____
 City _____ State _____ ZIP _____
 Phone _____



Crown International, Inc. • P.O. Box 1000
 Elkhart, Indiana 46515-1000 • 219/294-8000

*Also available as SASS-B for use with B&K 4003/4006 microphones (not supplied).

Circle (41) on Reply Card

© 1990 Crown International
 SASS and Stereo Ambient System are trademarks and
 PZM a registered trademark of Crown International.

Services

Color highlighting denotes advertisers and ad page numbers

Televideo San Diego
TSM

Sound Ideas
Valentino

Marcom
Micro Communications
Midwest Communications Corp.
Morton Associates, Lawrence L.
Newman-Kees Measurements
Engineering & Installations
Nudd Corp., Fred A.
Old Dominion Broadcast Eng. Service
Ring PC, A.D.
S.W.R. 50
SG Communications
Southern Illinois Antennas
Stainless
Teletech
Theta Scientific
Utility Tower Co.

SATELLITE TIME BROKERS

Program distribution.
BAF Communications Corp.
Cycle-Sat
GE American Communications
Image Transform
NPR Satellite Services
Sure Shot Teleproductions &
Transmission

PRODUCTION MUSIC, IDs, EFFECTS LIBRARIES

AirCrafft Digital Music Library
Associated Production Music
Century 21 Programming
Manhattan Production Music
Music Director Programming Service
Musikos
Prosonus
Signature Music Library
SoperSound Music Library

RF SYSTEM MAINTENANCE

AM, FM, TV, microwave.
Antenna Technology Corp.
Astre Systems
DSI Communications
GE Support Services/ RCA Broadcast
Harris Allied Broadcast Equipment
Harrison Systems Ltd. RF Systems
Engineering
HN Engineering
Ingram & Associates, J. Boyd
LDL Communications

STANDARDS CONVERSION

BCS
High Fidelity Productions
Image Transform
Instant Replay
Media Concepts
RADMAR

TAPE DUPLICATION

Center Video Industrial Co.
CoarcVideo
High Fidelity Productions
Image Transform
Media Concepts
METROPOST
MTC/Mycomp Technologies Corp.
Music Director Programming Service
RADMAR
Wide Range Electronics Corp.

WEATHER DATA

Accu-Weather
Kavouras
Texas Electronics

WIRING, CABLING

AVS France
Bi-Tronics
C.A.E.
Canare Cable 143
Canford Audio plc
DSI Communications
GEE Broadcast Systems Ltd.
Harrison Systems Ltd. RF Systems
Engineering
Jem-Fab Corp.
La Cie D'Electronique Normex Ltee
Lakeside Associates
Mohawk Wire & Cable Corp. 109
Nudd Corp., Fred A.
Old Dominion Broadcast Eng. Service
Siecor Corp.
Societe Anonyme Des Techniques
Digitales Digitec S.A.
Teletech
Televideo San Diego
Theta Scientific

Now there's an easier, more efficient way to locate your video tapes...

I NEED
THAT TAPE
NOW!



...with **NSI's PC based Video Tape Library System.**

This new video tape archival and locating system was used by NBC Sports for their coverage of the 1988 Summer Olympics in Seoul, and now it's available for stations.

Consider this partial list of features:

- Runs on a single IBM (or compatible) PC in standalone mode or on a PC network for many users.
- Scans bar code labels on the tape to update the tape's location.
- Provides 11 search criteria with which you can specify a tape; use one or any combination of them.



(We will customize these criteria for FREE for your installation.)

- Provides a KEYWORD search facility which can be used in any of the 11 categories.
- It's FAST — on a PC we can search through 15,000 tapes and find 20 in 3 seconds.

Why spend large amounts of money for a system which is an add on to traffic or a newsroom system?

This system is cost effective NOW, and is compatible with most cart machines.

For more information call or write:
Nesbit Systems, Inc.



5 Vaughn Drive • Princeton, N.J. 08540 • 609-799-1482

Is your company missing from this directory? Either your company is not on our mailing list or someone failed to respond to requests for material. To be on the list for the 1992 edition, send a note to:

BE Directory Editor, PO Box 12901, Overland Park, KS 66212.

Circle (42) on Reply Card

25kW UHF TV Transmitters with all the advantages of VHF and more. That's advanced UHF tetrode technology!



- Highest overall plant efficiency
- No diplexer
- Inherent tetrode linearity
- Simplistic VHF-type correction
- Full 10% aural power
- Tube change in minutes
- Proven over time
- Sensibly priced

New advances in tetrode technology and transmitter design now offer the UHF broadcaster the huge benefits enjoyed by VHF stations for years... and then some! Only from Acrodyne.

Call us for all the details.

Tetrode-equipped transmitters for 20 years

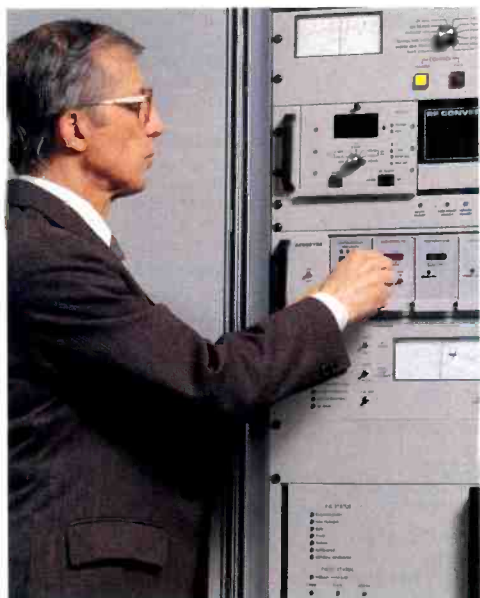
ACRODYNE

Acrodyne Industries, Inc.
516 Township Line Road
Blue Bell, PA 19422

1-800-523-2596

In Pennsylvania, (215) 542-7000

FAX: 215-540-5837



◀ Gino Ricciardelli,
chief engineer;
WICZ-TV,
Channel 40,
Binghamton, NY

Manufacturers' addresses

A

Aarmor Case Co.

2100 Lapo Road
Lake Odessa, MI 48849
616-374-5651
Fax: 616-374-8686

Abekas Video Systems

101 Galveston Drive
Redwood City, CA 94063
415-369-5111
Fax: 415-369-4777

Paul Hansil, 415-369-6791

Regional Sales Contacts

CA, Burbank, 818-955-6446
CA, Redwood City, 415-369-6791
GA, Atlanta, 404-451-0637
IL, Mount Prospect, 708-699-9400
NY, Great Neck, 516-829-0820
TX, Dallas, 214-385-4544

Accom, Inc.

1430-F O'Brien Drive
Menlo Park, CA 94025
415-328-3818
Fax: 415-327-2511

Accu-Weather, Inc.

619 W. College Ave.
State College, PA 16801
814-234-9601; 814-237-0309
Fax: 814-238-1339

Accurate Sound Corp.

3515 Edison Way
Menlo Park, CA 94025
415-365-2843
Fax: 415-365-3057

Ace Communications

10707 East 106th St.
Indianapolis, IN 46256
317-849-2570
Fax: 317-849-8749

Acoustic Systems

P.O. Box 3610
Austin, TX 78764
512-444-1961; 800-531-5412
Fax: 512-444-2282

Acrobatic Muffin Works

22126 Del Valle St.
Woodland Hills, CA 91364
818-347-3505
Fax: 818-347-3579

Acrodyne Industries Inc.

516 Township Line Road
Blue Bell, PA 19422
215-542-7000; 800-523-2596
Fax: 215-540-5837

J. F. Delissio

Acron Ltd.

Lovelace Road, Bracknell
Berks, England RG12 4YT
44-734-731119
Fax: 44-734-731190

ADA Signal Processors

7303-D Edgewater Drive
Oakland, CA 94621
415-632-1323; 800-241-8888
Fax: 415-632-9358

Adams-Smith

34 Tower St.
Hudson, MA 01749
508-562-3801
Fax: 508-568-0404

ADC Telecommunications

4900 West 78th St.
Minneapolis, MN 55435
612-835-6800; 800-726-4266
Fax: 612-893-3292

Adrienne Electronics Corp.

11994 Marjon Drive
Nevada City, CA 95959
916-265-8288; 800-782-2321
Fax: 916-265-3805

Advance Products Co.

P.O. Box 2178
Wichita, KS 67201
316-263-4231
Fax: 316-267-1850

Advanced Designs Corp.

P.O. Box 1907
Bloomington, IN 47402
812-333-1922
Fax: 812-333-2030

Advanced Video Associates

400 Walnut St., Suite 101
Redwood City, CA 94063
415-792-8684
Fax: 415-791-0271

Advent Communications, Ltd.

Alma Road, Chesham
Bucks, England HP5 3HE
44 494 774400
Fax: 44 494 791127

ADX Systems, Inc.

274 Madison Ave., Suite 1406
New York, NY 10016
212-779-2580; 800-444-4239
Fax: 212-481-9508

AEQ- Aplicaciones

Electronicas Quasar
C/Rey Pastor 36
(Pol. Ind. de Leganes)
28914 Leganes Madrid, Spain
686 1300
Fax: 686 4492

A.F. Associates

101 Stonehurst Court
Northvale, NJ 07647
201-767-1000
Fax: 201-784-8637

AGAP

POB 118, 264 Ave. Sainte-Catherine
Montfavet, Cedex
France F-84144
33-90-31-10-68
Fax: 33-90-23-5126

Agfa Corp.

100 Challenger Road
Ridgefield Park, NJ 07660
201-440-2500
Fax: 201-440-2865

Aiphone Intercom Systems

1700 130th Ave. N.E.
Bellevue, WA 98005
206-455-0510
Fax: 206-455-0071

AirCraft Digital Music Library

77 N. Washington St.
Boston, MA 02114
800-343-2514
Fax: 617-367-1521

AKG Acoustics, Inc.

AKG/Orban/dbx Products

1525 Alvarado St.
San Leandro, CA 94577
415-351-3500
Fax: 415-351-0500

David Roubush

Regional Sales Contacts
PA, Pittsburgh, 412-967-0323
WI, Appleton, 414-749-0044

AKG Akustische u. Kino-

Geräte Gesellschaft GmbH

Brunhildengasse 1, POB 584
Vienna, Austria A-1150
1-956517-0
Fax: 1-956517-245

Alamar Electronics USA, Inc.

489 Division St.
Campbell, CA 95008
408-866-9373
Fax: 408-866-4367

Alden Electronics, Inc.

40 Washington St.
Westborough, MA 01581
508-366-8851
Fax: 508-898-2427

Alexander Batteries

P.O. Box 1508
Mason City, IA 50401
515-423-8955; 800-247-1821
Fax: 515-423-1644

Allen & Heath

5 Connair Road
Orange, CT 06477
203-795-3594
Fax: 203-795-6814

Allen Airspace Consultant,

John P.
P.O. Box 1008
Fernandina Beach, FL 32034
904-261-6523
Fax: 904-277-3651

Allen Avionics, Inc.

224 E. Second St.
Mineola, NY 11501
516-248-8080
Fax: 516-747-6724

Allied Broadcast Equipment

P.O. Box 1487
Richmond, IN 47375
317-962-8596
Fax: 317-962-8961

Allied Tower Co., Inc.

P.O. Box 945
Vinita, OK 74301
918-256-8761
Fax: 918-256-6110

Allsop, Inc.

P.O. Box 23
Bellingham, WA 98227
206-734-9090; 800-426-4303
Fax: 206-734-9858

Alpha Audio

2049 W. Broad St.
Richmond, VA 23220
804-358-3852
Fax: 804-358-9496

Alpha Technologies

3767 Alpha Way
Bellingham, WA 98226
206-647-2360
Fax: 206-671-4936

Alpha Tower Design, Inc.

901 Waterfall Way, Suite 203
Richardson, TX 75080
214-783-2578

Alpha Wire Corp.

711 Lidgerwood Ave.
Elizabeth, NJ 07207
800-52-ALPHA

Alta Group, Inc.

535 Race St., Suite 230
San Jose, CA 95126
408-297-2582; 800-677-2582
Fax: 408-297-1206

Altronic Research Inc.

P.O. Box 249
Yellville, AR 72687
501-449-4093; 800-482-5623
Fax: 501-449-6000

Aluma Tower Co. Inc.

P.O. Box 2806-BE
Vero Beach, FL 32961-2806
407-567-3423
Fax: 407-567-3432

Amber Electro Design

6969 Trans-Canada Highway
St. Laurent, Que., Canada H4T 1V8
514-333-8740; 800-361-3697
Fax: 514-333-1388

Amco Engineering Co.

3801 N. Rose St.
Schiller Park, IL 60176
708-671-6670

AMEK Systems & Controls, Ltd.

New Islington Mill Regent Trading Est.
Salford, England M5 4SX
061-834-6747
Fax: 061-834-0593

AMEK/TAC US Operations

10815 Burbank Blvd.
North Hollywood, CA 91601
818-508-9788
Fax: 818-508-8619

American Broadcast Systems

8222 Jamestown Drive, Suite 109B
Austin, TX 78758
512-837-3737; 800-950-2223
Fax: 512-837-3791

American Laser Systems, Inc.

751 S. Kellogg Ave.
Goleta, CA 93117
805-967-0423; 805-683-3745
Fax: 805-683-4382

American Lightwave Systems, Inc.

358 Hall Ave.
Wallingford, CT 06429
203-265-8880
Fax: 203-265-8746

AMP

P.O. Box 3608
Harrisburg, PA 17105-3608
717-564-0100; 800-522-6752

Ampex Corp.

401 Broadway, MS 2-01
Redwood City, CA 94063-3199
800-25-AMPEX
Fax: 415-367-2761

Rollin Stanford, 415-367-3055

Regional Sales Contacts

CA, Redwood City, 415-367-2202
CA, San Fernando, 818-365-8627
GA, Tucker, 404-491-7112
IL, Rolling Meadows, 708-590-5100
MD, Bethesda, 301-530-8800
NJ, Allendale, 201-825-9600
TX, Carrollton, 214-960-1162

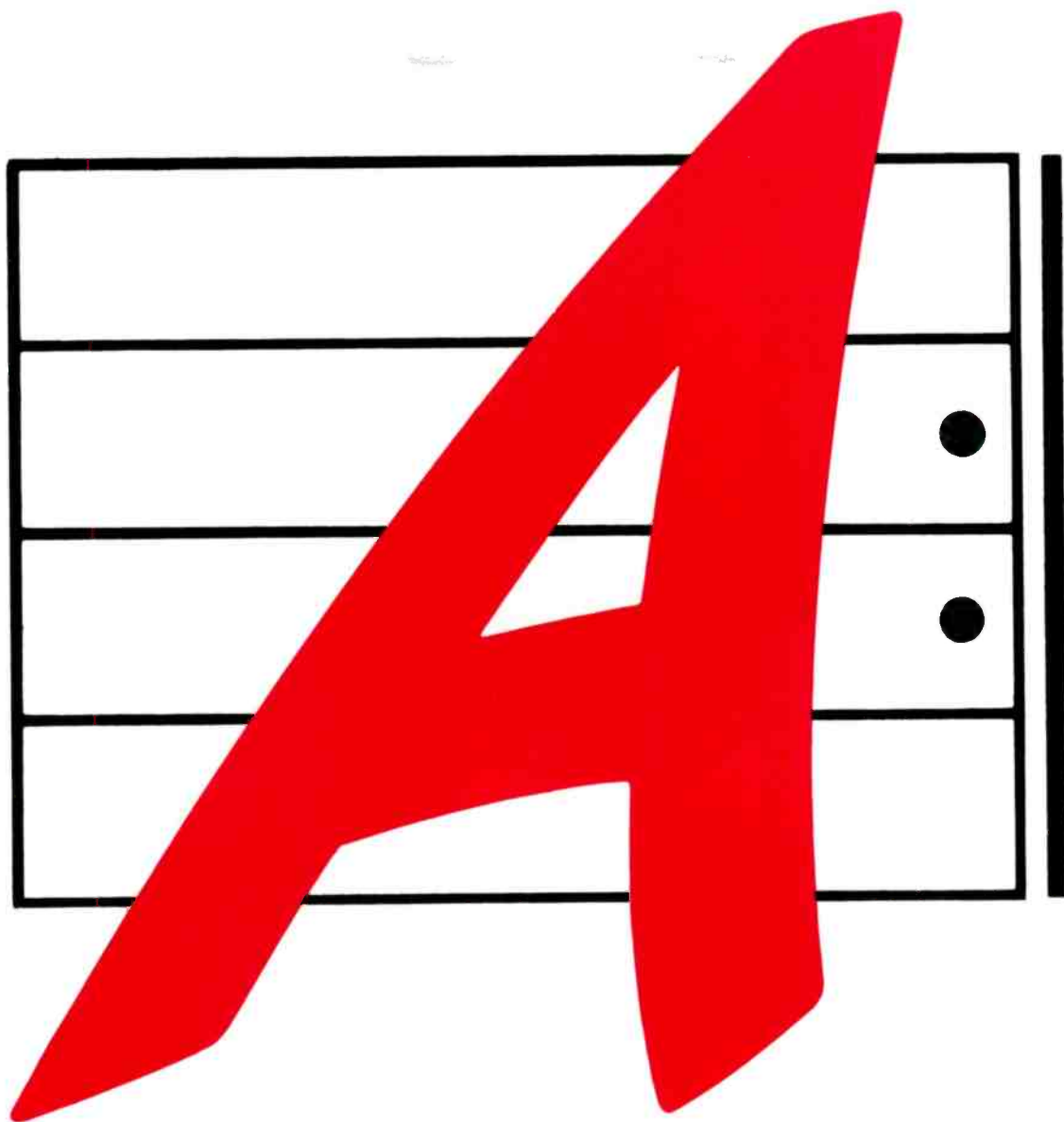
Ampex Recording Media Corp.

401 Broadway, M-S 22-02
Redwood City, CA 94063
415-367-3809; 415-367-3888
Fax: 415-367-4132

R. A. Antonio

Regional Sales Contacts

CA, Redwood City, 415-367-4611
CA, San Fernando, 818-365-8627
GA, Tucker, 404-491-7112
IL, Rolling Meadows, 708-590-5100
MD, Bethesda, 301-530-8800
NJ, Allendale, 201-825-9600
TX, Carrollton, 214-960-1162
Australia, N.S.W., 02-887-3333
Canada, Mississauga, 416-821-8840
England, Reading, 0734-875200
France, Paris, 1-4270-5500
Hong Kong, Kowloon, 852-7361866
Italy, Rome, 06-500971
Japan, Tokyo, 03-767-4521
Switzerland, Fribourg, 037-21.86.86
W. Germany, Sulzbach, 06196-765-00



A U D I O

ANIMATION

I N C O R P O R A T E D

6632 Central Avenue Pike ■ Knoxville, Tennessee 37912 ■ (615) 689-2500

Circle (46) on Reply Card



THE WORLD'S MOST SUCCESSFUL TELEVISION FAMILY.

You've seen it for yourself. Many of the world's favorite television programs have been produced, edited, or broadcast on Ampex tape. From our industry standard 196 1" master broadcast video-

tape to our state-of-the-art 319 D-2 and Betacam SP metal-particle videocassettes, you get the same high quality consistently, tape after tape, carton after carton. Because every tape is manufactured to the same exacting specifications by the same experienced technicians in the

same ultraclean plant. No wonder more demanding professionals demand more Ampex tape. It's a television success story... all around the world.

AMPEX
THE PROFESSIONAL CHOICE

Ampex Recording Media Corporation
401 Broadway, Redwood City,
CA 94063, (415) 367-3809

Circle (47) on Reply Card

AMS Industries Inc.
1180 Holm Road, Suite C
Petaluma, CA 94954
707-762-4840
Fax: 707-762-4811

AMS Industries PLC
Billington Road, Burnley
Lancs, England
0282-57011; 707-762-4840
Fax: 0282-39542

Amtel Systems Inc.
33 Main St.
Nashua, NH 03060
603-880-9011
Fax: 603-880-8781

AMX Corp.
12056 Forestgate Drive
Dallas, TX 75243
214-644-3048; 800-222-0193
Fax: 214-907-2053

Analog Digital Synergy, Inc.
3911 S.W. 47th Ave., Suite 906
Fort Lauderdale, FL 33314
305-791-1501
Fax: 305-791-8986

Andrew Corp.
10500 West 153rd St.
Orland Park, IL 60462
708-349-3300; 800-255-1479
Fax: 708-349-5943

Angevine P.E., Eric Neil
910 Lakeridge Drive
Stillwater, OK 74075
405-372-3949; 405-744-6444
Fax: 405-377-2094

Annis Co., R.B.
1101 N. Delaware St.
Indianapolis, IN 46202
317-637-9282
Fax: 317-637-9282

Antenna Technology Corp.
1140 E. Greenway St.
Mesa, AZ 85203
602-264-7275
Fax: 602-898-7667

Antex Electronics
16100 S. Figueroa St.
Gardena, CA 90248
213-532-3092; 800-338-4231
Fax: 213-532-8509

Anton/Bauer, Inc.
1 Controls Drive
Shelton, CT 06484
203-929-1100
Fax: 203-929-9935

**Anvil Cases (Subsidiary
of Zero Corp.)**
15650 Salt Lake Ave.
City of Industry, CA 91745
818-968-4100; 800-359-2684
Fax: 818-968-1703

Aphex Systems Ltd.
11068 Randall St.
Sun Valley, CA 91352
818-767-2929

API-Audio Products Inc.
7951 Twist Lane
Springfield, VA 22153
703-455-8188
Fax: 703-455-4240

Apogee Electronics Corp.
2103 Main St.
Santa Monica, CA 90405
213-399-2991
Fax: 213-399-7665

Apollo Audio Visual/Lighting
60 Trade Zone Court
Ronkonkoma, NY 11779
516-467-8033; 800-777-3750
Fax: 516-467-8996

Arcor Broadcast Products
1821 Elmdale Avenue
Glenview, IL 60025
708-724-7820
Fax: 708-724-7833

Ariel Corp.
433 River Road
Highland Park, NJ 08904
201-249-2900
Fax: 201-249-2123

Aries Antennas, Inc.
11429 E. First Ave.
Aurora, CO 80010
303-344-0304

Arrakis Systems
2609 Riverbend Court
Fort Collins, CO 80525
303-224-2248
Fax: 303-493-1076

**Michael Palmer
Regional Sales Contacts**
IN, Richmond, 317-962-8596
NY, South Glens Falls, 518-793-2181
TX, Forth Worth, 817-737-9911
WA, Tacoma, 206-565-2301

Arriflex Corp.
500 Route 303
Blauvelt, NY 10913
914-353-1400
Fax: 914-425-1250

Artel Communications Corp.
22 Kane Industrial Drive
Hudson, MA 01749
508-562-2100; 800-225-0228
Fax: 508-562-6942

**Asaca/Shibasoku Corp.
of America**
12509 Beatrice St.
Los Angeles, CA 90066
213-827-7144; 800-423-6347
Fax: 213-306-1382

ASC-Tube Traps
P.O. Box 1189
Eugene, OR 97440
503-343-9727; 800-ASC-TUBE
Fax: 503-343-9245

Ashly Audio Inc.
100 Fernwood Ave.
Rochester, NY 14621
716-544-5191; 800-828-6308
Fax: 716-266-4589

Associated Production Music
6255 Sunset Blvd., Suite 820
Hollywood, CA 90028
213-461-3211; 800-543-4276
Fax: 213-461-9102

Aston Electronic Designs Ltd.
125-127 Deepcut Bridge Road
Camberley, Surrey
England GU16 6SD
44-252-836221
Fax: 44-252-837923

**Aston from Paltex
Imaging Systems**
2752 Walnut Ave.
Tustin, CA 92680
714-838-8833
Fax: 714-838-9619

Astre Systems Inc.
500 N. Carpenter Road
Modesto, CA 95351
209-575-1000
Fax: 209-575-0322

ATI-Audio Technologies Inc.
328 W. Maple Ave.
Horsham, PA 19044
215-443-0330
Fax: 215-443-0374

Ed Mullin
Contact factory for local distributor.

Atlas//Soundolier
1859 Intertech Drive
Fenton, MO 63026
314-349-3110; 800-876-7337
Fax: 314-349-1251

Audi-Cord Corp.
1845 W. Hovey Ave.
Normal, IL 61761
309-452-9461
Fax: 309-452-0893

Audico Chicago, Inc.
7206 W. Grand Ave.
Elmwood Park, IL 60635
708-456-0003
Fax: 708-456-0418

Audio Accessories, Inc.
Mill St., Marlow, NH 03456
603-446-3335
Fax: 603-446-7543
T. J. Symonds

Audio Animation Inc.
6632 Central Ave. Pike
Knowville, TN 37912
615-685-2500
James Rose

Audio Control Industrial
22313 70th Ave. W.
Mountlake Terrace, WA 98043
206-775-8461
Fax: 206-778-3166

Audio Developments Ltd.
Hall Lane, Walsall Wood
West Midland, England WS9 9AU
44-543-735351
Fax: 44-543-361051

Audio Kinetics UK Ltd.
Kinetic Centre, Theobald St.
Borehamwood, Herts
England WD6 4PJ
081-953-8118
Fax: 081-953-1118

Audio Precision
P.O. Box 2209
Beaverton, OR 97075
503-627-0832; 800-231-7350
Fax: 503-641-8906

Tom Mintner
Audio Visual Assistance
565 Sherwood Road
Shoreview, MN 55126
612-481-9715

Audio-Technica U.S., Inc.
1220 Commerce Drive
Stow, OH 44224
216-686-2600
Fax: 216-688-3752

Audio-Video Engineering Co.
65 Nancy Blvd.
Merrick, NY 11566
516-546-4239
O. Drucker

Audio/Digital, Inc.
1000 S. Bertelsen Road, Suite 4
Eugene, OR 97402
503-687-8412; 800-423-1082
Fax: 503-687-0632

Audiolab Electronics, Inc.
5831 Rosebud Lane, Building C
Sacramento, CA 95841
916-348-0200
Fax: 916-348-1512
Ronald Stofan
Regional Sales Contacts
CA, Sacramento, 916-485-0500

Audiopak, Inc.
P.O. Box 3100
Winchester, VA 22601
703-667-8125; 800-481-8278
Fax: 703-667-6379

Auditronics, Inc.
3750 Old Getwell Road
Memphis, TN 38118
901-362-1350
Fax: 901-365-8629

Auernheimer Labs & Co.
4561 E. Florence Ave.
Fresno, CA 93725
209-442-1048

Auratone Corp.
P.O. Box 698
Coronado, CA 92118
619-297-2820; 619-297-2821
Fax: 619-296-8734

Auteri Associates, Inc.
53 Foreston Circle
Manorville, NY 11949
516-878-6421
Fax: 516-878-6421

Automation Associates Inc.
P.O. Box 90
Bryn Mawr, PA 19010
215-489-1820
Fax: 215-489-1834

**AutoPatch Marketing Div.
XN Technologies, Inc.**
14 Calispell, Box 350
Cheney, WA 99004
509-235-2636; 800-622-0246
Fax: 509-235-2646

Art Veale
Regional Sales Contacts
Australia, Sydney, 02-6471411
Canada, Scarborough, 416-287-1144
R.O.S., Singapore, 65-7468760

AVA Electronics Corp.
4000 Bridge St.
Drexel Hill, PA 19026
215-284-2500; 800-331-8838
Fax: 215-259-8379

AVCOM of Virginia, Inc.
500 Southlake Blvd.
Richmond, VA 23236
804-794-2500
Fax: 804-794-8284
Peter Gaglio

AVEC
200 Keystone Drive
Carnegie, PA 15106
412-429-2000

Avitel Electronics Corp.
3678 West 2100 South
Salt Lake City, CA 84120
801-977-9553

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

**BE Directory Editor
PO Box 12901
Overland Park, KS 66212**

AVS Broadcast Ltd.

Davis Road, Venture House
Chessington, England KT9 1TT
44-81-391-5678
Fax: 44-81-391-5409

AVS France

222-226 Rue de Rosny
Montreuil, France 93100
33-1-48 57 21 64
Fax: 33-1-48 57 33 58

Avtec Industries, Inc.

5 Audrey Place
Fairfield, NJ 07004
201-882-9460
Fax: 201-882-9468

Aydin Controls

414 Commerce Drive
Fort Washington, PA 19034
215-542-7800; 800-366-8889
Fax: 215-542-8447

Azonic Inc.

1600 E. Cliff Road
Burnsville, MN 55337
800-842-9790
Fax: 612-894-2748

B**B&B Electronics Mfg., Co.**

P.O. Box 1040
Ottawa, IL 61350
815-434-0846
Fax: 815-434-7094

B&B Systems, Inc.

28111 N. Ave. Stanford
Valencia, CA 91355
805-257-4853; 800-345-1256
Fax: 805-257-8065

B&K Precision**Maxtec International Corp.**

6470 W. Cortland Ave.
Chicago, IL 60635
312-889-1448
Fax: 312-794-9740

BAF Communications Corp.

16 Bourbon St.
Peabody, MA 01960
508-535-1969; 800-633-8223
Fax: 508-535-5303

Bagton (USA) Ne, Inc.

P.O. Box 1587
Cambridge, MA 02238-1587
617-661-1788
Fax: 617-986-5966

Baranti Group

2650 John St., Suite 8
Markham, Ont.
Canada L3R 2W6
416-479-0148
Fax: 416-940-9968

Barco, Inc.

1000 Cobb Place Blvd.
Kennesaw, GA 30144
404-590-7900
Fax: 404-590-8836

Barco-EMT GmbH

Postfach 1520
D-7630 Lahr
West Germany
49-78-25/10 11
Fax: 49-78-25/22 85

BASYS Inc.

5 Odell Plaza
Yonkers, NY 10701
914-376-4800
Fax: 914-376-0865

BBE Sound, Inc.

5500 Bolsa Ave., Suite 245
Huntington Beach, CA 92649
714-897-6766; 800-233-8346
Fax: 714-895-6728

BCS

4525 Valerio St.
Burbank, CA 91505
818-845-7000; 212-268-8800
Fax: 818-845-9483

Beacon Software, Inc.

P.O. Box 751
Milwaukee, WI 53201
414-355-4460

Beaveronics, Inc.

8 Haven Ave.
Port Washington, NY 11050
516-883-4414

**Beckman Industrial Corp.
Instrumentation Products**

3883 Ruffin Road
San Diego, CA 92123-1898
619-495-3200; 800-854-2708
Fax: 619-268-0172

Beemish & Co., Franklyn R.

400 Roosevelt Ave.
Freeport, NY 11520
516-867-8510; 516-868-1428
Fax: 516-867-8007

Behlman, A Fiskars Co.

2021 Sperry Ave., Suite 18
Ventura, CA 93003
805-642-0660; 800-456-2006
Fax: 805-642-0790

**Behr Associates Inc.,
Lawrence**

P.O. Box 8026
Greenville, NC 27835-8026
919-757-0279; 800-248-6277
Fax: 919-752-9155

Belar Electronics Lab, Inc.

P.O. Box 76
Devon, PA 19333
215-687-5550
Fax: 215-687-2686
Arno Meyer

Belden Wire & Cable

2200 US 27 S.
Richmond, IN 47374
317-983-5200; 800-BELDEN-1
Dick Guipe

Regional Sales Contacts

CA, Irvine, 714-474-1200
CA, Pacific Grove, 408-649-2564
GA, Atlanta, 404-934-6767
IL, Naperville, 708-717-7300
MA, Newbury, 508-465-4151
MA, Shrewsbury, 508-845-5000
TX, Dallas, 214-788-4300

Bencher, Inc.

333 W. Lake St.
Chicago, IL 60600
312-263-1808

Benchmark Media Systems

5925 Court St. Road
Syracuse, NY 13206-1707
315-437-6300; 800-262-4675 Ord
Fax: 315-437-8119

Allen Burdick**Regional Sales Contacts**

CA, El Sobrante, 415-222-0307
FL, Ocala, 904-622-9058
IL, Palatine, 312-358-3330
IN, Richmond, 317-962-8596
KY, Edgewood, 606-331-8990
MA, Boston, 617-536-2030
MI, Farmington Hill, 313-471-0027
MI, Grand Rapids, 616-452-1596
NJ, Northvale, 201-767-1200
NY, South Glens Falls, 518-793-2181
OH, Willowdale, 416-222-1424
TX, Houston, 713-526-3456
TX, Irving, 214-869-2144
VA, Alexandria, 703-379-0711
WA, Tacoma, 206-565-2301

Bencsik Associates Inc.

3730 N.E. 42nd Ave.
Ocala, FL 32670
904-732-9775

BERC

4545 Chermak
Burbank, CA 91505
818-841-3000
Fax: 818-841-7919

Susan Hays Roberts

Regional Sales Contacts
CA, Rancho Cordova, 916-635-1811
MA, Burlington, 617-229-7799

Berk-Tek, Inc.

132 White Oak Road
New Holland, PA 17557
717-354-6200; 800-237-5835
Fax: 717-354-7944

Best Power Technology, Inc.

P.O. Box 280
Necedah, WI 54646
608-565-7200; 800-356-5794
Fax: 608-565-2221

Bext Inc.

739 Fifth Ave.
San Diego, CA 92101
619-239-8462
Fax: 619-239-8474

**Beyer Elektrotechnische
Fabrik**

Theresienstrass 8, P.B.1320
Heilbronn, West Germany D-7100
49 07131 617-0; TLX 728771
Fax: 49 07131 60459

Beyer Dynamic Inc.

5-05 Burns Ave.
Hicksville, NY 11801
516-935-8000
Fax: 516-935-8018

BFE AG

Postfach 230080
6500 Mainz 23
West Germany
06131-463-0
Fax: 06131-463-122

BGW Systems, Inc.

P.O. Box 5042
Hawthorne, CA 90251-5042
213-973-8090; 800-468-AMPS
Fax: 213-676-6713

BHP Inc.

1800 Winnemac Ave.
Chicago, IL 60640
312-989-2140
Fax: 312-989-2144

Bi-Tronics, Inc.

76 Main St.
Tuckahoe, NY 10707
914-961-2004; 800-666-0996
Fax: 914-961-4244

Biamp Systems

14270 N.W. Science Park Drive
Portland, OR 97229
503-641-7287; 800-826-1457
Fax: 503-626-0281

Biddle Instruments

510 Township Line Road
Blue Bell, PA 19422
215-646-9200; 800-366-5543
Fax: 215-643-2670

Bird Electronic Corp.

30303 Aurora Road
Cleveland (Solon), OH 44139-2794
216-248-1200
Fax: 216-248-5426

Birns & Sawyer Inc.

1026 N. Highland Ave.
Hollywood, CA 90038
213-466-8211
Fax: 213-466-7049

BJM Electronics Ltd.

2008 Victory Blvd.
Staten Island, NY 10314
718-442-0223
Fax: 718-442-1541

Black Audio Devices

P.O. Box 106
Ventura, CA 93002
805-653-5557

Black Star Ltd.

4 Harding Way, St. Ives
Huntington, Cambs
England PE17 4WR
44-480-62440
Fax: 44-480-495172

Blonder-Tongue Labs, Inc.

1 Jake Brown Road
Old Bridge, NJ 08857
201-679-4000
Fax: 201-679-4353

Blue Feather Co.

N8494 Poplar Grove Road
New Glarus, WI 53574
608-527-5077
Fax: 608-527-5078

Bogen Communications, Inc.

P.O. Box 575
Ramsey, NJ 07446
201-934-8500
Fax: 201-934-9832

Bogen Photo Corp.

565 E. Crescent Ave.
Ramsey, NJ 07446
201-818-9500
Fax: 201-818-9177

Boland Communications

24386 Totuava Circle
Mission Viejo, CA 92691
714-951-7557
Fax: 714-588-1070

Boonton Electronics Corp.

791 State Highway 10
Randolph, NJ 07869
201-584-1077
Fax: 201-584-3037

BPI/Porta-Pattern

15755 S. Highway 169
Olathe, KS 66062
913-780-4844; 800-825-8070
Fax: 913-780-5148

Brabury International

Units 10-11 Pipers Ind. Estate
Thatcham, Berks
England RG13 4NA
0635-71891; 0635-68830
Fax: 0635-63776

Bretford Mfg., Inc.

9715 Soreng Ave.
Schiller Park, IL 60176
708-678-2545; Fax 800-343-1779
Fax: 708-678-0852

Broadcast Aids, Inc.

20 Red Rose Drive
Levittown, PA 19056
215-547-7133

Broadcast Automation, Inc.

4125 Keller Springs, Suite 122
Dallas, TX 75244
214-380-6800; 800-336-8004
Fax: 214-380-0823

Broadcast Communications

P.O. Box 131
Verona, WI 53593-0131
608-845-6755
Fax: 608-845-5413

Broadcast Developments Ltd.

Autoscript
Unit C22, 10 Prestons Road
London, England E14 9RL
071-538-1427
Fax: 071-515-9529

Broadcast Devices Inc.

5 Crestview Ave.
Peekskill, NY 10566
914-737-5032

Broadcast Electronics, Inc.

4100 North 24th St.
Quincy, IL 62305
217-224-9600
Fax: 217-224-9607

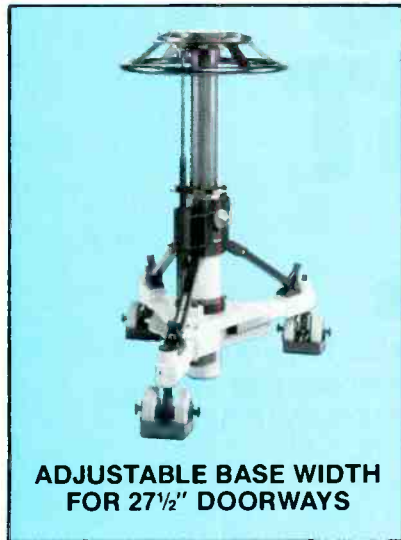
Classic™ Design Inside / Out.



FULLY EXTENDS TO 58"



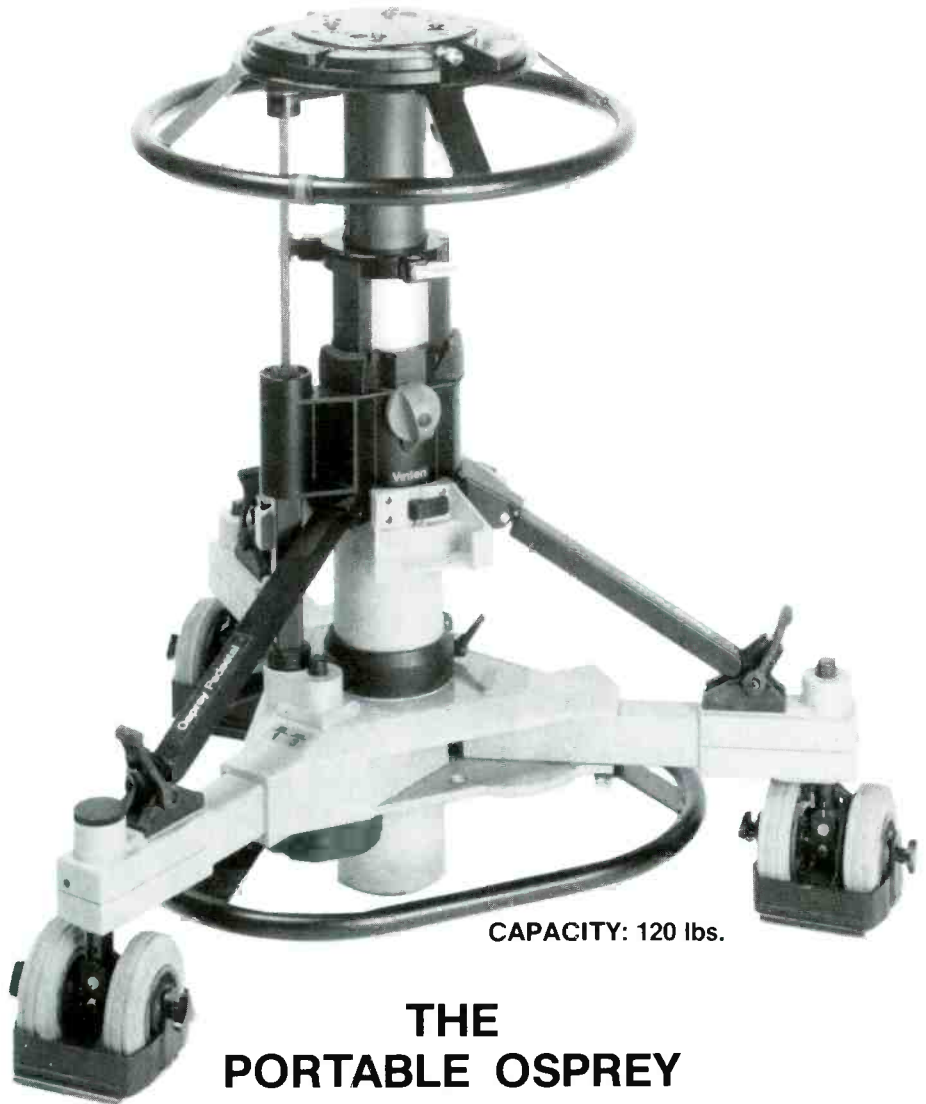
FULLY RETRACTS TO 26"



ADJUSTABLE BASE WIDTH
FOR 27½" DOORWAYS



SEPARATES INTO 2 PARTS
FOR EASY TRANSPORT



CAPACITY: 120 lbs.

THE PORTABLE OSPREY

A TWO-STAGE, TWO-PART PNEUMATIC PEDESTAL

based on Vinten's timeless Classic™ design for easy set-up in the studio and out in the field. With features you've come to expect from VINTEN:

- Perfect balance and "on-shot" performance
- Self-pumping action or externally chargeable
- Positive locking wheel brakes
- 5" floating axle studio wheels
- Interchangeable 6" OB wheels (optional)
- Trim weights to maintain full, true counterbalance
- Crab/steer operation

Vinten

New Headquarters: 44 Indian Lane East, Towaco, New Jersey 07082
Telephone: (516) 273-9750 • Telex: 640470 • Fax: (516) 273-9759
(Calls will be forwarded to our new facility in New Jersey)

Branch Office: 8115-B Clybourn Avenue, Sun Valley, California 91352-4022
Telephone: (818) 767-0306 • Fax: (818) 767-0772

New Florida Office: 2139 University Drive, Suite 238, Coral Springs, Florida 33071
Telephone: (305) 345-2630 • Fax: (305) 345-2631

THINK SYSTEMS. THINK PANASONIC BROADCAST SYSTEMS.

You know about our recording systems—from players to editors to the sophisticated M.A.R.C. automated cassette system. You know about our unmatched standards for price/performance with component analog VTRs at 3/4" prices.

But we want you to know we're more than that. We are the source of the world's first digital

processing cameras, as well as some of the most cost-effective analog cameras ever made.

And, we've got just about everything in between: auto-setup monitors, cables, adapters, switchers, editors, etc.

When you're looking for value, performance and innovation, think systems. Panasonic Broadcast Systems.

Panasonic
Broadcast Systems

Value and innovation. First and foremost.

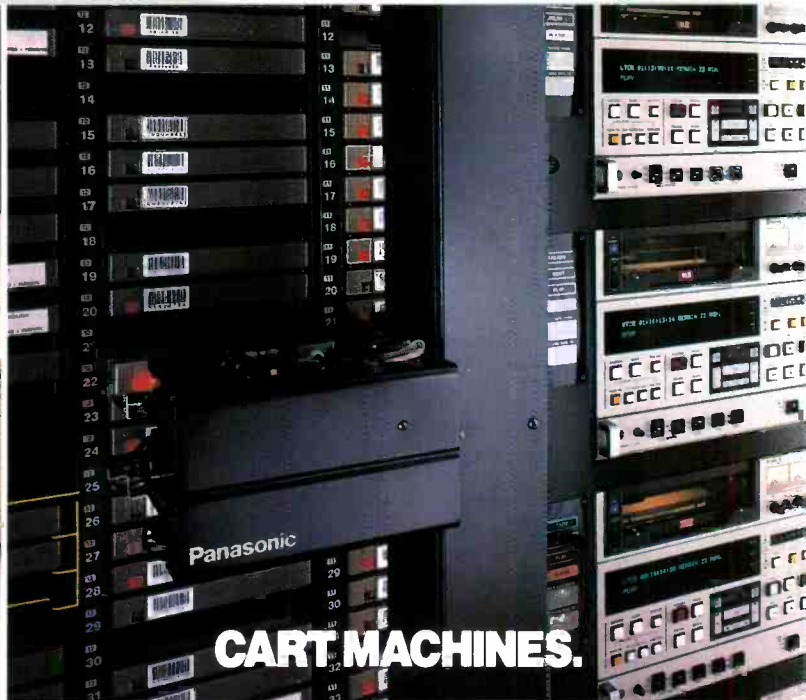
Panasonic Broadcast Systems Company, One Panasonic Way Secaucus NJ 07094 (201) 348-7671

Panasonic Broadcast Systems Company Field Offices: (Northeast) Washington, DC (703) 759-6900, (Southeast) Norcross, GA (404) 717-6772, (Midwest) Arlington Heights, IL (708) 981-7325/(317) 852-3715, (Southwest) Fort Worth, TX (817) 685-1132, (Western) Burbank, CA (818) 562-1501, (Northwest) (408) 866-7974; Parts, Service, Technical Information: 1-800-222-0741

Circle (45) on Reply Card



VTRs.



CART MACHINES.



PORTABLE CAMERAS.



AUTO SETUP MONITORS.



FIELD OPERATIONS.



ACCESSORIES.

Broadcast Marketing Int'l

30 Sagamore Road
Shelton, CT 06484
203-925-8258
Fax: 203-925-8259

Broadcast Microwave Services

7322 Convoy Court
San Diego, CA 92111
619-560-8601
Fax: 619-560-1637

Broadcast Signal Lab

64 Richdale Ave.
Cambridge, MA 02140-2629
617-864-4298

Broadcast Systems Design

398 Martin Ave.
Santa Clara, CA 95050
408-988-6900
Fax: 408-988-7590

Broadcast Video Systems

40 W. Wilnot St.
Richmond Hill, Ont.
Canada L4B 1H8
416-764-1584
Fax: 416-764-7438

B. Verwey**Regional Sales Contacts**

CA, Redwood City, 415-365-3944
CA, Woodland Hills, 818-704-6324
FL, Miami, 305-592-5355
IL, Elk Grove Village, 708-981-1107
KY, Edgewood, 606-331-8990
MD, Washington Grove, 301-258-7676
MA, Middleboro, 508-947-6801
NJ, Sea Bright, 201-530-8555
NM, Los Lunas, 505-865-6700
NY, New York, 212-757-6977
NY, New York, 212-586-3690
OH, Columbus, 614-445-8800
TN, Nashville, 615-255-2801
TX, Austin, 512-263-3446
UT, Salt Lake City, 801-484-1701
WA, Seattle, 206-869-2050

Bruel & Kjaer A/S

18 Naerum Hovedgade
DK-2850 Naerum, Denmark
45-42-800500
Fax: 45-42-801405

Bruel & Kjaer Instruments, Inc.

185 Forest St.
Marlborough, MA 01752
508-481-7000
Fax: 508-485-0519

Bryston Vermont Ltd.

979 Franklin Lane
Maple Glen, PA 19002
215-628-4255; 800-673-7899
Fax: 215-628-2970

Martin Bartelstone**BTC Test & Measurement**

7500 Six Forks Road
Raleigh, NC 27615
919-676-8378; 800-882-6872
Fax: 919-676-8384

BTS

2300 South 2300 West
Salt Lake City, UT 84119
801-972-8000; 800-962-4BTS
Fax: 801-972-0837

Mike Richardson

- Eastern Mgr, 404-934-3046

Tom Garofalo

- Western Mgr, 818-986-1210

Regional Sales Contacts

CA Sherman Oaks, 818-986-1210
GA Alpharetta, 404-343-8000
IL Rosemont, 708-803-8060
NJ Mahwah, 201-529-1550
TX Grand Prairie, 214-660-2400
Canada Mississauga, 416-826-6060
Mexico, Latin/South America,
contact Grand Prairie, TX

BTS

Postfach 110261
Darmstadt
West Germany D-6100
49-06151-808827
Dick Crippa

Buhl Optical Co.

1009 Beech Ave.
Pittsburgh, PA 15233
412-321-0076; 800-245-4574
Fax: 412-322-2640

Burden Associates, Richard W.

20944 Sherman Way
Canoga Park, CA 91303
818-340-4590

Burk Technology, Inc.

7 Lomar Drive
Pepperell, MA 01463
508-433-8877; 800-255-8090
Fax: 508-433-8981

BURLE INDUSTRIES, INC.

1000 New Holland Ave.
Lancaster, PA 17601-5688
717-295-6000

Dina Peterson**C****C.A.E.**

11552 Knott St., Unit 1
Garden Grove, CA 92641
714-895-1887
Fax: 714-895-3827

Cablewave Systems

60 Dodge Ave.
North Haven, CT 06473
203-239-3311

CAE Inc.

10087 Industrial Drive
Hamburg, MI 48139
313-231-9373
Fax: 313-231-1631

CAIG Labs, Inc.

P.O. Box J
Escondido, CA 92033-3679
619-743-7143
Fax: 619-743-2460

Calculated Industries

22720 Savi Ranch
Yorba Linda, CA 92687
714-921-1800; 800-854-8075
Fax: 714-921-2799

Calex Mfg. Co., Inc.

3355 Vincent Road
Pleasant Hill, CA 94523
415-932-3911; 800-542-3355
Fax: 415-932-6017

California Tube Lab Inc.

1305 17th Ave.
Santa Cruz, CA 95062
408-475-2939; 800-824-3197
Fax: 408-475-0241

Calzone Case Co.

225 Black Rock Ave.
Bridgeport, CT 06605
203-367-5766; 800-243-5152
Fax: 203-336-4406

Canare Cable, Inc.

511 Fifth St., Suite G
San Fernando, CA 91340
818-365-2446
Fax: 818-365-0479
Barry Brenner

Canford Audio plc

Crowther Road, Washington
Tyne & Wear, England NE38 0BW
44-91-415-0205
Fax: 44-91-416-0325

Canon USA Inc.

Broadcast Equipment Div.
610 Palisade Ave.
Englewood Cliffs, NJ 07036
201-816-2900; 800-321-4388
Fax: 201-816-9702

Carter Cartop Inc., Harry

24403 E. Welches Road
Welches, OR 97067
503-622-4477; 800-624-5657
Fax: 503-622-5560

Cartridge Technology**Prof Recording Eqpt.**

4 Crescent Drive, Shenfield
Essex, England CM15 8DS
44 0277 215485
Fax: 44 0268 741313

Carver Professional

P.O. Box 1237
Lynnwood, WA 98046
206-775-1202; 800-443-2287
Fax: 206-778-9453

Carvin Corp.

1155 Industrial Ave.
Escondido, CA 92029
619-747-1710; 800-854-2235
Fax: 619-747-0743

Catamount Mfg. Inc.

P.O. Box 720
Orange, MA 01364-0720
508-544-8255; 800-222-5969
Fax: 508-544-8351

Cavendish Co., Dwight

6444 N. Ridgeway Ave.
Chicago, IL 60645
708-673-0937
Fax: 708-673-1389

CBSI-Custom Business**Systems**

P.O. Box 67
Reedsport, OR 97467
503-271-3681; 800-547-3930
Fax: 503-271-5721

CCA Electronics, Inc.

P.O. Box 426
Fairburn, GA 30213
404-964-3530
Fax: 404-964-2222

CCTV Corp.

315 Hudson St.
New York, NY 10013
212-989-4433; 800-221-2240
Fax: 212-463-9758

CEL Electronics Inc.

4550 West 109th St., Suite 225
Overland Park, KS 66211
913-345-0925; 800-325-2351
Fax: 913-345-2771
Don Bage

CEL Electronics

Chroma House, Shire Hill
Saffron Walden, Essex
England CB11 3AQ
44-0799-23817
Fax: 44-0799-28081

Celco Inc.

200 Sea Lane
Farmingdale, NY 11735
516-249-3662; 516-249-3665
Fax: 516-420-1863

Cellcast Remote Broadcast Studio Div. of Tri-Tech, Inc.

2415 E. Skelly Drive
Tulsa, OK 74105
918-425-5588; 800-852-1333
Fax: 918-749-8771

Cemty's S.A.

Explanada 4 & 6
28040 Madrid, Spain
34-1-533-2508
Fax: 34-7-253-7888

Center Video Industrial Co. Inc.

5615 W. Howard St.
Niles, IL 60648
708-647-8700; 800-621-4354
Fax: 708-647-8707

Central Dynamics

147 Hymus Blvd.
Pointe Claire, Que.
Canada H9R 1G1
514-697-0810
Fax: 514-697-0224

Central Tower Inc.

2855 Highway 261
Newburgh, IN 47630
812-853-0595
Fax: 812-853-6652

Century 21 Programming Inc.

14444 Beltway Parkway
Dallas, TX 75244
214-934-2121; 800-937-2100
Fax: 800-749-2121

Century Precision Optics

10713 Burbank Blvd.
North Hollywood, CA 91601
818-766-3715; 800-228-1254
Fax: 818-505-9865

Channematic, Inc.

821 Tavern Road
Alpine, CA 92001
619-445-2691; 800-766-7171
Fax: 619-445-3293

Chester Cable/Alcatel N.A.

15 Oakland Ave.
Chester, NY 10918
914-469-2141
Fax: 914-469-9935

Christie Electric Corp.

18120 S. Broadway
Gardena, CA 90248
213-715-1402
Fax: 213-618-8368

Chromatic Technologies

P.O. Box 578
Franklin, MA 02038
508-520-1200
Fax: 508-520-0698

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

BE Directory Editor
PO Box 12901
Overland Park, KS 66212

Recognized For Outstanding Achievement In Engineering Development



COMARK

COMARK COMMUNICATIONS, INC. 1990[®]

A Thomson-CSF Company

Rt. 309 and Advance Lane, Colmar, PA 18915
Tel. (215) 822-0777 • Fax (215) 822-9129 • Telex 846075

Circle (49) on Reply Card

ChronTrol Corp.
9707 Candida St.
San Diego, CA 92126
619-566-5656; 800-854-1999

Chyron Corp.
265 Spagnoli Road
Melville, NY 11747
516-845-2022
Fax: 516-249-3342

Cine 60, Inc.
630 Ninth Ave.
New York, NY 10036
212-586-8782
Fax: 212-459-9556

Cipher Digital, Inc.
P.O. Box 170
Frederick, MD 21701
301-695-0200; 800-331-9066
Fax: 301-694-5152
Tony Mattia

Clark Co., David
360 Franklin St.
Worcester, MA 01615-0054
508-756-6216
Fax: 508-753-5827

Clark Wire & Cable
1801 Holste Road
Northbrook, IL 60062
708-272-9889

Clear-Com Intercom Systems
945 Camelia St.
Berkeley, CA 94710
415-527-6666
Fax: 415-527-6699
Michael Goddard
International sales 415-932-8134

**CMC Technology, Video
Operation of Datatape Inc.**
2650 Lafayette St.
Santa Clara, CA 95050-2604
408-980-9800
Fax: 408-988-7829

CMX
2230 Martin Ave.
Santa Clara, CA 95050
408-988-2000; 800-988-2000
Fax: 408-986-0452

CoarcVideo
Box 2 Route 217
Mellenville, NY 12544
518-672-7202; 800-888-4451
Fax: 518-672-4048

Coaxial Dynamics
15210 Industrial Parkway
Cleveland, OH 44135
216-267-2233; 800-COAXIAL
Fax: 216-267-3142

Cohu Inc., Electronics Div.
P.O. Box 85623
San Diego, CA 92186-5623
619-277-6700
Fax: 619-277-0221

Colorado Video Inc.
P.O. Box 928
Boulder, CO 80306
303-530-9580
Fax: 303-530-9569

Columbine Systems, Inc.
1707 Cole Blvd.
Golden, CO 80401
303-237-4000
Fax: 303-237-0085

Comad Communications Ltd.
1165 Monteagle Blvd.
Belleville, Ont.
Canada K8P 5G3
613-969-1465
Fax: 613-969-0541

**Comark Communications,
Inc./A Thomson-CSF Co.**
P.O. Box 506
Colmar, PA 18915
215-822-0777
Fax: 215-822-9129
Ellen Rainey

COMLUX
453 Ravendale Drive, Suite F
Mountain View, CA 94043
415-964-9628
Fax: 415-964-0968

**Commodore Business
Machines**
1200 Wilson Drive
West Chester, PA 19380
215-431-9228
Fax: 215-431-8156

Comprehensive Video Supply
148 Veterans Drive
Northvale, NJ 07647
201-767-7990; 800-526-0242
Fax: 201-767-7377

Comprompter, Inc.
141 S. Sixth St.
LaCrosse, WI 54601
608-785-7766; 800-658-9099
Fax: 608-782-4674

CompuSonic Corp.
744 San Antonio Road, Suite 4
Palo Alto, CA 94303
415-494-1184
Fax: 415-494-3040

**Computer Assisted
Technologies**
847-A Second Ave. Ste 175
New York, NY 10017
212-687-BCAM; 212-360-2591
Fax: 212-573-8362

Computer Concepts Corp.
8375 Melrose Drive
Lenexa, KS 66214
913-541-0900; 800-255-6350
Fax: 913-541-0169

Computer Graphics Lab, Inc.
100 Glen Cove Ave.
Glen Cove, NY 11542
516-686-7833
Fax: 516-759-2482

Computer Prompting Corp.
3408 Wisconsin Ave. N.W., Ste 201
Washington, DC 20016
202-966-0980
Fax: 202-966-0981

Comrex Corp.
65 Nonset Path
Acton, MA 01720
508-263-1800; 800-237-1776
Fax: 508-635-0401

Comtech Antenna Systems
3100 Communications Road
St. Cloud, FL 34769
407-892-6111
Fax: 407-957-3402

**Comtek Communications
Technology, Inc.**
357 West 2700 South
Salt Lake City, UT 84115
801-466-3463
Fax: 801-484-6906

**Comwave/Communication
Microwave Corp**
P.O. Box 69
Mountaintop, PA 18707
717-474-6751
Fax: 717-474-5469

Concept Productions
1224 Coloma Way
Roseville, CA 95661
916-782-7754; 800-783-3454
Fax: 916-786-8304

**Concept W Systems, Inc.
CAMPLEX**
3302 W. Sixth Ave.
Emporia, KS 66801
316-342-7743
Fax: 316-342-7405

Conex Electro Systems
P.O. Box 1342
Bellingham, WA 98227
206-734-4323
Fax: 206-676-4822
John Plattner
Regional Sales Contacts
IN, Richmond, 317-962-8596
MD, Gaithersburg, 301-948-0650
NY, South Glens Falls, 518-793-2181
TX, Amarillo, 806-372-4518
TX, Fort Worth, 817-737-9911
WA, Tacoma, 206-565-2301
Canada Scarborough, 416-438-6230

Conifer Corp.
P.O. Box 1025
Burlington, IA 52601
319-752-3607
Fax: 311-753-5508

Connectronics Corp.
652 Glenbrook Road
Stamford, CT 06906
203-324-2889; 800-322-2537
Fax: 203-324-7027

Connolly Systems Ltd.
10 Frederick Sanger Road
Guilford, Surrey, England GU2 5YD
44-483-300988
Fax: 44-483-301928

**Conrac Display Products
Group**
1724 S. Mountain Ave.
Duarte, CA 91010
818-303-0095
Fax: 818-303-5484

Consultronics
533 Valley Way
Milpitas, CA 95035
408-263-2600
Fax: 408-263-8717

Contact East
335 Willow Street South
North Andover, MA 01845
508-682-2000; 800-225-5370
Fax: 508-688-7829

Continental Electronics
P.O. Box 270879
Dallas, TX 75227
214-381-7161
Fax: 214-381-4949

Control Concepts Corp.
P.O. Box 1380
Binghamton, NY 13902-1380
607-724-2484; 800-288-6169
Fax: 607-722-8713

**Oral R. Evans
Regional Sales Contacts**
AL, Cropwell, 205-525-5660
CA, Brea, 714-529-3030
FL, Deerfield Beach, 305-428-8330
FL, Fort Lauderdale, 305-735-8333
FL, Niceville, 904-678-8943
IL, Quincy, 217-222-8200
IA, Grimes, 515-986-3356
KY, Edgewood, 606-331-8990
MD, Laurel, 301-498-2200
MA, Somerville, 617-491-1210
MA, Southwick, 413-569-0116
MA, Westfield, 413-568-9581
PA, Colmar, 215-822-0777
PA, Pittsburgh, 412-733-1994
TX, Dallas, 214-381-7161
WA, Bellingham, 206-733-4567

**Convergence Editing
Paltex International**
2752 Walnut Ave.
Tustin, CA 92680
714-731-3300
Fax: 714-838-9619

Cool-Lux Lighting Industries
5723 Auckland Ave.
North Hollywood, CA 91601
818-761-8181; 800-223-2589
Fax: 818-761-3202

**Corporate Computer Systems
Audio Products Div.**
33 W. Main St.
Holmdel, NJ 07733
201-946-3800
Fax: 201-946-7167

Cortana Corp.
P.O. Box 2548
Farmington, NM 87499-2548
505-325-5336
Fax: 505-326-2337

Countryman Associates Inc.
417 Stanford Ave.
Redwood City, CA 94063
415-364-9988; 800-669-1422
Fax: 415-364-2794

Cox Associates Ltd.
Cox House, Amberley Way
Hounslow, Middlesex
England TW4 6BH
44-81-570-8283
Fax: 44-81-570-3079

**CRL Systems-Circuit
Research Labs, Inc.**
2522 W. Geneva Drive
Tempe, AZ 85282
602-438-0888; 800-535-7648
Fax: 602-438-8227

Croma Research Ltd.
Croma House N. Way Walworth Est.
Andover, Hants
England SP10 5AZ
0264-332132
Fax: 0264-332189

**Crouse-Hinds
Airport Lighting Products**
1200 Kennedy Road
Windsor, CT 06095
203-683-4369
Fax: 203-683-4354

**Crouse-Hinds
CAM-LOK Products**
10540 Chester Road
Cincinnati, OH 45215
513-771-3171
Fax: 513-771-4874

Crown International, Inc.
P.O. Box 1000
Elkhart, IN 46515
219-294-8000; 800-535-6289
Fax: 219-294-8329
Jim Beattie

Current Technology Inc.
1400 S. Sherman Drive, Suite 202
Richardson, TX 75081
214-238-5300; 800-238-5000
Fax: 214-238-0911

CV Technologies
148 Veterans Drive
Northvale, NJ 07647
201-784-3355; 800-942-EDIT
Fax: 201-784-8018

Cycle-Sat, Inc.
119 John K. Hanson Drive
Forest City, IA 50436
515-582-6999
Fax: 515-582-6998

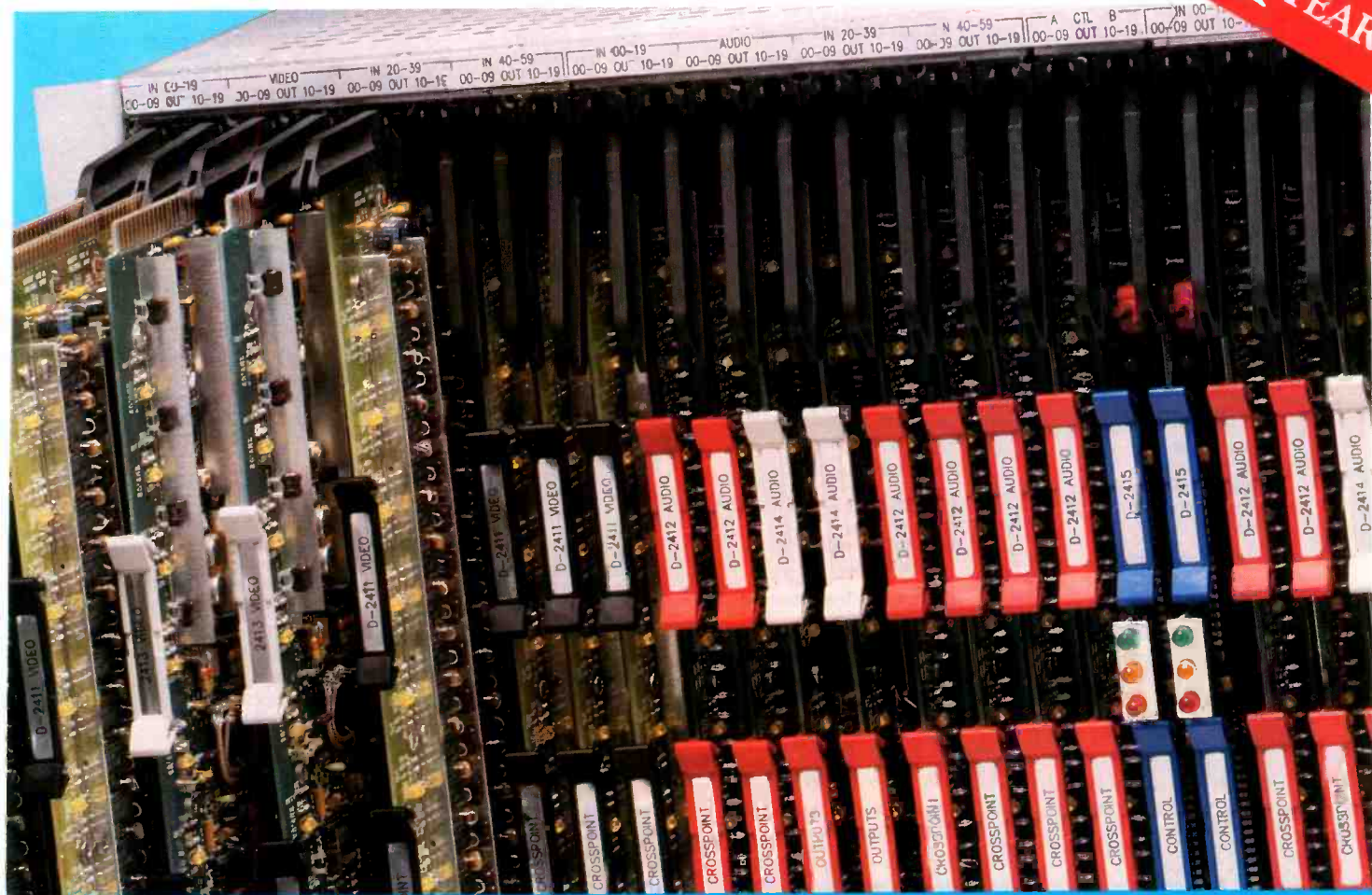
**D
D&R Electronica b.v.**
Rijnkade 15B
1382-GS Weesp, Holland
0031-2940-18014
Fax: 0031-2940-16987

Da-Lite Screen Co., Inc.
P.O. Box 137
Warsaw, IN 46580
219-267-8101; 800-622-3737
Fax: 219-267-7804

Dago Cases
6945 Indiana Court, Suite 600
Golden, CO 80403
800-342-3246
Fax: 303-421-7916

DATATEK D-2400 SERIES ROUTING SWITCHER SYSTEM

CELEBRATING
OUR 20th YEAR



The Datatek D-2400 system is intended to meet all your routing switcher needs — both now and in the future. The D-2400 is available for:

- Wide Bandwidth Video
- RGB
- Stereo Audio
- Monaural Audio
- Serial Digital Audio
- RS-422 4-Wire Data
- Passive Relay

Start with the matrix size and switching levels required initially and expand to a larger size and new levels as your system needs grow. The D-2400 is field expandable to as large as 800 x 800.

Datatek manufactures a full line of control panels and distribution amplifiers to complement the D-2400 system.

For more information, call:



1121 BRISTOL ROAD, MOUNTAINSIDE, NJ 07092 • PHONE: 201-654-8100
TOLL FREE: 800-882-9100 • FAX: 201-232-6381 • TELEX: 833541

Circle (50) on Reply Card

Dahl Co. Inc., Peter

5869 Waycross
El Paso, TX 79924
915-751-2300
Fax: 915-751-0768

Dalanco Spry

89 Westland Ave.
Rochester, NY 14618
716-473-3610

Data Security, Inc.

2801 North 27th St.
Lincoln, NE 68521
402-464-5858; 800-225-7554

Datacount, Inc.

P.O. Box 3078
Opelika, AL 36803
205-749-5641
Fax: 205-749-5666

Datatek Corp.

1121 Bristol Road
Mountainside, NJ 07092
201-654-8100; 800-882-9100
Fax: 201-232-6381

Rick Rainey

Regional Sales Contacts
CA, Canoga Park, 818-883-2138

Dataworld

P.O. Box 30730
Bethesda, MD 20814
301-652-8822; 800-368-5754
Fax: 301-656-5341

**Davis & Associates, John J.,
Consulting Engineers**

P.O. Box 128
Sierra Madre, CA 91025-0128
818-355-6909

Davis & Sanford Co. Inc.

24 Pleasant St.
New Rochelle, NY 10802
914-632-1636; 800-832-0832
Fax: 914-632-8081

dbx Professional Products**Div. of AKG Acoustics, Inc.**

1525 Alvarado St.
San Leandro, CA 94577
415-351-3500
Fax: 415-351-0500

DDA

200 Sea Lane
Farmingdale, NY 11735
516-249-3660; 213-823-3810

DDA

Unit 1, Inwood Bus. Pk, Whitton Rd
Hounslow, Middlesex
England TW3 2EB
081-570-7161
Fax: 081-577-3677

Dedotec USA, Inc.

210 Westlake Drive
Valhalla, NY 10595
914-761-5608
Fax: 914-761-9501

Deerfield Lab

P.O. Box 1300
Los Altos, CA 94023-1300
415-948-4535
Fax: 415-948-4535

Delcom USA Inc.

2344 Perot St.
Philadelphia, PA 19130
215-765-8811
Fax: 215-235-3633

Del Compu-Cable Systems

#6, 301 45th St. W.
Saskatoon, Sask., Canada S7L 5Z9
306-934-6884; 814-257-8210

Delta Electronics Inc.

5730 General Washington Drive
Alexandria, VA 22312
703-354-3350; 188-8-DELTA-8
Fax: 703-354-0216

Denecke Inc.

5417 Cahuenga Blvd., Suite B
North Hollywood, CA 91601
818-766-3525
Fax: 818-766-0269

Denon America, Inc.

222 New Road
Parsippany, NJ 07054
201-575-7810
Fax: 201-808-1608

DeSantis Associates

181 Long Hill Road, Suite 3-12
Little Falls, NJ 07424
201-256-8141

Di-Tech Inc.

48 Jeffryn Blvd.
Deer Park, NY 11729
516-667-6300
Fax: 516-595-1012
A. Bolletino

Dielectric Communications

Tower Hill Road
Raymond, ME 04071
207-655-4555; 800-341-9678
Fax: 207-655-4669

Digital Arts

7050 Convoy Court
San Diego, CA 92111-1017
619-541-2055
Fax: 619-541-2655

Digital Audio Research

2 Silverglade Business Park
Chessington, Surrey
England KT9 2QL
03727-42848
Fax: 03727-43532

Digital Dynamics

270-02 E. Pulaski Road
Greenlawn, NY 11740
516-271-5600
Fax: 516-271-5607

Digital Processing Systems

55 Nugget Ave., Unit 10
Scarborough, Ont.
Canada M1S 3L1
416-754-8090
Fax: 416-754-7046

Digital Support Group

626 N. Beachwood Drive
Los Angeles, CA 90004
213-460-4884
Fax: 213-460-6120

Discrete Technology Labs

3395 Long Beach Road
Oceanside, NY 11572
516-764-1121

Diversified Marketing

3918 W. Clearwater
Kennewick, WA 99336
509-735-6812; 509-946-4459
Fax: 509-735-7349

DKW Systems

9919 105th St., Unit 730
Edmonton, Alta
Canada T5K 1B1
403-426-1551
Fax: 403-426-1551

**DMC Digital Video Div.
Digital Microwave Corp.**

170 Rose Orchard Way
San Jose, CA 95134
408-944-1646; 408-943-0777
Fax: 408-435-1698

Dolby Laboratories, Inc.

100 Potrero Ave.
San Francisco, CA 94103-4813
415-558-0200
Fax: 415-863-1373

Kevinn Tam

Regional Sales Contacts
England, London, 071-720-1111

Dorough Electronics

5221 Collier Place
Woodland Hills, CA 91364
818-999-1132
Fax: 818-998-1507

Dotronix

160 First St. S.E.
New Brighton, MN 55112
612-633-1742
Fax: 612-633-7025

Drake Electronics Ltd., Philip

The Hydeway, 37 Broadwater Road
Welwyn, Garden City
Herts, England AL7 3UQ
0707-333666
Fax: 0707-371266

Alison Crisford

Regional Sales Contacts
CA, Los Angeles, 213-463-4444
NY, New York, 212-315-1111

Dranetz Technologies

P.O. Box 4019
Edison, NJ 08818-4019
201-287-3680
Fax: 201-287-8627

DSI Communications, Inc.

627 Boulevard
Kenilworth, NJ 07333
201-245-4833
Fax: 201-245-0011

Dubner Computer Systems

6 Forest Ave.
Paramus, NJ 07652-5214
201-845-8900
Fax: 201-845-8063

Dukane Corp.

2900 Dukane Drive
St. Charles, IL 60174
708-584-2300
Fax: 708-584-2370

DW Electrochemicals

9005 Leslie St., Unit 106
Richmond Hill, Ont.
Canada L4B 1G7
416-889-1522

DYMA Engineering, Inc.

P.O. Box 1535
Los Lunas, NM 87031
505-865-6700
Fax: 505-865-6776

DYNAIR Electronics, Inc.

5275 Market St.
San Diego, CA 92114
619-263-7711; 800-854-2831
Fax: 619-264-4181
Ron Rahe

Dynamote Corp.

1200 W. Nickerson
Seattle, WA 98119
206-282-1000; 800-426-2838
Fax: 206-283-7714

Dynatech ColorGraphics

6400 Enterprise Lane
Madison, WI 53719
608-274-5786; 800-248-1050
Fax: 608-273-5686

**Dynatech Microwave
Technology**

26655 W. Agoura Road
Calabasas, CA 91302-1921
818-880-6100
Fax: 818-880-5941

**Dynatech Tactical
Communication**

P.O. Box 568
Westford, MA 01886
508-692-5434; 800-233-8639
Fax: 508-692-9165

Dynetic Systems Co.

P.O. Box 12118
St. Paul, MN 55112-0118
612-639-1178; 800-899-4DSC
Fax: 612-639-0841

E**E-mu Systems, Inc.**

1600 Green Hills Road
Scotts Valley, CA 95066
408-438-1921
Fax: 408-438-8612

**Eagle Radio Frequency
Filters**

P.O. Box 911
Fallbrook, CA 92028
619-728-6000
Fax: 619-723-7252

East Coast Video Systems

52 Ralph St.
Belleville, NJ 07109
201-751-5655
Fax: 201-751-8731

ECHOLab, Inc.

175 Bedford Road
Burlington, MA 01803
617-273-1512

Econco

1318 Commerce Ave.
Woodland, CA 95695
916-662-7553; 800-532-6626
Fax: 916-666-7760

EDAK

285 North Drive, Suite 4
Melbourne, FL 32934
407-242-2953; 800-462-8478
Fax: 407-242-3430

EDCOR

1948 E. Pomona
Santa Ana, CA 92705
714-258-0777
Fax: 714-258-7117

Ediflex Systems

1225 Grand Central Ave.
Glendale, CA 91201-2425
818-502-9100
Fax: 818-502-0052

Editing Machines Corp.

1825 Q St. N.W.
Washington, DC 20009
202-232-4597
Fax: 202-234-1847

EDX Engineering, Inc.

PO Box 1547
Eugene, OR 97440
503-345-0019
Fax: 503-345-3145

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

**BE Directory Editor
PO Box 12901
Overland Park, KS 66212**



Nature has its own
professionals of
sound and vision.



The wonders of sound and vision found in nature are hard to reproduce. In fact, if anyone has come close it's EEV.

Whatever your broadcast requirements, you'll find EEV has the technology to match. High-efficiency UHF Television Klystrons from 5kW to 70kW for Television Transmitters. A range of Broadcast Tetrodes and Vacuum Capacitors for AM and FM transmitters, and Leddicon® camera tubes to fit virtually every broadcast color camera available today.

Our experience is the key to technological leadership. Our manufacturing know-how ensures the highest quality and reliability. Above all, our professional dedication to our customers' needs makes us the natural choice of broadcasters the world over.

® Leddicon is the Registered Trade Mark of EEV Lead Oxide Camera Tubes.

EEV

Technology for the Broadcast Industry



USA: EEV Inc, 4 Westchester Plaza, Elmsford, NY 10523. Telephone: (914) 592 6050 or 'Toll Free' 1-800-DIAL EEV Telex: 6818096 Fax: (914) 682 8922
CANADA: EEV Canada Ltd, 67 Westmore Drive, Rexdale, Ontario M9V 3Y6. Telephone: (416) 745 9494 Telex 06 989363 Fax: (416) 745 0618
UK: EEV, Waterhouse Lane, Chelmsford, Essex CM1 2QU, England. Telephone: (0245) 493493 Telex: 99103 Fax: (0245) 492492

Subsidiary of the General Electric Company plc of England. **S&C**

Circle (51) on Reply Card

EEG Enterprises, Inc.

1 Rome St.
Farmingdale, NY 11735
516-293-7472
Fax: 516-293-7417

EELA Audio

Hondsruglaan 83a
5628 DB Eindhoven
Netherlands
31 40 424455
Fax: 31 40 428925

EEV

4 Westchester Plaza
Elmsford, NY 10523
914-592-6050; 800-DIAL-EEV
Fax: 914-682-8922

Mike Kirk**Regional Sales Contacts**

CA, Westminster, 714-895-3948
GA, Atlanta, 404-939-1518
KY, Fort Mitchell, 606-341-3191
NY, Buffalo, 716-626-9055

EEV Ltd.

Waterhouse Lane
Chelmsford, Essex
England CM1 2QU
0245-493493
Fax: 0245-492492

D. M. Farrar**EG&G Electro-Optics**

35 Congress St.
Salem, MA 01970
508-745-3200
Fax: 508-745-0894

EIP Microwave, Inc.

1589 Centre Pointe Drive
Milpitas, CA 95035
408-945-1477; 800-232-3471
Fax: 408-945-0977

Elcom Bauer

6199 Warehouse Way
Sacramento, CA 95826
916-381-3750
Fax: 916-381-4332

Electro Impulse Lab, Inc.

P.O. Box 870
Red Bank, NJ 07701
201-741-0404
Fax: 201-747-7153

Electro-Voice Inc.

600 Cecil St.
Buchanan, MI 49107
616-695-6831; 800-827-6701
Fax: 616-695-1304

Electrocraft Consultants Ltd.

Liss Mill, Mill Road
Liss, Hampshire
England GU33 7BD
44-730-893444
Fax: 44-730-894341

Electronic Communication Systems

2906 Brady St.
Davenport, IA 52803
319-322-1525
Fax: 319-322-5920

Electronic Graphics, Inc.

1157-B Triton Drive
Foster City, CA 94404
415-573-8834
Fax: 415-573-9235

Electronic Systems Labs, Inc.

3911 S.W. 47th Ave., Suite 906
Fort Lauderdale, FL 33314
305-791-1501
Fax: 305-791-8986

Electronic Visuals Ltd.

Goldsworth Road
Woking, Surrey
England GU21 1RU
44-483-771663
Fax: 44-483-750358

Electronics Diversified

1675 N.W. 216th Ave.
Hillsboro, OR 97124
503-645-5533; 800-547-2690
Fax: 503-629-9877

EMCEE Broadcast Products

P.O. Box 68
White Haven, PA 18661
717-443-9575; 800-233-6193
Fax: 717-443-9257

Emcor Products/Crenlo, Inc.

1600 Fourth Ave. N.W.
Rochester, MN 55901
507-289-3371
Fax: 507-287-3405
Thomas Regnier

Emergency Alert Receiver/EAR

P.O. Box 20629
New York, NY 10025-1515
212-695-4767

Energex Systems Corp.

77-79 E. Main St.
Elmsford, NY 10523
914-631-1363

Energy-Onix

752 Warren St.
Hudson, NY 12534
518-828-1690
Fax: 518-828-8476

Ensemble Designs

10529 Oak Drive
Grass Valley, CA 95949
916-477-1830
Fax: 916-268-1692

Environmental Technology

1302 High St.
South Bend, IN 46618
219-233-1202; 800-234-4239
Fax: 219-233-2152

Equipto Electronics Corp.

351 Woodlawn Ave.
Aurora, IL 60506-9988
708-897-4691
Fax: 708-897-5314

Ergo Industries

3176 E. Miraloma
Anaheim, CA 92806
714-632-1763; 800-635-9297
Fax: 714-632-1764

ESE

142 Sierra St.
El Segundo, CA 90245
213-322-2136

Bob Mayers**Regional Sales Contacts**

CA, Hollywood, 213-461-0700
CA, Hollywood, 213-461-9800
CA, Sacramento, 800-638-3338
CA, Los Angeles, 213-749-3311
CA, San Francisco, 415-332-7070
CA, Woodland Hills, 818-704-6324
DC, Washington, 301-948-0605
FL, Hollywood, 800-223-0622
FL, Ocala, 904-622-9058
IN, Richmond, 317-962-8596
KY, Edgewood, 606-331-8990
NM, Los Lunas, 505-865-6700
NY, New York, 212-757-6977
NY, Port Washington, 516-883-4414
NY, South Glens Falls, 518-792-2181
WA, Tacoma, 800-426-8434

ETI Systems Inc.

7685 S.W. Cirrus Drive, Suite 32
Beaverton, OR 97005
503-641-7540; 800-248-6728

Evans Associates, Consulting Telecom, Engineers

216 N. Green Bay Road
Thiensville, WI 53092
414-242-6000
Fax: 414-242-6045

Eventide Inc.

1 Alsan Way
Little Ferry, NJ 07643
201-641-1200
Fax: 201-641-1640

Evertz Microsystems Ltd.

3465 Mainway
Burlington, Ont., Canada L7M 1A9
416-335-3700
Fax: 416-335-3573

Express Tower Co.

Star Route E., Box 37
Locust Grove, OK 74352
918-479-6484
Fax: 918-479-6485

F**Faroudja Labs, Inc.**

675 Palomar Ave.
Sunnyvale, CA 94086
408-735-1492
Fax: 408-735-8571

Fast Forward Video

17955-A Skypark Circle
Irvine, CA 92714
714-852-8404

Ferno-Washington, Inc.

70 Weil Way
Wilmington, OH 45177
513-382-1451; 800-73-FERNO
Fax: 513-382-1191

Fidelipac Corp.

P.O. Box 808
Morrestown, NJ 08057
609-235-3900
Fax: 609-235-7779

Film/Video Equipment Service Co.

800 S. Jason
Denver, CO 80223
303-778-8616
Fax: 303-778-8657

Flash Technology

55 Lake St., Nashua, NH 03060
603-883-6500
Fax: 603-883-0205

Floral Systems

2201 N.W. 53rd Ave.
Gainesville, FL 32605
904-372-8326
Fax: 904-375-0859

Fluke Mfg. Co. Inc., John

P.O. Box 9090
Everett, WA 98206
206-347-6100; 800-426-0361
Fax: 206-356-5116

FM Acoustics Ltd.

Tiefenhofstrasse 17
CH-8820 Waedenswil, Switzerland
41-1-7806444
Fax: 41-1-7800488

FM Systems

3877 S. Main St.
Santa Ana, CA 92707
714-979-3355; 800-235-6960
Fax: 714-979-0913

Focusrite Audio Eng. Ltd.

#2 Bourne End Business Center
Bourne End, Bucks
England SL8 5AS
44-628-819456
Fax: 44-628-819443

FOR.A Corp. of America

320 Nevada St.
Newton, MA 02160
617-244-3223; 617-244-3224
Fax: 617-965-5085

John Margardo**Regional Sales Contacts**

CA, Los Angeles, 914-894-3311
IL, Chicago, 708-964-1616
TX, Houston, 713-894-2668

Fort Worth Tower Co., Inc.

P.O. Box 8597
Fort Worth, TX 76124-0597
817-457-3060
Fax: 817-429-6010

Fostex Corp. of America

15431 Blackburn Ave.
Norwalk, CA 90630
213-921-1112
Fax: 213-802-1964
Mark Cohen

Fougerolle

Z1 10 rue Charles Cros
St. Leu La Foret
France F-95230
33-1-39-95-69-33
Fax: 33-1-30-40-93-95

Freeland Products, Inc.

75412 Highway 25
Covington, LA 70433
504-893-1243; 800-624-7626
Fax: 504-892-7323

Frezzolini Electronics, Inc.

5 Valley St.
Hawthorne, NJ 07506
201-427-1160; 800-345-1030
Fax: 201-427-0934

FSR, Inc.

244 Bergen Blvd.
West Paterson, NJ 07424
201-785-4347; 800-332-3771
Fax: 201-785-3318

Fuji Photo Film USA, Inc. Magnetic Products Div.

555 Taxter Road
Elmsford, NY 10523
914-789-8100; 800-223-6535
Fax: 914-682-4955

Fujinon Inc.

10 High Point Drive
Wayne, NJ 07470
201-633-5600
Fax: 201-633-5216

John Newton**Regional Sales Contacts**

CA, Carson, 213-532-2861
FL, Miami, 305-388-7399
IL, West Chicago, 708-231-7888
TX, Carrollton, 214-385-8902

Funke & Associates

908 Marilyn Drive
Campbell, CA 95008
408-866-0648; 800-748-6308
Fax: 408-866-1975

Furman Sound, Inc.

30 Rich St.
Greenbrae, CA 94904
415-927-1225
Fax: 415-927-4548

G**G&M Power Products Inc.**

943 N. Orange Drive
Los Angeles, CA 90038
213-850-6800; 800-748-5860
Fax: 213-850-5143

Gabriel Electronics Inc.

Libby Road, P.O. Box 70
Scarborough, ME 04074
207-883-5161
Fax: 207-883-4469

Garner Industries

4200 North 48th St.
Lincoln, NE 68504
402-464-5911; 800-228-0275
Fax: 402-464-6960

Gauss

9130 Glenoaks Blvd.
Sun Valley, CA 91352
213-875-1900
Fax: 818-767-4479



Unleash Your Creative Power With The AFV-500 AudioMixer.

When it comes to producing high quality audio for video, the creativity of even the most talented operator or producer can be stunted by traditional consoles.

The AFV-500 audio mixer gives you *microprocessor control* over audio for video production, with unmatched speed and ease. It gives you the same "key frame" control parameters over audio mixing that you have come to expect for video programming.

Now you have the time to concentrate on developing new creative techniques, which can only add to the excellence of your overall production.



FOR.A[®]
INNOVATIONS IN VIDEO
and AUDIO TECHNOLOGY

For complete information on the remarkably affordable AFV-500, please call the FOR.A office nearest you.

The freedom to capitalize on talent is just one reason why the AFV-500 has developed an almost instantaneous worldwide following. Other important benefits include:

- Highest quality stereo imaging.
- Compatibility with all leading editing and switching equipment.
- Easy installation and operation within the video environment.
- Modular expandability.

FOR.A Corporation of America 320 Nevada Street Newton, MA 02160

Boston: (617) 244-3223

Chicago (708) 964-1616

Los Angeles: (714) 894-3311

Houston (713) 894-2668

Circle (52) on Reply Card

GE American Communications

4 Research Way
Princeton, NJ 08540
609-987-4000
Fax: 609-987-4517

GE Broadcast Systems Integration

701 Ashland Ave., Center 1-3
Folcroft, PA 19032-2007
215-583-6800
Fax: 609-866-0247

GE Co., Projection Display Products

Electronics Park, Building 6-338
Syracuse, NY 13221
315-456-2152
518-438-6500-GE Bus Info. Center

GE Support Services RCA Broadcast

158 Gaither Drive
Mount Laurel, NJ 08054
609-866-3147; 609-866-3070
Fax: 609-866-3146

GEE Broadcast Systems Ltd.

Unit 9, Grafton Way
Basingstoke, Hants
England RG22 6HY
44-256-810123
Fax: 44-256-810061

Geleco Electronics Ltd.

2 Thorncliffe Park Drive, Unit 28
Toronto, Ont.
Canada M4H 1H2
416-421-5631
Fax: 416-421-5631

General Devices Co., Inc.

P.O. Box 39100
Indianapolis, IN 46239
317-897-7000
Fax: 317-898-2917

Generic Computer Systems

357 N. Main St.
Butler, PA 16001
412-283-1500
Fax: 412-283-3005

GENERIC Designs, Inc.

1111 W. El Camino Real, Ste 109-156
Sunnyvale, CA 94087
Fax: 408-720-8280

Geneva Group of Companies, Inc.

9909 S. Shore Drive
Plymouth, MN 55441
612-546-5620; 800-328-6795 Ext 382
Fax: 612-546-0933

Gennum Corp.

P.O. Box 489
Burlington, Ont.
Canada L7R 3Y3
416-632-2996
Fax: 416-632-2055

Gentner Electronics Corp.

1825 Research Way
Salt Lake City, UT 84119
801-975-7200
Fax: 801-977-0087

Gary Crowder

Getris Images
23, Chemin des Pres Zirst
Meylan, France 38240
33-76 90 19 58
Fax: 33-76 90 72 34

Ghielmetti Inc.

5341 Derry Ave., Unit J
Agoura Hills, CA 91301
818-707-1134

GKM Mfg. Corp.

47 Bridgewater St.
Brooklyn, NY 11222
718-388-4114
Fax: 718-384-1325

GML, Inc.

George Massenburg Labs
7821 Burnet Ave.
Van Nuys, CA 91405
818-781-1022
Fax: 818-781-3828

Gordon Enterprises Inc., Alan

1430 Cahuenga Blvd.
Hollywood, CA 90028
213-466-3561; 800-825-MOVI
Fax: 213-871-2193

Gorman-Redlich Mfg. Co.

257 W. Union St.
Athens, OH 45701
614-593-3150
Fax: 614-592-3898

Gotham Audio Corp.

1790 Broadway
New York, NY 10019-1412
212-765-3410

Graham-Patten Systems, Inc.

P.O. Box 1960
Grass Valley, CA 95945
916-273-8412; 800-547-2489
Fax: 916-273-7458

Granite Telecom Corp.

669 E. Industrial Park Drive
Manchester, NH 03103
603-644-5500
Fax: 603-668-6535

Grass Valley Group

P.O. Box 1114
Grass Valley, CA 95945
916-478-3000
Fax: 916-478-3187

Gray Engineering Labs, Inc.

504 W. Chapman Ave., Suite P
Orange, CA 92668
714-997-4151
Fax: 714-997-1939

Scott Gray

Regional Sales Contacts

CA, Lawndale, 213-643-9021
CA, Sausalito, 415-332-7070
CA, Tarzana, 818-345-9550
FL, Miami, 305-592-5355
FL, Orlando, 305-841-0602
IL, Chicago, 312-794-0224
IN, Richmond, 317-962-8596
KY, Louisville, 502-491-2888
MD, Baltimore, 301-792-0465
NJ, Northvale, 201-767-1000
NY, New York, 212-575-6977
OH, Cleveland, 216-447-9745
OK, Tulsa, 918-664-8020
PA, Philadelphia, 215-223-8200
TX, Dallas, 214-233-5535
VA, Norfolk, 804-853-2600

Gray Supply Co.

4415 Indianapolis Blvd.
East Chicago, IN 46312-2696
219-398-2362; 800-238-2244
Fax: 219-398-0038

The Great American Market

826 N. Cole Ave.
Hollywood, CA 90038
213-461-0200
Fax: 213-461-4308

Retrag Image Systems

1301 Armstrong Drive
Titusville, FL 32780-7999
407-269-6680; 800-327-3644
Fax: 407-267-6211

Grunder & Associates Inc., James

5925 Beverly
Mission, KS 66202
913-831-0188
Fax: 913-831-3427

H

Hall Electronics

1305-F Seminole Trail
Charlottesville, VA 22901
804-974-6466
Fax: 804-974-6450

Hallikainen & Friends, Inc.

141 Suburban Road
San Luis Obispo, CA 93401-7590
805-541-0200
Fax: 805-544-6715

Hamaphot KG

Postfach 80, Monheim/Beyern
West Germany D-8855
09091/502-0; 09091/502-210
Fax: 09091/502-278

Hamlet Video International Ltd.

Oak House, 266 Chartridge Lane
Chesham, Bucks, England HP5 2SG
44-494-775850
Fax: 44-494-791283

Hand Tool Industries

1933 Lake St.
Kent, OH 44240
216-678-8787
Fax: 216-678-9011

Hardigg Industries

393 N. Main St.
South Deerfield, MA 01373
413-665-2163
Fax: 413-665-8061

Harding Co., Ltd. John J.

2825 Ualena St.
Honolulu, HI 96819
808-836-0941
Fax: 808-833-1204

Harris Allied

Broadcast Equipment

P.O. Box 4290
Quincy, IL 62305-4290
217-222-8200
Fax: 217-224-1439

Ron Frillman, Radio RF

Gaylen Evans, TV RF

Gus Ezcurra, Int'l Sales

Regional Sales Contacts

AL, Montgomery, 205-277-4377
CA, Auburn, 916-268-3957
CT, Waterbury, 203-573-0103
FL, Port Charlotte, 813-743-6887
GA, Marietta, 404-587-1613
IL, Quincy, 217-223-6566
IL, Westchester, 708-531-0410
MD, Baltimore, 301-444-2772
MI, Holt, 517-694-1223
NY, Fairport, 716-223-1030
OH, Westerville, 614-882-8506
OK, Broken Arrow, 918-251-8808
TX, Arlington, 817-572-6452
TX, Denton, 817-382-8322
UT, Provo, 801-373-7551
WA, Bellingham, 206-671-7125

Harrison by GLW

437 Atlas Drive
Nashville, TN 37211
615-331-8800
Fax: 615-331-8883

Harrison Systems Ltd.

RF Systems Engineering

6802 Industrial Drive, Suite 204
Beltsville, MD 21114
Fax: 301-937-2968

HEDCO

P.O. Box 1985
Grass Valley, CA 95945
916-273-9524; 800-433-2648
Fax: 916-273-6948

Ross Shelton

Heikki Malkki Ltd.

Tervaniementie 1
Espoo, Finland SF-02820
358-0-860739
Fax: 358-0-866759

Heitz Inc., Karl

34-11 62nd St.
Woodside, NY 11377
718-565-0004
Fax: 718-565-2582

Henry Engineering

503 Key Vista Drive
Sierra Madre, CA 91024
818-355-3656
Fax: 818-355-0077

Henry Radio

2050 S. Bundy Drive
Los Angeles, CA 90025
213-820-1234
800-877-7979 Ext 215
Fax: 213-826-7790

Hewlett-Packard Co.

1620 Signal Drive, TAF C-34
Spokane, WA 99220
800-752-0900

High Fidelity Productions

1059 Porter
Wichita, KS 67203
316-262-6456

Hipotronics Inc.

Power Products Div.

P.O. Drawer W
Millerton, NY 12546
518-789-6464
Fax: 518-789-4866

Hit Design

2480 S.E. 52nd St.
Ocala, FL 32671
904-622-2779
Fax: 904-629-7000

Hitachi Denshi America, Ltd.

150 Crossways Park Drive
Woodbury, NY 11797
516-921-7200
Fax: 516-921-0993

Jack Breitenbacher

Regional Sales Contacts

CA, Los Angeles, 213-328-6116
GA, Atlanta, 404-451-9453
IL, Chicago, 708-250-8050
TX, Dallas, 214-233-7623

HM Electronics, Inc.

6675 Mesa Ridge Road
San Diego, CA 92121
619-535-6000
Fax: 619-452-7207

HN Engineering Inc.

1160 Douglas Road
Burnaby, BC
Canada V5C 4Z6
604-294-3401
Fax: 604-299-6712

Hoffend & Sons, Inc.

34 E. Main
Honeoye, NY 14471
716-229-5998
Fax: 716-229-2746

Holiday Industries, Inc.

14825 Martin Drive
Eden Prairie, MN 55344
612-934-4920
Fax: 612-934-3604

Hoodman Corp.

P.O. Box 816
Hermosa Beach, CA 90254
213-379-6391
Fax: 213-372-6420

Horita Co.

P.O. Box 3993
Mission Viejo, CA 92690
714-364-1143

Horizon Towers, Inc.

P.O. Box 1516
Kilgore, TX 75662
214-984-2937; 800-443-8599-TX
Fax: 214-984-6307

DON'T LOSE WAVES

TAURO' Series AM and FM Transmitters from ITAME



10kw FM Transmitter



Premio

iberoamerica

PREMIO A LA CALIDAD Y PRESITGIO EMPRESARIAL,
CONCEDIDO POR LAS CAMARAS DE COMERCIO IBEROAMERICANAS EN ESPAÑA.

The Most Cost Effective Professional Transmitters On The Market

- With the guarantee of our wide experience.
- Security of transmission in un-interrupted function.
- Digital electronic control unit included in transmitter.
- Double cooling circuit.
- Direct and reflected power measurement by directional coupler.
- FM resonant type cavity output circuit, incorporating low pass and 2nd harmonic filters.
- AM pulse width modulation (PWN).
- Prepared for remote and tele-control use.
- Total accessibility to all interior components.
- Complete monitoring system with visual alarms.
- Motorized tuning and coupling.

THE BEST IN QUALITY
VS. PRICE

POWER LEVELS AVAILABLE

FM

30 KW • 10 KW • 5 KW
3 KW • 1 KW
600 W • 300 W • 100 W

AM

10 KW • 5 KW • 2 KW

Circle (53) on Reply Card

KEEP IN TOUCH WITH US!

C/Campezo, s/n. Polg. Ind. Las Mercedes. 28022 MADRID (SPAIN)
Telf.: 747 74 44 - Télex: 48257 ITAM E - Fax: 747 75 07

Hotronic Inc.

1875 Winchester Blvd.
Campbell, CA 95008
408-378-3883
Fax: 408-378-3888

Hybrid Arts, Inc.

8522 National Blvd.
Culver City, CA 90232
213-841-0340; 800-843-2201
Fax: 213-841-0348

I**I-Den Videotronics Corp.**

9620 Chesapeake Drive, Suite 204
San Diego, CA 92123
619-492-9239; 800-874-IDEN
Fax: 619-279-2569

Icon Electronics Corp.

753 Enterprise
Cape Girardeau, MO 63701
314-334-4433
Fax: 314-334-9255

IGM Communications

4041 Home Road
Bellingham, WA 98226
206-733-4567
Fax: 206-734-7939

Ikegami Electronics (USA), Inc.

37 Brook Ave.
Maywood, NJ 07607
201-368-9171
Fax: 201-569-1626

John Chow**Regional Sales Contacts**

CA, Torrance, 213-534-0050
FL, Fort Lauderdale, 305-735-2203
HI, Honolulu, 808-946-5955
IL, Elmhurst, 708-834-9744
TX, Irving, 214-869-2363

Illbruck Sonex Acoustical**Div./Alpha Audio**

2049 W. Broad St.
Richmond, VA 23220
804-358-3852; 800-782-5742
Fax: 804-358-9496

Terri Murphy**Image Transform, Inc.**

4142 Lankershim Blvd.
North Hollywood, CA 91602
818-985-7566; 800-423-2652
Fax: 818-980-4268

Image Video Ltd.

705 Progress Ave., Suite 46
Scarborough, Ont.
Canada M1H 2X1
416-438-3940
Fax: 416-438-8465

Imaging Systems

1 Kendall Square, Building 700
Cambridge, MA 02139-1562
617-661-9450
Fax: 617-734-6323

IMC/Akai

1316 E. Lancaster Ave.
Fort Worth, TX 76102
817-336-5114
Fax: 817-870-1271

Industrial Acoustics Co.

1160 Commerce Ave.
Bronx, NY 10462
212-931-8000
Fax: 212-863-1138

Industrial Strength Industries

15431 Blackburn Ave.
Norwalk, CA 90650
213-921-2341
Fax: 213-802-1964

Ingram & Associates, J. Boyd

P.O. Box 73
Batesville, MS 38606
601-563-4664
Fax: 601-563-9002

Innovision Optics

1318 Second St., Suite 31
Santa Monica, CA 90401
213-394-5510
Fax: 213-395-2941

Inovonics Inc.

1305 Fair Ave.
Santa Cruz, CA 95060
408-458-0552; 800-733-0552
Fax: 408-458-0554
Jim Wood

Instant Replay

2601 S. Bayshore Drive
Miami, FL 33133
305-854-8777
Fax: 305-858-9053

Integral Systems Group

446 West 47th St., Suite 5D
New York, NY 10036
212-262-3300

Integrated Switching Systems

P.O. Box 1802
Grass Valley, CA 95945
916-272-8240
Fax: 916-273-2878

Intelix Corp.

5618 Odana Road
Madison, WI 53719-1208
608-273-6333
Fax: 608-273-5483

Intelvideo, Inc.

42 Arrow Head Drive
Stamford, CT 06903
203-322-1609
Fax: 203-322-1609

Interactive Motion Control

8671 Hayden Place
Culver City, CA 90232
213-559-6146
Fax: 213-839-7960

International Electro-Magnetics

350 N. Eric Drive
Palatine, IL 60067
708-358-4622

International Tapetronics Corp.

P.O. Box 241
Bloomington, IL 61702-0241
309-828-1381; 800-447-0414
Fax: 309-828-1386

Intraplex, Inc.

P.O. Box 2427
Littleton, MA 01460-3427
508-486-3722
Fax: 508-486-0709

J. Peter Eadie**Regional Sales Contacts**

MD, Lanham, 301-731-8080
Canada Nepean, 613-226-7980

IRIS Technologies, Inc.

692 E. Pittsburgh St.
Greensburg, PA 15601
412-832-9855
Fax: 412-832-8999

IRP, A Knowles Div.

321 Bond St.
Elk Grove Village, IL 60007
708-640-9552; 800-255-6993
Fax: 708-640-9607

Island Cases

1121-20 Lincoln Ave.
Holbrook, NY 11741
516-563-0633
Fax: 516-563-1390

ISS Engineering Inc.

1047 Elwell Court
Palo Alto, CA 94303
415-967-0833; 800-227-6288
Fax: 415-976-0772

ITAME, S.A.

Campezo S/N
28022 Madrid, Spain
34-1-7477444; 34-1-7477507

ITELCO

Piazza Febei 3
I-05018 Orvieto, Italy
39.0763.40131
Fax: 39.0763.40136

ITI Electronics, Inc.

12 Kulick Road
Fairfield, NJ 07004
201-882-6405

ITT Cannon, Canada

Four Cannon Court
Whitby, Ont.
Canada L1N 5V8
416-668-8881
Fax: 416-668-4152

Ivie Technologies, Inc.

1366 W. Center
Orem, UT 84057
801-224-1800
Fax: 801-224-7526

J**J&R Film**

6820 Romaine
Los Angeles, CA 90038
213-467-3107
Fax: 213-466-2201

Jampro Antennas Inc.

6939 Power Inn Road
Sacramento, CA 95828
916-383-1177
Fax: 916-383-1182

Alex M. Perchevitch**Jasmin Electronics Ltd.**

Sellers Wood Drive
Nottingham, England NG6 8UX
44-602-273741
Fax: 44-602-278614

Jasoni Electronics

3149 E. Desert Inn Road, Suite 94
Las Vegas, NV 89121
702-791-3394

Jazz Systems Electrohome

809 Wellington St. N.
Kitchener, Ont., Canada N2G 4J6
519-744-7111
Fax: 519-749-3131

JBL Professional

8500 Balboa Blvd.
Northridge, CA 91329
818-893-8411
Fax: 818-893-3639

Jem-Fab Corp.

400 Roosevelt Ave.
Freeport, NY 11520
516-867-8510; 516-868-1428
Fax: 516-867-8007

Jensen Tools Inc.

7815 South 46th St.
Phoenix, AZ 85044
602-968-6231
Fax: 602-438-1690

Jensen Transformers Inc.

10735 Burbank Blvd.
North Hollywood, CA 91601
213-876-0059
Fax: 818-763-4574

JFW Industries

5134 Commerce Square Drive
Indianapolis, IN 46237
317-887-1340
Fax: 317-881-6790

JNS Electronics, Inc.

P.O. Box 32550
San Jose, CA 95152
408-729-3838
Fax: 408-926-1003

Johnson Measurement Service

3497 Cornwall Drive N.W.
Canton, OH 44708
216-477-0635

Johnson-Nyquist Productions

24982 Carol Lane
Laguna Hills, CA 92653
714-770-5777

JP Associates, Inc.

3115 Kashiwa St.
Torrance, CA 90505
213-539-8533
Fax: 213-539-8634

JRF Magnetic Sciences Inc.

249 Kennedy Road
Greendell, NJ 07839
201-579-5773
Fax: 201-579-6021

JVC Professional Products Co.

41 Slater Drive
Elmwood Park, NJ 07407
201-794-3900; 800-582-5825
Fax: 201-523-2077

Tom McCarthy**Regional Sales Contacts**

CA, Cypress, 714-527-7500
IL, Elk Grove Village, 708-364-9300
NJ, Fairfield, 201-808-2100
NJ, Pine Brook, 201-882-0900

K**K&H Products-Porta-Brace**

P.O. Box 246
North Bennington, VT 05257
802-442-8171
Fax: 802-442-9118

Kahn Communications, Inc.

222 Westbury Ave.
Carle Place, NY 11514
516-222-2221

Kaitronics Corp.

859 Cowan Road
Burlingame, CA 94010
415-697-9102
Fax: 415-692-1828

Kalglo Electronics

6584 Ruch Road, E. Allen Township
Bethlehem, PA 18017-9359
215-837-0700; 800-524-0400
Fax: 215-837-7978

Kathrein-Werke KG

P.O. Box 260
D-8200 Rosenheim
West Germany
0049-8031-1840
Fax: 0049-8031-184319

Kavouras Inc.

6301 34th Ave. S.
Minneapolis, IN 55450
612-726-9515; 800-328-2278
Fax: 612-727-1157

Kay Elemetrics Corp.

12 Maple Ave.
Pine Brook, NJ 07058
201-227-2000
Fax: 201-227-7760

Cathy Ditzig**Keith Monks Ltd.**

#3 Monkton Pk, Farnham Trading Est.
Farnham, Surrey
England GU9 9PA
44-252-733717
Fax: 44-252-727333

Key Systems International, Inc.

479 Northampton St.
Kingston, PA 18704
717-283-1041
Fax: 717-287-5889

Key Video Ltd.

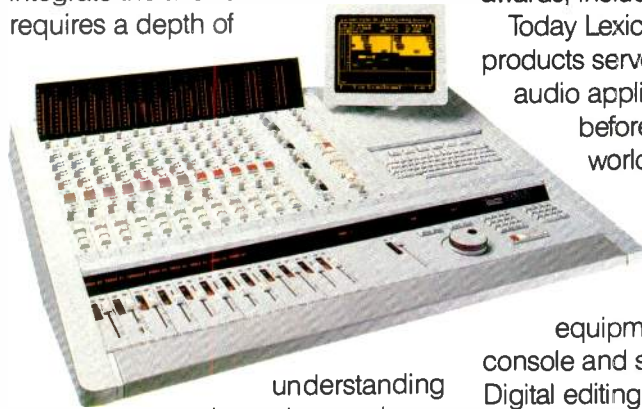
2220 Midland Ave., Unit 96
Scarborough, Ont.,
Canada M1P 3E6
416-293-1131
Fax: 416-298-7789

DISCOVER THE LEXICON SOUND



Excellence in digital audio technology through a unique blend of scientific precision and artistic interpretation.

To perfect the Lexicon Sound, we must exploit the power of the latest digital hardware, harness that power with superb software, and expertly integrate the two. It requires a depth of



understanding that only experience can provide, and an expert fusion of the art and the science of sound.

The results can be found in every Lexicon product. We have devoted nearly two decades to perfecting clean, natural digital audio sound without the quirks that digital technology is often accused of. It's called the **Lexicon Sound**, and you'll find it in every product we make.

When Lexicon introduced the world's first digital audio product in 1971, it was heralded as a major technological achievement, a breakthrough.

We've built on that reputation with other achievements, like reverb-eration and time compression/expansion, that have earned us more than a dozen awards, including an Emmy.

Today Lexicon products serve more digital audio applications than ever before. There is OPUS, the world's only fully integrated random access digital audio production system. OPUS replaces a room full of equipment with a comfortable console and single equipment rack. Digital editing and mixing has never been smoother, more accurate, and more natural.

And everyone has a LARC. The Lexicon Alphanumeric Remote Console harnesses the

power of the 480L Digital Effects System. The 480L produces a broad variety of superb effects from a growing library of software. It's no wonder you'll find a LARC and the 480L in virtually every major recording studio throughout the world.

Lexicon's LXP-1, LXP-5, and LXP-15 effects processors provide a compact, economical way to include the Lexicon Sound in your productions. Each processor provides significant effects capability all by

itself. But combined, the number and breadth of their effects is astonishing. The CP-1 Digital Audio Environment Processor extends the Lexicon Sound into the living rooms of the world. It's been lauded as one of the truly



great digital audio products of all time, and *Stereophile* ranked it as "one of a handful of genuine advances in sound reproduction".

These are just a few samples of Lexicon's digital expertise. Our full range of products serves the needs of recording engineers, musicians, film and video producers, radio and television broadcasters, as well as discerning audiophiles. In each



product we've merged technical excellence with artistic elegance. The result is the Lexicon Sound.

For more information about Lexicon products or a demonstration of their capabilities, contact us at (617) 736-0300, FAX (617) 891-0340, or write Lexicon, Inc., 100 Beaver St., Waltham, MA 02154.

Lexicon
The Art and Science of Sound

Keystone Metal Products, Inc.

2711 N. California St.
Burbank, CA 91504
818-846-9210
Fax: 818-567-0283

Kinematics/Truetime

3243 Santa Rosa Ave.
Santa Rosa, CA 95407
707-528-1230
Fax: 707-527-6640

Kings Electronics Co., Inc.

40 Marblehead Road
Tuckahoe, NY 10707
914-793-5000

KINTEK, Inc.

224 Calvary St.
Waltham, MA 02154
617-894-6111
Fax: 617-647-4235

Kintronic Labs, Inc.

P.O. Box 845
Bristol, TN 37621-0845
615-878-3141
Fax: 615-878-4224

Klark-Teknik

200 Sea Lane
Farmingdale, NY 11735
516-249-3660

Kline Towers

P.O. Box 1013
Columbia, SC 29202
803-251-8000
Fax: 803-739-3939

Knudson-Benson Associates

80 Yesler Way
Seattle, WA 98104
206-343-7090
Fax: 206-343-7153

Kryptocom Inc.

3115 Kashiwa St., Suite 200
Torrance, CA 90505
213-539-8538
Fax: 213-539-8634

Kudelski S.A.

Route de Geneve 22
1033 Cheseaux, Switzerland
21-731-2121
Fax: 21-731-4155

La Cie D'Electronique

Normex Ltee
55, Boul. Montpellier
St. Laurent, Que.
Canada H4N 2G3
514-748-7811
Fax: 514-744-2797

Laird Telemedia Inc.

2424 South 2570 West
Salt Lake City, UT 84119
801-972-5900
Fax: 801-975-0970

Lakeside Associates Inc.

4790 Irvine Blvd., Suite 105-276
Irvine, CA 92720
714-838-3893
Fax: 714-832-5343

Lamp Technology Inc.

1645 Sycamore Ave.
Bohemia, NY 11716
516-567-1800; 800-KEEP-LIT
Fax: 516-567-1806

Landy Associates, Inc.

330 Bear Hill Road
Waltham, MA 02154
617-890-6325
Fax: 617-890-9122

Landy Associates, Inc.

412-A Commerce Lane
Berlin, NJ 08009
609-767-0400
Fax: 609-767-4407

Lazerus

2821 Ninth St.
Berkeley, CA 94710
415-339-6263; 415-845-1238
Fax: 415-845-1237

LBA Technology, Inc.

P.O. Box 8026
Greenville, NC 27835-8026
919-757-0279; 800-248-6277
Fax: 919-752-9155

LDL Communications, Inc.

14440 Cherry Lane Court, Ste 201
Laurel, MD 20707
301-498-2200
Fax: 301-498-7952

Charles D. Coyle**Regional Sales Contacts**

CA, San Mateo, 415-347-9700
MN, Faribault, 507-332-6703
RI, Warwick, 401-461-0999

Leader Instruments Corp.

380 Oser Ave.
Hauppauge, NY 11788
516-231-6900; 800-645-5104
Fax: 516-231-5295

Robin Schwartz**Leaming Industries**

15339 Barranca Parkway
Irvine, CA 92718
714-727-4144
Fax: 714-727-3650

Lectrosonics, Inc.

P.O. Box 15900
Rio Rancho, NM 87174
505-892-4501; 800-821-1121
Gordon Moore

Ledtronics, Inc.

4009 Pacific Coast Highway
Torrance, CA 90505
213-549-9995
Fax: 213-549-4820

Lee Colortran, Inc.

1015 Chestnut St.
Burbank, CA 91506-9983
818-843-1200
Fax: 818-954-8520

Lee Dan Communications, Inc.

155 Adams Ave.
Hauppauge, NY 11788-3699
800-231-1414-NY
800-LEE-DAN1-USA
Fax: 516-231-1498

Lee Filters Ltd.

Central Way, Walworth Ind. Estate
Andover, Hants
England SP10 5AN
44-0264-66245
Fax: 44-0264-55058

Leightronix, Inc.

2330 Jarco Drive
Holt, MI 48842
517-694-5589
Fax: 517-694-4155

Leitch Video

220 Duncan Mill Road, Ste 301
Don Mills, Ont., Canada M3B 3J5
416-445-9640; 800-387-0233
Fax: 416-445-0595

Garry Newhook**Leitch Video**

825K Greenbrier Circle
Chesapeake, VA 23320
804-424-7920; 800-231-9673
Fax: 804-424-0639

Gary Stephens**Regional Sales Contacts**

AL, Birmingham, 205-322-2501
CA, Santa Clara, 408-727-9898
CA, Tarzana, 818-345-9550
CO, Lakewood, 303-237-3530
KY, Edgewood, 606-331-8990
MD, Washington Grove, 301-258-7676
MA, Middleboro, 508-947-6801
MN, Brunsville, 612-890-8920
MO, Cape Girardeau, 314-334-9443
NJ, Somerset, 201-545-8000
NM, Los Lunas, 505-865-6700
NY, New York, 212-741-8011
UT, Salt Lake City, 801-486-8822
VA, Glen Allen, 804-264-4666

Leonardo Software

10378 Holman Ave.
Los Angeles, CA 90024
213-277-5161
Fax: 213-277-9086

Lexicon Inc.

100 Beaver St.
Waltham, MA 02154
617-891-6790
Fax: 617-891-0340

Lighting & Shadows**A Div. of Phoebus**

2800 Third St.
San Francisco, CA 94107
415-821-1100
Fax: 415-550-2655

Lightning Eliminators &**Consultants, Inc.**

6687 Arapahoe Road
Boulder, CO 80303
303-447-2828; 800-521-6101
Fax: 303-447-8122

Lightning Prevention Systems

204-B Cross Keys Road
Berlin, NJ 08009
609-767-7209
Fax: 609-767-7547

Lipsner-Smith Co.

4700 Chase Ave.
Lincolnwood, IL 60646
708-677-3000; 800-323-7520
Fax: 708-677-1311

Listec Video Corp.

30 Oser Ave.
Hauppauge, NY 11788-3809
516-273-3020
Fax: 516-435-4544

Lloyd Group, James

P.O. Box 3
Ashland, OR 97520
503-488-1405; 503-488-5627
Fax: 503-488-0418

LNR Communications, Inc.

180 Marcus Blvd.
Hauppauge, NY 11788
516-273-7111
Fax: 516-273-7119

Logica Communications Ltd.**Broadcast Div.**

68 Newman St.
London, England W1A 4SE
44-71-637-9111
Fax: 44-71-383-7971

Logitek Electronic Systems, Inc.

3320 Bering Drive
Houston, TX 77057
713-782-4592; 800-231-5870
Fax: 713-782-7597

Loma Scientific

3115 Kashiwa St., Suite 100
Torrance, CA 90505
213-539-8655
Fax: 213-539-8634

Loral Microwave-Narda

435 Moreland Road
Hauppauge, NY 11788
516-231-1700
Fax: 516-231-1711

Lowel-Light Mfg. Inc.

140 58th St., Brooklyn, NY 11220
718-921-0600; 800-334-3426
Fax: 718-921-0303

LPB Inc.

28 Bacton Hill Road
Frazer, PA 19355
215-644-1123
Fax: 215-644-8651

LTM Corp. of America

11646 Pendleton St.
Sun Valley, CA 91352
818-767-1313; 800-762-4291
Fax: 818-767-1313

Lumitrol, Ltd.

253 Merton St.
Toronto, Ont., Canada M4S 1A7
416-485-4817
Fax: 416-485-4826

Luxor Corp.

2245 Delany Road
Waukegan, IL 60087
708-244-1800; 800-323-4656
Fax: 708-244-1818

Lyncole XIT Grounding

22412 S. Normandie Ave.
Torrance, CA 90502
213-320-8000; 800-962-2610
Fax: 213-320-8040

Lyrec Mfg. A/S

Box 123 (Mileparken 22)
DK-2740 Skovlunde, Denmark
45 44 53 25 22
Fax: 45 44 53 53 35

M

M&R Data Services

2205 First St., Suite 111
Simi Valley, CA 93065
805-582-1298; 805-582-1489
Fax: 805-582-1269

M.S.C. Electronics Ltd.

147 W. Beaver Creek Road
Richmond Hill, Ont.
Canada L4B 1C6
416-731-9500
Fax: 416-731-5195

MacroMedia Design

1320 Liberty Court
Northfield, MN 55057
507-645-5970
Fax: 507-645-6635

Magna-Tech Electronic Co., Inc.

630 Ninth Ave.
New York, NY 10036
212-586-7240
Fax: 212-265-3638

Magnifax International, Inc.

Route 1 Box 764
Rogers, AR 72756
501-925-1818
Fax: 501-925-1841

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

BE Directory Editor
PO Box 12901
Overland Park, KS 66212

Balancing Act



Just because your operation is mostly NTSC doesn't mean your test and measurement needs aren't complex. Verification of your many signal sources is just as important to you as to anyone working in Beta SP or M-11.

Magni's 500 Series waveform monitors aren't just for component users. Their multiple-input capability offers NTSC users the ability to monitor as many as six different composite signals simultaneously, so you have broad visibility of every source in your facility. You can select any signal to inspect in detail. And a full range of built-in features—like user-defined labeling, memory storage of setups, and on-screen readouts of critical parameters—make guaranteeing your signal quality even simpler.

And, maybe best of all, when you *are* ready to move into component video, the 500 Series can move with you: they're already designed to handle component signals as well as composite.

Whatever your chosen format or formats, the 500 Series offers you the perfect balance between top-notch signal quality and streamlined operation. Contact us today to find out how.

MAGNI

Magni Systems, Inc.
9500 S.V. Gemini Drive
Beaverton, OR 97005 USA
(5 31) 626-8400
(8 01) 237-5964
FAX (5 31) 626-6225
TELEX 6705769743 MCI
Circle (57) on Reply Card

Magni is a registered trademark of Magni Systems, Inc. Magni Systems is a trademark of Magni Systems, Inc. Beta SP is a registered trademark of Sony Corporation. M-11 is a registered trademark of Matsushita Industrial Electric Ltd.

Magni Systems

9500 S.W. Gemini Drive
Beaverton, OR 97005
503-626-8400; 800-237-5964
Fax: 503-626-6225

Keith Holznel

Regional Sales Contacts
NY, New York, 212-935-5181
WI, Wauwatosa, 414-258-3006

Magnum Towers

9370 Elder Creek Road
Sacramento, CA 95829
916-381-5053
Fax: 916-381-2144

The Management

P.O. Box 1-36457
Fort Worth, TX 76136
817-625-9761; 800-334-7823
Fax: 817-624-9741

maney_logic

804 Jennifer St.
Madison, WI 53703
608-255-8708

Manhattan Production Music

311 West 43rd St., Suite 702
New York, NY 10036
212-333-5766; 800-227-1954
Fax: 212-262-0814

Marcom

P.O. Box 66507
Scotts Valley, CA 95066
408-438-4273
Fax: 408-438-6617

Marconi Communication Systems

Marconi House, New Street
Chelmsford, Essex
England CM1 1PL
44-245-353221
Fax: 44-245-287125

Markertek Video Supply

145 Ulster Ave.
Saugerties, NY 12477
914-246-3036
Fax: 914-246-1757

Markley & Associates Inc., D.L.

Consulting Engineers
2104 W. Moss Ave.
Peoria, IL 61604
309-673-7511

Marshall Electronics

5649 Mesmer Ave.
Culver City, CA 90230
213-390-6608
Fax: 213-391-8926

Marti Electronics

P.O. Box 661
Cleburne, TX 76033-0661
817-645-9163
Fax: 817-641-3869

Matco Control Products

427 Perrymont Ave.
San Jose, CA 95125
408-998-1655

Rita Harbert**Regional Sales Contacts**

AL, Daphne, 205-626-6204
FL, Tampa, 813-884-9378
GA, Decatur, 404-292-7506
MI, Hartland, 313-632-5847
NY, New York, 212-532-5576
NC, Youngsville, 919-556-0884
OH, Pataskala, 614-927-1902

Matthews Studio Equipment

2405 Empire Ave.
Burbank, CA 91504
818-843-6715; 213-849-6811
Fax: 213-849-1525

Matthey Electronics

William Clowes St., Burslem
Stoke-On-Trent
England ST6 3AT
0782-577588
Fax: 0782-575687

Maze Broadcast, Inc.

P.O. Box 100186
Birmingham, AL 35210
205-956-2227
Fax: 205-956-5027

MBI Broadcast Systems Ltd.

69 Ship St.
Brighton, England BN1 1AE
44-273-24928
Fax: 44-273-821767

McCurdy Radio Industries

108 Carnforth Road
Toronto, Ont.
Canada M4A 2L4
416-751-6262
Fax: 416-751-6455

McCurdy Telecommunication**Products**

60 Nably Court
Scarborough, Ont.
Canada M1B 2K9
416-291-6449
Fax: 416-291-2724

MCG Electronics, Inc.

12 Burt Drive
Deer Park, NY 11729
516-586-5125; 800-851-1508
Fax: 516-586-5120

MCL, Inc.

501 S. Woodcreek Road
Bolingbrook, IL 60440-4999
708-759-9500
Fax: 708-759-5018
Frank Morgan

McMartin Inc.

201 35th Ave.
Council Bluffs, IA 51501
712-366-1300; 301-263-7268
Fax: 712-366-3915

Phil McQuatters, Frequency**Measurement Service**

601 S. Bunker Hill Drive
San Bernardino, CA 92410
714-884-1526; 714-885-3560

Meades, Kenneth R.

P.O. Box 71098
Los Angeles, CA 90071
213-662-2463

Media Computing, Inc.

3506 E. Meadow Drive
Phoenix, AZ 85032
602-482-9131
Fax: 602-992-6572

Media Concepts, Inc.

559 49th St. S.
St. Petersburg, FL 33707
813-321-2122; 800-330-DUPE
Fax: 813-321-2272

Melford Electronics Ltd.

Leigh Court, Leigh St.
High Wycombe, Bucks
England HP11 2RH
494-25696/7/8; 0494-23801
Fax: 0494-463358

METROPOST

906 E. Fifth
Austin, TX 78702
512-476-3876
Fax: 512-477-3912

MFJ Enterprises Inc.

921 Louisville Road
Starkville, MS 39759
601-323-5869; 800-647-1800
Fax: 601-323-6551

Micro Communications, Inc.

P.O. Box 4354 Grenier Field
Manchester, NH 03108-4365
603-624-4351
Fax: 603-624-4822

Micro Controls, Inc.

P.O. Box 728
Burlson, TX 76028
817-295-0965

Micro-Circuits Co., Inc.

10800 Maudlin Road
New Buffalo, MI 49117
616-469-2744
Fax: 616-469-2742

MicroAudio Inc.

4438 S.W. Hewett
Portland, OR 97221
503-292-8896; 800-445-1248
Fax: 503-293-0562

Microdyne Corp.

P.O. Box 7213
Ocala, FL 32672
904-687-4633
Fax: 904-687-3392

Microflex Co., Inc.

P.O. Box 12985
Salem, OR 97309-0985
503-363-9267; TLX 510-599-0107
Fax: 503-363-4613

Micron Audio Products Ltd.

210 Westlake Drive
Valhalla, NY 10595
914-761-6520
Fax: 914-761-9501

Microtime, Inc.

1280 Blue Hills Ave.
Bloomfield, CT 06002
203-242-4242
Fax: 203-242-9876

MicroTouch Systems, Inc.

55 Jonspind Road
Wilmington, MA 01887
508-694-9900
Fax: 508-694-9980

Microtran Co. Inc.

P.O. Box 236
Valley Stream, NY 11582
516-561-6050
Fax: 516-561-1117

Microwave Development Labs

10 Michigan Drive
Natick, MA 01760
508-655-0060
Fax: 508-655-6972

Microwave Filter Co., Inc.

6743 Kinne St.
East Syracuse, NY 13057
315-437-3953; 800-448-1666
Fax: 315-463-1467

Microwave Radio Corp.

847 Rogers St.
Lowell, MA 01852
508-459-7655
Fax: 508-937-0010

Midwest Communications Corp.

Four Tessenere Drive
Highland Heights, KY 41076
606-781-2200

Bob Johnston**Regional Sales Contacts**

CA, Burbank, 818-954-0150
CA, Santa Clara, 408-988-2968
CO, Denver, 303-773-9499
FL, Miami, 305-592-5355
FL, Orlando, 407-841-0602
GA, Atlanta, 404-449-0900
IL, Chicago, 708-981-1107
KY, Louisville, 502-491-2888
MD, Lanham, 301-577-4903
MI, Southfield, 313-350-3038
MO, St. Louis, 314-569-2240
NY, New York, 212-473-6262
OH, Cleveland, 216-447-9745
TN, Nashville, 615-255-2801
VA, Norfolk, 804-853-2600
WA, Seattle, 206-869-2050

Milab Microphones

200 Sea Lane
Farmingdale, NY 11735
516-249-3660

Miller Fluid Heads (USA) Inc.

410 Garibald Ave.
Lodi, NJ 07644
201-473-9592
Fax: 201-473-9693

Minolta Corp.**Industrial Meter Div.**

101 Williams Drive
Ramsey, NJ 07446
201-825-4000

Mitchell Associates, Jay

P.O. Box 1285
Fairfield, IA 52556
515-472-4087
Fax: 515-472-6457

Mitchell Camera Corp.

1147 E. Broadway, Suite 44
Glendale, CA 91205
818-502-1507
Fax: 818-240-9325

Mitchell Co. Inc., E.C.

P.O. Box 607
Middleton, MA 01949
508-774-1191
Fax: 508-774-2494

Mitsubishi Electronics America**Pro Electronics Div.**

800 Cottontail Lane
Somerset, NJ 08873-6759
201-563-9889
Fax: 201-563-9196

Mobile-Cam Products

340-F Vernon Way
El Cajon, CA 92020
619-441-1295
Fax: 619-441-9263

Modular Audio Products**Unit of Modular Devices, Inc.**

One Roned Road
Shirley, NY 11967
516-345-3100; 800-333-7697
Fax: 516-345-3106

Modulation Sciences

12-A Worlds Fair Drive
Somerset, NJ 08873
201-302-3090; 800-826-2603
Fax: 201-302-0206

Mohawk Wire & Cable Corp.

9 Mohawk Drive
Leominster, MA 01453
508-537-9961; 800-422-9961
Fax: 508-537-4358

Joseph R. Richtl**Mole-Richardson Co.**

937 N. Sycamore Ave.
Hollywood, CA 90037-2384
213-851-0111
Fax: 213-851-5593

Monroe Electronics, Inc.

100 Housel Ave.
Lyndonville, NY 14098
716-765-2254
Fax: 716-765-9330

Morton Associates,**Lawrence L.**

1231 Mesa Oaks Lane
Mesa Oaks, CA 93436
805-733-4275
Fax: 805-733-4793

Moseley Associates, Inc.

111 Castilian Drive
Santa Barbara, CA 93117
805-968-9621
Fax: 805-685-9638

Dave Chancey**MotionWorks**

The Step Centre, Osney Mead
Oxford, Oxon
England OX2 0ES
0865-790577
Fax: 0865-794179

Motorola Inc./AM Stereo

1216 Remington
Schaumburg, IL 60173
708-576-2879; 708-576-3592
Fax: 708-576-5479

**Motorola/Communications
Sector**

1301 E. Algonquin Road
Schaumburg, IL 60196
800-247-2346

MPB Technologies Inc.

151 Hymus Blvd.
Pointe Claire, Que.
Canada H9R 1E9
514-694-8751
Fax: 514-695-7492

MTC/Mycomp Technologies

1959 Plaza Real
Oceanside, CA 92054
619-630-0567
Fax: 619-630-0693

Multi Electronic Services Ltd.

190 Don Park Road, Unit 5
Markham, Ont.
Canada L3R 2V8
416-475-5068

Multidyne Electronics, Inc.

244 Bayville Ave.
Bayville, NY 11709
516-628-1496; 800-765-8200
Fax: 516-628-1496

Multiplex Technology, Inc.

3200 E. Birch St.
Brea, CA 92621
714-996-4100; 800-423-0584
Fax: 714-996-4900

Musco Mobile Lighting, Ltd.

P.O. Box 73
Oskaloosa, IA 52577
515-673-4192; 800-354-4448

Music Director

Programming Service
P.O. Box 51978
Indian Orchard, MA 01151
413-783-4626
Fax: 413-782-8673

Musikos, Inc.

741 Kenilworth Ave., Suite 100
Charlotte, NC 28204
704-375-2666; 800-627-1012

MYAT, Inc.

P.O. Box 425
Norwood, NJ 07648
201-767-5380
Fax: 201-767-4147

Philip Cindrich

Regional Sales Contacts
AZ, Tucson, 602-299-1178
CA Sacramento, 916-383-1177
FL, Oldsmar, 813-855-6669
IL, Quincy, 217-224-9600
IL, Quincy, 217-222-8200
MO, Kearney, 816-635-5959
NH, Manchester, 603-624-4351
NC, Pineville, 704-889-4508
OR, Beavercreek, 503-632-7488
TX, Dallas, 214-381-7161
Australia, Sydney, 02-4363777
Canada, Belleville, 613-969-1465

N**Nady Systems Inc.**

6701 Bay St.
Emeryville, CA 94608
415-652-2411
Fax: 415-652-5075

Nalpak Video Sales Inc.

1937-C Friendship Drive
El Cajon, CA 92020
619-258-1200
Fax: 619-258-0925

National Photonics

2965 E. Hillcrest Drive, Suite 304
Thousand Oaks, CA 91362
805-494-4477
Fax: 805-496-5379

Nautel Maine Inc.

201 Target Industrial Circle
Bangor, ME 04401
207-947-8200; 902-823-2233 Can
Fax: 207-947-3693
J. B. Jensen, 902-823-2233

NCA Microelectronics, Inc.

19 Chesley Drive
St. John, NB
Canada E2K 4S9
506-634-5014
Fax: 506-634-5035

**NEC America, Inc./Broadcast
Equipment Department**

383 Omni Drive
Richardson, TX 75080-3545
214-907-4710; 800-323-6656
Fax: 214-907-4711

Neilson-Hordell Ltd.

Unit 11, Central Trading Estate
Staines, Middlesex
England TW18 4JU
784-456456
Fax: 784-459657

NEK Cables Ltd.

Crowthier Industrial Estate
Washington, Tyne & Wear
England NE38 0AB
091-417-3525
Fax: 091-416-8671

Nelson Sales Corp., L.E.

5451 Ukiah Circle
Las Vegas, NV 89118
702-367-3656
Fax: 702-367-7876

Nemal Electronics Int'l

12240 N.E. 14th Ave.
North Miami, FL 33161
305-899-0900; 800-522-2253
Fax: 305-895-8178

Neotek Corp.

1154 W. Belmont
Chicago, IL 60657
312-929-6699
Fax: 312-975-1700

Nesbit Systems Inc.

5 Vaughn Drive
Princeton, NJ 08540
609-799-5071; 609-799-1482
Fax: 609-799-9540
Ken Michielsen

Netcom

931 Teaneck Road
Teaneck, NJ 07666
201-837-8424

Neumade Products Corp.

P.O. Box 5001
Norwalk, CT 06856
203-866-7600
Fax: 203-866-7522

Neumann (Georg) GmbH

Charlottenstrasse 3
Berlin 61, West Germany D-1000
49 0 30 25993-0
Fax: 49 0 30 25993108

Neutrik USA, Inc.

195-S3 Lehigh Ave.
Lakewood, NJ 08701
201-901-9488
Fax: 201-901-9608

Neve

7 Parklawn Drive
Bethel, CT 06801
203-744-6230
Fax: 203-792-7863

New England Digital Corp.

Rivermill Commercial Center
Lebanon, NH 03766
603-448-5870
Fax: 603-448-2328

**Newman-Kees Measurements
Engineering & Installations**

8611 Slate Road
Evansville, IN 47712
812-963-3294

Newton Instrument Co., Inc.

P.O. Box 727
Butner, NC 27509
919-575-6426
Fax: 919-575-4708

Nexus Engineering Corp.

7000 Lougheed Highway
Burnaby, BC, Canada V5A 4K4
604-420-5322; 206-644-2371
Fax: 604-420-5941

**Nikon Photo/Electronic
Imaging Products**

623 Stewart Ave.
Garden City, NY 11530
516-222-0200
Fax: 516-222-0265

Nissen Group Inc., The

32 Ridge Drive
Port Washington, NY 11050
516-944-5477
Fax: 516-944-5474

Norlake Mfg. Co.

721 Bond St.
Elyria, OH 44035
216-323-7502
Fax: 216-322-7423

Norpak Corp.

10 Hearst Way
Kanata, Ont., Canada K2L 2P4
613-592-4164
Fax: 613-592-6560

North Hills Electronics, Inc.

1 Alexander Place
Glen Cove, NY 11542
516-671-5700
Fax: 516-759-3327

Joseph Barbuto

Regional Sales Contacts
MD, Laurel, 800-447-2962
TX, Argyle, 800-683-7444

Northern Magnetics, Inc.

P.O. Box 16409
Minneapolis, MN 55416
612-333-3071
Fax: 612-333-3978

Northern Power Systems

1 N. Wind Road
Moretown, VT 05660
802-496-2955
Fax: 802-496-2953

Northern Technologies, Inc.

P.O. Box 280
Veradale, WA 99216
509-927-0401; 800-727-9119
Fax: 509-927-0435

Nortronics Co., Inc.

c/o Applied Magnetics
1290 W. McCoy Lane
Santa Maria, CA 93455
805-349-1234; 800-328-5640
Fax: 805-349-9116

Nova Electric

100 School St.
Bergenfield, NJ 07621
201-385-0500
Fax: 201-661-3926

Nova Systems, Inc.

50 Albany Turnpike
Canton, CT 06019
203-693-0238
Fax: 203-693-1497
Rich Zabel
Regional Sales Contacts
CA, Tustin, 714-838-1900
CO, Englewood, 303-722-6996
KY, Louisville, 502-896-2266
MA, Sharon, 617-784-4680
NJ, Berkeley Heights, 201-665-9360
SC, Mauldin, 803-288-8840
TX, Dallas, 214-243-2564

VA, Fredericksburg, 703-371-2621
WA, Lynwood, 206-771-6016

Novadyne

P.O. Box 5508
San Mateo, CA 94402-0508
415-349-3241
Fax: 415-579-1203

NPR Satellite Services

2025 M St. N.W.
Washington, DC 20036
202-822-2626

NTP Elektronik A/S

Knapholm 7
DK-2730 Herley, Denmark
45 44 53 11 88
Fax: 45 53 11 70

NTSC Productions

3208 Cahuenga Blvd. W., Ste 333
Hollywood, CA 90068
818-505-9430
Fax: 818-505-1223

Nucomm Inc.

(Formerly Nurad Radio Div.)

101 Bilby Road
Hackettstown, NJ 07840
201-852-3700
Fax: 201-813-0399

Nudd Corp., Fred A.

P.O. Box 577
Ontario, NY 14519
315-524-2531
Fax: 315-524-4249

Numark Electronics

503 Newfield Ave.
Edison, NJ 08837
201-225-3222

Nurad, Inc.

2165 Druid Park Drive
Baltimore, MD 21211
301-462-1700
Fax: 301-462-1742

NVision

443-D Crown Point Circle
Grass Valley, CA 95945
916-265-1000
Fax: 916-265-1010

Nytone Inc.

2424 South 900 West
Salt Lake City, UT 84119
801-973-4090
Fax: 801-973-0176

O**O'Connor Engineering**

100 Kalmus Drive
Costa Mesa, CA 92626
714-979-3993
Fax: 714-957-8138

Odetics Inc.

1515 S. Manchester Ave.
Anaheim, CA 92802-2907
714-774-2200
Fax: 714-535-8532

OFTI

5 Fortune Drive
Billerica, MA 01821
508-663-6629
Fax: 508-663-9351

OKI Electric Industry Co., Ltd.

10-3 Shibaura 4-chome, Minato-ku
Tokyo 108, Japan
03-454-3550
Fax: 03-452-5214

Oktel, LP

1151 Sonora Court
Sunnyvale, CA 94086-5308
408-522-3604
Fax: 408-522-3620

**Old Dominion Broadcast
Engineering Service**

9505 Lakewater Court
Richmond, VA 23229
804-740-4717

Omega Pacific

222 Kaelepula Drive
Kailua, HI 96734
808-263-4212

Omicron Video

21822 Lassen St., Suite L
Chatsworth, CA 91311
818-700-0742
Fax: 818-700-0313

Omni Q Inc.

P.O. Box L
Blaine, WA 98230
206-384-1750

Opamp Labs, Inc.

1033 N. Sycamore Ave.
Los Angeles, CA 90038
213-934-3566
Fax: 213-462-6490

OpTex

22-26 Victoria Road
New Barnet, Herts
England EN4 9PF
081-4412199
Fax: 081-4493646

Optical Disc Corp.

12150 Mora Drive
Santa Fe Springs, CA 90670
213-946-3050
Fax: 213-946-6030

Optical Electronics

P.O. Box 11140
Tucson, AZ 85734
602-889-8811
Fax: 602-889-8575

Orban Associates, Div. of**AKG Acoustics, Inc.**

1525 Alvarado St.
San Leandro, CA 94577
415-351-3500
Fax: 415-351-0500
Scott Heineman

OrCad Systems Corp.

3175 N.W. Aloclck Drive
Hillsboro, OR 97124-7135
503-690-9881
Fax: 503-690-9891

Orchard Communications Inc.

101 N. Plains Industrial Road
Wallingford, CT 06492
203-284-1680; 800-523-7893
Fax: 203-269-2964

Ortel Corp.

2015 W. Chestnut St.
Alhambra, CA 91803
818-281-3636
Fax: 818-281-3231

Otari Corp.

378 Vintage Park Drive
Foster City, CA 94404
415-341-5900
Fax: 415-341-7200

Owl Engineering, Inc.

1306 W. County Road F
St. Paul, MN 55112
612-631-1338
Fax: 612-631-3502

P**Pacific Recorders & Eng. Corp.**

2070 Las Palmas Drive
Carlsbad, CA 92009
619-438-3911
Fax: 619-438-9277

Packaged Lighting Systems

P.O. Box 285
Walden, NY 12586
914-778-3515; 800-426-1133
Fax: 914-778-1586

Paco Electronics USA Inc.

350 S. Figueroa St., Suite 364
Los Angeles, CA 90071-1101
213-617-9323

PAG Ltd.

565 Kingston Road
London, England SW20 8SA
044-081-543-3131
Fax: 044-081-540-4797

Paladin Corp.

3543 Old Conejo Road, Ste 101-102
Newbury Park, CA 91320
805-499-0318; 800-272-8665
Fax: 805-499-4006

Paltex Editing Systems**Paltex International**

2752 Walnut Ave.
Tustin, CA 92680
714-838-8833
Fax: 714-838-9619

Panasonic Broadcast Systems

One Panasonic Way, Panazip 4B-7
Secaucus, NJ 07094
201-348-7671
Fax: 201-392-6558

Charles Gaydos**Regional Sales Contacts**

CA, Burbank, 818-562-1501
CA, San Jose, 408-866-7974
CA, Santa Barbara, 805-481-1344
DC, Washington, 703-759-6900
GA, Norcross, 404-925-6772
IL, Arlington Heights, 708-981-7325
IN, Indianapolis, 317-852-3715
NJ, Secaucus, 201-348-7671
TX, Fort Worth, 817-685-1132

Panasonic Industrial**A/V Systems Group**

One Panasonic Way
Secaucus, NJ 07094
201-348-7620

Panther Corp. of America

4242 Lankershim Blvd.
North Hollywood, CA 91602
818-761-5414
Fax: 818-761-5455

Parsons Mfg. Corp.

1055 O'Brien Drive
Menlo Park, CA 94025
415-324-4726
Fax: 415-324-3051

Patch Bay Designation

P.O. Box 6278
Glendale, CA 91205
818-241-5585
Fax: 818-507-5050

PCO Inc.

2020 Sunburst St.
Chatsworth, CA 91311-6289
818-700-1233
Fax: 818-882-7041

Peavey Electronics

711 A St., Meridian, MS 39301
601-483-5365

Penny & Giles, Inc.

2716 Ocean Park Blvd., Ste 1005
Santa Monica, CA 90405
213-393-0014; 213-452-4995
Fax: 213-450-9860

Penstock, Inc.

520 Mercury Drive
Sunnyvale, CA 94086-4018
408-730-0300; 800-PENSTOCK
Fax: 408-730-4782

Regional Sales Offices:

CA, Los Angeles, 213-383-6100
IL, Palatine, 708-934-3700
IN, Indianapolis, 317-784-3870
KS, Olathe, 913-829-9330
NJ, Fairfield, 201-808-1414
NY, South Huntington, 516-271-8415
PA, Ardmore, 215-649-0413
WA, Bellevue, 206-454-2371

Periphex Inc.

149 Palmer Road
Southbury, CT 06488
203-264-3985
800-634-8132 Orders
Fax: 203-262-6943

Perma Power Electronics, Inc.

5601 Howard Ave.
Chicago, IL 60648
312-763-0763
Fax: 312-763-8330

PERROTT Engineering Labs

7201 Lee Highway
Falls Church, VA 22046
703-532-0700

PESA America Inc.

2102 W. Ferry Way
Huntsville, AL 35801
205-880-0795
Fax: 205-881-4828

Peter Lisand

352 River Road
Edgewater, NJ 07020
201-943-5600
Fax: 201-943-1585

Philips Components

2001 W. Blue Heron Blvd.
Riviera Beach, FL 33404
407-881-3200
Fax: 407-881-3300

Philips Lighting

200 Franklin Square Drive
Somerset, NJ 08875
201-563-3000
Fax: 201-563-3642

Philips TV Test Equipment

Kornmarksvej 21
DK-2605 Brondby, Denmark
45-43-43-48-48
Fax: 45-43-43-23-90

Pinnacle Systems

2380 Walsh Ave.
Santa Clara, CA 95051
408-970-9787
Fax: 408-970-9798

Pioneer Technology Corp.

1021 N. Lake St.
Burbank, CA 91502
818-842-7165
Fax: 818-842-0921

PiRod Inc.

P.O. Box 128
Plymouth, IN 46563-0128
219-936-4221
Fax: 219-936-6796

Pitts Co., T.R.

458 W. Sanborn St.
Winona, MN 55987
507-452-2629

Pivotelli/USA

P.O. Box 560
Medford, MA 02155
617-391-4097; 800-548-5040
Fax: 617-395-1014

PKE International

PO Box 825
Cloverdale, West Australia 6105
(09) 353 3383
Fax: (09) 353 2048

Plastic Capacitors, Inc.

2623 N. Pulaski Road
Chicago, IL 60639
312-489-2229
Fax: 312-489-0496

Plastic Reel Corp. of America

Brisbin Ave.
Lyndhurst, NJ 07071
201-933-5100
Fax: 201-933-9468

Polar Video Ltd.

Unit 19, Fleetway W. Business Pk.
14/16 Wadsworth Road
Perival, Middlesex
England UB6 7LD
44-81-991-5645
Fax: 44-81-997-6017

Polyline Corp.

1233 Rand Road
Des Plaines, IL 60016
312-298-5300
Fax: 312-827-6851

PolyPhaser Corp.

P.O. Box 9000
Minden, NV 89423-9000
702-782-2511; 800-325-7170
Fax: 702-782-4476

Porter Communications

579-D W. Highway
Merrimack, NH 03054
603-424-4161

Power Integrity Corp.

P.O. Box 9682
Greensboro, NC 27429-0682
919-379-9773; 800-237-6260
Fax: 919-379-1301

Precision Specialties, Inc.

19414 Londelius St.
Northridge, CA 91324
818-349-9774
Fax: 818-772-7577

Prime Image

19943 Via Escuela
Saratoga, CA 95070
408-867-6519; 301-544-1754
Fax: 408-926-7294

Pro Battery Co. Inc.

3941 Oakcliff Industrial Court
Atlanta, GA 30340
404-449-5900; 800-451-7171
Fax: 404-449-5457

**Pro Video & Film
Equipment Group**

11419 Mathis St.
Dallas, TX 75234
214-869-0011
Fax: 214-869-0145

Pro-Bel Ltd.

Danehill, Lower Earley
Reading, Berks
England RG6 4PB
0-734-866123
Fax: 0-734-755787

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

BE Directory Editor, PO Box 12901, Overland Park, KS 66212

INTRODUCING YOUR NEW MASTER CONTROL SUPERVISOR



Wrong operator decisions can cause downtime. And what could be worse than dead air. Meet the *Moseley PC-based MRC 2 Remote Control System*. It automatically assumes command in crisis situations and supervises your day-to-day operations.

MRC 2

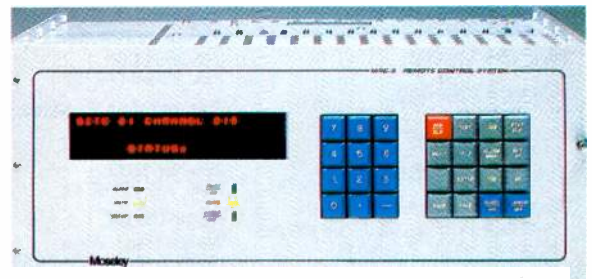
Intelligent- Customer pre-programmed responses automatically take charge in crisis situations, eliminating operator error and guesswork.

Accurate- The MRC 2 achieves greater facility management through fast and accurate real-time control of all desired parameters.

Diverse- The MRC 2 is a true building block system. Remote terminals, control terminals and display options can be configured to your facility's specific requirements.

Accessible- 24-hour *dial-up* access is available over the public telephone network via the PC and modem.

Diagnostic- The historical data generated from the system is automatically stored for reporting and trend analysis purposes.



Relax- Let the Moseley MRC 2 take charge!

Moseley

Moseley
Associates
Incorporated

111 Casilian Drive
Santa Barbara, CA
93117-3093

a
Flow General
Company

Phone 805 968 9621
Telex 558448
FAX: 805 685 9638

*Thanks to KCCO for use of their master page

Circle (58) on Reply Card

Processor Sciences, Inc.

180 Bear Hill Road
Waltham, MA 02154
617-890-0292
Fax: 617-890-5816

Professional Label Service

2347 Deckman Lane
Silver Spring, MD 20906
301-598-2357

Professional Sound Corp.

10639 Riverside Drive
North Hollywood, CA 91602
818-760-6544
Fax: 818-980-9911

Prosonus

11126 Weddington
North Hollywood, CA 91601
818-766-5221; 800-999-6191
Fax: 818-766-6098

ProTech Audio Corp.

Flowerfield Building 1
St. James, NY 11780
516-584-5855
Fax: 516-584-5904

Q**Q-TV**

104 East 25th St.
New York, NY 10010
212-460-9050
Fax: 212-529-9679

QEI Corp.

P.O. Box D
Williamstown, NJ 08094
609-728-2020; 800-334-9154
Fax: 609-629-1751

QSC Audio Products, Inc.

1926 Placentia Ave.
Costa Mesa, CA 92627
714-645-2540
Fax: 714-645-7927

QSI Systems Inc.

12 Linscott Road
Woburn, MA 01801
617-938-1403

Quanta Corp.

180 Wright Brothers Drive, Ste 670
Salt Lake City, UT 84116
801-328-8872
801-366-7600 Customer Service
Fax: 801-328-3668

Quantel Inc.

655 Washington Blvd.
Stamford, CT 06901
203-348-4104
Fax: 203-356-9021

Quest Marketing

P.O. Box 20
Auburndale, MA 02166
617-964-9466
Fax: 617-969-7758

Queue Systems

7985 Santa Monica Blvd., Ste 109-295
West Hollywood, CA 90046
213-656-0258

R**R-Columbia Products Co., Inc.**

2008 St. Johns Ave.
Highland Park, IL 60035
708-432-7915

Racal-Decca Canada Ltd.**Insulators Div.**

71 Selby Road
Brampton, Ont.
Canada L6W 1K5
416-457-8720
Fax: 416-457-2193

Racon

12628 Interurban Ave. S.
Seattle, WA 98168
206-241-1110; 800-426-5245
Fax: 206-246-9306

Radamec EPO Ltd.

Bridge Road, Chertsey
Surrey, England KT16 8LJ
44-932-561181
Fax: 44-932-568775

Radiation Systems, Inc.**Mark Antennas Div.**

2180 S. Wolf Road
Des Plaines, IL 60018
708-298-9420
Fax: 708-635-7946

Jack Wagner

Regional Sales Contacts
CA, Stockton, 209-477-5261
NJ, Freehold, 201-409-6290

Radiation Systems, Inc.**SatCom Technologies Div.**

4825 River Green Parkway
Duluth, GA 30136
404-497-8800
Fax: 404-497-1009

Radio Systems Inc.

110 High Hill Road
Bridgeport, NJ 08014-0458
609-467-8000; 800-523-2133
Fax: 609-467-3044

Radiotechniques Engineering

P.O. Box 367
Haddon Heights, NJ 08035-0367
609-546-8008
Fax: 609-546-1841

RADMAR, Inc.

1263-B Rand Road
Des Plaines, IL 60016
708-298-7980
Fax: 708-298-1248

Ram Broadcast Systems

346 W. Colfax St.
Palatine, IL 60067
708-358-3330
Fax: 708-358-3577

Ramko Research, Inc.

3501-4 Sunrise Blvd.
Rancho Cordova, CA 95670
916-635-3600; 800-678-1357
Fax: 916-635-0907

Ramsa/Panasonic

6550 Katella Ave.
Cypress, CA 90603
714-373-7277
Fax: 714-373-7242

Rane Corp.

10802 47th Ave. W.
Everett, WA 98204-3400
206-355-6000
Fax: 206-347-7757

Rangertone Research

115 Roosevelt Ave.
Belleville, NJ 07109
201-751-6833
Fax: 201-751-9741

Rank Cintel

Watton Road, Ware
Herts, England SG12 0AE
44-920-463939
Fax: 44-920-460803

Rank Cintel-Unimedia

704 Executive Blvd.
Valley Cottage, NY 10989
914-268-8911
Fax: 914-268-5939

Rank Cintel-Unimedia

13340 Saticoy St.
North Hollywood, CA 91605
818-765-7265; 818-764-6929
Fax: 818-765-3315

Rapid Deployment Towers

625 Profit St.
Azle, TX 76020
817-444-4070

Rapp Associates Inc., Theodore A./Tram Microphones

P.O. Box 821
Nyack, NY 10960
914-358-7895

Reach Electronics, Inc.

P.O. Box 308
Lexington, NE 68850-0308
308-324-6661; 800-445-0007
Fax: 308-324-4985

Recortec, Inc.

1290 Lawrence Station Road
Sunnyvale, CA 94089
408-734-1290; 800-729-7654
Fax: 408-734-2140

Reliance Comm/Tec

P.O. Box 17438
Cleveland, OH 44117
800-245-4501

Reliance Plastics & Packaging Div.

217 Brook Ave.
Passaic, NJ 07055
201-473-7200
Fax: 201-473-1023

Renkus-Heinz, Inc.

17191 Armstrong
Irvine, CA 92714
714-250-0166
Fax: 714-250-1035

RF Industries

10040 Mesa Rim Road
San Diego, CA 92121
619-587-0656; 800-446-5778
Fax: 619-587-0049

RF Technology, Inc.

16 Testa Place
South Norwalk, CT 06854
203-866-4283

RGB Spectrum

2550 Ninth St.
Berkeley, CA 94710
415-848-0180
Fax: 415-848-0197

Richardson Electronics Ltd.

40W267 Keslinger Road
LaFox, IL 60147
708-208-2200; 800-348-5580
Fax: 708-208-2550

Richmond Sound Design, Ltd.

1234 W. Sixth Ave.
Vancouver, BC, Canada V6H 1A5
604-732-1234
Fax: 604-734-3901

Ring PC, A.D.

1019 19th St. N.W., 3rd Floor
Washington, DC 20036
202-223-6700
Fax: 202-466-2042

Riser-Bond Instruments

P.O. Box 188
Aurora, NE 68818
402-694-5201; 402-488-6641
Fax: 402-694-2386

Roberts Film Services, Mark

Birches Ind. Est., Imberhorne Lane
East Grinstead
England RH19 1XZ
0342-313522
Fax: 0342-327566

Rocktron/RSP Technologies

2870 Technology Drive
Rochester Hills, MI 48309
313-853-3055
Fax: 313-853-5937

ROH Products

1101-A Air Way
Glendale, CA 91201
818-500-0269; 800-999-5260
Fax: 818-240-1828

Rohde & Schwarz

4425 Nicole Drive
Lanham, MD 20706
301-459-8800
Fax: 301-459-2810

R. Matthew Straeb**Regional Sales Contacts**

CA, San Dimas, 714-599-2619
GA, Marietta, 404-971-1021
IL, West Chicago, 708-231-5915
MO, Cape Girardeau, 314-334-9443
NJ, Long Valley, 201-850-3750
NY, Brewster, 914-279-3231
NC, High Point, 919-869-3335
OR, Beaver Creek, 503-632-7488
TX, Southlake, 817-481-7221

Rohde & Schwarz

Muehldorfstrasse 15
D-8000 München 80
West Germany
089-41-29-0
Fax: 089-41-29-21-64

Roll-A-Reel Co. Inc.

P.O. Box 37381
Cincinnati, OH 45222
513-761-8500

ROOD Megatronics B.V.

Cort van der Lindenstraat 11-13
Rijswijk, Holland AA-2280
31-70-399.63.60
Fax: 31-70-390.57.40

Roscor Corp.

1061 Feehanville Drive
Mount Prospect, IL 60056
708-299-8080 Ext 314
Fax: 708-299-4206

Rosner TV Systems, Inc.

250 West 57th St., Suite 2214
New York, NY 10107
212-246-2850

Ross Video Ltd.

P.O. Box 220
Iroquois, Ont., Canada K0E 1K0
613-652-4886
Fax: 613-652-4425

Royal Soldering Systems, Inc.

744 Salem St.
Glendale, CA 91203
213-245-1077
Fax: 818-956-5862

RPG Diffusor Systems, Inc.

12003 Wimbeldon St.
Largo, MD 20772
301-249-5647
Fax: 301-249-3912

RPS Communications

520 Arthur St.
Centerpoint, NY 11721
516-423-4038
Fax: 516-423-6155

RTI-Research Technology Int'l

4700 Chase Ave.
Lincolnwood, IL 60646
708-677-3000; 800-323-7520
Fax: 708-677-1311

RTS Systems/A Telex

Communications Co.
1100 W. Chestnut St.
Burbank, CA 91506
818-566-6700; 800-328-3771
Fax: 818-843-7953

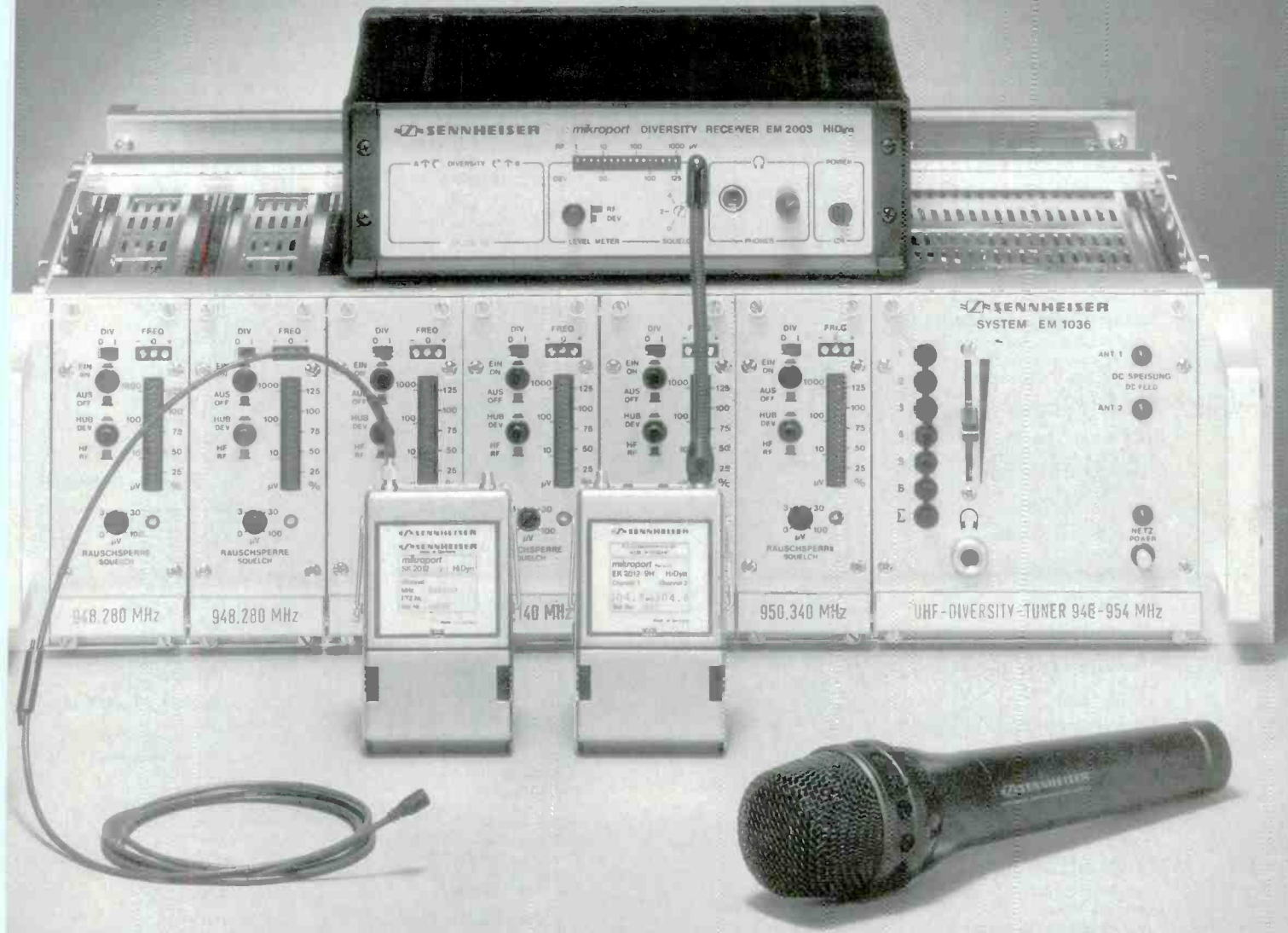
Ruslang Corp.

320 Dewey St.
Bridgeport, CT 06605
203-384-1266

Ryley Communications

39 Haviland Road
Wimborne, Dorset
England BH21 7SA
44-202-871313

Sennheiser RF Wireless Systems



Excellence Needs No Explanation.

To learn more about the Sennheiser excellence in design and engineering,
please call or write.

 **SENNHEISER®**

6 Vista Drive, P.O. Box 987
Old Lyme, CT 06371
Tel # 203-434-9190 FAX # 203-434-1759

Circle (59) on Reply Card

MICROPHONES • HEADPHONES • BOOM SETS • RF WIRELESS • INFRA-RED TECHNOLOGY

Manufacturing Plant: D-3002 Wedemark, Federal Republic of Germany

S**Sachtler AG**

Dieselstrasse 16
D-8046 Garching
West Germany
49-89-32909150
Fax: 49-89-32909127

Sachtler Corp. of America

55 N. Main St.
Freeport, NY 11520
516-867-4900
Fax: 516-623-6844

Saki Magnetics Inc.

26600 Agoura Road
Calabasas, CA 91302
818-880-4054
Fax: 818-880-6242

Samson Technologies Corp.

485-19 S. Broadway
Hicksville, NY 11801
516-932-3810
Fax: 516-932-3815

Sanix Corp.

1-29-1, Kaminoge, Setagaya-ku
Tokyo 158, Japan
Fax: 81-3-702-9654

**Sanken Microphone Co., Ltd.
c/o Audio International Design**

1032 N. Sycamore Ave.
Los Angeles, CA 90038
213-469-4773
Fax: 213-962-2603

SCA Data Systems, Inc.

3000 Ocean Park Blvd., Suite 3002
Santa Monica, CA 90405
213-452-2506
Fax: 213-450-5307

Scala Electronic Corp.

P.O. Box 4580
Medford, OR 97501
503-779-6500; Telex 151 681
Fax: 503-779-6500

Scantex Labs Inc.

P.O. Box 338
Pierrefonds, Que.
Canada H9H 4L1
514-626-8943

Schafer World Communications

P.O. Box 31
Marion, VA 24354
703-783-2000
Fax: 703-783-2064

Schmid Telecommunication

Rieterstrasse 6
Zürich, Switzerland CH-8002
041-1-2061111; 1-800-955-9570
Fax: 041-1-201-2372

Sergio Moreno**Regional Sales Contacts**

KY, Louisville, 502-244-8788
MD, Laurel, 804-320-8801
MO, Ballwin, 314-394-8810
NJ, New Jersey, 201-530-8555
NY, New York, 212-213-1112
RP, San Juan, 809-721-1570
TX, Fort Worth, 817-536-1024

Schoeps Schalltechnik

Spitalstrasse 20
Karlsruhe 41
West Germany D-7500
0721-42011; 0721-42016
Fax: 0721-495750

Schoeps/Posthorn Recordings

142 West 26th St., 10th Floor
New York, NY 10001
212-242-3737
Fax: 212-924-1243

Seam-Tech

P.O. Box 77394
San Francisco, CA 94107
415-861-6011; 415-239-1699
Fax: 415-334-9511

SECK

8500 Balboa Blvd.
Northridge, CA 91329
818-893-4351
Fax: 818-893-3639

Seem Audio A/S

P.O. Box 115
N-1380 Heggedal, Norway
472-797730
Fax: 472-796154

Selco Products Co.

7580 Stage Road
Buena Park, CA 90621
213-921-0681; 714-521-8673
Fax: 714-739-1507

Sencore Inc.

3200 Sencore Drive
Sioux Falls, SD 57107
605-339-0100; 800-SENCORE
Fax: 605-339-0317

Sennheiser Electronic Corp.

6 Vista Drive
Old Lyme, CT 06371
203-434-9190
Fax: 203-434-1759

Albert C. Zang**Regional Sales Contacts**

CA, North Hollywood, 213-877-4424
CA, San Diego, 619-538-6104
CO, Denver, 303-777-0176
FL, Deerfield Beach, 305-481-9250
GA, Atlanta, 404-455-0762
IL, Steger, 708-755-9376
MD, Beson, 301-893-0001
MN, Minneapolis, 612-881-1255
MO, Crystal City, 314-937-2743
NJ, Fair Lawn, 201-791-3738
NY, Windsor, 607-655-3413
OH, Uniontown, 216-699-9511
TX, Houston, 713-589-8481
WA, Bothell, 206-481-8181

Sennheiser Elektronik KG

Postfach 100264
D-3002 Wedemark, West Germany
049-05130-6000
Fax: 049-05130-5312

Sentry Systems

2211 Fifth Ave.
Seattle, WA 98121
206-728-8651; 800-426-9082
Fax: 206-283-0117

Sescom, Inc.

2100 Ward Drive
Henderson, NV 89015
702-565-3400; 800-634-3457
Fax: 702-565-4828

Setcom Corp.

1400 N. Shoreline Blvd.
Mountain View, CA 94043
415-965-8020
Fax: 415-965-1193

SG Communications

P.O. Box 966
Oldsmar, FL 34677
800-824-7865; 800-874-5449 FL
Fax: 813-854-2263

SG Communications

3444 N. Dodge Blvd., Suite A
Tucson, AZ 85716
602-299-1178; 800-824-7865
Fax: 602-323-6980

Shallco, Inc.

P.O. Box 1089
Smithfield, NC 27577
Fax: 919-934-3298

Sharb Electronics**HPG Industries Inc.**

192-08 90th Ave.
Hollis, NY 11423
718-479-3011
Fax: 718-479-3072

Sharp Electronics Corp.**Professional Products Div.**

Sharp Plaza
Mahwah, NJ 07430
201-529-8731
Fax: 201-529-9636

Shintron Co., Inc.

45 Winthrop St.
Concord, MA 01742
508-371-7500

**Shively Labs Div. of Howell
Labs, Inc.**

36 Harrison Road
Bridgton, ME 04009
207-647-3327
Fax: 207-647-8273

Shook Electronics USA, Inc.

6630 Topper Parkway
San Antonio, TX 78233
512-653-6761
Fax: 512-590-9319

Shure Brothers Inc.

222 Hartrey Ave.
Evanston, IL 60202-3696
708-866-2200; 800-257-4873
Fax: 708-866-2279

Siecor Corp.

489 Siecor Park
Hickory, NC 28603-0489
704-327-5000
Fax: 704-327-5488

Sierra Automated Systems

2112 N. Glenoaks Blvd.
Burbank, CA 91504
818-840-6749; 818-246-0185
Fax: 818-840-6751

Al Salci**Regional Sales Contacts**

IL, Chicago, 708-358-3330
Canada, Toronto, 416-255-8231
Canada, Quebec, 514-227-1828

Sierra Video Systems

P.O. Box 2462
Grass Valley, CA 95945
916-273-9331
Fax: 916-273-9390

Kay Turner**Sigma Electronics, Inc.**

P.O. Box 448
East Petersburg, PA 17520
717-569-2681
Fax: 717-569-4056

Sigmacon Industries

8765 Aero Drive, Suite 221
San Diego, CA 92123
619-279-6766; 619-279-7457
Fax: 619-279-0825

Signature Music Library

P.O. Box 98
Buchanan, MI 49107
616-695-3068; 800-888-7151

Simpson Electric

853 Dundee Ave.
Elgin, IL 60120
708-697-2260
Fax: 708-697-2272

Sine Control International Corp.

1571 Parkway Loop, Suite G
Tustin, CA 92680
714-259-0142; 714-259-0264
Fax: 714-259-8302

Singer Products, Inc.

1840 West 49th St., Suite 402
Hialeah, FL 33012
305-558-3000
Fax: 305-558-2801

SIRA s.r.l.

Via Senatore Simonetta 26
Caponago (MI), Italy 20040
39-2-95742605
Fax: 39-2-95742599

Sitler's Supplies, Inc.

702 E. Washington
Washington, IA 52353
800-426-3938
Fax: 319-653-2124

Skaggs Telecomm. Service

5290 S. Main
Murray, UT 84107
801-261-4400

Skotel Corp.

3730 Matte Blvd.
Brossard, Que., Canada J4Y 2Z2
514-444-2088; 800-361-4999
Fax: 514-444-2083

Smith & Powstenko

2033 M St. N.W., Suite 600
Washington, DC 20036
202-293-7742
Fax: 202-296-2429

Snell & Wilcox

2454 Embarcadero Way
Palo Alto, CA 94303
415-856-2930
Fax: 415-857-1434

Snell & Wilcox

57 Jubilee Road
Waterlooville, Hants
England PO7 7RF
44-0705-268827
Fax: 44-0705-241252

Snell Associates, George R.

269 Sheffield St.
Mountainside, NJ 07092
201-654-8855
Fax: 201-654-8859

**Societe Anonyme Des Techniques
Digitales Digitec**

25 Avenue De L'Europe
Chatou, France 78400
33-1034.80.87.00
Fax: 33-1034.80.87.79

Sola/General Signal

1717 Busse Road
Elk Grove Village, IL 60007
708-439-2800; 800-BUY-SOLA
Fax: 800-626-6269

Solder Absorbing Technology

144 Oakland St.
Springfield, MA 01108-1787
413-788-6191; 800-628-8862
Fax: 413-788-0490

Solid Electronics Labs

220 Brookthorpe Circle
Broomall, PA 19008
215-353-9449
Fax: 215-356-8449

Solid State Logic

Begbroke, Oxford
England OX5 1RU
44-865-842300
Fax: 44-865-842118

Solid State Logic

320 West 46th St., 2nd Floor
New York, NY 10036
212-315-1111
Fax: 212-315-0251

Solutec (H.A.)

4360 D'Iberville St.
Montreal, Que.
Canada H2H 2L8
514-522-8960
Fax: 514-598-7808

Somich Engineering

1208 Stoney Run Trail
Broadview Heights, OH 44147
216-526-4561

SONDOR Willy Hungerbuhler

Gewerbezentrum
8702 Zollikon, Switzerland
41-1-391-3122; TLX 816930 GZZCH
Fax: 41-1-391-8452

GET KEYED-UP ABOUT YOUR STILLS



Key in on the STILL FILE by Leitch, and move into a new creative dimension of still presentation. The STILL FILE will update the look of your productions with a comprehensive array of visual effects. Compression and positioning. Bordering. Digital transitions. Internal and external keying. All easily preset into a sequence you can recall with the stroke of a key. Call 1-800-387-0233 today for a hands-on demonstration of the STILL FILE's creative abilities.

Get keyed-up and add a new excitement to your stills.



Don't just reach for the nearest brand name ... reach for the best. STILL FILE by Leitch.



D-2

LEITCH

Leitch Video of America, Inc., 825K Greenbrier Circle, Chesapeake, VA 23320 — Tel: (800) 387-0233 Fax: (804) 424-0639
Leitch Video International Inc., 10 Dyas Rd., Don Mills, Ont., Canada M3B 1V5 — Tel: (800) 387-0233 Fax: (416) 445-0595

Circle (60) on Reply Card

Sonifex Ltd.

61 Station Road, Irthlingborough
Northants, England NN9 5QE
0933-650700
Fax: 0933-650726

Sonosax SA

Au Glapin
1162 St-Prex, Switzerland
41-21/806 02 02
Fax: 41-21/806 02 99

**Sony Corp. of America
Still Image Systems**

Sony Drive
Park Ridge, NJ 07656
800-222-0878

**Sony Corp. of America
Business & Professional Group**

1600 Queen Anne Road
Teaneck, NJ 07666
201-833-5200
Fax: 201-833-9645

Sony Magnetic Products Co.

One Sony Drive
Park Ridge, NJ 07656
201-930-7072

SoperSound Music Library

P.O. Box 498
Palo Alto, CA 94301
415-321-4022; 800-227-9980
Fax: 415-321-9261

**Sorensen Co.,/Switchcraft Div.
A Raytheon Co.**

5555 N. Elston Ave.
Chicago, IL 60630
312-775-0843; 800-525-2024
Fax: 312-775-7432

Sound Ideas

105 W. Beaver Creek Road, Ste 4
Richmond Hill, Ont.
Canada L4B 1C6
416-886-5000; 800-387-3030
Fax: 416-886-6800

Sound Technology

1400 Dell Ave.
Campbell, CA 95008
408-378-6540; 800-359-5080
Fax: 408-378-6847

Soundcraft Electronics Ltd.

#2 Borehamwood Ind. Park
Rowley Lane, Borehamwood
Herts, England WD6 5PZ
44-081-207-5050
Fax: 44-081-207-0194

Soundcraft USA

8500 Balboa Blvd.
Northridge, CA 91329
818-893-4351
Fax: 818-893-3639

Soundmaster USA Inc.

900-A Hampshire Road
Westlake Village, CA 91361
805-494-4545
Fax: 805-494-4936

Soundtracs PLC

91 Ewell Road
Surbiton, Surrey
England KT6 6AH
44-81-399-3392; 44-81-390-8101
Fax: 44-81-399-6821

Southern Illinois Antennas

Route 3 Box 114
Metropolis, IL 62960
618-564-2481
Fax: 618-564-2660

Spectra Sonics

3750 Airport Road
Ogden, UT 84405
801-392-7531; 801-392-7532/33
Fax: 801-392-7531

Spectrum Communications

1055 W. Germantown Pike
Norristown, PA 19403
215-631-1710; 215-631-1712
Fax: 215-631-5017

Spencer Broadcast, Inc.

7003 W. Union Hills Drive
Glendale, AZ 85308
602-242-2211
Fax: 602-843-2860

Sperry Instruments Inc., A. W.

245 Marcus Blvd.
Hauppauge, NY 11788
516-231-7050; 800-645-5398
Fax: 516-434-3128

SSAC Inc.

P.O. Box 1000
Baldwinsville, NY 13027
315-638-1300
Fax: 315-638-0333

Staco Energy Products

301 Gaddis Blvd.
Dayton, OH 45403
513-253-1191
Fax: 513-253-1723

Stainless Inc.

Third & Montgomery Sts.
North Wales, PA 19454
215-699-4871
Fax: 215-699-9597

Standard Communications

P.O. Box 92151
Los Angeles, CA 90009-2151
213-532-5300; 800-243-1357
Fax: 213-769-0620

**Standard Frequency
Measuring Service**

2092 Arrowood Place
Cincinnati, OH 45231
513-851-4964

Standard Tape Lab, Inc.

26120 Eden Landing Road, Ste 5
Hayward, CA 94545
415-786-3546
Fax: 415-786-1180

Stanton Magnetics Inc.

101 Sunnyside Blvd.
Plainview, NY 11803
516-349-0235
Fax: 516-349-0230

Star Case Mfg. Co., Inc.

648 Superior Ave.
Munster, IN 46321
219-922-4440; 800-822-STAR
Fax: 219-922-4442

Stardent Computer Inc.

95 Wells Ave.
Newton, MA 02159
617-964-1000
Fax: 617-964-8962

Steenbeck, Inc.

9554 Vassar Ave.
Chatsworth, CA 91311
818-998-4033
Fax: 818-998-6992

Storeel Corp.

3337 W. Hospital Ave.
Atlanta, GA 30341
404-458-3280
Fax: 404-457-5585

Strand Lighting, Inc.

18111 S. Santa Fe Ave.
Rancho Domingue, CA 90221
213-637-7500
Fax: 213-632-5519

Studer Editech

1370 Willow Road
Menlo Park, CA 94025
415-326-7030

Studer Revox America Inc.

1425 Elm Hill Pike
Nashville, TN 37210
615-254-5651
Fax: 615-256-7619

Studio Technologies, Inc.

5520 W. Touhy Ave.
Skokie, IL 60077
708-676-9177

Summit Audio Inc.

P.O. Box 1678
Los Gatos, CA 95031
408-395-2448
Fax: 408-395-1403

Summit Software Systems Inc.

4810 Riverbend Road, Suite 100
Boulder, CO 80301
303-443-9866
Fax: 303-443-9934

Supercircuits

1403 Bayview Drive
Hermosa Beach, CA 90254
213-372-9166
Fax: 213-828-6944

Superior Electric Co., The

383 Middle St.
Bristol, CT 06010
203-582-9561
Fax: 203-584-1483

Surcom Associates, Inc.

2215 Faraday Ave., Suite A
Carlsbad, CA 92008
619-438-4420
Fax: 619-438-4759

**Sure Shot Teleproductions
& Transmission**

20 Federal Plaza W.
Youngstown, OH 44503
216-747-4111
Fax: 216-747-8921

Swintek Enterprises, Inc.

965 Shulman
Santa Clara, CA 95050
408-727-4889
Fax: 408-727-3025

Switchcraft Inc.

5555 N. Elston Ave.
Chicago, IL 60630
312-792-2700
Fax: 312-792-2129

S.W.R. Inc.

315 S. Julian St.
Ebensburg, PA 15931
814-472-5929; 800-762-7743
Fax: 814-472-5552
Edward Edmiston

Symetrix Inc.

4211 24th Ave. W.
Seattle, WA 98199
206-282-2555
Fax: 206-283-5504

System Associates

10375 Jefferson Blvd.
Culver City, CA 90232
213-836-1111
Fax: 213-836-5996

System Video

Venture House, Davis Road
Chessington, Surrey
England KT9 1TT
081-391-5678
Fax: 081-391-5522

Systemation Corp.

337 N. Water
Decatur, IL 62523
217-428-7101
Fax: 217-423-9764

Systems Development Group

18601 Darnestown Road
Poolesville, MD 20837
301-972-7355
Fax: 301-349-5043

Systems Wireless Ltd.

465 Herndon Parkway
Herndon, VA 22070
703-471-7887; 800-542-3332
Fax: 703-437-1107

T**Tamron Industries Inc.**

P.O. Box 388
Port Washington, NY 11050
516-484-8880; 800-827-8880
Fax: 516-484-8906

Tannoy North America

300 Gage Avenue, Unit 1
Kitchener, Ont., Canada N2M 2C8
519-745-1158
Fax: 519-745-2364

Target Technology

P.O. Box 609
Penn Valley, CA 95946
916-639-2102
Fax: 916-639-2212

Target Tuning, Inc.

6 Caesar Place
Moonachie, NJ 07074
201-935-8880
Fax: 201-935-6548

TASCAM Div.

Teac Corp. of America
7733 Telegraph Road
Montebello, CA 90640
213-726-0303

Tayo Industries

7510 Sunset Blvd., Suite 537
Hollywood, CA 90046
818-765-0782
Fax: 213-874-3393

TC Electronic A/S

Grimhøjvej 3
DK-8220 Bradbrand, Denmark
45-86262800
Fax: 45-86262928

TDI America

1270 Ave. of the Americas, Ste 508
New York, NY 10020
212-247-1950
Fax: 212-247-1957

Is your company's name missing from this directory? If so, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

**BE Directory Editor
PO Box 12901
Overland Park, KS 66212**

TEAC Div.
Teac Corp. of America
7733 Telegraph Road
Montebello, CA 90640
213-726-0303

Tech Electronics, Inc.
6420 Atlantic Blvd.
Norcross, GA 30071
404-446-1416
Fax: 404-448-5724

Tech Labs Inc.
500 Tenth St.
Palisades Park, NJ 07650
201-944-2221

TECH-SA-PORT
P.O. Box 5295
Pittsburgh, PA 15206-5295
412-661-2629

Techni-Tool Inc.
5 Apollo Road
Plymouth Meeting, PA 19462
215-825-4990
Fax: 215-828-5623

Technical Projects, Inc.
P.O. Box 3247
Barrington, IL 60010-3247
708-381-5350; 800-562-5872
Fax: 708-381-4360

Technology Resource Group
P.O. Box 3970
Kingston, NY 12401
914-331-5640; 800-242-4797
Fax: 914-338-2809

Tectan
1900 Bates Ave., Suite J
Concord, CA 94527
415-798-2222
Fax: 415-798-2224

Tekskil Industries Inc.
#108-15290 103A Ave.
Surrey, BC, Canada V3R 7A2
604-589-1100
Fax: 604-589-1185

Tektronix Inc.
P.O. Box 500, D/S 58-699
Beaverton, OR 97077
503-627-4697
Fax: 503-627-4486

Austin Basso, 503-627-1844
Regional Sales Contacts
CA, Concord, 415-932-4949
CA, Irvine, 714-660-8080
CA, Los Angeles, 818-999-1711
CO, Denver, 303-799-1000
DC, Washington, 301-948-7151
FL, Orlando, 407-249-1600
GA, Atlanta, 404-449-4770
IL, Chicago, 312-259-7580
IN, Indianapolis, 317-872-3708
MA, Boston, 617-861-6800
NJ, Woodbridge, 201-636-8616
OR, Beaverton, 503-627-2761
PA, Philadelphia, 215-825-6400
PA, Pittsburgh, 412-244-9800
TX, Dallas, 214-550-0525

Telcom Research
3375 N. Service Road, Unit A7
Burlington, Ont.
Canada L7N 3G2
416-681-2450

**Telecommunications
Techniques Corp.**
20410 Observation Drive
Germantown, MD 20874
301-353-1550; 800-638-2049
Fax: 301-353-0734

Telectro Systems Corp.
96-18 43rd Ave.
Corona, NY 11368
718-651-8900
Fax: 718-651-4103

Teledac Inc.
661 Pine
St. Lambert, Que.
Canada J4P 2P4
514-671-7762
Fax: 514-671-4747

Teledyne Energy Systems
110 W. Timonium Road
Timonium, MD 21093
301-252-8220
Fax: 301-252-5514

Teledyne Thermatics
P.O. Box 909
Elm City, NC 27822
919-236-4311
Fax: 919-236-3613

**Telefunken Sendertechnik
GmbH**
Sickingenstrasse 20-28
D-1000 Berlin 21, West Germany
Fax: 0049-30-34632419

Telemetrics Inc.
7 Valley St.
Hawthorne, NJ 07506
201-423-0347
Fax: 201-423-5635

**Tony Cuomo
Regional Sales Contacts**
CA, Los Angeles, 213-749-3311
HI, Honolulu, 800-521-4648
NC, Winston-Salem, 919-725-2306
TX, Arlington, 817-649-6140
Australia, Artarmon, 61-61-2-427-1961
Canada, Vancouver, 604-253-3191
Sweden, Taby, 46-8-768-09-75

Telescript, Inc.
445 Livingston St.
Norwood, NJ 07648
201-767-6733
Fax: 201-784-0323

Teletech, Inc.
23400 Michigan Ave., Suite 615
Dearborn, MI 48124
313-562-6873; 602-991-6000
Fax: 313-562-8612

Televideo San Diego
4783 Ruffner St.
San Diego, CA 92111
619-268-1100
Fax: 619-268-1790

Television Engineering Corp.
580 Goddard Ave.
Chesterfield, MO 63005
314-532-4700
Fax: 314-536-2045

**Television Equipment
Associates**
P.O. Box 393
South Salem, NY 10590
914-763-8893; 213-271-9570
Fax: 914-763-9152

Television Technology Corp.
P.O. Box 1385
Broomfield, CO 80020-8385
303-665-8000
Fax: 303-673-9900

**Alex DeLay
Regional Sales Contacts**
CA, Sacramento, 916-487-3932
FL, Seffner, 813-684-7724
NJ, Summit, 201-273-8525

Telex Communications, Inc.
9600 Aldrich Ave. S.
Minneapolis, MN 55420
612-884-4051
Fax: 612-884-0043

Telfax Communications
P.O. Box 31
Webster City, IA 50595
515-296-9911
Fax: 515-296-9910

Telos Systems
1729 Superior Ave.
Cleveland, OH 44114
216-241-7225
Fax: 216-241-4103

Teltron Inc.
2 Riga Lane
Birdsboro, PA 19508
215-582-2711; 800-835-8766
Fax: 215-582-0851

Tenco Tower Co.
9723 Folsom Blvd., Suite A
Sacramento, CA 95827-1326
916-638-8833

Tennaplex Systems Ltd.
21 Concourse Gate
Nepean, Ont.
Canada K2E 7S4
613-226-5870
Fax: 613-727-1247

Tentel
4475 Golden Foothill Parkway
El Dorado Hills, CA 95630
916-939-4005; 800-538-6894

Tepeco Corp.
P.O. Box 680
Rapid City, SD 57709
605-343-7200

**Texar, A Div. of Gentner
Electronics Corp.**
1825 Research Way
Salt Lake City, UT 84119
801-975-7200
Fax: 801-977-0087

Texas Electronics, Inc.
P.O. Box 7225
Dallas, TX 75209
214-631-2490
Fax: 214-631-4218

TFT Inc.
3090 Oakmead Village Drive
Santa Clara, CA 95052-8088
408-727-7272
Fax: 408-727-5942

Theatre Vision Inc.
5426 Fair Ave.
North Hollywood, CA 91601-2721
818-769-0928; 800-367-5444 CA
Fax: 818-769-0627

Thermodyne International
20850 S. Alameda St.
Long Beach, CA 90810
213-603-1976
Fax: 213-603-1929

Theta Scientific
P.O. Box 40445
Bellevue, WA 98004
206-646-9607
Fax: 206-646-0132

Thomson Broadcast, Inc.
49 Smith St.
Englewood, NJ 07631
201-569-1650; 800-882-1824
Fax: 201-569-1511

**Thomson Electron Tube &
Devices/Electron Tube Div.**
40-G Commerce Way
Totowa, NJ 07511
201-812-9000
Fax: 201-812-9050

Thomson Tubes Electroniques
38, rue Vauthier, B.P. 305
Boulogne-Billancourt
Cedex, France F-92102
33-1 49 09 28 28
Fax: 33-1 46 04 52 09

Thomson Video Equipement
17, rue de Petit Albi, BP 8244
Cergy, St.Christophe
France F-95801
34 20 70 00
Fax: 34 20 70 45

Thomson-LGT
I, rue de l'Hautail, Conflans
Ste. Honorine, France 78700
33-1-34.90.31.00
Fax: 33-1-34.90.30.00

THORN Automated Systems
835 Sharon Drive
Westlake, OH 44145
216-871-9900
Fax: 216-871-8320

360 Systems
18740 Oxnard St.
Tarzana, CA 91356
818-342-3127
Fax: 818-342-4372

3M Optial Recording
223-5S-01, 3M Center
St. Paul, MN 55144-1000
612-733-2142

3M Electrical Specialties Div.
3M Austin Center, A130-3N-46
Austin, TX 78769
512-984-3113; 800-328-1368

**3M Professional A/V &
Specialty Products**
3M Center, 223-5N-01
St. Paul, MN 55144-1000
612-736-5176

Tiffen Mfg. Corp.
90 Oser Ave.
Hauppauge, NY 11788
516-273-2500; 800-645-2522
Fax: 516-273-2557

Time Arts Inc.
1425 Corporate Center Parkway
Santa Rosa, CA 95407
707-576-7722
Fax: 707-576-7731

Time Logic
11992 Challenger Court
Moorpark, CA 93021
805-529-1155
Fax: 805-529-6744

Time Service Systems Inc.
620 Alden Road, Suite 102
Markham, Ont.
Canada L3R 9R7
416-940-1566
Fax: 416-479-9081

TimeLine, Inc.
270 Lafayette St.
New York, NY 10012
516-423-4038
Fax: 516-423-6155

Titus Technological Labs
77 Kreiger Lane, Suite 914
Glastonbury, CT 06033
203-633-5472

TOA Electronics, Inc.
601 Gateway Blvd., Suite 300
South San Francisco, CA 94080
415-588-2538; 800-733-4750
Fax: 415-588-3349

Torpey Controls & Eng. Ltd.
2220 Midland Ave., Unit 98
Scarborough, Ont.
Canada M1P 3E6
416-298-7788
Fax: 416-298-7789

Tower Network Systems
P.O. Box 4065
Miami, FL 33269
305-989-8703

Toy Specialists, The
333 West 52nd St.
New York, NY 10019
212-333-2206; 800-445-3330
Fax: 212-262-4095

**Tracor Instruments Austin Inc.
Industrial Instruments Div.**
6500 Tracor Lane, Building 27-6
Austin, TX 78725-2100
512-929-2051; 512-929-2185
Fax: 512-929-2747

Transmission Structures, Ltd.

P.O. Box 907
 Vinita, OK 74301
 918-256-7883
 Fax: 918-256-2558

Transtector Systems Inc.

10701 Airport Drive
 Hayden Lake, ID 83835
 208-772-8515; 800-829-2901
 Fax: 208-772-9016

Trident Audio Developments

Rodd Ind. Estate/Govett Ave.
 Shepperton, Middlesex
 England TW17 8AQ
 44-932-224665
 Fax: 44-932-226721

Trident Audio USA

2720 Monterey St., Suite 403
 Torrance, CA 90503
 213-533-8900
 Fax: 213-533-7072

Triplett Corp.

One Triplett Drive
 Bluffton, OH 45817
 419-358-5015; 800-TRI-PLET
 Fax: 419-358-7956

Trompeter Electronics, Inc.

31186 LaBaya Drive
 Westlake Village, CA 91362-4047
 818-707-2020
 Fax: 818-706-1040

TRW LSI Products Inc.

P.O. Box 2472
 La Jolla, CA 92038
 619-457-1000
 Fax: 619-455-6314

Trylon Mfg. Co. Ltd.

P.O. Box 186
 Elmira, Ont.
 Canada N3B 2Z6
 519-669-5421
 Fax: 519-669-8912

TSM

709 Executive Blvd.
 Valley Cottage, NY 10989
 914-268-0100
 Fax: 914-268-0113

TTE, Inc.

12016 115th Ave. N.E.
 Kirkland, WA 98034
 206-821-5952
 Fax: 206-821-0992

Tungstone Batteries Inc.

18 Billings St.
 Sharon, MA 02067
 617-784-8123; 800-232-3557
 Fax: 617-784-5563

Turbosound Ltd.

Star Road, Partridge Green
 West Sussex
 England RH13 5EZ
 0403-711447
 Fax: 0403-710155

TVT Div.

PO Box 41, Coldhams Lane
 Cambridge, England CB1 3JU
 044-223-245115
 214-381-7161 in USA
 Fax: 44-223-214632

TWR Lighting, Inc.

1630 Elmview
 Houston, TX 77080
 713-973-6904
 Fax: 713-973-0205

U**Uher of America**

7067 Vineland Ave.
 North Hollywood, CA 91605
 818-764-1120
 Fax: 818-764-1129

ULTIMATE Corp.

18607 Topham St.
 Reseda, CA 91335
 818-345-5525
 Fax: 818-344-7053

Union Connector Co., Inc.

P.O. Box H
 Roosevelt, NY 11575
 516-623-7461
 Fax: 516-623-7475

United Media

4771 E. Hunter
 Anaheim, CA 92807
 714-777-4510
 Fax: 714-777-2434

United Ropeworks (USA) Inc.

Phillystran Div.
 151 Commerce Drive
 Montgomery, PA 18936
 215-368-6611
 Fax: 215-362-7956

United Systems

25 Lexington Drive
 Atco, NJ 08004
 609-768-9085

Unitronic

Steigstrasse 8
 Oberrohrdorf
 Switzerland CH-5452
 056-96-29-64; 056-96-54-90

Universal Video Electronics

630 Lillian Terrace
 Union, NJ 07083
 201-964-0603

UREI, JBL Professional

P.O. Box 2200
 Northridge, CA 91329
 818-893-8411
 Fax: 818-893-3639

US Audio

P.O. Box 1075
 Rochester, NY 14603
 716-663-8820
 Fax: 716-865-8930

US Instrument Rentals

1830 W. Airfield Drive
 DFW Airport, TX 75261
 800-USIR-123

Utah Scientific, Inc.

4750 Wiley Post Way
 Salt Lake City, UT 84084
 801-575-8801; 800-453-8782
 Fax: 801-575-3299

UTE Microwave, Inc.

3500 Sunset Ave.
 Asbury Park, NJ 07712
 201-922-1009
 Fax: 201-922-0848

Utility Tower Co.

P.O. Box 12369
 Oklahoma City, OK 73157
 405-946-5551
 Fax: 405-947-8466

V**V.D.O. Ltd.**

41 West 33rd St.
 New York, NY 10001-3016
 212-563-0606
 Fax: 212-563-0634

Vac Systems Corp.

50-40 212th St.
 Bayside, NY 11364-1216
 718-966-5489

Val-Tronics, Inc.

89 E. Vaughn St.
 Kingston, PA 18704
 717-655-5937

Valcom Ltd.

P.O. Box 603
 Guelph, Ont.
 Canada N1G 3M5
 519-824-3220
 Fax: 519-824-3411

Valentino, Inc.

151 West 46th St.
 New York, NY 10036
 212-869-5210; 800-223-6278
 Fax: 212-869-6259

Valley International, Inc.

616 Bradley Court
 Franklin, TN 37064
 615-370-5901
 Fax: 615-370-5907

Varian Associates, Power**Grid & X-Ray Products**

1678 S. Pioneer Road
 Salt Lake City, UT 84104
 801-972-5000; 800-432-4422
 Fax: 801-973-5050

Varian Associates, Power**Grid & X-Ray Products**

301 Industrial Way
 San Carlos, CA 94070
 415-592-1221; 800-432-4422
 Fax: 415-592-9988

Varian Associates,**Microwave Equipment Products**

3200 Patrick Henry Drive
 Santa Clara, CA 95054
 408-496-6273
 Fax: 408-727-9938

Varian Associates,**Microwave Power Tube Products**

811 Hansen Way
 Palo Alto, CA 94304-1031
 415-493-4000; 800-544-4636
 Fax: 415-856-0705

Varian Associates, Traveling**Wave Tube Products**

607 Hansen Way
 Palo Alto, CA 94304-1015
 415-493-4000; 800-544-4636
 Fax: 415-494-8779

Varian Associates, Canada**Microwave Products**

45 River Drive
 Georgetown, Ont., Canada L7G 2J4
 416-877-0161
 Fax: 416-877-5327

Varian Associates, Electron**Device Business**

3120 Hansen Way
 Palo Alto, CA 94304-1030
 415-493-4000; 800-544-4636

VDO-PAK

413 Oak Place
 Port Orange, FL 32127
 904-756-9770; 800-767-9771
 Fax: 904-756-9733

Veam/Litton Systems, Inc.

100 New Wood Road
 Watertown, CT 06795
 203-274-9681
 Fax: 203-274-4963

Vector Technology

203 Airport Road
 Doylestown, PA 18901
 215-348-4100
 Fax: 215-348-3167

Vega, A Mark IV Co.

600 Cecil St.
 Buchanan, MI 49107
 616-695-6831; 800-877-1771
 Fax: 616-695-1304

Velbon International Corp.

P.O. Box 2927
 Torrance, CA 90509-2927
 213-530-5446; 800-423-1623
 Fax: 213-618-0166

VG Electronics Ltd.

Theaklen Drives, Hastings
 Sussex, England TN34 1YQ
 0424-446888
 Fax: 0424-435699

VG, Inc.

3700 N.E. 53rd Ave.
 Gainesville, FL 32609
 904-372-0270
 Fax: 904-378-5320

Vicon Industries, Inc.**Professional Products Div.**

525 Broad Hollow Road
 Melville, NY 11747
 516-293-2200 Ext 465
 Fax: 516-293-2627

Vid-Video, Inc.

3919-A W. Magnolia Blvd.
 Burbank, CA 91505
 818-845-1515
 Fax: 818-955-8599

Video Accessory Corp.

2450 Central Ave., Ste H
 Boulder, CO 80301
 303-443-1319; 800-821-0426
 Fax: 303-440-8878

Video Data Systems

30 Oser Ave.
 Hauppauge, NY 11788
 516-231-4400
 Fax: 516-435-4544

Video Design Pro

749 Carver Road
 Las Cruces, NM 88005
 505-524-8959
 Fax: 505-524-9669

Video Display Corp.

1868 Tucker Industrial Drive
 Tucker, GA 30084
 404-938-2080; 800-241-5005
 Fax: 404-493-3903

Video Int'l Development Corp.

65-16 Brook Ave.
 Deer Park, NY 11729
 516-243-5414
 Fax: 516-243-5414

Video Int'l Development GmbH

Ulmenweg 11
 D-3013 Barsinghousen, W. Germany
 49-05105-8 11 44
 Fax: 49-05105-8 36 52

Video Storage Concepts

275 79th St.
 Brooklyn, NY 11209
 718-238-1008
 Fax: 718-238-8186

VideoLab

1978-B Del Amo Blvd.
 Torrance, CA 90501
 213-618-9046; 800-548-4466
 Fax: 213-618-9145

Videomagnetics

920 E. Hatch Road
 Modesto, CA 95351
 209-847-8128; 800-432-3887
 Fax: 209-537-3230

Videomedia, Inc.

211 Weddell Drive
 Sunnyvale, CA 94089
 408-745-1700
 Fax: 408-745-6721

Videoplex Inc.

100 Craig Road
 Freehold, NJ 07728
 201-462-8555
 Fax: 201-780-8394

Videoquip Research Ltd.

595 Middlefield Road, Unit 4
 Scarborough, Ont.
 Canada M1V 3S2
 416-293-1042
 Fax: 416-297-4757

Who makes the best ENG wireless microphone system?



The best mini-receiver . . .

The CR185 offers a six-pole helical resonator front-end, followed by narrow-band crystal IF filtering at 21.4 MHz. This provides unmatched selectivity and sensitivity, and minimizes drop-outs and interference. A balanced, XLR output interfaces with any professional camcorder.

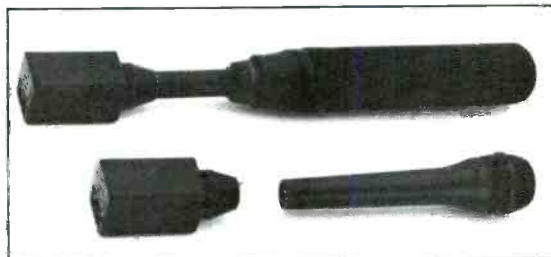


The best belt-pack transmitter . . .

The M185 is a highly refined belt-pack transmitter. It matches any input requirement and provides "phantom power" for almost any lavalier microphone via a standard 5 pin jack. The belt-clip is constructed of machined aluminum and steel parts, spring-tensioned for a secure fit on any belt or fabric. Audio level LEDs are provided on the control panel for accurate level adjustment.

The best "plug-on" transmitter . . .

The H185 introduces new flexibility to your ENG operations. It makes any hand-held or shotgun mic with an XLR connector wireless. The microphone body becomes part of the antenna circuit, forming a very efficient RF radiator. The audio input level is indicated by two LEDs next to the microphone coupler. These LEDs are clearly visible with the microphone attached for accurate level adjustment.



The best construction . . .

All external parts are constructed of machined aluminum for ruggedness and durability. Shock-mounted crystals are used in the IF filtering and oscillators for reliable operation. The transmitters and receiver are built for the real world of hard knocks.

The best factory support . . .

Whether it's frequency coordination or follow-up service, Lectrosonics will come through. Our commitment to the needs of broadcasters is second to none. Call us with questions, and you will get answers that make sense.

Call us toll-free to locate
your nearest dealer:

1-800-821-1121



LECTROSONICS, INC.

P.O. Box 15900 • Rio Rancho, NM • 87174
581 Laser Rd. NE • Rio Rancho, NM • 87124
(505) 892-4501 • (800) 821-1121

Videotek, Inc.

243 Shoemaker Road
Pottstown, PA 19464
215-327-2292
Fax: 215-327-9295

Videssence

2065 Third St.
San Francisco, CA 94107
415-626-6522
Fax: 415-626-3396

Vidicraft Inc.

8770 S.W. Nimbus Ave.
Beaverton, OR 97005
503-626-1918; 800-999-5975
Fax: 503-644-9887

Viking Cases

10480 Oak St. N.E.
St. Petersburg, FL 33716
813-577-1216; 800-237-8560
Fax: 813-577-2082

Vinten Broadcast Inc.

44 Indian Lane E.
Montville, NJ 07045
516-273-9750

Fax: 516-273-9759

Regional Sales Contacts

CA, Sun Valley, 818-767-0306
FL, Coral Springs, 305-345-2630

Vinten Broadcast Ltd

Western Way, Bury St. Edmunds
Suffolk, England IP33 3TB
44-284-752121
Fax: 44-284-750560

Vir James Consulting Engineers

3137 W. Kentucky Ave.
Denver, CO 80219
303-937-1900; 800-779-0198
Fax: 303-937-1902

Vision Quest

1925 E. Bennett, Suite J
Springfield, MO 65804
417-886-0655; 800-284-4140
Fax: 417-886-6535

Vistek Electronics Ltd.

Unit C, Wessex Road
Bourne End, Bucks
England SL8 5DT
44-6285-31221
Fax: 44-6285-30980

Vizcom/California Tube Labs

304 San Miguel Ave.
San Luis Obispo, CA 93405
805-995-1072

VMI-Visual Methods Inc.

35 Charles St.
Westwood, NJ 07675
201-666-3950
Fax: 201-666-7931

Voltronics Corp.

P.O. Box 476
East Hanover, NJ 07936
201-887-1517
Fax: 201-887-3349

Vortex Communications

65 Nonset Path
Acton, MA 01720
508-264-4415
Fax: 508-635-0401

Vortex Communications Ltd.

75 The Grove, Ealing
London, England W5 5LL
44-81-579-2743
Fax: 44-81-840-0018

VXI Corp.

P.O. Box 490
Rollinsford, NH 03869
603-742-2888
Fax: 603-742-5065

W**Ward-Beck Systems Ltd.**

841 Progress Ave.
Scarborough, Ontario
Canada M1H 2X4
416-438-6550
Fax: 416-438-3865

Arthur Schubert, Jr.

Regional Sales Contacts
MA, Danvers, 617-777-7228
TX, Dallas, 214-247-5999

Wegener Communications Inc.

11350 Technology Circle
Duluth, GA 30136
404-623-0096
Fax: 404-623-0698

Weircliffe International Ltd.

Exwick, Exeter
England EX4 2AG
44-392-72132
Fax: 44-392-413511

Weircliffe Ltd.

Paltex International
2752 Walnut Ave.
Tustin, CA 92680
714-838-8833
Fax: 714-838-9619

Western Electronic Products

915-G Calle Amanecer
San Clemente, CA 92672
714-492-4677
Fax: 714-492-5952

Western Int'l.

Communications Aristocart
17-825 McBride Blvd.
New Westminster, BC
Canada V3L 5B5
604-526-3214

**Westlake Audio, Pro
Products Mfg. Group**

2696 Lavery Court, Unit 18
Newbury Park, CA 91320
805-499-3686
Fax: 805-498-2571

Wheatstone Corp.

6720 VIP Parkway
Syracuse, NY 13211
315-455-7740
Fax: 315-454-8104

Wheelit, Inc.

P.O. Box 7350
Toledo, OH 43615
419-531-4900; 800-523-7508
Fax: 419-531-6415

Whirlwind

P.O. Box 1075
Rochester, NY 14603
716-663-8820
Fax: 716-865-8930

White Co., Inc., Brian R.

313 Henry Station Road
Ukiah, CA 95482
707-462-9795
Fax: 707-462-4800

White Instruments**Div. of C. Van R., Inc.**

P.O. Box 698
Austin, TX 78767
512-892-0752
Fax: 512-892-0855

Wide Band Engineering Co.

P.O. Box 21652
Phoenix, AZ 85036
602-254-1570

Wide Range Electronics Corp.

174 Chesterfield Industrial Blvd.
Chesterfield, MO 63005
314-532-5887
Fax: 314-532-5492

Will-Burt Co., The

P.O. Box 900
Orrville, OH 44667-0900
216-682-7015
Fax: 216-684-1190

Winsted Corp.

10901 Hampshire Ave. S.
Minneapolis, MN 55438
612-944-8556; 800-447-2257
Fax: 612-944-1546

Wireworks Corp.

380 Hillside Ave.
Hillside, NJ 07205
201-686-7400; 800-642-9473
Fax: 201-686-0483

Wohler Technologies, Inc.

1349 Kansas St.
San Francisco, CA 94107
415-285-5462
Fax: 415-821-6414

Wolf Coach, Inc.

7 "B" St.
Auburn, MA 01501
508-791-1950
Fax: 508-799-2384

World Video Inc.

P.O. Box 117
Boyertown, PA 19512
215-754-6700

Wynford Technologies Inc.

424 Mt. Pleasant Road
Toronto, Ont.
Canada M4S 2L7
416-322-0931

X**Xymox Systems**

6251 Chimineas
Reseda, CA 91335
805-492-1355

Y**Yamaha Corp. of America
Professional Audio Div.**

P.O. Box 6600
Buena Park, CA 90620
714-522-9312
Fax: 714-539-2680

Yamashita Engineering

559-1 Funako Atsugi-City
Kanagawa 243, Japan
81-44-0462-28-8692
Fax: 81-44-0462-29-1944

Z**Zero Stantron Cabinets**

6900-6918 Beck Ave.
North Hollywood, CA 91605
818-841-1825
Fax: 818-841-8892

Ziehl Electronic Service

8611 Dale Road
Gasport, NY 14067
716-772-7800

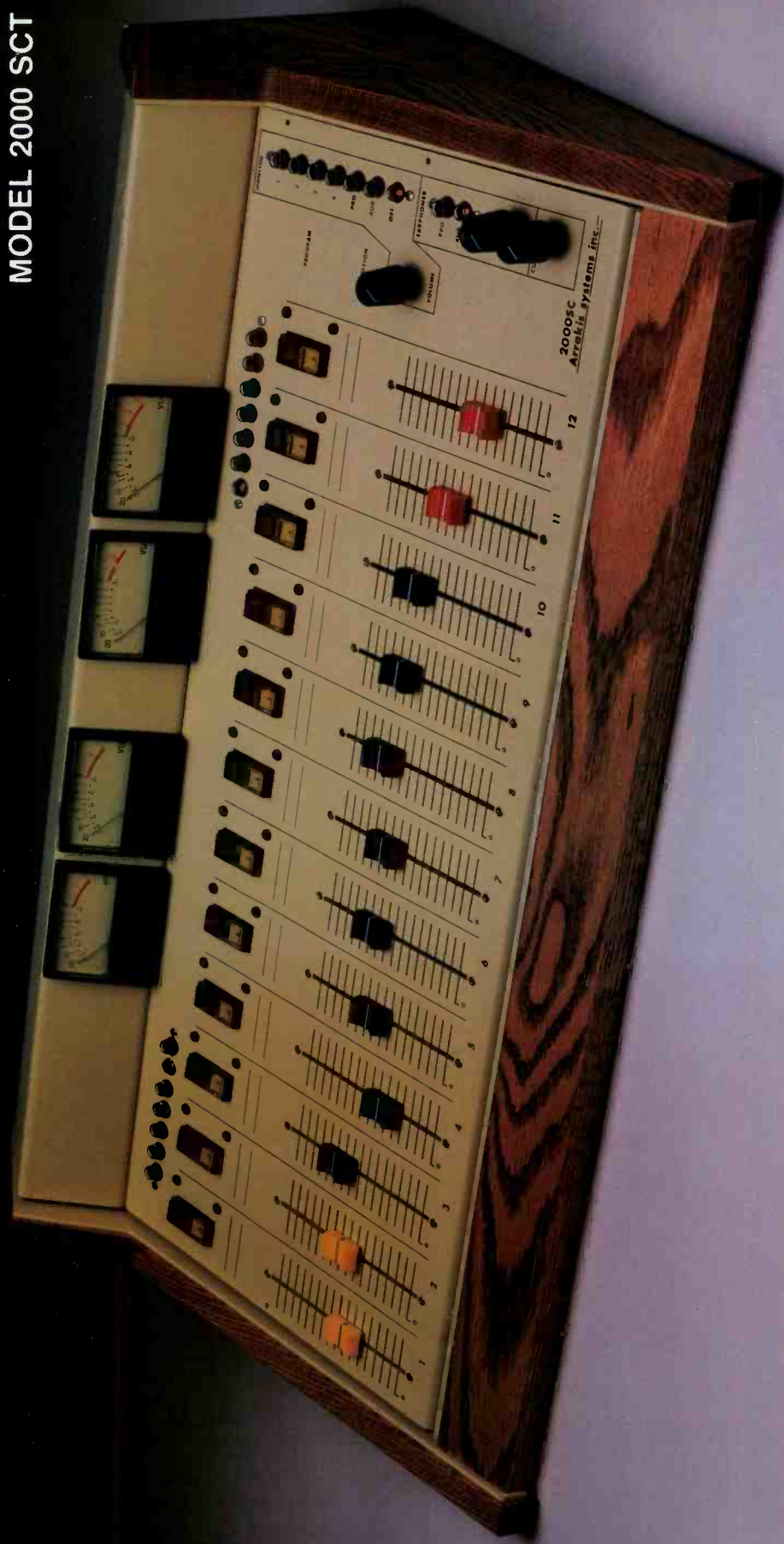
Zonal Ltd.

Holmethorpe Ave.
Redhill, Surrey
England RH11 2NX
0737-767171
Fax: 0737-767610

Is your company's name missing from this directory? In June 1990, questionnaires were mailed to all companies on the Broadcast Engineering Mailing List. If your company is not represented, either the name was not on our mailing list or we did not receive the questionnaire sent in June 1990, requesting new information. If you would like to be included in the 1992 Broadcast Engineering Equipment Reference Manual, write before May 1, 1991, to:

**BE Directory Editor
PO Box 12901
Overland Park, KS 66212**

MODEL 2000 SCT



AUDIO CONSOLE PRODUCTS

Arrakis audio console products are designed by broadcast engineers for broadcasters at reasonable prices. Our products sell themselves. Study our features, specs., and prices. Compare and you will find what thousands have found — The Arrakis Advantage —

TURBO FEATURES

- * VCA Faders
- * P & G Sliders
- * .01% Distortion
- * Solid Oak Trim
- * 10 W/CH Monitor
- * Remote Start
- * Mix-Minus
- * Modular Design
- * Ultra-Reliable
- * Mono Mixdowns
- * Stereo Cue
- * Full Muting
- * Dimensions —
30" W x 17" D x 7" H
- * Weight — 55 Lbs.

MODELS

- 6 Channel Rotary
(18 Inputs)
150 SCT-6M \$2395
150 SCT-6S \$2495
- 8 Channel Rotary
(22 Inputs)
500 SCT-8M \$3495
500 SCT-8S \$3595
- 8 Channel Linear
(22 Inputs)
1500 SCT-8M \$4395
1500 SCT-8S \$4495
- 12 Channel Linear
(24 Inputs)
2000 SCT-12M \$4895
2000 SCT-12S \$4995
- 12 Channel Linear
(34 Inputs)
2100 SCT-12M \$5895
2100 SCT-12S \$5995

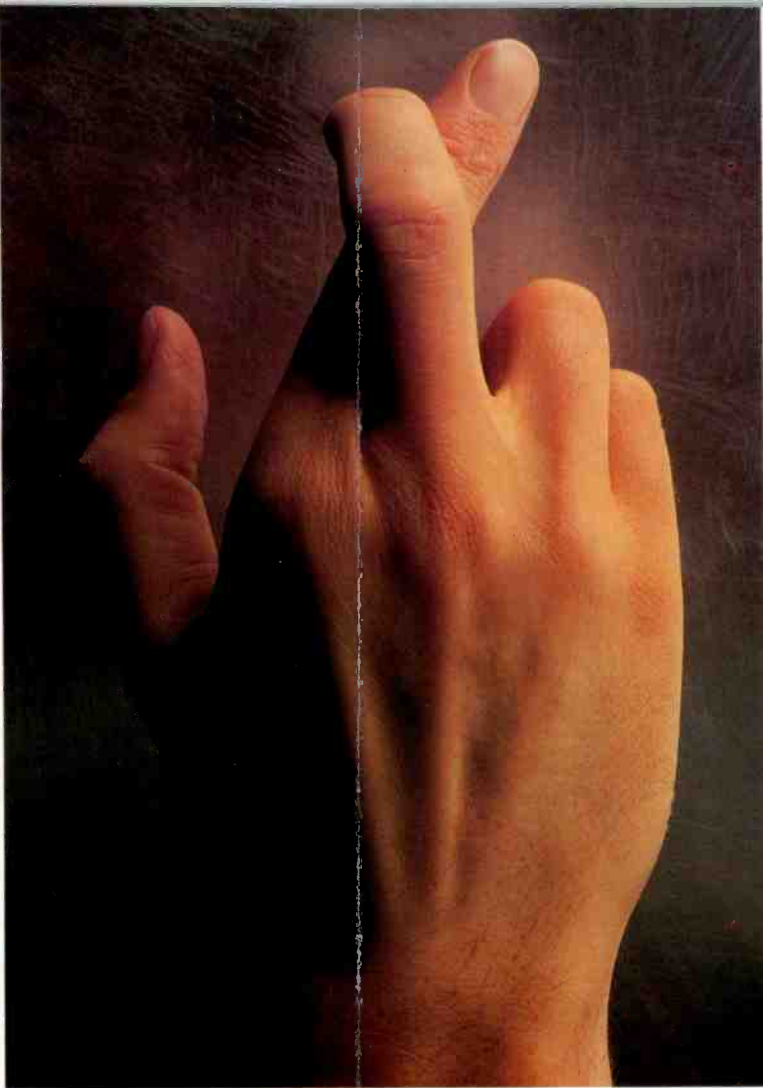
arrakis
SYSTEMS, INC.



2619 Midpoint Drive
Fort Collins, Colorado
80525

(303) 224-2248
Circle (62) on Reply Card

DEALERS/DISTRIBUTORS



ON THE RIGHT – THE SIGN OF A SNELL & WILCOX USER

How do you judge a standards converter – on paper or on performance?

For professional broadcast engineers there can only be one answer: hands-on experience.

That's why Snell & Wilcox has been given such a massive thumbs up by all the world's major broadcasters. They already use more Snell & Wilcox standards converters than any other brand.

There's a good reason for this. Our range of standards converters – the only complete range in the world – is designed and built by broadcast professionals. Which means that we're not just interested in technical specifications, but in practical ones as well.

So now there's no need to cross your fingers and hope for the best. You can have the best.

Superior picture quality – Seeing is believing. Our 4-field, four-line aperture converters, incorporating *Advanced Motion Processing*, provide sharper pictures than you'd ever have thought possible – even from the poorest input signals.

Versatility – Our standards converters also serve as time base correctors, synchronizers, color correctors, enhancers and powerful noise reducers.

Upgradeability – A concept pioneered by Snell & Wilcox and built in to every one of our standards converters. When your needs grow, our converters can grow with you.

Handling – Low power consumption, portability and ergonomic design make our machines the most user-friendly on the market.

There is of course one major performance specification without which all the others are useless:

Reliability – When you're a Snell & Wilcox user you can relax. In the unlikely event that you ever have a problem – call us up and speak directly to the engineers who designed and built your machine. They will resolve it rapidly and efficiently.

What other manufacturer can offer that reassurance?

But naturally we don't expect you to be convinced just by promises on paper:

The only real way is to judge for yourself.

Our range covers every area from corporate/industrial through to high-end film transfer and all the requirements of broadcast including HDTV. Whatever your need, call us to arrange a demonstration.

You'll be converted.



 **SNELL & WILCOX** 

Stress-free standards
conversion

Dealers & Distributors

ARIZONA

Antenna Technology Corp., 1140 E. Greenway St., Mesa, AZ 85203, 602-264-7275, Fax: 602-898-7667; *Satellite antennas, up-/downlink equipment.*

EAR Professional Audio-Video, 2641 E. McDowell, Phoenix, AZ 85008, 602-267-0600, Fax: 602-275-3277; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

Jensen Tools Inc., 7815 South 46th St., Phoenix, AZ 85044, 602-968-6231, Fax: 602-438-1690; *Test & measurement equipment.*

ROH'S, Inc., 2922 N. Campbell Ave., Tucson, AZ 85719, 602-795-8573, Fax: 602-325-0169; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

Spencer Broadcast, Inc., 7003 W. Union Hills Drive, Glendale, AZ 85308, 602-242-2211, Fax: 602-843-2860; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguide, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

CALIFORNIA

Advanced Marketing, P.O. Box 97, Redwood City, CA 94064, 415-365-3944, Fax: 415-365-1630; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.*

Audio Services Corp., 10639 Riverside Drive, North Hollywood, CA 91602, 818-980-9891, Fax: 818-980-9911; *Audio mixers, mics, recorders, processing equipment.*

Audio Video Supply, 4674 Cardin St., Suite D, San Diego, CA 92111, 619-565-1101; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production acces-*

sories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all formats.

Barrett Associates Inc., 3205 Production Ave., Oceanside, CA 92054, 619-433-5600, Fax: 619-433-1590; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguide, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

BCS, 4525 Valerio St., Burbank, CA 91505, 818-845-7000, 212-268-8800, Fax: 818-845-9483; *Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Recording media, all audio & video formats.*

BERC, 4545 Chermak, Burbank, CA 91505, 818-841-3000, Fax: 818-841-7919; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories.*

Birns & Sawyer Inc., 1026 N. Highland Ave., Hollywood, CA 90038, 213-466-8211, Fax: 213-466-7049; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Black Audio Devices, P.O. Box 106, Ventura, CA 93002, 805-653-5557; *Audio mixers, mics, recorders, processing equipment.*

Broadcast Cartridge Service, 15131 Triton Lane, Suite 108, Huntington Beach, CA 92649. *Recording media, all audio & video formats.*

C.A.E., 11552 Knott St., Unit 1, Garden Grove, CA 92641, 714-895-1887, Fax: 714-895-3827; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, microwave equipment.*

Cal-Scope, 473-707 Macara Ave., Sunnyvale, CA 94086, 408-730-4573, 800-828-3547, Fax: 408-730-9537; *Audio*

mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguide, STL/MDS microwave equipment; Test & measurement equipment.

CMTV, Inc., 3407 Winona Ave., Burbank, CA 91504, 818-843-6644, Fax: 818-843-2478; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Daily Electronics Corp., 909 N. Alameda St., Compton, CA 90220, 213-774-1255, 800-346-6667, Fax: 213-603-1348; *Camera tubes, CRTs, rectifiers, all RF power devices.*

ESP-Extraordinarily Superior Products, 7210 Jordan Ave., Suite B-45, Canoga Park, CA 91303, 818-883-2138, 818-704-5601, Fax: 818-347-4366; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.*

Funke & Associates, 908 Marilyn Drive, Campbell, CA 95008, 408-866-0648, 800-748-6308, Fax: 408-866-1975; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment.*

Gordon Enterprises Inc., Alan, 1430 Cahuenga Blvd., Hollywood, CA 90028, 213-466-3561, 800-825-MOVI, Fax: 213-871-2193; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, edit-*

ing, lighting equipment; Recording media, all audio & video formats.

Jensen Transformers Inc., 10735 Burbank Blvd., North Hollywood, CA 91601, 213-876-0059, Fax: 818-763-4574; *Audio mixers, mics, recorders, processing equipment.*

JP Associates, Inc., 3115 Kashiwa St., Torrance, CA 90505, 213-539-8533, Fax: 213-539-8634; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.*

Magnetic Communications Systems, Inc., 1929 Main St., Suite 106A, Irvine, CA 92714, 714-756-1989, Fax: 714-756-2031; *Recording media, all audio & video formats.*

Marcom, P.O. Box 66507, Scotts Valley, CA 95066, 408-438-4273, Fax: 408-438-6617; *RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

Meyer & Ross, Inc., 1485 Rollins Road, Burlingame, CA 94010, 800-888-9906, Fax: 415-348-5296; *Audio mixers, mics, recorders, processing equipment.*

Mobile-Cam Products, 340-F Vernon Way, El Cajon, CA 92020, 619-441-1295, Fax: 619-441-9263; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Production vehicles & accessories.*

Northern Video Systems, 4234 N. Freeway Blvd., Sacramento, CA 95834, 916-646-0033, Fax: 916-646-1221; *Audio*

Is your company's name missing from this directory? If so, either the name is not on our mailing list or someone did not respond to repeated requests for information. If you wish to be included in the 1992 issue, write a letter, before May 1, to:

BE Directory Editor
PO Box 12901
Overland Park, KS 66212

mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

NTSC Productions, 3208 Cahuenga Blvd. W., Suite 333, Hollywood, CA 90068, 818-505-9430, Fax: 818-505-1223; *Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Pacific Coast Marketing, 14125 Capri Drive, Los Gatos, CA 95030, 408-370-3505, Fax: 408-370-7926; *Test & measurement equipment.*

Pacific Radio Electronics, 1351 Cahuenga Blvd., Hollywood, CA 90028, 213-462-1393, Fax: 213-462-3964; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Pacific Recorders & Eng. Corp., 2070 Las Palmas Drive, Carlsbad, CA 92009, 619-438-3911, Fax: 619-438-9277; *Audio mixers, mics, recorders, processing equipment.*

Penstock So. CA, 11050 Strathmore Drive, Suite 416, Los Angeles, CA 90024, 213-383-6100, Fax: 213-208-4471; or

Penstock, Inc., 520 Mercury Drive, Sunnyvale, CA 94086-4018, 408-730-0300, 800-PENSTOCK, Fax: 408-730-4782; *transmitter, antenna, tower, waveguide, STL/MDS microwave equipment.*

Pioneer Technology Corp., 1021 N. Lake St., Burbank, CA 91502, 818-842-7165, Fax: 818-842-0921; *Film cameras, processing and projection equipment.*

Professional Sound Corp., 10639 Riverside Drive, North Hollywood, CA 91602, 818-760-6544, Fax: 818-980-9911; *Audio mixer, mic, recorder, processors; Camera, recorders, monitors, effects, editing, lighting equipment.*

Provideo Inc. (A VIP Co.), 10635 Vanowen St., Burbank, CA 91505, 818-762-9671, Fax: 818-762-7356; *Cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.*

RAG Electronics, Inc., 21418 Parthenia St., Canoga Park, CA 91304, 818-998-6500, Fax: 818-407-5559; *Test, measurement equipment.*

RF Specialties of California, 3463 State St., Suite 229, Santa Barbara, CA 93105, 805-682-9429, Fax: 805-682-5170; *Audio mixers, mics, recorders, processing equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

ROH Products, 1101-A Air Way, Glendale, CA 91201, 818-500-0269, 800-999-5260, Fax: 818-240-1828; *Audio mixers, mics, recorders, processing equipment; Test & measurement equipment.*

Sprague Magnetics, Inc., 15720 Stagg St., Van Nuys, CA 91406, 818-994-6602; *Audio mixers, mics, recorders, processing equipment; Recording media, all audio & video formats.*

SSL Industries Inc., P.O. Box 3410, Camarillo, CA 93011, 805-482-9884; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Strand Lighting, Inc., 18111 S. Santa Fe Ave., Rancho Domingue, CA 90221, 213-637-7500, Fax: 213-632-5519; *Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Televideo San Diego, 4783 Rufner St., San Diego, CA 92111, 619-268-1100, Fax: 619-268-1790; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Time Arts Inc., 1425 Corporate Center Parkway, Santa Rosa, CA 95407, 707-576-7722, Fax: 707-576-7731; *Video graphics software.*

Videomedia, Inc., 211 Weddell Drive, Sunnyvale, CA 94089, 408-745-1700, Fax: 408-745-6721; *Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Videotape Products Inc., 320 N. Madison Ave., Los Angeles, CA 90004, 213-664-1144, Fax: 213-661-2177; *Cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Western Broadcast Systems Inc., 3350 Scott Blvd., Building 5, Santa Clara, CA 95054, 408-727-9898, Fax: 408-727-9927; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Whitehouse Audio Visual, 2696 Lavery Court, Suite 8, Newbury Park, CA 91320, 805-498-4177, Fax: 805-499-7947; *Film cameras, processing and projection equipment.*

COLORADO

Didier Broadcast Associates, 8528 W. Dartmouth Plaza, Lakewood, CO 80227, 303-987-0256; *Audio mixers, mics, recorders, processing equipment; camera, recorder, monitor, effect, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL, MDS microwave equipment; Recording media, all audio & video formats.*

Film/Video Equipment Service Co., 800 S. Jason, Denver, CO 80223, 303-778-8616, Fax: 303-778-8657; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Television Technology Corp., P.O. Box 1385, Broomfield, CO 80020-8385, 303-665-8000, Fax: 303-673-9900; *RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

CONNECTICUT

Infotronics, Inc., P.O. Box 935, Woodbury, CT 06798, 203-263-5350; *Video cameras, recorders, monitors, effects, editing, lighting equipment.*

DISTRICT OF COLUMBIA

Computer Prompting Corp., 3408 Wisconsin Ave. N.W., Suite 201, Washington, DC 20016, 202-966-0980, Fax: 202-966-0981; *Camera, recorder, monitor, prompter, editing, lighting equipment.*

FLORIDA

Bencsik Associates Inc., 3730 N.E. 42nd Ave., Ocala, FL 32670, 904-732-9775; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Broadcasters General Store, Inc., 2480 S.E. 52nd St., Ocala, FL 32671, 904-622-9058, Fax: 904-622-9058; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, transmission line, waveguide, STL/MDS microwave equipment.*

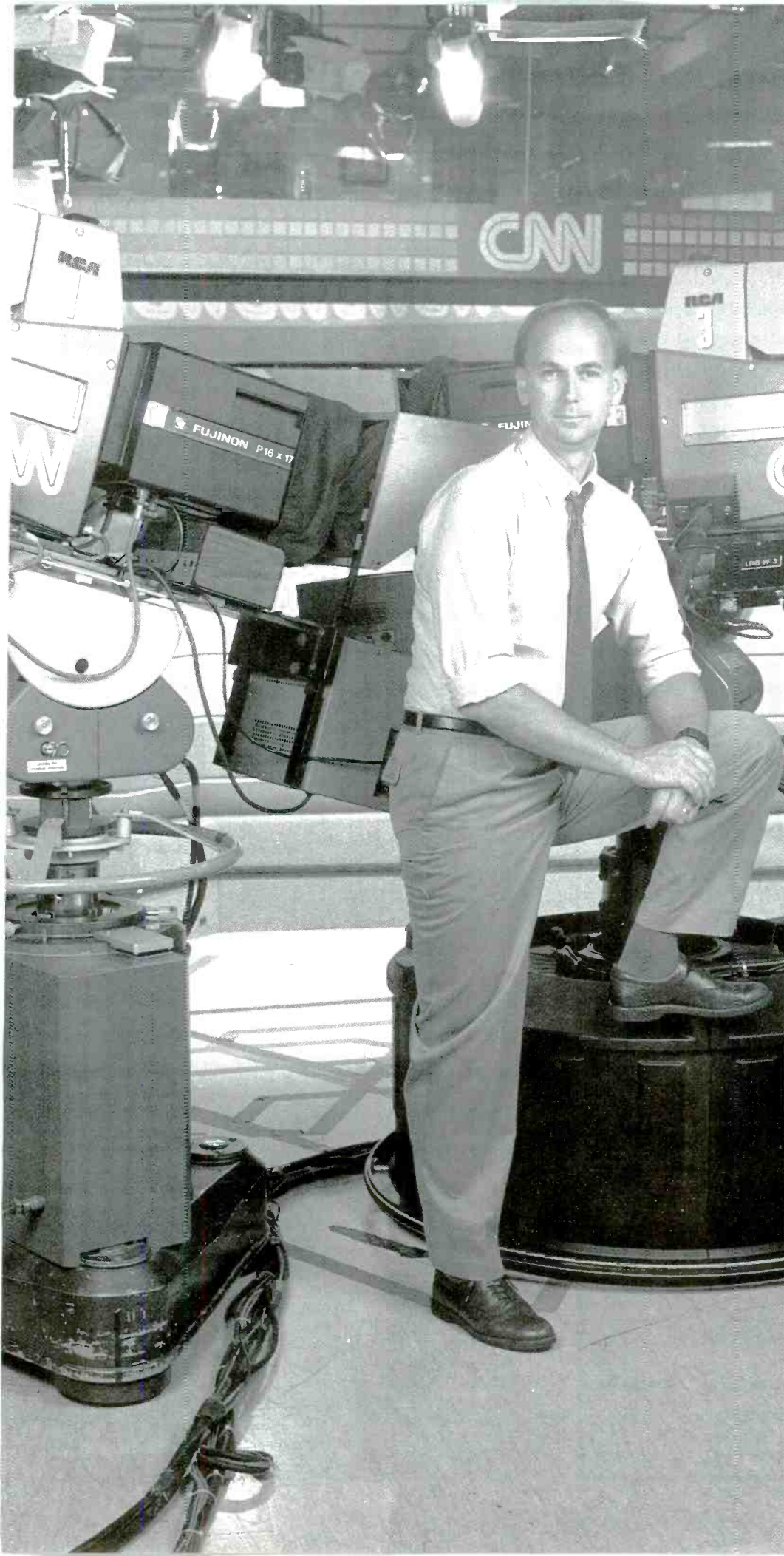
Camera Mart Inc., International Div. 8200 N.W. 27th St., Miami, FL 33122, 305-591-8118, Fax: 305-591-8880; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Control Technology, Inc., 2950 S.W. Second Ave., Fort Lauderdale, FL 33315, 800-327-4121, Fax: 305-764-3298; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, transmission line, waveguide, STL/MDS microwave equipment; Production vehicles & accessories.*

Electrex Co., 18620 N.E. Second Ave., Miami, FL 33179, 305-651-5752, Fax: 305-654-1386; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitter, antenna, tower, waveguide, transmission line, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Family Marketing Group Inc., 3638 S.E. 46th Place, Ocala, FL 32671, 904-629-9410, Fax: 904-622-9058; *Audio mixers, mics, recorders, processing equipment; transmitters, antennas, towers, waveguides, MDS microwave equipment.*

Gendra International Inc., Broadcast & Communications Div., 2800 Biscayne Blvd., Suite 700, Miami, FL 33137, 305-372-8845; *Test & measurement equipment.*



REMOTE? DID SOMEONE SAY REMOTE?

For CNN, the world's number one news network, remote is as close as A-F-A.

And it's all because of the Radamec EPO Robotic Camera Control System from A.F. Associates and the AFA Roboped, which was designed specifically to enhance the mobility and productivity of the EPO cameras.

From its headquarters in Atlanta, where it operates eight EPO robotic cameras—which utilize the AFA Roboped for an average of 18 hours a day—CNN can control the movements of two of the four cameras in its studio in Washington, D.C. and three of five cameras in its studio in New York City. And each of these systems can be controlled locally, too.

Of course, CNN's Andy Parsons knew exactly what he was doing when it was determined that robotic cameras were necessary for CNN to stay on top of the news and its competitors. Parsons and the world's number one cable news network reached out to A.F. Associates for the world's number one robotic camera control system—**the Radamec EPO!**

THE RADAMEC EPO CAMERA CONTROL SYSTEMS

Sold and serviced in the U.S. by



A.F. ASSOCIATES, INC.

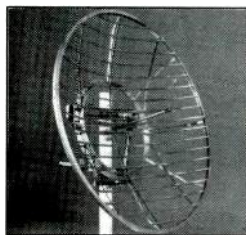
ADVANCED SYSTEMS AND PRODUCTS FOR THE VIDEO INDUSTRY

100 Stonehurst Court,
Northvale, NJ 07647
(201) 767-1200

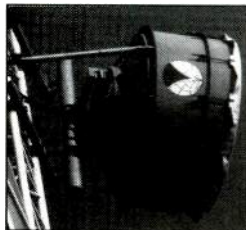
Western Region (619) 227-0291;
Southern Region (404) 242-1661

A Video Services
Corporation Company.

Circle (66) on Reply Card



Grid Antennas



High Performance



Omni & Directional

Setting the Performance Pace

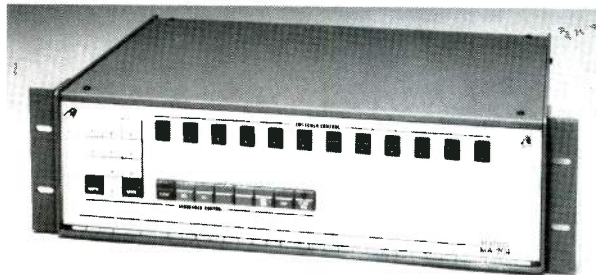
Mark has been dedicated to manufacturing the highest quality antennas for over 40 years. Throughout the development of these antennas, Mark has maintained and developed a very efficient program for guaranteed performance.



Radiation Systems Inc.
Mark Antennas Division
2180 S. Wolf Rd. Des Plaines, IL 60018 USA
Phone: (708)298-9420 Fax: (708)635-7946

Circle (67) on Reply Card

THE AFFORDABLE PLAYBACK SYSTEM MA-204



STANDARD FEATURES:

- Simple, dedicated control panel
- 700 Event capability
- Battery backed real time clock and event memory
- 12 X 1 Stereo AFV switcher

OPTIONS INCLUDE:

- SVHS Switching • SYNC Distribution
- 2 or 3 Channel configuration
- PC Enhancement to allow downloading of events list

MATCO 427 Perryment Avenue
San Jose, California 95125
(408) 998-1655 • FAX (408) 998-8020

Circle (68) on Reply Card

Lauderdale Electronic Labs, Inc., 16 S.W. 13th St., Fort Lauderdale, FL 33315, 305-764-7755, Fax: 305-764-8257; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

Media Concepts, Inc., 559 49th St. S., St. Petersburg, FL 33707, 813-321-2122, 800-330-DUPE, Fax: 813-321-2272; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

Midwest Communications Corp., 8875 N.W. 23rd St., Miami, FL 33172, 305-592-5355, Fax: 305-592-5114; *or*

Midwest Communications Corp., 4803 George Road, Suite 350, Tampa, FL 33634, 813-885-9308, Fax: 813-888-6801; *or*

Midwest Communications Corp., 3305 Bartlett Blvd., Orlando, FL 32811, 407-841-0602, Fax: 407-423-2150; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

MPCS Hollywood, 4100 North 28th Terrace, Hollywood, FL 33020, 305-923-3446, Fax: 305-923-3449; *or*

MPCS Orlando, 5422 Carrier Drive, Suite 100, Orlando, FL 32819, 407-351-0660, Fax: 407-351-0502; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Singer Products, Inc., 1840 West 49th St., Suite 402, Hialeah, FL 33012, 305-558-3000, Fax: 305-558-2801; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement*

equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Stage Equipment & Lighting, Inc., 4602 S.W. 35th St., Orlando, FL 32811, 407-425-2010, Fax: 407-648-2604; *Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Topham Audio, Inc., 4403 Vineland Road, Suite B-3, Orlando, FL 32811, 407-649-6444, Fax: 407-648-1352; *Audio mixers, mics, recorders, processing equipment.*

GEORGIA

Broadcasters General Store, Inc., 58 S. Park Square, Suite E, Marietta, GA 30060, 404-425-0630, Fax: 404-427-0562; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment.*

MPCS Video Industries Atlanta, 2254 Northwest Parkway, Suite C, Marietta, GA 30067, 404-955-5581, Fax: 404-955-6231; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Technical Industries Inc. of Georgia, 6000 Peachtree Road N.E., Atlanta, GA 30341, 404-455-7610, Fax: 404-458-2822; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Vica Associates, Inc., 4296-A Memorial Drive, Decatur, GA 30032, 404-292-7506, Fax: 404-292-7509; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL and MDS microwave equipment.*

Victor Duncan, Inc.-Atlanta, 3752 DeKalb Technology Parkway, Atlanta, GA 30340, 404-457-4550, Fax: 404-457-4758; *Audio mixers, mics, re-*

corders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.

Video Display Corp., 1868 Tucker Industrial Drive, Tucker, GA 30084, 404-938-2080, 800-241-5005, Fax: 404-493-3903; Camera tubes, CRTs.

HAWAII

Omega Pacific, 222 Kaelepula Drive, Kailua, HI 96734, 808-263-4212; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.

ILLINOIS

Audico Chicago, Inc., 7206 W. Grand Ave., Elmwood Park, IL 60635, 708-456-0003, Fax: 708-456-0418; Recording media, all audio & video formats.

Broadcasters General Store, Inc., 746 Cypress Lane, Carol Stream, IL 60188, 708-231-7120, Fax: 708-231-7246; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Center Video Industrial Co. Inc., 5615 W. Howard St., Niles, IL 60648, 708-647-8700, 800-621-4354, Fax: 708-647-8707; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.

Clark Wire & Cable, 1801 Holste Road, Northbrook, IL 60062, 708-272-9889; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF

transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Discount Video Warehouse, P.O. Box 36, Mount Prospect, IL 60056, 708-299-5258, 800-323-8148, Fax: 708-299-4206; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.

Joseph Electronics, 8830 N. Milwaukee Ave., Niles, IL 60648, 708-297-4200, Fax: 708-297-6923; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.

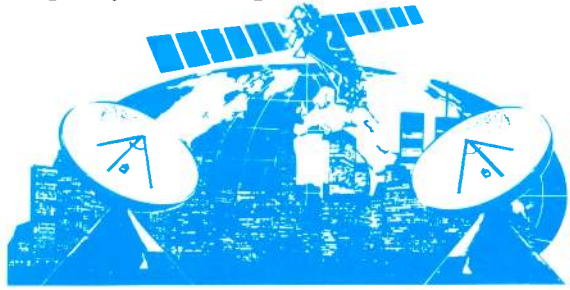
Pennstock Midwest, 1250 W. Northwest Highway, Palatine, IL 60067, 708-934-3700, Fax: 708-934-3748; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

RADMAR, Inc., 1263-B Rand Road, Des Plaines, IL 60016, 708-298-7980, Fax: 708-298-1248; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.

Richardson Electronics Ltd., 40W267 Keslinger Road, LaFox, IL 60147, 708-208-2200, 800-348-5580, Fax: 708-208-2550; Camera tubes, CRTs, rectifiers, all RF power devices.

Roscor Corp., 1061 Feehanville Drive, Mount Prospect, IL 60056, 708-299-8080 Ext, Fax: 708-299-4206; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers,

Variable Bandwidth Over Digital Satellite Links Using Any T1 Multiplexer/Channel Bank



With Intraplex's
DRR-1500 Digital Rate Reducer

- Conserve satellite bandwidth; lower your transmission costs
- Offer fractional T1 over satellite; free bandwidth for new users
- Link any T1 multiplexer or channel bank; compatible with your existing digital network
- Connect only the required DSO channels; adaptable to all of your traffic requirements

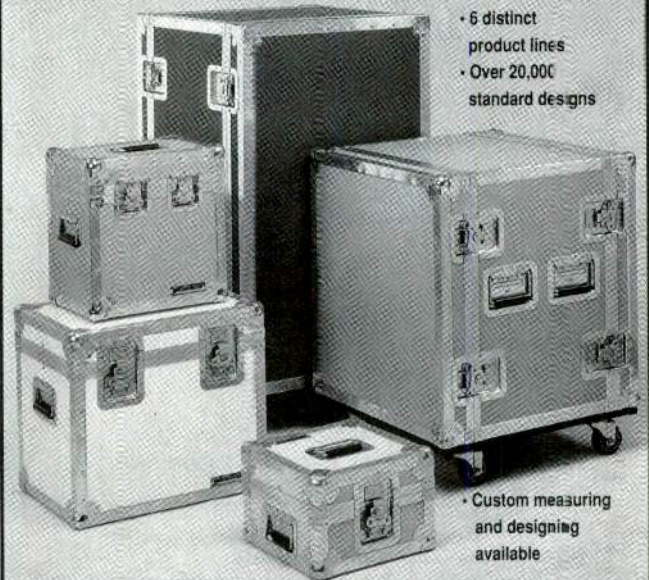


Intraplex, Incorporated, 59 Porter Rd., Littleton, MA 01460-3427
TEL: (508) 486-3722 / FAX: (508) 486-0709

Circle (69) on Reply Card

BUILDING QUALITY CASES SINCE 1952

A.T.A. heavy-duty shipping to lightweight carrying cases



- 6 distinct product lines
- Over 20,000 standard designs

- Custom measuring and designing available

Call Today For More Information

ANVIL CASES
UNIT OF ZERO CORPORATION

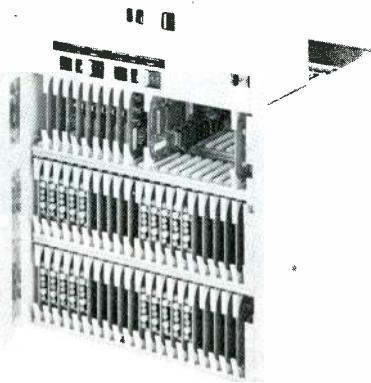
15650 Salt Lake Ave., City of Industry, CA 91745 • P.O. Box 1202, La Puente, CA 91747
(800) FLY-ANVIL (800) 359-2684

Circle (70) on Reply Card

Is your company's name missing from this directory? If so, either the name is not on our mailing list or someone did not respond to repeated requests for information. If you wish to be included in the 1992 issue, write a letter, before May 1, to:

BE Directory Editor
PO Box 12901
Overland Park, KS 66212

Routing Switcher of the 90's



SMALL TO MEDIUM SCALE
ROUTER SPECIALIST

- * STANDARD NTSC/PAL SPEC.
- * COMPONENT AND Y/C
- * HI-RES. COMPUTER GRAPHICS
- * AUDIO/TIME CODE/RS232/RS422

OMICRON VIDEO TEL: (818) 700-0742
FAX: (818) 700-0313

21822 LASSEN ST. UNIT L, CHATSWORTH, CA 91311-3680

Circle (71) on Reply Card

Don't let Power Line Problems knock you off the Air!



Staco offers:

- ❑ **Power Conditioning Systems**
Designed to protect broadcast equipment from Power Line caused damage
- ❑ **Protection** from brownouts, sags, surges, noise, transients, spikes, harmonics, unbalanced 3 phase lines.
- ❑ **3/4% voltage regulation**, computer grade isolation, high energy transient suppression.
- ❑ **98% efficiency**, low impedance, no harmonics.
- ❑ Fast delivery, competitive prices.

Call (513) 253-1191 for a quotation today!

STACO
ENERGY PRODUCTS CO.
301 Gaddis Blvd • Dayton, Ohio 45403
(513) 253-1191 • FAX: (513)253-1723 • TELEX: 288-032

Circle (72) on Reply Card

all RF power devices; Recording media, all audio & video formats.

RTI-Research Tech. International, 4700 Chase Ave., Lincolnwood, IL 60646, 708-677-3000, 800-323-7520, Fax: 708-677-1311; Video cameras, recorders, monitors, effects, editing, lighting equipment; .

Southern Illinois Antennas, Route 3 Box 114, Metropolis, IL 62960, 618-564-2481, Fax: 618-564-2660; RF transmitter, antenna, tower, waveguide, STL/MDS microwave equipment.

Swiderski Electronics, Inc., 1200 Greenleaf Ave., Elk Grove Village, IL 60007, 708-364-1900, Fax: 708-364-5019; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Victor Duncan, Inc., 661 N. La-Salle St., Chicago, IL 60610-3770, 312-943-7300, Fax: 312-943-9043; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.

Video Images-Chicago, 1121 Tower Lane, Bensenville, IL 60106, 708-766-1100, Fax: 708-766-1106; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

INDIANA

Allied Broadcast Equipment, P.O. Box 1487, Richmond, IN 47375, 317-962-8596, Fax: 317-962-8961; Audio mixers, mics, recorders, processing equipment; Recording media, all audio & video formats.

Central Tower Inc., 2855 Highway 261, Newburgh, IN 47630, 812-853-0595, Fax: 812-853-

6652; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Gray Supply Co., 4415 Indianapolis Blvd., East Chicago, IN 46312-2696, 219-398-2362, 800-238-2244, Fax: 219-398-0038; Video cameras, recorders, monitors, effects, editing, lighting equipment.

Harris Allied Broadcast Equipment, 3712 National Road W., Richmond, IN 47374, 317-962-8596, Fax: 317-962-8961; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

Harris Allied International, P.O. Box 1487, Richmond, IN 47375, 317-935-1704, Fax: 317-966-0402; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

Harris Allied Satellite Equipment, 3712 National Road W., Richmond, IN 47375, 317-962-8596, Fax: 317-962-8961; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Penstock Indiana, 4030 S. Southport Road, Suite 27, Indianapolis, IN 46237, 317-784-3870, Fax: 317-784-4250; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

IOWA

Audiovisual Inc., 415 S.W. Eighth St., Des Moines, IA 50309, 515-282-4800, Fax: 515-283-2607; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, audio & video formats.

Electronic Communication Systems, 2906 Brady St., Davenport, IA 52803, 319-322-

1525, Fax: 319-322-5920; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories; Recording media, all audio & video formats.

Sitler's Supplies, Inc., 702 E. Washington, Washington, IA 52353, 800-426-3938, Fax: 319-653-2124; Video cameras, recorders, monitors, effects, editing, lighting equipment.

KANSAS

Computer Concepts Corp., 8375 Melrose Drive, Lenexa, KS 66214, 913-541-0900, 800-255-6350, Fax: 913-541-0169; Audio mixers, mics, recorders, processing equipment.

Penstock Midwest, 302 S. Clairborne, Suite 1 Office 4, Olathe, KS 66062, 913-829-9330, Fax: 913-829-9331; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Professional Studio Distributors, 1059 Porter, Wichita, KS 67203, 316-267-1573; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.

RSC Electronics, Inc., 131 Laura, Wichita, KS 67201, 316-267-5213, Fax: 316-267-8917; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Smith Audio-Visual, Inc., 1410 S. Kansas Ave., Topeka, KS 66612, 913-235-3481; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.

KENTUCKY

Dawson & Associates, Bruce L., 1752 Frankfort Ave., Louisville, KY 40206, 502-896-2266, 800-633-0195, Fax: 502-895-8736; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

ing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Midwest Communications Corp., Four Tesseneer Drive, Highland Heights, KY 41076, 606-781-2200; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

MARYLAND

Bradley Broadcast Sales Inc., 8101 Cessna Avenue., Gaithersburg, MD 20879, 301-948-0650, Fax: 800-732-7665; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguide, STL/MDS microwave equipment; Recording media, audio & video formats.

Brothers Co. Inc., David H., 2893 Baltimore Blvd., Finksburg, MD 21048, 301-833-0920, 301-861-8364; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.

Harrison Systems Ltd., RF Systems Engineering, 6802 Industrial Drive, Suite 204, Beltsville, MD 21114, Fax: 301-937-2968; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Penta Labs, 10820 Guilford Road, Suite 211, Annapolis Junction, MD 20701-9973, 800-852-1033, 800-783-2555; Camera tubes, CRTs, rectifiers, all RF power devices.

Print Products International, 8931 Brookville Road, Silver Spring, MD 20910, 800-638-2020, Fax: 800-545-0058; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.

Radio Resources, 7483 Candlewood Road, Hanover, MD 21076, 301-859-1500, 800-547-2346, Fax: 301-859-3042; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

SWITCH TO SIERRA FOR YOUR ROUTING SWITCHER NEEDS.

Sierra Video Systems offers a unique line of affordable Routing Switchers designed for years of uninterrupted service.

If your requirement includes Component, Composite, SVHS, HDTV, Audio and Sync, we have a Switcher for you.

- Wide Bandwidth for High Resolution
- Serial Control Available
- Audio Follow or Breakaway
- Redundant Power Supply Available
- Compact Modular Design
- 7 Year Warranty

Call for a quotation: 916-273-9331



SIERRA
VIDEO
SYSTEMS

P.O. Box 2462
Grass Valley, CA 95945
Fax: 916-273-9390

Circle (73) on Reply Card

STOP GROUND-LOOP HUM!

VIDEO HUM STOP COIL...HSC 2

Will ELIMINATE HUM and other INTERFERENCE in Video Lines caused by differences in Ground Potential.

- Rack Mountable.
- FLAT-DC to 6.5 MHz.
- No low-Freq or Hi-Freq. Roll-off.
- No Differential Phase Distortion.
- No Differential Gain Distortion.
- No Envelope Delay.
- Passive Device - Failure Free-Low Price.
- Small Compact Package 4" x 4" x 2-1/4"

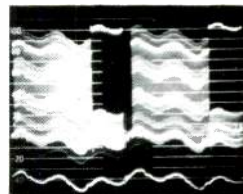
ELIMINATES HUM AND INTERFERENCE:

IN STUDIO

- Between Buildings
- On long runs in Buildings
- Between Studio and Transmitter
- On Incoming Circuits
- On Outgoing Circuits

IN FIELD

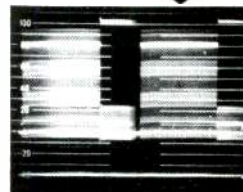
- Betw. Remote Truck and Telco
- Betw. Remote Truck and Microwave
- For Intertruck Hookup
- For VTR Units
- For Monitoring Lines



NEW!



\$210
F. O. B.
N.Y.



Available on
10 day free trial

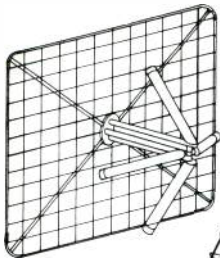
AUDIO-VIDEO ENGINEERING COMPANY
65 Nancy Blvd., Merrick, N.Y. 11566
Tel. (516) 546-4239

Circle (74) on Reply Card

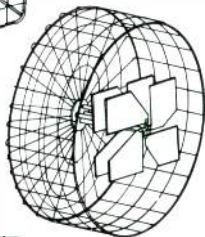


Puts your signal in it's place!

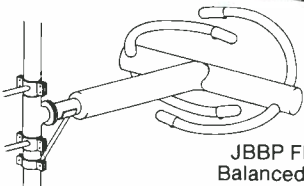
If you need a quality antenna, you need:
JAMPRO ANTENNAS, INC.
The really experienced one for over 30 years.



JAHDCP
Arrowhead
Screen Dipole



JSDP CP Spiral
Broadband Antenna



JBBP FM Antenna
Balanced Excitation

JAMPRO is the world leader in custom-designed, directional, CP antennas.

- With over 1600 of our penetrators delivered, more stations have penetrated their market.
 - Our custom-made directional antennas are operating world wide.
 - Full-scale antenna measurements on **JAMPRO's** all-year, all-weather test range.
 - We custom-make tower structures to duplicate your's, for optimum results.
 - Ask about **JAMPRO's** low-power educational packages.
- Give us your requirements and see how fast we produce.

JAMPRO Antennas, Inc.

6939 Power Inn Road
Sacramento, CA 95828
(916) 383-1177 • Telex: 377321
FAX (916) 383-1182

Circle (75) on Reply Card

nas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Theatre Service & Supply Corp., 1792 Union Ave., Baltimore, MD 21211, 301-467-1225, Fax: 301-467-1289; Video cameras, recorders, monitors, effects, editing, lighting equipment; .

Wiltronix, Inc., 16850 Oakmont Ave., Washington Grove, MD 20880, 301-258-7676, Fax: 301-963-8624; Video cameras, recorders, monitors, effects, editing, lighting equipment.

MASSACHUSETTS

BAF Communications Corp., 16 Bourbon St., Peabody, MA 01960, 508-535-1969, 800-633-8223, Fax: 508-535-5303; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitter, antenna, tower, waveguide, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories.

Barbizon Light, 3 Draper St., Woburn, MA 01801, 617-935-3920, Fax: 617-935-9273; Video cameras, recorders, monitors, effects, editing, lighting equipment.

Contact East Inc., 335 Willow St. S., North Andover, MA 01845, 508-682-2000, 800-225-5370, Fax: 508-688-7829; Test & measurement equipment.

HMC-Hub Material Co., 33 Springdale Ave., Canton, MA 02021, 617-821-1870, 800-482-4440, Fax: 617-821-4133; Test & measurement equipment.

Landy Associates, Inc., 330 Bear Hill Road, Waltham, MA 02154, 617-890-6325, Fax: 617-890-9122; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

MICHIGAN

Audio Broadcast Group, Inc., 2342 S. Division Ave., Grand Rapids, MI 49507, 616-452-1596, Fax: 616-452-1596; Audio mixer, mic, recorder, processing equipment; transmitters, antennas, towers, waveguide, microwave equipment.

CM Sales, Inc., 31700 W. 12 Mile Road, Suite 206, Farmington Hills, MI 48018, 313-553-8070, Fax: 313-553-8043; Audio mixers, mics, recorders, processing equipment.

Communications Systems Group, General TV Network, 13355 Capital Ave., Oak Park, MI 48237, 313-399-2000, Fax: 313-548-0028; Audio mixer, mic, recorder, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories; Recording media, all audio & video formats.

Cruse Communications Co., 4903 Dawn Ave., East Lansing, MI 48823, 517-332-3579, Fax: 517-332-7757; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.

Dyer Electronics Inc., H.M., 2982 Wixom Road, Milford, MI 48042, 313-685-2560; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment.

Midwest Communications Corp., 21683 Melrose Ave., Southfield, MI 48075, 313-350-3038, 313-350-0324; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Thalner Electronic Labs, Inc., 7235 Jackson Road, Ann Arbor, MI 48103, 313-761-4506, Fax: 313-761-9776; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Victor Duncan, Inc., 23801 Industrial Park Drive, Suite 100, Farmington Hills, MI 48024, 313-471-1600, Fax: 313-471-1940; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.

MINNESOTA

Emmons Associates, Inc., 1121 Riverwood Drive, Burnsville, MN 55337, 612-890-8920, Fax: 612-890-7009; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.

Pitts Co., T.R., 458 W. Sanborn St., Winona, MN 55987, 507-452-2629; Video camera, recorder, monitor, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment.

Vaughn Communications, Video Midwest/AVC Systems, 7901 Computer Ave. S., Minneapolis, MN 55435, 612-832-3232, Fax: 612-832-3233; Mixer, mic, recorder, processing equipment; Video camera, recorder, monitors, effects, editing, lighting equipment; transmitters, antenna, tower, waveguide, microwave equipment; Test, measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

MISSISSIPPI

Broadcast Equipment Sales & Engineering, P.O. Box 20331, Jackson, MS 39289-1331, 601-857-8573, Fax: 601-857-2346; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Recording media, all audio & video formats.*

MISSOURI

Centurian Marketing Associates, P.O. Box 1011, Ballwin, MO 63022-1011, 314-458-3588, Fax: 314-458-3585; *Audio mixers, mics, recorders, processing equipment.*

Lines Video Systems, 219 S. Jefferson, Springfield, MO 65806, 417-862-5533, 800-641-4674, Fax: 417-862-1829; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test, measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Television Engineering Corp., 580 Goddard Ave., Chesterfield, MO 63005, 314-532-4700, Fax: 314-536-2045; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.*

Vision Quest, 1925 E. Bennett, Suite J, Springfield, MO 65804, 417-886-0655, 800-284-4140, Fax: 417-886-6535; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.*

Wide Range Electronics Corp., 174 Chesterfield Industrial Blvd., Chesterfield, MO 63005, 314-532-5887, Fax: 314-532-5492; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

NEVADA

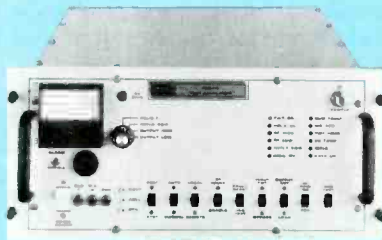
Cinema Services, 4445 S. Valley View Blvd., Suite 7, Las Vegas, NV 89103, 702-876-4667, Fax: 702-876-4542; *Video cameras,*



GLOBAL SUPPORT FOR GLOBAL COMMUNICATIONS

C-Band, Ku-Band and D.B.S. High Power TWT Amplifier Systems

For Video, Voice and Digital Communications
50-3000 Watt



Designed exclusively for satellite earth station use, MCL's High Power TWT Amplifier Systems meet the demand and discriminating stringent requirements for maximum signal purity and uncompromising reliability. All MCL amplifiers share commonality in operation, design and mechanical layouts to facilitate interchangeability and to minimize maintenance and repair. MCL equipment is depended upon worldwide to operate at optimum efficiency . . . even in the most remote, unattended locations and under the most adverse conditions.

MCL offers a host of C-Band, Ku-Band, and D.B.S. High Power TWT Amplifier Systems featuring:

- Double Drawer Amplifiers (300 to 750 C, Ku and D.B.S. Band)
- Single Drawer Amplifiers (50-300W Ku; 75-700W C-Band)
- Single Cabinet Amplifiers (2.5K-Ku; 3KW-C-Band)
- Special Tube/Helix Protection Measures
- Amplifier Performance Readout/Control
- High Voltage Component Protection
- Build-in "Remote" Capability

Turn to MCL for high quality, competitively priced satellite communications equipment of truly *unequaled* performance . . . guaranteed.

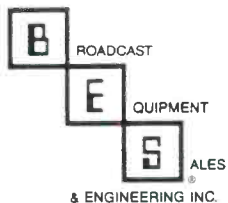
Technical specifications and details on the complete line of MCL C-Band, Ku-Band, and D.B.S. High Power TWT Amplifier Systems may be obtained by writing or calling MCL today. Simply request your complimentary copy of MCL's New, comprehensive Brochure #6008.



MCL

MCL, INC.
501 S. Woodcreek Road
Bolingbrook, IL 60439
708-759-9500 TWX 910-683-1899
FAX 708-759-5018

Manufacturers of TWT and Klystron Amplifiers for Satellite Communications.
24-Hour Sales and Technical Support for Immediate Service Worldwide.



(601) 857-8573

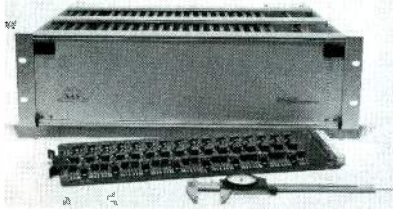
P.O. Box 20331 • Jackson, MS 39289

- New & Used Equipment
- Equipment Refurbished
- Installation Available

SAS

Sierra Automated Systems

The SAS 32000 Series Routing & Mixing System sets new standards in audio routing and automation!



Our full unlimited summing capability permits Mix-Minus, Teleconferencing, Automated On-Air Mixing, Monitoring Systems, and flexibility for any application. We listen to your needs, custom and turnkey systems are our specialty!

Features: Advanced Multi-Processor Architecture, Dual Redundant self-contained Power Supplies, High Density Central Matrix, +28dBu Max. Input/Output Level, PC/Terminal Interface, > 114dB Dynamic range, Easy Field Expandability, and more!

Our Clients Include: ABC Radio Network, Ameritech Corp., NPR, Walt Disney Studios, Westinghouse Broadcasting, WTVN, & others.

Manufactured by: **Sierra Automated Systems**
2112 N. Glenoaks Blvd., Burbank, CA 91504
TEL: 818-840-6749 FAX: 818-840-6751

Distributed by: **RAM Broadcast Systems Inc.**
346 W. Colfax St., Palatine, IL 60067
TEL: 708-358-3330 FAX: 708-358-3577

Circle (77) on Reply Card

High Quality Attenuators!

Kay Elemetrics Corp. can supply you with the right Attenuator to fit your applications.

- ✓ Programmable
- ✓ In-Line Step
- ✓ Continuously Variable
- ✓ 50Ω and 75Ω
- ✓ Bench and OEM
- ✓ Surface Mount Components
- ✓ Custom Models
- ✓ DC-3GHz Range

For more information or to place an order call **Vernon Hixson** at (201) 227-2000.

KAY

Kay Elemetrics Corp.
12 Maple Ave. • Pine Brook, NJ 07058
Tel: 201/227-2000
TWX: 710-734-4347
FAX: 201/227-7760

Circle (78) on Reply Card

recorders, monitors, effects, editing, lighting equipment.

NEW HAMPSHIRE

Associated Systems, P.O. Box 5211, Manchester, NH 03108, 603-472-2297, Fax: 603-472-3464; *Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording tape, audio/video formats.*

Northeast Broadcast Lab, Inc., P.O. Box 406, Auburn, NH 03032, 603-483-1002, Fax: 603-483-2352; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment.*

NEW JERSEY

A.F. Associates, 100 Stonehurst Court, Northvale, NJ 07647, 201-676-1000, Fax: 201-784-8637; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.*

Broadcast Video Marketing Corp., 275 Route 18, East Brunswick, NJ 08816, 201-390-0770, Fax: 201-390-8929; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment.*

Comprehensive Video Supply Corp., 148 Veterans Drive, Northvale, NJ 07647, 201-767-7990, 800-526-0242, Fax: 201-767-7377; *Audio mixer, mic, recorders, processing equipment; camera, recorder, monitor, effects, editing, lighting equipment.*

Holzberg Inc., P.O. Box 323, Sea Bright, NJ 07760, 800-242-7298, Fax: 201-842-7552; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

JRF Magnetic Sciences Inc., 249 Kennedy Road, Greendell, NJ 07839, 201-579-5773, Fax: 201-579-6021; *Audio mixers, mics, recorders, processing equipment; Recording media, all audio & video formats.*

Landy Associates, Inc., 412-A Commerce Lane, Berlin, NJ 08009, 609-767-0400, Fax: 609-767-4407; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Penstock East, 124-B Little Falls Road, Fairfield, NJ 07006, 201-808-1414, Fax: 201-808-9542; *transmitters, antennas, towers, waveguide, microwave equipment.*

Tele-Measurements, Inc., 145 Main Ave., Clifton, NJ 07014, 201-473-8822, Fax: 201-473-0521; *Audio mixer, mic, recorder, processing equipment; camera, recorder, monitor, effects, editing, lighting equipment; transmitter, antenna, tower, waveguide, microwave equipment; Test, equipment; Production vehicles, accessories; Camera tubes, CRTs, rectifiers; Recording tape, audio, video formats.*

Telemetrics Inc., 7 Valley St., Hawthorne, NJ 07506, 201-423-0347, Fax: 201-423-5635; *Audio mixer, mic, recorder, processing equipment; Video camera, recorder, monitor, effects, editing, lighting equipment; Recording media, audio, video.*

Thor Electronics Corp., 321 Pennsylvania Ave., Linden, NJ 07036, 800-666-8467, Fax: 201-486-0923; *Camera tubes, CRTs, rectifiers, all RF power devices.*

NEW MEXICO

DYMA Engineering, Inc., P.O. Box 1535, Los Lunas, NM 87031, 505-865-6700, Fax: 505-865-6776; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguide, microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

NEW YORK

Audio-Video Corp., 213 Broadway, Menands, NY 12204, 518-449-7213, Fax: 518-449-1205; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Avtech Electronics Inc., 22-60 46th St., Astoria, NY 11105, 718-956-1200, Fax: 718-956-1214; *Camera tubes, CRTs, rectifiers, all RF power devices.*

Beaveronics, Inc., 8 Haven Ave., Port Washington, NY 11050, 516-883-4414; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, microwave equipment.*

Bi-Tronics, Inc., 76 Main St., Tuckahoe, NY 10707, 914-961-2004, 800-666-0996, Fax: 914-961-4244; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

BJM Electronics Ltd., 2008 Victory Blvd., Staten Island, NY 10314, 718-442-0223, Fax: 718-442-1541; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.*

Burlington Audio/Video Tapes, Inc., 106 Mott St., Oceanside, NY 11572, 516-678-4414, 800-331-3191, Fax: 516-678-8959; *Recording media, all audio & video formats.*

Camera Mart Inc., The, 456 West 55th St., New York, NY 10019, 212-757-6977, Fax: 212-582-2498; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.*

CCTV Corp., 315 Hudson St., New York, NY 10013, 212-989-4433, 800-221-2240, Fax: 212-463-9758; *Video camera, recorder, monitor, effects, editing, lighting equipment.*

CoarcVideo, Box 2 Route 217, Mellenville, NY 12544, 518-672-7202, 800-888-4451, Fax: 518-672-4048; *Recording media, all audio & video formats.*

Communications Marketing, & Consulting Ltd., 601 Chestnut Ridge Road, Chestnut Ridge, NY 10977, 914-356-5300, Fax: 914-352-8181; *Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguide, microwave equipment; .*

HAVE Inc., 309 Power Ave., Hudson, NY 12534, 518-828-2000, Fax: 518-828-2008; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

LCA Sales Co., 76 Main St., Tuckahoe, NY 10707, 914-961-4700, Fax: 914-961-4244; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Camera tubes, CRTs, rectifiers, all RF power devices.*

Markertek Video Supply, 145 Ulster Ave., Saugerties, NY 12477, 914-246-3036, Fax: 914-246-1757; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Recording media, all audio & video formats.*

Martin Audio/Video Corp., 423 West 55th St., New York, NY 10019, 212-541-5900, Fax: 212-541-9128; *Audio mixers, mics, recorders, processing equipment.*

Miller Associates Ltd., L. Matthew, 48 West 21st St., New York, NY 10010, 212-741-8011, Fax: 212-741-8026; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

MPCS Video Industries, Inc., 514 West 57th St., New York, NY 10019, 212-586-3690, Fax: 212-586-5286; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Recording media, all audio & video formats.*

Northeast Broadcast Lab, Inc., 10373 Saratoga Road, South Glens Falls, NY 12803, 518-793-2181, Fax: 518-793-7423; *Audio mixers, mics, recorders, processing*

Talk To The People Who Use It



Smooth productions depend on your intercom not letting you down. From master control to on-site remotes, Clear-Com has a reliable intercom system to meet your exact needs. With belt packs that work in the rain and interfaces that connect to just about anything, Clear-Com has a proven commitment to reliability and innovative design. But don't just take our word for it, call us for a comprehensive list of satisfied customers and talk directly to the people who use it.

 **Clear-Com**
S Y S T E M S
"Hear The Difference"

USA/Canada:

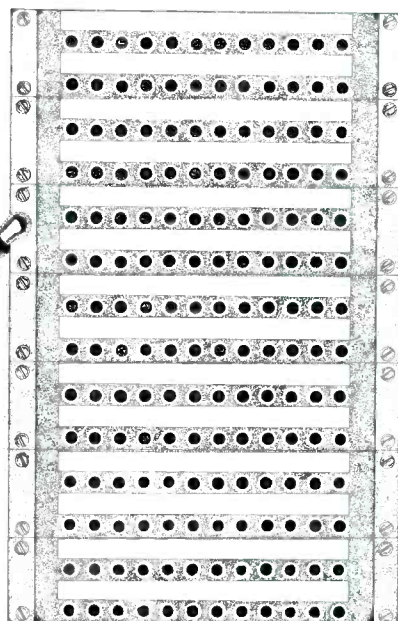
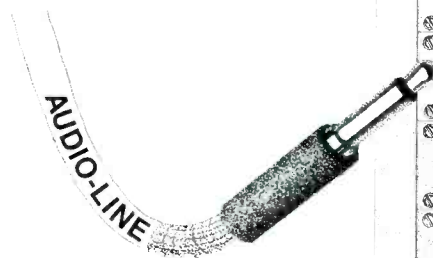
945 Camelia St., Berkeley, CA 94710, TEL 415-527-6666 FAX 415-527-6699

International:

FAX 415-932-2171

Circle (79) on Reply Card

WHEN YOU'RE CONSIDERING PATCH PANELS THINK AUDIO-LINE



Long-Frame & MINI:

- Jack Panels with Jacks
- Pre-Wired Audio Patch Panels
- Audio Patch Cords
- Custom Wired Audio Patch Panels
- Video Panels & Accessories

Call or write for information on these and other Audio-Line products.

audio accessories
audio line

AUDIO ACCESSORIES, INC., MILL STREET, MARLOW, NH 03456 (603) 446-3335

Circle (80) on Reply Card

**You
can measure...**
with the best monitor and the most accurate test set.

The FMM-2/FMS-2 series monitors provide an even greater degree of precision measurement than ever before... **You can measure** S/N below 90 dB, **You can measure** crosstalk below 85 dB, **You can measure** separations of better than 70 dB, **You can measure** frequency response to better than 0.25 dB, **You can measure** distortions to lower than 0.01%, and much more... Our uncluttered panels and autoranging voltmeters make these measurements a dream.

BELAR CALL ARNO MEYER (215) 687-5550
ELECTRONICS LABORATORY, INC.
LANCASTER AVENUE AT DORSET, DEVON, PENNSYLVANIA 19333
Call or write for more information on Belar AM, FM, Stereo, SCA and TV monitors.

Circle (81) on Reply Card

equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test, measurement equipment.

Penstock Long Island, 31 Dawson St., South Huntington, NY 11746, 516-271-8415, Fax: 516-271-8424; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Penta Labs, 956 S. Broadway, Hicksville, NY 11801, 800-852-1033, 800-783-2555; Camera tubes, CRTs, rectifiers, all RF power devices.

Reeves A/V Systems, Inc., 227 East 45th St., New York, NY 10017, 212-573-8652, Fax: 212-986-3591; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Sharb Electronics, HPG Industries Inc., 192-08 90th Ave., Hollis, NY 11423, 718-479-3011, Fax: 718-479-3072; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.

NORTH CAROLINA

Broadcast Services/EME, Route 3 Box 45-E, Four Oaks, NC 27524, 800-525-1037, Fax: 919-934-1537; or

EME, 4110 N. Main St., High Point, NC 27265, 919-869-3335, Fax: 919-889-3771; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

LBA Technology, Inc., P.O. Box 8026, Greenville, NC 27835-8026, 919-757-0279, 800-248-6277, Fax: 919-752-9155; RF transmitter, antenna, tower, waveguide, STL/MDS microwave equipment.

Midwest Communications Corp., 2848 Interstate 85 S., Suite E, Charlotte, NC 28208, 704-399-6336, Fax: 704-399-7478; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguide, STL/MDS microwave equipment; Test, measurement equipment; Production vehicles, accessories; Camera tubes, CRTs, rectifiers, RF power devices; Recording media, audio & video formats.

Technical Video Systems, Inc., 215 N. Broad St., Winston-Salem, NC 27101, 919-748-0916, Fax: 919-722-9764; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.

OHIO

Cartwright Communications Co., 7812 Red Sky Drive, Cincinnati, OH 45249, 800-543-8614, Fax: 513-489-1449; *RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

Hand Tool Industries, 1933 Lake St., Kent, OH 44240, 216-678-8787, Fax: 216-678-9011; *Test & measurement equipment.*

Midwest Communications Corp., 7655 Hub Parkway, Cleveland, OH 44125, 216-447-9745, Fax: 216-447-5030; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Recording media, all audio & video formats.*

Vincent Lighting Systems Co., 20810 Miles Parkway, Cleveland, OH 44128, 216-475-7600, Fax: 216-475-6376; *Video cameras, recorder, monitor, effects, editing, lighting equipment.*

OREGON

Frontier Communications Corp., P.O. Box 939, Portland, OR 97207-0939, 503-246-8080; *transmitter, antenna, tower, waveguide, STL/MDS microwave equipment.*

URS Electronics

United Radio Supply Inc., 123 N.E. Seventh Ave., Portland, OR 97232, 800-955-4877, Fax: 503-232-3373; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices.*

PENNSYLVANIA

AVEC, 200 Keystone Drive, Carnegie, PA 15106, 412-429-2000; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories; Recording media, all audio & video formats.*

EMCEE Broadcast Products, P.O. Box 68, White Haven, PA 18661, 717-443-9575, 800-233-6193, Fax: 717-443-9257; *RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

LPB Inc., 28 Bacton Hill Road, Frazer, PA 19355, 215-644-1123, Fax: 215-644-8651; *Audio mixer, mic, recorder, processing equipment; transmitters, antennas, towers, waveguide, microwave equipment.*

Northeast Broadcast Lab, Inc., P.O. Box 565, Southampton, PA 18966, 215-322-2227, Fax: 215-953-0523; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.*

Penstock Pennsylvania, 2919 Mapleshade Road, Ardmore, PA 19003, 215-649-0413,

AMPLIFIERS AND CONTROL PREAMPLIFIERS DEDICATED TO THE BROADCAST AND VIDEO PRODUCTION INDUSTRIES



Bryston BP-5 preamplifier

Bryston approaches the broadcast and video production industry requirements for high quality, musically accurate, and reliable power amplifiers and control preamplifiers with the same integrity and commitment to excellence that has earned Bryston its leading position in the Canadian power amplifier industry for the past 15 years.

Whether your requirements are for 50 watts, 800 watts, or anything in between Bryston amplifiers can satisfy your every power need. Standard features include such things as dual power supplies, completely independent stereo channels, balanced XLR connectors, clipping indicators, gain controls, rack mounting, and bridgeable switching.



Bryston 2B-LP power amplifier. Other models include Bryston 3B, 4B and 6B with output range from 50 to 800 watts.

Features include such things as balanced XLR connector, cartridge load adjustment, high overload threshold, 1 space rack mount and fully discrete gain blocks. For further information contact:



Bryston Marketing Ltd.
Tel: (416) 746-0300 Fax: (416) 746-0308
Brystonvermont Ltd. Tel: 1-800-673-7899

FULL TWENTY
YEAR WARRANTY

Circle (82) on Reply Card

Time Code Is Not Black or White.

It's Gray.

Gray Engineering Laboratories

Gray can solve even your most difficult time code engineering problems quickly and easily. Not only do we have the right product for every application, but engineers know they can rely on the quality and precision of our instruments.

Turn to the source for Time Code Receivers, Generators and Transmitters, Vertical Interval Decoders and Encoders, Code Phase Correctors and Indicators, Video Reticle Generators, Film Counter/User Bit Multiplexers, and other products.



All Gray Engineering equipment is covered by a Five-Year Warranty, including parts and labor.

GRAY ENGINEERING LABORATORIES
504-P W. Chapman Avenue
Orange, CA 92668 714-997-4151

© 1988 Gray Engineering Laboratories

Circle (83) on Reply Card

PERFORMANCE!



Initially designed to satisfy a major TV network, the IFA-1 recorder interface has a dynamic range of over 130 dB, a very RF immune bandwidth of 320 kHz (without overshoot or ringing), and a 20 kHz THD of 0.0009%. The output section has variable gain from off to +26 dB, a clip point of +29 dBu and an output impedance of 60 Ω . NPR's Raymond Jason found the IFA-1 had the highest performance of product from eight different manufacturers. The IFA-1 will satisfy you as well.

But the IFA-1 is only one of an expanding line of interfaces that includes the new IFA-9, a 1 in 6 out DA, and the IFA-10, a 4 in, 4 out assignable mixer.

Now with the new PS-1, a single ± 18 volt @ 100 mA wall mount supply, priced at only \$30, you can own the IFA-1 recorder interface and PS-1 supply for only \$275.00. For more information, call (315) 437-6300, or call our toll free order line at (800) 262-4675 (1-800-BNCHMRK).

BENCHMARK MEDIA SYSTEMS, INC.
5925 Court Street Road Syracuse, NY 13206-1707

Circle (84) on Reply Card

Fax: 215-649-8226; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

RF Specialties of Pennsylvania, 121 Conneaut Drive, Pittsburgh, PA 15239, 412-733-1994, Fax: 412-327-9336; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

Solid Electronics Labs, 220 Brookthorpe Circle, Broomall, PA 19008, 215-353-9449, Fax: 215-356-8449; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

Steinberg Electronics Inc., 2520-22 N. Broad St., Philadelphia, PA 19132, 800-523-0894, Fax: 215-223-9423; Audio mixers, mics, recorders, processing equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Tape World, 220 Spring St., Butler, PA 16001, 412-283-8621, 800-245-6000, Fax: 412-283-8298; Recording media, all audio & video formats.

Techni-Tool Inc., 5 Apollo Road, Plymouth Meeting, PA 19462, 215-825-4990, Fax: 215-828-5623; Test, measuring units.

Val-Tronics, Inc., 89 E. Vaughn St., Kingston, PA 18704, 717-655-5937; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.



AUDIO SERVICES CORPORATION



Rycote

Neither
WIND nor RAIN
nor dark of night
will keep us from
our appointed
SOUNDS!

Headquarters
10639 Riverside Drive
North Hollywood, CA 91602
(818) 980-9891 (800) 228-4429
FAX (818) 980-9911

Topham Audio, Inc.
4403 Vineland Road Ste B-3
Orlando, FL 32811
(407) 649-6444 (800) 486-6444
FAX (407) 648-1352

SALES SERVICE RENTAL ENGINEERING

Circle (85) on Reply Card

TENNESSEE

Kintronic Labs, Inc., P.O. Box 845, Bristol, TN 37621-0845, 615-878-3141, Fax: 615-878-4224; transmitter, antenna, waveguide, STL/MDS microwave equipment.

TEXAS

Broadcast Automation, Inc., 4125 Keller Springs, Suite 122, Dallas, TX 75244, 214-380-6800, 800-336-8004, Fax: 214-380-0823; Audio mixers, mics, recorders, processing equipment.

Broadcasters General Store, Inc., 1300 Ravenwood Drive, Arlington, TX 76013, 817-275-1380, Fax: 817-795-3441; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, microwave equipment.

Continental Electronics, P.O. Box 270879, Dallas, TX 75227, 214-381-7161, Fax: 214-381-4949; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Crouse-Kimzey Co., 3507 W. Vickery, Fort Worth, TX 76107, 817-737-9911; Audio mixer, mic, recorder, processor equipment.

GP Enterprises, Inc., P.O. Box 912, Arlington, TX 76004-0912, 817-572-0132, Fax: 817-478-9264; *Audio mixer, mic, recorder, processor equipment; Video camera, recorder, monitor, effects, editing, switcher equipment; transmitters, antennas, towers, waveguides, microwave equipment; Test, measurement equipment.*

The Management, P.O. Box 1-36457, Fort Worth, TX 76136, 817-625-9761, 800-334-7823, Fax: 817-624-9741; *Audio mixers, mics, recorders, processing equipment.*

MPCS Amarillo, 5410-B Bell St., Suite 412, Amarillo, TX 79109, 806-355-9676, Fax: 806-359-5508; *or*

MPCS Austin, 4030 W. Braker Lane, Suite 410, Austin, TX 78759, 512-343-8600, Fax: 512-343-9492; *or*

MPCS Dallas, 6221 N. O'Connor, Suite 102, Irving, TX 75039, 214-869-3001, Fax: 214-869-2533; *or*

MPCS Houston, 8760 Westpark, Houston, TX 77063, 713-977-1992, Fax: 713-977-6768; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test, measurement equipment; Recording media, all audio & video formats.*

Pro Video & Film Equipment Group, 11419 Mathis St., Dallas, TX 75234, 214-869-0011, Fax: 214-869-0145; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Professional Audio Supply, 5700 East Loop 820 South, Fort Worth, TX 76119-7099, 817-483-7474, Fax: 817-483-9952; *Audio mixer, mic, recorder, processor equipment; transmitters, antennas, towers, waveguides, microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

RF Specialties of Texas, P.O. Box 7630, Amarillo, TX 79114, 806-372-4518, Fax: 806-373-8036; *Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.*

Victor Duncan, Inc., 6305 N. O'Connor, Building 4, Irving, TX 75039, 214-869-0200, Fax: 214-869-9810; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories.*

UTAH

RIA Corp., 50 E. Malvern, Salt Lake City, UT 84115, 801-486-8822, Fax: 801-486-2741; *Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equip-*

Camera cable information from the company that knows best...Mohawk!

Mohawk offers superior broadcast camera cable and a free, newly expanded camera cable and connectors information kit!

If the job demands flawless broadcast transmission, order the best cable—Mohawk. Count on Mohawk's quick response to assembly orders and repairs to save you precious time.

Our expanded product line features:

- Ultra-flex VTR cable assemblies for Hitachi, Ikegami, Panasonic, Sony and others
- Slimline studio camera cables
- Waterproof, high strength three-piece connector design
- 3-243z lengths

Mohawk's entire team of engineers, technicians, and sales and service professionals are committed to providing product and service excellence. Our strict performance standards exceed even industry requirements.

Get your information from the reliable source! Mohawk's new edition of the TV camera cable and connectors information kit is available free. Just call or write Mohawk today!

MOHAWK

Wire and Cable Corporation

9 Mohawk Drive • Leominster, MA 01453 • (508) 537-9961
Toll free: 1-800-422-9961 • In MA: 1-800-642-9961



Circle (86) on Reply Card

TIME CODE HANDBOOK

FREE TIME.

We didn't invent time, but we helped pioneer the use of time on audio and video tape with time code readers, Shadow synchronizers, and friendly Softouch edit controllers.

And now, we're still pioneering time with our new family of time code products; the Phantom II VTR Emulator, the Softouch II Edit Controller, plus a new digital random access recorder.

We wrote the book a few years

ago — everything we knew about time — and have distributed thousands of copies to schools and individuals. If you don't have a copy of our *Time Code Handbook*, just ask for one. Free. And we'll even pay for the call.

1-800-331-9066



cipher digital, inc.

1350 PARTNERS COURT, PO. BOX 170
FREDERICK, MD 21701
TOLL-FREE 1-800-331-9066
(301)695-0200 FAX: (301)694-5152 TELEX: 272065

Circle (87) on Reply Card

ment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Production vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

VIRGINIA

Alpha Audio, 2049 W. Broad St., Richmond, VA 23220, 804-358-3852, Fax: 804-358-9496; Audio mixers, mics, recorders, processing equipment.

Avec Electronics Corp., 711 Grandy St., Norfolk, VA 23510, 804-627-3502, Fax: 804-627-1710; or

Avec Electronics Corp., 2009 Williamson Road, Roanoke, VA 24012, 703-344-6288, Fax: 703-344-0081; or

Avec Electronics Corp., 2002 Staples Mill Road, Richmond, VA 23230, 804-359-6071, Fax: 804-359-5609; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Broadcast Services/EME, P.O. Box 309, Front Royal, VA 22630, 703-635-1413, Fax: 703-635-9762; Audio mixer, mic, recorder, processor equipment; Video camera, recorder, monitor, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test, measurement equipment; Recording media, audio & video.

Hall Electronics, Inc., 1305-F Seminole Trail, Charlottesville, VA 22901, 804-974-6466, Fax: 804-974-6450; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measure-

ment equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, audio & video formats.

Old Dominion Broadcast Eng. Service, 9505 Lakewater Court, Richmond, VA 23229, 804-740-4717; Audio mixers, mics, recorders, processing equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

Schafer World Communications Corp., P.O. Box 31, Marion, VA 24354, 703-783-2000, Fax: 703-783-2064; Audio mixer, mic, recorder, processing equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Recording media, audio & video formats.

Systems Wireless Ltd., 465 Herndon Parkway, Herndon, VA 22070, 703-471-7887, 800-542-3332, Fax: 703-437-1107; Audio mixers, mics, recorders, processing equipment.

WASHINGTON

Audio Control Industrial, 22313 70th Ave. W., Mountlake Terrace, WA 98043, 206-775-8461, Fax: 206-778-3166; Test & measurement equipment.

Broadcast Supply West, 7012 27th St. W., Tacoma, WA 98466, 800-426-8434, Fax: 206-565-8114; Audio mixers, mics, recorders, processing equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

Northshore Marketing, 16 W. Harrison St., Suite 205, Seattle, WA 98119, 206-284-9699, Fax: 206-285-9412; Audio mixers, mics, recorders, processing equipment.

Omni Q Inc., P.O. Box L, Blaine, WA 98230, 206-384-1750;

Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment.

Penstock Northwest, 10800 N.E. Eighth St., Suite 800, Bellevue, WA 98004, 206-454-2371, Fax: 206-451-9418; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

RF Specialties of Washington, Inc., 19237 Aurora Ave. N., Seattle, WA 98133, 206-546-6546, Fax: 206-546-2633; Audio mixers, mics, recorders, processing equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment.

WISCONSIN

Full Compass Systems, Ltd., 5618 Odana Road, Madison, WI 53719, 608-271-1100, 800-356-5844; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Test & measurement equipment; Production vehicles & accessories; Recording media, all audio & video formats.

Vaughn Broadcast Rentals Vaughn Duplication Services, 700 W. Michigan Ave., Suite 270, Milwaukee, WI 53233, 414-276-6511, Fax: 414-276-0555; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; Production vehicles & accessories; Recording media, all audio & video formats.

Video Images-Milwaukee, 285 N. Janacek Road, Waukesha, WI 53186, 414-785-8998, Fax: 414-785-9264; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Produc-

tion vehicles & accessories; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, all audio & video formats.

CANADA

DKW Systems, 9919 105th St., Unit 730, Edmonton, Alta, Canada, T5K 1B1, 403-426-1551, Fax: 403-426-1551; Audio mixers, mics, recorders, processing equipment.

GERR Electro Acoustics Ltd., 363 Adelaide St. E., Toronto, Ont., Canada, M5A 1N3, 416-868-0528, Fax: 416-868-6419; Audio mixers, mics, recorders, processing equipment.

Harris Allied Broadcast-Canada, 10 W. Pearce St., Unit 6, Richmond Hill, Ont., Canada, L4B 1B6, 416-731-3697, Fax: 416-764-0729; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; RF transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Recording media, all audio & video formats.

Lumitrol, Ltd., 253 Merton St., Toronto, Ont., Canada, M4S 1A7, 416-485-4817, Fax: 416-485-4826; Video cameras, recorders, monitors, effects, editing, lighting equipment.

M.S.C. Electronics Ltd., 147 W. Beaver Creek Road, Richmond Hill, Ont., Canada, L4B 1C6, 416-731-9500, Fax: 416-731-5195; Audio mixers, mics, recorders, processing equipment; Video cameras, recorders, monitors, effects, editing, lighting equipment; transmitters, antennas, towers, waveguides, STL/MDS microwave equipment; Test & measurement equipment; Camera tubes, CRTs, rectifiers, all RF power devices; Recording media, audio & video formats

Is your company's name missing from this directory? If so, either the name is not on our mailing list or someone did not respond to repeated requests for information. If you wish to be included in the 1992 issue, write a letter, before May 1, to:

BE Directory Editor
PO Box 12901
Overland Park, KS 66212



George Spiro Dibie on BTS LDK-90 cameras...

“BTS’s LDK-90 video cameras are really the top performers on all of my shoots. They make multi-camera video productions look like film. Tube-type cameras have problems with resolution, hot spots and comet tailing. But thanks to BTS frame-transfer CCD chip technology, I light for my video cameras exactly the way I light for film cameras.”



Name: George Spiro Dibie

Profession: Senior Director of Multicamera Photography for Warner Brothers Television.

Current Credits:
Growing Pains
Just The Ten Of Us

Organizations:
President, International Photographers Guild, Local 659, Hollywood; member, Directors Guild of America (DGA); member, Society of Motion Picture and Television Engineers (SMPTE), TV Academy, A.S.L.D. and S.O.C.

Awards:
Winner of three Emmys.
Gold Award (Houston International Film Festival)
Chris Statuette (Columbus Film Festival)

George Spiro Dibie on Production Lighting:

“The most important concept is to follow the source. Windows, doors, lamps...these are the sources of light in a scene. I start from there. To accommodate one camera or multi-cameras, you deal with the feel of the source.”

For more details about the high resolution, high signal-to-noise ratio and accurate colorimetry of BTS’s CCD chip technology, call us at 1-800-962-4BTS.

BTS LDK-90 studio cameras...for the big shots.

BTS

The name behind what’s ahead.™

BTS is Broadcast Television Systems, a joint company of Bosch and Philips.
P.O. Box 30816, Salt Lake City, Utah
84130-0816

KTVV	ATV	KOCO	WSOC	WXIA	WCMH	WDB
WEVV	TVNZ	WITF	WTVH	KPIX	WVIZ	WVT
KARK	CCTV	KJTV	KGBT	KSEE	WGAL	KVV
KELO	VOK	WISN	KRGV	KRMA	KOAT	KPH
WCBS	TTV	WCVB	KTXS	WOFL	WUTR	WHM
WDVM	RAI	WAKA	WSLS	WATL	WCET	WAV
WTOL	KBC	KSTS	WHME	WHO	WSYX	WXE
WEHT	BTQ-7	WJCL	WJZY	WGN	WCAU	WOW
WBRZ						KBD
KMOX						KWH
KAIT						WTV
WNEM						WGN
WSLA						WAVE

These stations had to pay us to get on this list.

KETK	STW-9	WIPB	WETK	WTVW	WNEP	WEC
WLVI	BCV-8	WTVJ	KHJ	WPSD	WVIA	WMH
KETK	KBS	KGUN	KARK	KPLC	WIS	KWT
CFCF	CSSR	KCOY	WYAH	WJZ	WSMV	KAB
CFQC	BBC	WHCT	WTTV	KMOV	KCOS	WSA
CFMT	WABI	WMAZ	KFME	WFIE	KPRC	WBT
CBFT	WCCB	WBAL	KLTV	WHAS	KTRK	WFM
CITV	WETM	WBFF	WSFA	KLFY	WWCP	WCP
CKVR	WXXI	KSPR	KPNX	WDSU	WYFF	WCIV
CKVU	KEZI	WPTZ	KICU	WMAR	KBTX	KUTV
CJOH	WTAE	WHYY	KSBW	WLOS	KFDM	KUSA
CBUT	KSFY	KLRN	KCNC	WXII	KSAT	KXLY
CIVM	WCFE	KTMD	WRC	WRGB	KVUE	KXAS
HSV-7	WTTW	KODE	WXEL	WBNS	KSL	KWCH

What we mean, of course, is that they all have purchased Ampex switchers, and we don't exactly give those things away. But what's more important is what the TDs and directors at stations like these are saying about our switchers...

"We can configure the switcher any way we choose, fast! Between live news and some spot breaks we have only 30 seconds to change TDs, directors, everything! With Century we can do it, with time for a sip of coffee to spare."

"Key clip level, gain level, etc., are all stored *per source* in the Century's key memory—we *never* have to adjust a key on-air."

"We store all of our switcher setups on the same disk where we store our program options. Then we can pop the disk

in and have our entire switcher ready, bingo, for the whole program... with all the panel memory setups... in 3 or 4 seconds!"

So if you're considering a switcher for your broadcast facility, get the full story before making a decision. Call **1-800-25AMPEX** for a poster and an information kit.



AMPEX

Video equipment specs

Color Television Cameras

These cameras typically use three pickup devices in Studio, Outside broadcast, ENG and EFP applications. All models derived image enhancement from the green channel, while some also use enhancement from red and blue channels. All units, except HDTV products, are available for NTSC, most in PAL and SECAM, as well. Abbreviations N, P, S may be used. All units include one or more black/white balance memories. Signal formats supported by some models may require an adapter for that operation. Cameras designed for EFP and studio typically include intercom and return video capability, as well as a program audio channel for a camera-mounted mic. Sensitivity reflectance is typically 89.9%; light is given in lux. All provide for highlight compensation. [Camcorder (1-piece) systems are identified in the video recorder section of this reference guide.] Under filters, read C for color, N for neutral density.

Manufacturer	Ampex			BTS			
	CVC-50 (-5)	CVC-7(-70) ¹	CVC-7000HS ²	KCH 1000 ³	KCM-125 (KCM-318)	LDK 90 (900)	LDK 91 (910)
Model	CVC-50 (-5)	CVC-7(-70) ¹	CVC-7000HS ²	KCH 1000 ³	KCM-125 (KCM-318)	LDK 90 (900)	LDK 91 (910)
Composite output	Yes	Yes	Yes	Any HDTV	Yes N P S	Yes N P S	Yes N P
RGB output	Yes (No)	No	No	Yes	Yes	Yes	Yes
Y _C C ₀ output	Yes	Yes	Yes	Yes	...	Yes	Yes
S-VHS/Y-C output	No	No	No	No	Yes	No	No
μP in camera head	No	Yes	Yes	Yes	Yes	Yes	Yes
Direct VCR cable	Yes	Yes	Yes	No	No	Yes	Yes
Coax/Triax/Fiber Optic Cable	-50 only	C/T/FO	C/T/FO	Triax	Yes	Triax	Triax
Multicore cable	-50 only	Yes	Yes	No	Yes	Yes	Yes
Docking VCR	Yes	Yes	Yes	No	No	Yes	Yes
Color balance memories	Yes	Yes	Yes	Scenes	Yes	Yes	Yes
ND/color filters	4C-2N	4C-2N	4C-2N	4-position	Optic/electronic	(4-position)	(4-position)
Application ENG EFP Studio OB	ENG/EFP	ENG/EFP	ENG/EFP	HDTV	Studio	E & (F/S)	E & (F/S)
Pickup size/type	FIT CCD	2 $\frac{2}{3}$ IT (FIT)	IT CCD	30mm PbO	1 (2 $\frac{2}{3}$)	3 FT CCD 1/2	3 FT CCD 1/2
CCD array size/type	510x492	768x493	768x493	or 24mm SAT	DG PbO (HS PbO)	610x492 (2 $\frac{2}{3}$)	806x504
Standard sensitivity	2000 :6	2000; 5.6	200; 5.6	800; 4 PbO	630(800); 1.6	1750; 4.0	1750; 4.0
Limiting sensitivity	15; 1.4	15; 1.4	1.5; 1.4	70; 2	30(25); 1.6	27; 1.4 (54)	13; 1.4
Maximum video gain	18	18	18	9	18	12; 18 opt	18 (24 opt)
S/N ratio	60dB (58)	62dB NTSC	62dB NTSC	...	58dB/N; 56dB P/S	58dB	61dB
Limiting resolution	550 TVL	700 lines	370 lines	1200 50% 600TVL	>700 TVL (60%)	>650 (45% 5MHz)	>700 50% 5MHz
Electronic shutter	7-speed on -50	6-sp to 1/2000s	...	No	No	2-speed	2-speed
Registration error %	0.05%	0.005%	0.01/2.5%	0.02%	μP corrected	0.05%	0.05%
Color correction matrix	Option	Option	No	Yes	Yes	... (Yes)	... (Yes)
Remote control panel	Option	Option	...	Yes	Yes	Yes	Yes
Camera control unit	Option	Option	...	Yes	Yes	Yes	Yes
Multi-camera panel	...	...	...	Yes	Yes	.. (Yes)	... (Yes)
Operating power	10.5-17V	10.5-17V	10.5-17V	350W	...	11W (110W)	11W (170W)
Camera head weight lbs	7.5	7.5	9.9	72.6	73 (17.6)	7.5 (<40)	7.5 (<40)
Reader Service No	565	566	567	568	569	570	571

¹ T7 has separable optical block & lens for special purposes. ² Image intensifier for low light use. ³ Software adjustable to all current HDTV proposals.

Manufacturer	BTS		Hitachi Denshi				
	LDK6/6A (54)	FP-C1 (-C2)	SK-F1 (-F3) ⁴	SK-F700/710	SK-F750(-760) ⁵	SK-H500 (-H50) ⁶	Z-One (CK-2B)
Model	LDK6/6A (54)	FP-C1 (-C2)	SK-F1 (-F3) ⁴	SK-F700/710	SK-F750(-760) ⁵	SK-H500 (-H50) ⁶	Z-One (CK-2B)
Composite output	Yes N P S	Yes	Yes	Yes	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Y _C C ₀ output	(LDK-54)	No	Yes	Option	Option	Yes	Yes
S-VHS/Y-C output	No	Yes	Option	Option	...	..	Yes
μP in camera head	Yes	...	Yes	Yes	Yes	Yes	...
Direct VCR cable	No	Yes	Yes	Yes	...	:(Yes)	Yes
Coax/Triax/Fiber Optic Cable	Triax	...	C/T	Triax	Triax	C/T	...
Multicore cable	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Docking VCR	No	Yes	Yes	No	No	No	Yes
Color balance memories	Yes	Yes	32 scenes	32 data files	32 scenes	...	Yes
ND/color filters	Optical	1N-3C	2N-2C	4N-3C	4N-4C	4N-4C	1N-3C
Application ENG EFP Studio OB	S & (O E F)	ENG/EFP	ENG/EFP	OB/S	Studio/EFP	D/F/S	ENG/EFP
Pickup size/type	1 : 1/4 PbO	3 2 $\frac{2}{3}$	2 $\frac{2}{3}$ FIT CCD	2 $\frac{2}{3}$ FIT CCD	2 $\frac{2}{3}$ FIT CCD	-harpicon	3 2 $\frac{2}{3}$ CCD
CCD array size/type	(PbO 2 $\frac{2}{3}$)	574x499	300kpixel	400kpixel	450kpixel	...	754x485 (x499)
Standard sensitivity	700; 2.8 (900)	2000; 5.6	2000; 5.6	2000; 5.6	2000; 5.6	200; 4	2000; 5.6
Limiting sensitivity	46; 2.8 (24)	23; (25) 1.7	15	15; 1.4	15; 1.4	17; 1.8	23 (25); 1.7
Maximum video gain	12 (18)	18	18	21 3-step	18 3-step	18	18
S/N ratio	58dB/N; 56dB/P	60dB	60dB (62dB)	60dB/N/ 57dB/P	62dB	57dB	60dB
Limiting resolution	400TVL (>650)	660	650 (700)	700 TVL	800 TVL	700	750 (660)
Electronic shutter	No	No	6-sp to 1/2000	No	6-st to 1/2000	Mech. to 1/200	5-(6)sp 1/2000
Registration error %	<25/40/40ns	...	0.05% all zones	0.05% all zones	0.05% all zones	<0.1%	0.05%
Color correction matrix	Yes	No	Option	Yes	Yes	Option	No
Remote control panel	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Camera control unit	Yes	No	Option	Yes	Yes	Yes	No
Multi-camera panel	Yes	No	Option	Yes	Yes	Yes	No
Operating power	...	12Vdc 11W	10.5-17V 14W	300VA	300VA	250VA	12Vdc 11W
Camera head weight lbs	94.6 (9.35)	8.7 (9.2)	7.5	66	66	...	7.7 (9.2)
Reader Service No	572	573	574	575	576	577	578

⁴ SK-F2 uses 400k IT CCD for 700TVL resolution. ⁵ CCD version of SK-971/970D. ⁶ H50 is portable companion unit.

Color Television Cameras

Manufacturer	Ikegami						
Model	HC-200/230/240 ⁷	HK-323 (323P) ⁸	HK-327 (327P) ⁹	HK-353 ¹⁰	HK-355 (355P) ¹¹	HL-53 Unicom	HL-55A Unicom ¹²
Composite output	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YCrCb output	Yes	No	Yes	No	(355P)	Yes	Yes
S-VHS/Y-C output	Yes	No	No	No	...	No	No
μP in camera head	...	Yes	Yes	Yes	Yes	...	...
Direct VCR cable	Yes	No	No	No	No	Yes	Yes
Coax/Triax/Fiber Optic Cable	Coax	C/T/FO	C/T/FO	C/T/FO	Triax	Coax/triax	Coax/triax
Multicore cable	...	Yes	Yes	Yes	Yes	Yes	Yes
Docking VCR	Yes	No	No	No	No	Yes	Yes
Color balance memories	...	One	Yes	...	Yes	...	...
ND/color filters	3C 1N	4C-4N (3C-3N)	4C 4N	4N 5C	4C-4N (3C-3N)	2N-4C	2N-4C
Application ENG EFP Studio OB	ENG EFP	Studio/EFP	Studio/EFP	Studio/EFP	Stu EFP	E F S	E F S
Pickup size/type	3 IL /FIT 1/2	1 PbO DG	30mm M-S PbO	IT 2 ₃	FIT CCD 2 ₃	IT CCD 2 ₃	FIT CCD 2 ₃
CCD array size/type	510Hx492V	(2 ₃ PbO DG)	...	400k pix	450k pixel	400k pix	400k pix
Standard sensitivity	2000; 5.0	2000; 5.6(4.5)	1500; 5.6	f/5.6	2000; 5.6	2000; 5.6	2000; 5.6
Limiting sensitivity	20-25; 1.4	...	94; 1.4	...	...	10	10
Maximum video gain	18	12	12	...	12	24	24
S/N ratio	58/60	59(60)	59dB	62dB	62dB	62dB	62dB
Limiting resolution	530/600/700	700 (650)	800 65% 400TVL	700H 400V	800 (700)	700H 400V	700H 400V
Electronic shutter	6: 3; 6 speeds	No	No	Variable	Variable	6-speed	6-speed
Registration error %	0.05%	0.05/ .1/.2	0.05%	0.05%	0.02%	0.05%	0.05%
Color corection matrix	No	Yes	Yes	Yes	Yes	No	No
Remote control panel	...	Yes	Yes	Yes	Yes	Yes	Yes
Camera control unit	No	Yes	Yes	Yes	Yes	Yes	Yes
Multi-camera panel	No	Yes	Yes	Yes	Yes	...	No
Operating power	12V 11.5W	230VA	360VA	110 220Vac	130VA (26W)	11-16V	11-16V
Camera head weight lbs	6.6-9.2	57 (15.4)	79.2	55	55 (13.2)	6.8	6.8
Reader Service No	579	580	581	582	583	584	585

⁷Variations in models include different CCD types. ⁸-323P portable companion to studio unit. ⁹327P portable companion unit. ¹⁰Optical axis of prism adjusts to center lens on CCDs. ¹¹355P portable companion unit. ¹²Also HL-55 with Beta option.

Manufacturer	Ikegami			JVC Company			Panasonic
Model	HL-791	HL-87M Dwl ¹³	MKC-300 3D ¹⁴	BY-10U	KY-15CIBU ¹⁵	KY-25U	AK 400
Composite output	Yes	Yes	...	Yes	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	Yes	Yes	Yes	Yes
YCrCb output	...	Yes	...	No	Yes	Yes	Yes
S-VHS/Y-C output	No	...	Yes	Yes	Yes	Yes	No
μP in camera head	Yes	...	...	...	...	Yes	...
Direct VCR cable	Yes	Option	No	Yes	Yes	Yes	Option
Coax/Triax/Fiber Optic Cable	Coax/triax	No	...	Coax	...	Coax	Coax/triax
Multicore cable	Yes	No	Special	Yes	Yes	Yes	Yes
Docking VCR	Yes	Betacam	No	Yes	...	Yes	AU 400
Color balance memories	...	...	[and monitor	...	...	...	...
ND/color filters	4C-3N	2N 4C	2C-1N	1N-3C	1N-3C	1N-3C	3N 4C
Application ENG EFP Studio OB	EFP	C	EFP	ENG/EFP	Graphics	ENG/EFP	E F S C
Pickup size/type	PbO 2 ₃	FIT 2 ₃	FT CCD 2 ₃	1 2 ₃ IT CCD	1/2 IT CCD	3 2 ₃ IT CCD	FIT 2 ₃
CCD array size/type	...	420k pix	400k	380k pixel	668x485 pixel	360k pixel	574x494
Standard sensitivity	2000; 4.5	150; 5.6	2000; 5.6	2000; 8	2000; 4	2000; 5.6	2000; 5.6
Limiting sensitivity	...	0.02	15; 1.2	10; 1.6	...	23; 1.7	20; 1.6
Maximum video gain	...	18	...	18	18	18	18
S/N ratio	61dB	58dB	60dB	58dB	58dB	60dB	60dB
Limiting resolution	650 lines	380H	600	450	...	700	650
Electronic shutter	No	2-speed	Variable	3-speed	to 1/500s	3-sp to 1/1000	4-speed
Registration error %	0.05/ .1/.3	±0.5%	0.05%	...	0.05%	0.05%	0.05%
Color corection matrix	...	No	Yes	No	No	No	Yes
Remote control panel	Yes	Yes	Yes	Yes	No	Yes	No
Camera control unit	Yes	Yes	...	No	No	No	Yes
Multi-camera panel	Yes	...	...	No	No	No	...
Operating power	21W 12V	12V 15W	10.8VA	12Vdc 12W	12Vdc 15W	12Vdc 18W	10.5 17V
Camera head weight lbs	12	9	2	5.1	8	6.6	7.5
Reader Service No	586	587	588	589	590	591	592

¹³Pil Proximity Image Intensifier/MCP Micro-Channel Plate. ¹⁴With appropriate accessories, and 120Hz V scan, produces 3D images. ¹⁵Designed for image capture for graphics.

Manufacturer	Panasonic Broadcast			Sony			
Model	AK 450	AQ-20 (-10)	BVP-360A/360AP ¹⁶	BVP-370 (270)	BVP-77P ¹⁷	BVW-500 series ¹⁸	DXC-3000A ¹⁹
Composite output	Yes	Yes	Yes	Yes	Yes	Yes	Yes
RGB output	Yes	Yes	Yes	CCU	Yes	...	CCU
YCrCb output	Yes	Yes	Yes	CCU	Yes	Yes	No
S-VHS/Y-C output	No	No	No	No	No	Yes	Yes
μP in camera head	...	...	Yes	Yes	...	...	Yes
Direct VCR cable	Option	Yes	No	Option	Yes	Yes	Yes
Coax/Triax/Fiber Optic Cable	Coax/triax	C/T/FO	Triax	Triax	Triax	...	...
Multicore cable	Yes	Yes	Yes	...	Yes	Yes	Yes
Docking VCR	AU 400	AU 400	No	No	Yes	Yes ¹	No

Manufacturer	Panasonic Broadcast			Sony				
	Model	AK 450	AQ-20 (-10)	BVP-36WA/360AP ¹⁶	BVP-370 (270)	BVP-77P ¹⁷	BVW-500 series ¹⁸	DXC-3000A ¹⁹
Color balance memories	...	...	...	...	...	...	...	...
NO/color filters	3N 4C	4N-4C (2N-2C)	3N 4C	4N 3C	2N 4C	2N 4C	1N 3C	...
Application ENG EFP Studio OB	E F S C	E F S C	S F	S F	E F	E F	S E F	...
Pickup size/type	FIT 2 ₃	FIT 2 ₃	3 PbO 2 ₃	FIT (IT) 2 ₃	IT 2 ₃	FIT & IT 2 ₃	CCD IT 2 ₃	...
CCD array size/type	838x485	768x499 (574x)	...	380K	768x493	510(768)x492	250k	...
Standard sensitivity	2000; 5.6	2000; 5.6	2000; 4.5	2000; 5.6	2000; 5.6	2000; 5.6	2000; 5.6	...
Limiting sensitivity	20; 1.6	20; 1.6	9; 1.2	15; 1.4	15; 1.4	15; 1.4	16; 1.4	...
Maximum video gain	18	18	4	18	18	18	18	...
S/N ratio	60dB	60dB	60dB	62dB	62dB	62dB (60)	58dB	...
Limiting resolution	800	750 (630)	700	700	700	550 (700)	560	...
Electronic shutter	5-speed	6-speed	No	6-speed	6-speed	No	No	...
Registration error %	0.05%	0.05%	0.05/0.1/0.15	0.05%	0.05%	0.05%	0.05%	...
Color corection matrix	Yes	Yes	Yes	Option	Yes	No	No	...
Remote control panel	No	Yes	Option	Option	Option	Option	...	...
Camera control unit	Yes	Yes	Yes	Yes	Option	No	Option	...
Multi-camera panel	...	...	Option	Option	Option	No	No	...
Operating power	10.5 17V	12V	110/220W 350W	120V 350W	12Vdc 13W	*2V	12Vdc 9.2W	...
Camera head weight lbs	7.5	6.5	66	44	7.5	15.3	7.3	...
Reader Service No	593	594	595	596	597	598	599	...

¹⁶360AP for PAL 360/360P uses SAT or PbO (350 portable). ¹⁷T7 has removeable optical and sensor block; BVP-7000HS uses image intensifier Hi-Sense for extreme low-light use. ¹⁸BVP-5, -7, -50 units use BVW-505/-507/-550 docking VCRs. ¹⁹-3000IR/IRP infrared or normal lightmodes.

Manufacturer	Sony			Thomson Video Equipment				
	Model	DXC-325/325P	DXC-M7	HDC-300	TTV 1250 Proscan ²⁰	TTV1542	TTV1645 Sportcam	TTV1647
Composite output	Yes	Yes	No	No	Yes	Yes ...	Yes	...
RGB output	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
Y/C _o output	No	Yes	Yes	Yes	Yes	Yes	Yes	...
S-VHS/Y-C output	Yes	Yes	No	No	No	No	...	...
µP in camera head	...	...	Yes	Yes	Yes	Yes	Yes	...
Direct VCR cable	Yes	Yes	No	No	No	..	Yes	...
Coax/Triax/Fiber Optic Cable	C	C	No	No	Triax	T	T	...
Multicore cable	Yes	Yes	Yes	200m	Yes	No	...	...
Docking VCR	U/S	No	No	No	No	No	Betacam	...
Color balance memories	...	...	...	...	...	...	10	...
ND/color filters	1N 3C	2N 4C	4N 4C	6 pos.	2x6-pos	4 pos	4 pos	...
Application ENG EFP Studio OB	Utility	S E F	HDTV	HDTV(1)	S F	S F	E F S	...
Pickup size/type	CCD IT 1/2	CCD IT 2 ₃	SFSD SAT 1	PbO or SAT 2 ₃	IT 2 ₃	IT 2 ₃	IT 2 ₃	...
CCD array size/type	510x492	380k	...	...	440k	440k	440k	...
Standard sensitivity	2000; 5	2000; 5.6	2000; 4.7	2200; 4.3 S	1000; 4	1250; 4	1250; 4	...
Limiting sensitivity	20; 1.4	26; 1.8	...	50; 1.4	15; 1.4	10; 1.4	14; 1.4	...
Maximum video gain	18	18	6	12	18	21	21	...
S/N ratio	58dB	60dB	...	43dB/47dB	61dB	62dB	62dB	...
Limiting resolution	530	700	1200	... 20% 20MHz	... 60%	700 TVL	700	...
Electronic shutter	6-speed	6-speed	No	No	1/60-1/1000	5-speed	5-speed	...
Registration error %	0.05%	0.05%	0.025; 0.05	0.05%; 0.1%	0.05%; 0.1%	<0.05%	0.05%	...
Color corection matrix	No	No	Yes	Option	Yes	Opt	Option	...
Remote control panel	Option	Option	No	Option	Yes	Opt	Option	...
Camera control unit	Option	Option	Yes	Option	Yes	Yes	Option	...
Multi-camera panel	No	...	Option	Option	Yes	Opt	Option	...
Operating power	12Vdc 8W	10.5-17Vdc	120/240V 400W	110/220V	110-220Vac	110-220V	16.5W	...
Camera head weight lbs	6.5	9.3	18	28kg	28kg	26.5kg	3.5kg	...
Reader Service No	600	601	602	603	604	605	606	...

²⁰1250:50 and 1050:60 interlaced or 625:50 and 525:60 progressive scanning possible.

Television Zoom Lenses

These camera lenses are grouped by image format size. All systems use focus, zoom and iris servos. The use of lenses not noted as *CCD optimized* should be discussed with the manufacturer for applicability with CCD cameras. Abbreviations for lens applications include E ENG, F EFP, O Outside Broadcast, S Studio.

Television Zoom Lenses, 1/2"

Manufacturer	Angenieux		Canon USA			Fujinon		Schneider	
	Model	14x7 ¹	20x7 ²	PH14ax6.6BIRS	PH20xSuper	PH55xSuper	S14x6.4ERM ³	S8.5x4.2ERM	TV59 Apo-Varon
Application	E/F/O	S/F/O	E/F	Studio	EFP	E/F	E/F	E/F	E/F
CCD optimized	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zoom range (mm)	7-98	7-140	6.6-92.4	6-120	7-385	6.4-90	4.2-36	6.5-91 (HM14x)	...
Aperture (Wide-Tele)	1.4-1.6	1.2	1.4-1.55	1.4-1.5	1.4-2.2	1.4-1.5	1.4-1.5	1.4-3	...
MOD distance	31"	0"	31.5"	23.6"	7.2"	29.1"	11"	31.5"	...
MOD area (HxV) in mm	52x39	110x83	712x534	813x610	178.8x134.1	75.1x56.3	46.9x35.1	53x40	...
Horizontal angle (Wide-Tele)	52°-4"	51.5°-2.75°	51.7°-4"	56.1°-3.06°	49.1°-0.95°	53°-4"	74°-10°	53°-4"	...
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	...	...	35.5	...
Aperture (Front-Back)	...	...	...	...	...	...	...	70.5-30.5	...
Extender(s)	2x; 0.8	2x	2x	2x; 1.5x	2x; 2.6x	2x	1.7x	2x; W.W.	...
Macro focus	to 0" MOD	to 0" MOD	Yes	(at 3.74" MOD)	at 15.7" MOD	Yes	Yes	Yes	...
Diascope	No	3-lamp	No	No	No	Yes	Yes	...	...
Operating wt	3.1 lbs	39 lbs	2.87 lbs	35.2 lbs	39 lbs	2.81 lbs	4 lbs	3.95 lbs	...
Reader Service No	501	502	503	504	505	506	507	508	...

¹Wide angle, tele and retrozoom models available. ²Optional integral shutter; other extenders: 1.2x, 1.4x, 1.6x, 1.8x. ³Similar ERD lens for 2₃" is A14x8.5ERM/ERD.

Television Zoom Lenses, 2/3"

Manufacturer	Angenieux				Canon USA			
	14x8	14x9	20x8.5 ²	40x9.5	J13x9BIRS-IIA	J14x8.5BIRS	J15x9.5B IRS	J18x8.5B IRS
Model	14x8	14x9	20x8.5 ²	40x9.5	J13x9BIRS-IIA	J14x8.5BIRS	J15x9.5B IRS	J18x8.5B IRS
Application	E/F/O	E/F/O	S/F/O	S/F/O	E/F	ENG/EFP	E/F	E/F
CCD optimized	...	...	Yes	Yes	Yes	Yes	Yes	Yes
Zoom range (mm)	8-112	9-126	8.5-170	9.5-380	9-117	8.5-119	9.5-143	8.5-153
Aperture (Wide-Tele)	1.6-2	1.6-2	1.3	1.3-2.1	1.6-1.9	1.7-2.0	1.8-2.1	1.7-2.3
MOD distance	31"	31"	0"	0"	29.1"	31.5"	34.6"	35"
MOD area (HxV) in mm	61x46	52x39	121.9x91.7	55x41.5 ³	...	755x566	86.2x64.7	86.2x64.6
Horizontal angle (Wide-Tele)	58°-4.5°	52°-4°	55°-3°	49.75°-1.33°	52.1°-4.3°	54.7°-4.24°	49.7°-3.5°	54.7°-3.3°
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	Var	man adj	Adjustable	Adjustable
Aperture (Front-Back)	...	...	...	...	72.6; 31.7	...	...	82.8
Extender(s)	2x; 0.6x	2x; 0.8x ¹	2x	2.15x; 2.7x	2x	2x	2x	2x
Macro focus	to 0" MOD	to 0" MOD	to 0" MOD	to 0" MOD	Yes	Yes	Yes	Yes
Diascope	No	No	3-lamp	3-lamp	Option	No	No	Option
Operating wt	3.9 lbs	3.1 lbs	39 lbs	43 lbs	2.84 lbs	2.82 lbs	3.5 lbs	3.5 lbs
Reader Service No	509	510	511	512	513	514	515	516

¹Wide angle attachment; 1.55x tele adapter available. ²Optional integral shutter; other extenders include: 1.2x, 1.4x, 1.6x, 1.8x. ³Based on MOD of 8.2'

Manufacturer	Canon USA				Fujinon			
	J20xSuper	J50xSuper	J55xSuper	A12x9ERM ⁴	A14x8.5ERM ⁵	A15x8ESM ⁶	A16x9.5ERM ⁷	A18x8.5ERM ⁸
Model	J20xSuper	J50xSuper	J55xSuper	A12x9ERM ⁴	A14x8.5ERM ⁵	A15x8ESM ⁶	A16x9.5ERM ⁷	A18x8.5ERM ⁸
Application	Studio	EFP	EFP	E/F	E/F	EFP	E/F	E/F
CCD optimized	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zoom range (mm)	7.5-150	9.5-475	9-500	9-108	8.5-119	8-120	9.5-152	8.5-153
Aperture (Wide-Tele)	1.5-1.9	1.4-2.7	1.4-2.8	1.7-1.9	1.7-2.0	1.5-1.7	1.8-2.2	1.7-2.3
MOD distance	21.8"	24"	8.2"	5.4"	31.5"	27.5"	37.4"	35.4"
MOD area (HxV) in mm	89x67	180x135cm	190x143	877x658	777x583	915x686	817x613	879x659
Horizontal angle (Wide-Tele)	61.9°-3.3°	49.7°-1.1°	52.1°-1°	52°-4°	54°-4°	57°-4°	49°-3°	54°-3°
Back focus (mm)	Adjustable	Var; man adj	...	...	...	...	...	...
Extender(s)	2x; 1.5x	2x	2x; 1.5x	2x	2x	2x	2x	2x
Macro focus	Yes	...	No	Yes	Yes	No	Yes	Yes
Diascope	Option	Option	Option	Yes	Yes	Yes	Yes	Yes
Operating wt	35.2 lbs	37.5 lbs	37.5 lbs	3.2 lbs	2.8 lbs	28.6 lbs	3.2 lbs	3.34 lbs
Reader Service No	517	518	519	520	521	522	523	524

⁴Similar unit for 1/2" is S12x6.6ERM. ⁵Similar unit for 1/2" is S14x6.4ERM/ERD. ⁶Similar unit for 1/2" is S15x6ESM. ⁷Similar unit for 1/2" is S16x7ERM/RM. ⁸Similar unit for 1/2" is S18x6.2ERM/ERD.

Manufacturer	Fujinon							
	A20x7ESM ⁹	A24x11.5ERD ¹⁰	A34x10ESM ¹¹	A34x20.5ESM	A44x9.5ESM ¹²	A55x9.5ESM ¹³	A8.5x5.5ERM	HA14x8RD
Model	A20x7ESM ⁹	A24x11.5ERD ¹⁰	A34x10ESM ¹¹	A34x20.5ESM	A44x9.5ESM ¹²	A55x9.5ESM ¹³	A8.5x5.5ERM	HA14x8RD
Application	EFP	E/F	EFP	EFP	EFP	EFP	E/F	HDTV
CCD optimized	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Zoom range (mm)	7-140	11.5-276	10-340	20.5-700	9.5-420	9.5-525	5.5-47	8-112
Aperture (Wide-Tele)	1.4-1.6	2.0-2.7	1.6-2.4	2.4-3.5	1.4-2.5	1.4-2.9	1.7-1.9	1.7-2.1
MOD distance	29.5"	5.9"	5.9"	16.4'	7.2'	7.8'	11.8"	43.3"
MOD area (HxV) in mm	1166x874	1296x972	1446x1085	20001500	1863x1397	2028x1521	492x369	1086x611
Horizontal angle (Wide-Tele)	64°-3°	41°-1°	47°-1°	24°-0.7°	49°-1°	49°-0.97°	77°-10°	57°-4°
Extender(s)	2x	2x	2x	2x	2x	2x	1.7x	...
Macro focus	No	Yes	No	No	No	No	Yes	...
Diascope	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
Operating wt	33 lbs	6.38 lbs	28.6 lbs	42.9 lbs	31.9 lbs	36.9 lbs	4 lbs	6.2 lbs
Reader Service No	525	526	527	528	529	530	531	532

⁹Similar unit for 1/2" is S20x5.4ESM. ¹⁰Similar unit for 1/2" is S24x8.8ERD. ¹¹Similar unit for 1/2" is S34x8ESM. ¹²Similar unit for 1/2" is S44x7.3ESM. ¹³Similar unit for 1/2" is S55x7.3ESM

Manufacturer	Nikon			Schneider		Schwem	Tamron	
	S13x9B	S15x8.5B	S19x8B	TV56 Apo-Varon	TV80	Gyrozoom FP-1	466H (14x9BI)	Model 47HD
Model	S13x9B	S15x8.5B	S19x8B	TV56 Apo-Varon	TV80	Gyrozoom FP-1	466H (14x9BI)	Model 47HD
Application	E/F	E/F	E/F	E/F	O/S	E/F/O/S	ENG	CCTV
CCD optimized	Yes	Yes	...	Yes	No	...	...	...
Zoom range (mm)	9-117	8.5-127.5	8-152	9-126 (HM14x)	8.5-150	60-300	9-126	8-16
Aperture (Wide-Tele)	1.7-2.0	1.7-2.2	1.7-2.2	1.7-2.1	1.4-2	6.2	1.6-1.9	1.6
MOD distance	31.5"	31.5"	35.4"	31.5"	27.5"	10'	39.37"	39.37"
MOD area (HxV) in mm	72.2x54.2	76.4x57.5	89.3x67.4	54x41	53x40	...	...	...
Horizontal angle (Wide-Tele)	52.1°-4.3°	54.7°-4.0°	57.6°-3.3°	52°-4°	55.5°-3.4°	8.38°-1.68°	52°6'-4"	57.62°...-30.75
Back focus (mm)	Adjustable	Adjustable	Adjustable	42.5-47.6	42.4	...	38.98	10.85
Aperture (Front-Back)	...	...	...	72-29.5	133-33	...	76.5-24.8	26-9.4
Extender(s)	2x	2x	2x	2x; W.A.	2x	...	None	No
Macro focus	Yes	Yes	Yes	...	No	No	Yes	No
Operating wt	2.42 lbs	2.75 lbs	2.75 lbs	3.96 lbs	33 lbs	7.4 lbs	3.33 lbs	0.21 lbs
Reader Service No	533	534	535	536	537	538	539	540

Editor's Note:

The information contained in this issue of the **Broadcast Engineering Equipment Reference Manual** was derived from most-recent specifications sheets provided by the manufacturers this year. Not every company in the industry is represented, nor is every product included from those companies who are represented. The issue does give you a wide range of products to consider when you begin your search for new equipment, however.

Television Zoom Lenses, 1" (Non-CCD)

Manufacturer	Angenieux			Canon USA			Fujinon		
	Model	15x12 ¹	40x14	PV14x12.5BIE	PV40x13.5BIE	PV50x13.5BIE*	HR11x11SD	HR12x11SD	HR14x12.5ES
Application	HDTV	S/F/O	Studio	EFP	EFP	HDTV	HDTV	HDTV	
Zoom range (mm)	12-180	14-560	12.5-175	13.5-540	13.5-675	11-121	15-180	12.5-175	
Aperture (Wide-Tele)	1.5-1.8	1.9-3	1.6	1.7-2.8	2.0-3.7	1.8-2.0	1.8-2.0	1.6-1.7	
MOD distance	0"	0"	27.5"	8.2'	8.2'	3.9'	5.2'	4.6'	
MOD area (HxV) in mm	60x34.5	55x41.5	960x125	211x158	213x160	1179x#63	982x589	1058.6x595.5	
Horizontal angle (Wide-Tele)	60.25°-4.5°	49.75°-1.33°	54.2°-4.3°	50.7°-1.4°	50.7°-1.1°	64°-6°	49°-4°	58°-4°	
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	Adjustable	...	...	...
Extender(s)	1.4x; 2x	2.15x; 2.7x	2x; 1.5x	2x; 1.5x	2x	...	...	2x
Macro focus	...	to 0" MOD	...	...	at 19.7" MOD	No	No	No
Diascope	3-lamp	3-lamp	Option	Option	Option	Option	Option	Option	
Operating wt	54 lbs	43 lbs	51 lbs	68 lbs	46 lbs	18.7 lbs	16.5 lbs	45.1 lbs	
Reader Service No	541	542	543	544	545	546	547	548	

¹ Similar unit is 6x10 10-60mm zoom f/1.5 with 16" MOD.

Manufacturer	Fujinon					Nikon		
	Model	HR22x18ES	HR6x12.5SD	R17x12.5ESM	R20x10.5ESM	R34x29.5ESM	R44x13.5ESM	R10x12AED-HD2	R6x8AED-HD2
Application	HDTV	HDTV	F/S/O/S	F/S/O	F/S/O/Special	F/S/O/Special	HDTV	HDTV
Zoom range (mm)	18-400	12.5-75	12.5-215	10.5-210	29.5-1000	13.5-600	12-120	8-48
Aperture (Wide-Tele)	1.8-2.7	1.5	1.6-2.0	1.6-2.1	3.5-5.0	1.8-3.0	1.8-2.2	1.7
MOD distance	18'	3.9'	29.5"	29.5"	18.7"	8.2"	51.6"	31.6"
MOD area (HxV) in mm	3644x2050	1013x570	987x174	1168x876	2021x1516	2181x1636	...	...
Horizontal angle (W-T)	42°-2°	58°-10°	54°-3°	62°-3°	24°-0.6°	50°-1°	60°19'-6°39'	82°9'-16°32'
Extender(s)	2x	...	2x; 1.5x	2x; 1.5x	2x	2x	2x	2x
Macro focus	No	No	No	No	No	No	Yes	Yes
Diascope	Yes	Option	Yes	Yes	Yes	Yes	...	...
Operating wt	57.2 lbs	15 lbs	42.9 lbs	45.1 lbs	45.1 lbs	55 lbs	16.5 lbs	16.5 lbs
Reader Service No	549	550	551	552	553	554	555	556

Television Zoom Lenses, 1¼" (Non-CCD)

Manufacturer	Angenieux		Canon USA			Fujinon			
	Model	15x16	P14x16.5BIE	P18x15BIE	P40x18BIE	HP5x16SD	P17x16.5ESM	P20x14ESM	P44x18ESM
Application	HDTV	Studio	F/S	Field	HDTV	F/S/G/Special	F/S/O/Special	F/S/O/Special	
Zoom range (mm)	16-240	16.5 235	15-270	18-720	16-80	16.5-280	14-280	18-800	
Aperture (Wide-Tele)	2-2.4	2.1	2.1-2.7	2.3-3.7	1.4	2.1-2.7	2.1-2.8	2.4-4.0	
MOD distance	0"	27.6"	23.6"	8.2'	3.9'	29.5"	29.5"	8.2'	
MOD area (HxV) in	60x34.5	965x724	922x692	211x158	1055x594	1000x750	1171x878	2181x1636	
Horizontal angle (Wide-Tele)	60.25°-4.5°	54.8°-4.2°	60.4°-3.7°	50.7°	60°-13°	54°-3°	62°-3°	50°-1°	
Back focus (mm)	Adjustable	Adjustable	Adjustable	Adjustable	...	...	...	...
Extender(s)	1.4x; 2x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	2x; 1.5x	
Macro focus	...	...	...	...	No	No	No	No
Diascope	3-lamp	Option	Option	Option	Yes	Yes	Yes	Yes	
Operating wt	54 lbs	51 lbs	59 lbs	68 lbs	31.9 lbs	42.9 lbs	45.1 lbs	55 lbs	
Reader Service No	557	558	559	560	561	562	563	564	

Video Monitors

These monitors are designed primarily for monitoring of composite and component video, while some are also useful for digital signals. N NTSC, P PAL and S SECAM abbreviations are used. A dagger (†) indicates an X-Y output for vector type displays on X-Y signal monitors

Manufacturer	ASACA/ShibaSoku					Barco			
	Model	CM 23/43 ¹	CM93A1/95A1	CM99A	CMM 11 series†	CMM 7 series†	AVN series ²	CVS series ³	HDM XX53 series
Beam feedback CRT	...	Yes	Yes	Yes	Yes	Yes	...
Aperture correction	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
NTSC test matrix	No	Yes	No	Yes	No	No	No	No	No
Blue gun only test	No	Yes	No	No	No	Yes	Yes	Yes	No
Underscan/overscan	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Crosspulse display	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
# composite inputs	3	3	2	3	2	3	2	None	
RGB inputs	Yes	Yes	Yes	Opt	Opt	Yes	Yes	Yes	
S-VHS inputs	Yes	Yes	No	Opt	No	No	No	No	
Y/Cr/Cb inputs	No	Yes	No	Opt	No	Yes	Opt	No	
Audio amp/speaker	No	No	Yes	No	No	Amp	-ASP opt	No	
Application	Grade 2	Grade 1	Grade 2	Grade 1	Grade 2	Grade 1	Grade 1	HDTV	
CRT diagonal (in.)	21 (15)	20 (14)	9	20 (14 26)	20 (14)	10-28	14 (20)	20-40	
CRT type	In-line dot	In-line dot	In-line dot	Delta gun/dot	In-line dot	In-line slot	In-line dot	In-line dot	
Dot/Stripe pitch (mm)	0.39	0.44 (.31)	0.3	0.44	0.44	0.31	0.31	0.26	
Resolution at center	550TVL	600TVL	400TVL	600TVL	600TVL	>500 15"	900TVL	1000TVL	
Luminance bandwidth	7MHz	7MHz	7MHz	7MHz	6MHz	6MHz	6MHz	30MHz	
Chrominance bandwidth	0.5MHz	1.3MHz I	0.5MHz	to 4.4MHz	1.3MHz	0.6MHz	0.6MHz	...	

Video Monitors

Manufacturer	ASACA/ShibaSoku					Barco		
	Model	CM 23/43 ¹	CM93A1/95A1	CM99A	CMM 11 series†	CMM 7 series†	AVM series ²	CVS series ³	HDM XX53 series
Demodulation axes	R-Y/B-Y	I/Q	No	I/Q	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	...
Decoder filter	Comb; notch	Notch; comb	Comb; notch	Comb; notch	Comb; notch	Comb filter	Comb; notch	...
Standards	NTSC/PAL	NTSC/PAL opt	NTSC/PAL	N/P/S/multi	NTSC/PAL	NTSC	N/P/S	Any HDTV
Multiscan capability	No	No	No	No	No	No	No	to 33.75kHz
µP/auto-setup	...	Yes	No	No	No	Option	Yes; setup opt	...
Reader Service No	607	608	609	610	611	612	613	614

¹ Flat square CRT also available in 14" rack-mount CM44. ² Available with MMRC, SRC multiple, single monitor remote controller. ³ Multiple input cards allow added input capability including quad input, NTSC-4.43, PAL-M/N; D-1/D-2, CCIR 601 digital.

Manufacturer	Conrac	Electronic Visuals	Hitachi Denshi		Ikegami				
	Model	6545†	EV6351B ⁴	CM-150 (-210)	15 series†	16 series	17 series	19 series	9 series
Beam feedback CRT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	...
Aperture correction	Yes	...	...	Yes	Yes	Yes	Yes	Yes	Yes
NTSC test matrix	No	...	No	...	Yes	No	...	...	...
Blue gun only test	No	...	No	Yes	No	...	...	...	...
Underscan/overscan	Yes	Yes	Yes	Yes	Under	Under	Under	Under	Under
Crosspulse display	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
# composite inputs	3	Yes	3	3	Yes	Yes	Yes	Yes	Yes
RGB inputs	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
S-VHS inputs	Opt	Yes	Yes	No	Yes	Yes	No	No	No
Y/C _u C _b inputs	Opt	Yes	...	Option	No	Yes	Yes	Yes	Yes
VCR 8-pin input	No	No	No	No	No	No	No	No	No
Audio amp/speaker	No	No	No	No	No	No	No	No	No
Application	Grade 1	Video	Video	Video	Video	Video	Video	Video	Video
CRT diagonal (in.)	19 (13)	20	15 (21)	13 (19)	13 (19)	14 (20)	13 (19)	8.5 (13/19)	
CRT type	In-line dot	In-line dot	Dark-Tint	In-line dot	In-line slot	In-line slot	In-line dot	In-line dot	
Dot/stripe pitch (mm)	0.43 (0.31)	0.43 (0.47)	0.57	0.31 (0.43)	0.41 (0.55)	0.41 (0.55)	0.31 (0.43)	0.31 (0.43)	
Resolution at center	800TVL RGB	...	450 (500)	700	500	500	700	700	
Luminance bandwidth	13MHz	8MHz	...	to 10MHz	to 7MHz	50-8MHz	60-10MHz	to 8MHz	
Chrominance bandwidth	...	...	...	0.6MHz	to 3.58MHz	3.58MHz	0.6MHz	0.6-I; 0.3-Q	
Pixels HxV	...	...	...	...	...	...	...	...
Demodulation axes	R-Y/B-Y	UV	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	I/Q	
Decoder filter	Comb; notch	Notch	Notch (NTSC)	Adaptive comb	Comb; notch	Notch	Comb; notch	Notch; Comb	
Standards	NTSC/PAL	PAL	NTSC/PAL	NTSC	NTSC	NTSC	NTSC	NTSC	
Multiscan capability	No	No	No	No	No	No	No	No	
µP/auto-setup	...	No	No	Yes	No	Digital control	No	No	
Reader Service No	615	616	617	618	619	620	621	622	

⁴ EV6351 Grade II; -B model Grade I; switchable aspect ratio shows 4:3 or 16:9 pictures.

Manufacturer	JVC Company			Melford Electronics			Mitsubishi	Panasonic
	Model	TM-1400SU ⁵	TM-2084U/CA ⁶	VM-R190SU ⁷	DU5-20C	DU6 16C	DU6 series ⁸	AM-3501R	AT series
Beam feedback CRT	Yes	...	Yes	Yes	Yes	...	...	Yes
Aperture correction	...	Yes	Yes	[EBU	...	...	...	10dB
NTSC test matrix	No	No	No	phosphors	No	No	...	Yes
Blue gun only test	Yes	No	Gun switch	No	No	Yes	...	Yes
Underscan/overscan	Under	No	Yes	Overscan	Overscan	Yes	Yes	Yes
Crosspulse display	Yes	No	Yes	...	No	Yes	...	Yes
# composite inputs	2	2	2	2	2	Yes	3	3
RGB inputs	No	No	Yes	Yes	Yes	Yes	Yes	Yes
S-VHS inputs	Yes	No	Yes	No	No	No	Yes	Yes
Y/C _u C _b inputs	No	No	Yes	No	No	No	...	Yes
VCR 8-pin input	Yes	Yes	Yes	No	No	No	Yes	...
Audio amp/speaker	Yes	Yes	No	No	No	No	Yes	No
Application	Video/data	Video	Video/data	Video; Data	Video; data	Video	data	Data; Mon/Rcvr
CRT diagonal (in.)	14 Full Square	19	19	20	16	9-26	35	13; 19
CRT type	In-line dot	...	In-line dot	In-line dot	In-line dot	In-line	In-line dot	In-line dot
Dot/stripe pitch (mm)	0.499 stripe	...	0.4	0.4; 0.31	0.31mm	0.31; 0.43	1.0 center	0.31; 0.44
Resolution at center	450	350TVL	600	5.5MHz pattern	6MHz pattern	5.5MHz pattern	600 TVL	...
Luminance bandwidth	...	...	...	to 10MHz	10MHz	to 8MHz	...	>7
Chrominance bandwidth	...	...	...	...	...	...	...	0.6
Pixels HxV	...	...	CGA	...	...	...	640x480	...
Demodulation axes	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	UV	UV	UV	...	I/Q
Decoder filter	Comb	Comb	Comb	Notch	Notch	Notch filter	...	Both
Standards	NTSC/Y/C358	NTSC	NTSC/component	PAL; NTSC	525/625	PAL	NTSC	N/P/S
Multiscan capability	No	No	No	525/625	No	No	...	...
µP/auto-setup	No	No	No	No	No	No	...	Option
Reader Service No	623	624	625	626	627	628	629	630

⁵ VM-R200SU 20", TM-91SU 9" have similar characteristics. ⁶ TM-9UCV 9", TM-13U/CA 13" have similar characteristics; TM-9U does not include 8-pin VCT input. ⁷ VM-R140SU 14" unit with similar characteristics; TM-R14U/CA 14", TM-R9U/CA 9" do not support color difference inputs. ⁸ 22", 26" models have slot-mask CRT as standard with 0.85mm strip spacing; EBU or near EBU phosphors standard.



See what you sound like.

The VM 700A just added audio!

Now you can get *combined* video and audio performance reports with one powerful monitoring and measurement package — the industry-leading Tek VM 700A in NTSC, PAL and Dual Standard PAL/NTSC versions.

Just specify Option 40 with your instrument, and it's all at your fingertips. Audio measurements like distortion, phase and crosstalk in automatic as well as manual modes. Unique real-time spectral display of audio frequencies. Stereo audio monitoring. Plus the VM 700A's full set of video measurements.

What's more, with our new ASG 100 Audio Signal Generator, you can insert test tone sequences in the audio line to perform automated measurements with the VM 700A Option 40. In 30 seconds or less you can characterize the audio performance of studios, STLs, transmitters and satellite uplinks completely.

But don't just read about it. Call your Tek representative to arrange a demonstration. And *see* what you sound like!



Tektronix

Video Monitors

Manufacturer Model	Panasonic	PESA	Philips/BTC	Sharp	Sony			
	BT series ⁹	BM-4300	PM 5625	XM-2001/2701	BVM-1910(-15) ^{10†}	GVM-2000 (1300)	HDM series ¹¹	PVM-1342Q (44Q) ¹²
Beam feedback CRT	Yes	...	No	...	Yes	Yes	Yes	Yes
Aperture correction	Yes	...	Yes	Yes	6dB	Yes	in RGB	Yes
NTSC test matrix	Yes	No	No	No	No	No	No	No
Blue gun only test	Yes	No	Yes	No	Yes	No	No	Yes
Underscan/overscan	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Crosspulse display	Yes	Yes	Yes	No	Yes	...	Yes	Yes
# composite inputs	2	2	2	1	Yes	Yes	No	Yes
RGB inputs	Yes	No	Yes	(tuner)	Yes	Yes	Yes	Yes
S-VHS inputs	No	No	No	Yes	No	No (Y/C)	No	Yes
Y/C _R C _B inputs	No	No	No	No	Yes	No	Y _P P _B	No (Yes)
VCR 8-pin input	Yes	No	No	No	No	No	No	Yes
Audio amp/speaker	Yes	No	No	MTS system	No	Yes	No	Yes
Application	Video	Grade 2	Grade 2	Mon/Rcvr	Video/data	Video/data	HDTV	Video/data
CRT diagonal (in.)	13; 19	9; 14; 20	14	20 (27)	19	21 (13)	12/18/28/38	13
CRT type	In-line dot	In-line dot	In-line dot	Linytron	Trinitron	Trinitron	Trinitron	Trinitron
Dot/stripe pitch (mm)	0.31; 0.44	0.31	0.44	0.65	...	0.3 (0.4)	0.55 (.25)	0.26-0.46
Resolution at center	230-350	>450	600	Equiv 0.65mm	400TVL	900 (600)	560 (600)	600-1000 H
Luminance bandwidth	>7	5MHz	5MHz	...	8MHz (6) NTSC	7MHz (8)	30MHz 16:9	7MHz NTSC
Chrominance bandwidth	0.6	...	to F _{sc}	...	10MHz (6) RGB	20 (30)	...	9MHz RGB
Pixels HxV	...	...	...	...	...	720x480(900x560)	...	900x200
Demodulation axes	I/Q	...	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	...	...	R-Y/B-Y
Decoder filter	Both	...	Notch	Comb filter	CF	NF	...	...
Standards	N/P/S	NTSC/PAL	N/P/S opt	NTSC	NTSC	...	...	N P S
Multiscan capability	...	...	...	No	No	Yes	No	...
µP/auto-setup	No	...	...	No	Option	No	No	No
Reader Service No	631	632	633	634	635	636	637	638

⁹CompuFocus CRT with overlapping field lens gun; 9", 13" and 19" diagonals. ¹⁰BVM-2010/2015 PAL-M; BVM-1315/1415 13" NTSC, PAL-M; BVM-8021/9021ME 9" NTSC/PAL, SECAM. ¹¹28" and 38" use flat screen CRTs; all accept tri-level or bi-level with sync, HD/VD drives. ¹²PVM-1340/1341 do not include PAL, SECAM; resolution of 450 lines; 1910Q with 19" CRT.

Manufacturer Model	Sony		Videotek				Vistek
	PVM-2030/2530 ¹³	PVM-5310 (3x)	AVM-13sv (-19s)	RM-8 (-8PR) ¹⁴	Studio 13	VM-13 PRO	GM7100(7200) ¹⁵
Beam feedback CRT	Yes	Yes	No	No	No	No	...
Aperture correction	...	No	Yes	No	No	No	No
NTSC test matrix	No	No	No	No	No	No	No
Blue gun only test	No	Yes	Yes	Yes	Yes	Yes	No (Opt)
Underscan/overscan	No	No	Under	Opt	Yes	Yes	Yes (Opt)
Crosspulse display	Yes	No	Yes	Opt	Yes	Yes	Yes
# composite inputs	Yes	Yes	2	2	3	3	A/B
RGB inputs	PC	No	No	No	No	No	Yes
S-VHS inputs	Yes	No	-13vs	No	No	No	...
Y/C _R C _B inputs	No	No	No	No	No	No	No
VCR 8-pin input	Yes	No	Yes	RM-8 only	Yes	No	No
Audio amp/speaker	Yes	No	Yes	Yes	Yes	No	No
Application	Video/data	V	Grade 2	Mon/Rcvr	Grade 2	Grade II	Gr 1 (2)
CRT diagonal (in.)	21 (27)	5	13 (19)	8	10	13	14/20 (6.5/10)
CRT type	Trinitron	Trinitron	In-line slot	Trinitron	In-line Slot	Trinitron Plus	Dot mask
Dot/stripe pitch (mm)	0.55 (0.73)	...	...	...	...	0.25mm	0.39/0.44
Resolution at center	560	220	450 (380)	260TVL	380 TVL	260TVL	...
Luminance bandwidth	6MHz NTSC	...	4.2MHz	3MHz	3MHz	3.2MHz	6MHz
Chrominance bandwidth	10MHz RGB	...	1MHz	1MHz	1MHz	1.5MHz	...
Pixels HxV	640x200	...	...	1MHz	...	...	...
Demodulation axes	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	R-Y/B-Y	U-V
Decoder filter	Comb	...	Comb filter	Notch	Comb, notch	Notch	Comb filter
Standards	NTSC	NTSC	NTSC	NTSC	NTSC	NTSC	PAL
Multiscan capability	...	No	No	No	No	No	No
µP/auto-setup	No	No	No	No	No	No	No
Reader Service No	639	640	641	642	643	644	645

¹³PVM-3230 32"; PVM-4300 43"; PVM-1910 19". ¹⁴RM-8 is a portable unit; both operate from ac or 12Vdc; 68-channel tuner. ¹⁵GM7200 available for NTSC-358/4.43, PAL or SECAM.

Video Standards Converters

Systems for conversions among NTSC, PAL, SECAM and their variants; may also provide format conversion.

Manufacturer Model	AVS				CEL Electronics		Grunder/Video Int'l		I-DEN	OKI Electric
	AVS 6500	EOS	ISIS	ADAC	P156-2	P165 TETRA	DTC 2504	DTC 2604	IP-500	LT1210
Supports NTSC 3.58	I/O	I/O	I/O	I/O	I/O	I/O	I/O	I/O	Yes	I/O
Supports NTSC 4.43	I/O	I/O	I/O	I/O	Opt	I/O	Yes	I/O	No	I
Supports PAL (CCIR)	I/O	I/O	I/O	I/O	I/O	I/O	Yes	I/O	Yes	I/O
Supports PAL-M	Opt	and N	& N opt	& N Opt	Opt	I/O	...	& N	No	Opt
Supports SECAM	I/O	I/O	Option	Option	Input	I/O	Output opt	I/O	Yes	Opt
Supports Y-C/S-VHS	...	I/O	Option	No	...	I/O	Y/C-358/443	Dub U Opt	Yes	No
Supports Y/C _R C _B	...	Yes	Option	Yes	Input	I/O	No	I/O	Yes	No
Supports RGB	Opt	...	Option	Yes	...	No	No	Option	Yes	No

Manufacturer	AVS				CEL Electronics		Grunder/Video Int'l		I-DEN	OKI Electric	
	Model	AVS 6500	EOS	ISIS	ADAC	P156-2	P165 TETRA	DTC 2504	DTC 2504	IP-500	LT1210
Supports D-1 CCIR 601	...	No	Option	Option	No	Opt	No	No	No	No	No
Luminance sampling	10MHz		13.5MHz		12.9MHz	13.5MHz	...	13.5MHz	5.5MHz	...	...
Chrominance sampling	...		6.75		4.3MHz	6.75MHz	...	6.75MHz	3.58MHz	...	...
Quantizing (L/C)	8-bit		8-bit		7-bit	8-bit	8-bit	8-bit	8-bit	...	...
Input S/N ratio	...	>50dB	...	>55dB	53dB	>56dB	...	60dB wtd	...	...	(25dB)
Resolution luma b. w.	3.58MHz	4.5MHz NTSC	3.58MHz	5.5MHz	3.5MHz	4.2MHz	3.58+	>5.5	...	...	...
Resolution chroma b. w.	...	...	...	...	...	...	...	...	...	...	...
Functions:											
TBC/synchronizer	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	TBC	Yes	Yes
Frame (field) freeze	Yes (1 or 2)	Yes	Yes	Yes (4-field)	Yes (1 or 2)	Yes	Yes	Yes (4-field)	...	(Yes)	Yes
Image enhancement	Yes	Yes	Yes	Yes	...	C	Yes	H/V	Yes	Yes	Yes
Noise reduction Y/C	Yes	Yes	17dB/21dB	9dB	...	Yes	15dB	15dB	Yes	...	...
Composite encoding	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced NTSC/PAL	...	Yes	Yes	Yes	...	...	...	...	...	...	...
Format conversion	...	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Auto input selection	Yes	Yes	Yes	Yes	Yes	...	No	Yes	No	...	...
Color timing correction	Yes	Yes	Yes	Yes	Gain; phase	Yes	Level	Yes	...	...	Yes
Programmable operation	No	4-preset	No	No	No	RS-423	No	No	No	No	No
R/B balance correction	Yes	Yes	Yes	Yes	No	...	No	Yes	No	...	...
Proc amp adjustment	Full	Full	Full	Full	Yes	Yes	Yes	Full	Full	Full	Full
Reader Service No	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1160

Manufacturer	OKI Electric	Quantel	Snell & Wilcox				Video International			Vistek Electronics		
			Model	LT2000TSC	Satin 601	ME2001	ME8800(8500)	DIP9800	ME990C series	DTC 3604	OTC 4500	DTC 3504	V4401 VECTOR
Supports NTSC-3.58	I/O	Yes	Out	I/O	I/O	I/O	I/O	I/O	I/O	I/O	Yes	Yes
Supports NTSC-4.43	In	Yes	Out	I/O	I/O	I/O	I/O	I/O	I/O	Yes	Yes	Yes
Supports PAL (CCIR)	I/O	Yes	Out	I/O	I/O	I/O	(9930)	I/O	I/O	& -N	Yes	Yes
Supports PAL-M	I/O	Yes	Out	8800 (. . .)	I/O	(9930)	I/O	I/O	I/O	Yes	Yes	Yes
Supports SECAM	I/O	Yes	Out	I/O	I/O	(I/O 9900)	I/O	I/O	I/O	Yes	No	No
Supports Y-C/S-VHS	I/O	...	Y,C	Yes (DLB)	No	(9910 CUB)	I/O	Dub O	Yes	Yes	Yes	Yes
Supports Y-C/S	Opt	Yes	...	Yes	Out std (In opt)	(9930)	I/O	Y/O	Yes	Yes	Yes	Yes
Supports RGB	Opt	Yes	Yes	No	I/O opt	(9930)	I/O	Y/O	Yes	Yes	Yes	Yes
Supports D-1 CCIR 601	Yes	Yes	...	No	No	No	D1	Y/O	D1	Yes	Yes	Yes
Supports D-2	...	...	...	...	...	...	No	...	No	No	No	No
HDTV downconverter	No	...	Yes	No	No	No	No	...	No	No	Yes	Yes
Luminance sampling	13.5	...	...	3.3MHz	3.3MHz	3.3MHz	13.5	13.5	13.5	13.5	13.5	13.5
Chrominance sampling	6.75	...	...	...	...	...	6.75	6.75	6.75	6.75	6.75	6.75
Quantizing L/C	8-bit	...	...	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit	8-bit
Input S/N ratio	(>25dB)	...	...	>56dB	56dB	56dB	60dB wtd	54dB	60dB	...	...	...
Resolution luma b. w.	420L H	...	...	...	...	4-field motion	>5.5MHz	>5.5MHz	>5.5MHz	5.5MHz	...	...
Resolution chroma b. w.	330L V	...	...	...	...	processing	...	...	...	...	...	...
Functions:												
TBC/synchronizer	Yes	TBC	...	Yes	Yes	Yes	Yes	Yes (4-field)	Yes (field 1 or 2)	Yes	Yes	Yes
Frame (field) freeze	Yes	...	Yes	Yes	Yes	Yes	Yes	H/V	Yes	Yes	Yes	Yes
Image enhancement	H	V	Yes	Yes	Yes	Yes	Yes	15dB	Yes	Yes	Yes	Yes
Noise reduction Y/C	Y	C	Yes	Yes	Yes	Yes	Yes	15dB	Yes	Yes	Yes	Yes
Composite encoding	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Enhanced NTSC/PAL	...	...	...	...	...	...	...	...	Opt Como	...	...	...
Format conversion	...	Yes	No	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes	Yes
Auto input selection	Yes	...	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Color timing correction	Yes	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Programmable operation	Remote	Yes	Pan; squeeze	Yes	2-memories	Yes	No	No	No	No	No	No
R/B balance correction	No	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Proc amp adjustment	Full	Yes	Partial	Full	Full	Full	Full	Full	Full	Full	Full	Full
Reader Service No	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1170	1170

Time Base Correctors, Synchronizers

Abbreviations include N NTSC, P PAL, S SECAM. When no model in a group supports a particular function, that item is dropped from that group.

Manufacturer	ALTA Group	Ampex Corporation	Broadcast Systems Design	BTS	CEL Electronics	Digital Processing Systems (Midwest)			
	Model	Cygnus (-5.5)	ZEUS	Model 501	DSY7	P164-38 (-18)	DPS-170	DPS-175A	DPS-265
Function TBC/Synchronizer	Both	TBC	TBC	Synchronizer	Both	T3C			Both
Standard NTSC/PAL/SECAM	NTSC	N; P-M; S	NTSC	CCIR 601	N/P/S		NTSC		
Format conversions	(5.5 only)	No	Yes	No	Yes		No		Yes
Sampling frequency/bits	14.318MHz; 8-bit	14.318 MHz; 9-bit	16.11MHz; 8-bit	13.5MHz; 8-10 bit	13.5MHz; 8-bit		4xFsc; 8-bit		
Correction window	1 field	60 lines	±8 lines	to frame	5-field PAL	16 lines	>525 lines		Infinite
Video bandwidth (dB/MHz)	290 line (5.5MHz)	±0.2/5MHz	±0.5/6.4MHz	...	5.5MHz		±0.25dB 4.2MHz		-3,0.5dB 6MHz
S/N ratio	>55dB (>56dB)	>58dB	58dB	...	56dB		58dB		...
Differential phase/gain	<3/3% (<2/2%)	<2/2%	1.5/1.5%	...	...		<2/2%		...
Residual error	...	±10ns	±10ns Y	...	...		±10ns		±15ns
Advanced sync output	No	Yes	Yes	...	Yes		Yes		No
Coherent subcarrier out	No	Yes	Yes	AF delay control	...		Yes		No
Composite I/O	Yes	Yes	Yes	With options	Yes		Yes		Yes
Component I/O	(Y-C3.58)	D-2 out	Y-C/Y-C688/-C629	4:2:2 digital	YUV/Y-C(S-VHS) CCIR-601/656	No	No		Color-under
Heterodyne operation	...	Yes	Yes	No	...		Yes		...
Dropout compensation	...	Yes	Yes	[Auto selects	Yes		Yes		...

Time Base Correctors

Manufacturer	ALTA Group	Ampex Corporation	Broadcast Systems Design	BTS	CEL Electronics	Digital Processing Systems (Midwest)		
Model	Cygnus (-5.5)	ZEUS	Model 501	DSY7	P164-38 (-18)	DPS-170	DPS-175A	DPS-265
For servo capstan	...	Yes	...	[525/625 line	...	...	...	...
Supports dynamic tracking	Yes	Yes	No	[standard ref.	Yes	Yes	...	No
Noise reduction	No	Yes	Chroma	[to input sync.	...	...	...	...
Image enhancement mode	Yes (No)	...	Horizontal	[Variable	...	...	...	...
Video effects	Yes	No	No	[delay.	-38 only	...	...	...
Freeze frame-field	Yes	Yes	No	Yes	...	No	...	(VITS insert)
Video mixer feature	4-input V/A	No	No	No	4-input BIM opt	...	No	Yes
Reader Service No	668	669	670	671	672	673	674	675

Manufacturer	Digital Processing Systems (Midwest)			For-A Corporation				
Model	DPS-270	DPS-275	DPS-375	FA-210	FA-300 ¹	FA-425	FA-740	FA-800
Function TBC/Synchronizer	TBC	Both		TBC	Both	TBC	Dual TBC	Both w/ALC
Standard NTSC/PAL/SECAM	NTSC		PAL	NTSC				
Format conversions	Yes			No	Yes	No	Yes	No
Sampling frequency/bits	4xFsc; 8-bit		13.5; 8-bit	13.5/4:1:1; 8-bit	13.5MHz; 8-bit	14.318MHz; 8-bit	8.93MHz; 8-bit	4xFsc; 8-bit
Correction window	16 lines	Infinite		2-field				
Video bandwidth (dB/MHz)	-3/0.25 5.5MHz	-3/+0.25 6MHz Y-C		±0.5/5MHz Y-C		5MHz	4.2MHz	3.5MHz Y
S/N ratio	58dB			56dB				
Differential phase/gain	<2°/2%	<1°/1%		2°/2%				
Residual error	±15ns			15ns				
Advanced sync output	Yes			Yes				
Coherent subcarrier out	Yes	No		No				
Composite I/O	Yes			Yes				
Component I/O	S-VHS	Y-C358/Y-C688 YCrCb out only	Y-C(S-VHS)/YCrCb Y-C685/924 U-DUB	No	Y-C358/YCrCb in	No	Y-C358	No
Heterodyne operation	Yes	...		Yes				
Dropout compensation	No	Yes	No	No	Yes	Yes		
Supports dynamic tracking	...	No	...	No	FA-300DT opt	No		
Noise reduction	Chroma			Luminance				
Image enhancement mode	...	Chroma		...				
Video effects	No			Yes				
Freeze frame-field	...	Yes		No				
Video mixer feature	No			Yes				
Reader Service No	676	677	678	679	680	681	682	683

¹FA-700 Dualist 2-channel version.

Manufacturer	Fougerolle	Grunder/Feral		Hotronic			I-DEN	
Model	MPV1000 ser ²	GC-200	GS-100	AE61 (-B; -S)	AF71	AF75	IVT-7	IVT-9 Plus
Function TBC/Synchronizer	Both	Both		TBC	Both			Both
Standard NTSC/PAL/SECAM	PAL; SECAM	NTSC		NTSC				
Format conversions	Yes	No		Yes	No	Yes	Yes	
Sampling frequency/bits	13.5MHz; 8-bit	4xFsc; 8-bit		4xFsc; 8-bit			13.5MHz	
Correction window	1-frame	1 frame		16-line	2 frame	1 frame	1 frame	
Video bandwidth (dB)	5MHz	4.2MHz		4.2 (-B 2.5)	4.2	4.2 (400 lines)	450 TVL	5.5MHz
S/N ratio	55dB	58dB		58dB			58dB	
Differential phase/gain	2°/2%	2°/2%		<2°/2%	<1.5°/1.5%	<2°/2%	2°/2%	
Residual error	±15ns	...		±10ns	±20ns	±10ns	±15ns/2°	
Advanced sync output	...	...		Yes			No	Yes
Coherent subcarrier out	...	...		Yes			No	Yes
Composite I/O	w/decoder	Yes		Yes				
Component I/O	RGB/YUV/27MHz 4:2:2 interface	No		Y-C358/S-VHS VHS/U-matic/SP	No	Y-C358/S-VHS VHS/U-matic/SP	Y-C358/Y-C688 Y-C629	Y-C688/Y-C358 YCrCb (S-VHS in)
Heterodyne operation	Yes	...		Yes				
Dropout compensation	Yes	...		Option			Yes	Yes
Supports dynamic tracking	No	No		...				
Noise reduction	...	...		3dB chroma				
Image enhancement mode	...	...		...
Video effects	No	A-B fade		No				
Freeze frame-field	Yes	Yes		No	Yes			Limited
Video mixer feature	No	2-input	4-input	No				
Reader Service No	684	685	686	687	688	689	690	691

²27MHz 4:2:2 parallel interface on MPV1100.

Manufacturer	JVC	Marconi	Microtime		Nova Systems			
Model	SA-T411U	B2022	FS10 (FS8)	Tx6	502 EFP TBC	920SP (900)	Nova 710S (700)	NOVASync (F)
Function TBC/Synchronizer	TBC	Synchronizer	Both		TBC			
Standard NTSC/PAL/SECAM	NTSC	PAL	N; P-625/-525	NTSC; PAL-B	NTSC	NTSC (& PAL)		Synchronizer
Format conversions	Yes	No	No	Yes	No	Yes		NTSC
Sampling frequency/bits	13.5/4:1:1; 8-bit	3xFsc; 9-bit	4xFsc; 10(8)-bit	13.5MHz; 8-bit	14.3MHz; 8-bit	13.5MHz; 8-bit	14.3MHz; 8-bit	
Correction window	1 frame	2-/4-field	Inf. (4-fld opt)	Infinite	6-line	1 field	32-line	1 frame
Video bandwidth (dB/MHz)	5MHz	±0.25 5MHz	5.5MHz	(5.2 S-VHS)	5.5MHz	to 5.5MHz	5.5MHz	±0.5 4.2MHz
S/N ratio	56dB	...	>60dB	58dB NTSC	>58dB	>58dB		
Differential phase/gain	2°/2%	2°/3%	1°/1% (2°/2%)	2°/2%	<2°/2%	<2°/2%		

Manufacturer	JVC	Marconi	Microtime		Nova Systems			
Model	SA-T411U	B2022	FS10 (FS8)	Tx6	502 EFP TBC	920SP(900)	710S(700)	NOVASync (F)
Residual error	15ns monochrome	±2°	...	<15ns		±10ns		±10ns Y
Advanced sync output	Yes	No		Yes	Yes		Yes	
Coherent subcarrier out	...	No		No	Yes	...		Yes
Composite I/O	Yes	Yes		Yes	Output	Yes		NTSC
Component I/O	S-VHS I/O; YCrCb O	No	D2	Y-C(S-VHS); Y-C358; YCrCb	VTR video	Y-C in/Y-C358; YCrCb	S-VHS in -710S	S-VHS in
Heterodyne operation	...	...	Opt	...	...	...		Yes
Dropout compensation	Yes	...	...	Yes	No	Yes (No)		Yes
Supports dynamic tracking	No	...	No	Yes			No	
Noise reduction	Yes	...	No	to 6dB		3dB chroma		No
Image enhancement mode	No	...		No	[Portable		No	
Video effects	No	No	No	ABEEffects opt	[unit for	Yes		No
Freeze frame-field	Both	[Freeze on		Yes	[field use	Yes	No	NOVASync F
Video mixer feature	No	[signal interrupt	No	via effects	No	4x1		No
Multiple channel	No	No	No	Dual opt		No		No
Reader Service No	692	693	694	695	696	697	698	699

Manufacturer	Nova Systems	Panasonic			Prime Image			
Model	NOVASync 2 (2F)	AU-TB50B	TBC-100	TBC-200 Plus	7.5MHz 700(701)	7.5MHz 710(711)	HR600+ 800(801)	HR600+ 810(811)
Function TBC/Synchronizer	Both		TBC		TBC	Both	TBC	Both
Standard NTSC/PAL/SECAM	NTSC		NTSC			NTSC		NTSC
Format conversions	...		Yes			Yes		Yes
Sampling frequency/bits	14.3MHz; 8-bit	13.5MHz; 8-bit	14.318MHz; 8-bit			... 8-bit		... 8-bit
Correction window	1 frame	32-line	16 line		16 lines	1 frame	16-line	1 frame
Video bandwidth (dB/MHz)	±0.5 4.2MHz	4.5MHz	5.5MHz DUB	6MHz DUB		7.5MHz		7.5MHz
S/N ratio	>58dB	54dB	58dB	>57dB		58dB		58dB
Differential phase/gain	2/2%		2/2%			1.5/1.5%		1.5/1.5%
Residual error	±10ns Y	...	...	±15ns		±15nsec		±15nsec
Advanced sync output	Yes	Yes	Yes	Yes	Yes	Not required	Yes	Not required
Coherent subcarrier out	Yes	No	No	No		Yes		Yes
Composite I/O	NTSC	Yes	Yes	Yes		Yes		Yes
Component I/O	S-VHS in	CTCM in YCrCb out	Y-C358 S-VHS in	Y-C358 S-VHS YCrCb out	Y-C688/Y-C[S-VHS] YCrCb/RGB		Y-C688/Y-C[S-VHS]; YCrCb/RGB	
Heterodyne operation	Yes	...	...	...		Yes		Yes
Dropout compensation	Yes	...	...	...		Yes		Yes
Supports dynamic tracking	No	...	...	...		Yes		Yes
Noise reduction	No		No	Chroma		to 20dB		No
Image enhancement mode	No		No	Chroma	...	...		No
Video effects	No		No		701 only	711 ⁴	#801 only	#811 ⁵
Freeze frame-field	NOVASync F	...	...	...	701 only	711	No	Yes
Reader Service No	700	701	702	703	704	705	706	707

⁴Limited effects with #710. ⁵Limited effects with #810.

Manufacturer	Prime Image					QuesTech	Tektronix	Videotek
Model	Model 50	TBC+ 100 (150)	S-TBC+ 100S (150S)	STBC SYNC+ 200S (250S)	TBC SYNC+200 (250)	2101P	110-S ⁸	VDP-8400 (-8000) ⁹
Function TBC/Synchronizer	Both		TBC		Both	Both	Synchronizer	Synchronizer
Standard NTSC/PAL/SECAM	NTSC		NTSC		NTSC	PAL (625)	NTSC	NTSC
Format conversions	No	No	Yes	Yes	No	Yes	No	No
Sampling frequency/bits	...; 8-bit		... 8-bit		...; 8-bit	13.5MHz; 8-bit	14.314MHz; 10-bit	14.318MHz; 8-bit
Correction window	1 frame		16 lines		1 frame	1-frame+32-lines	Infinite	1-frame
Video bandwidth (dB)	4.2MHz		4.2MHz		4.2MHz	5.5MHz	to 4.2MHz	-3dB 5MHz
S/N ratio	58dB		58dB		58dB	54dB luma	60dB	>58dB
Differential phase/gain	1.5/1.5%		1.5/1.5%		1.5/1.5%	1.5/2.5%	1/1%	2/2%
Residual error	±15ns		±15ns		±15ns	±10ns/1"	20ns max	...
Advanced sync output	No		Yes		Not required	No	No	No
Coherent subcarrier out	No		Yes		Yes	No	No	No
Composite I/O	Yes		Yes		Yes	Yes	NTSC	Yes
Component I/O	No	No	[Y-C [S-VHS]	[Y-C [S-VHS]	No	RGB; YUV	None	No
Heterodyne operation	No		Yes		Yes	Yes	w/TBC opt	...
Dropout compensation	Yes		Yes		Yes	Yes	...	...
Supports dynamic tracking	No		Yes		No	Yes	No	...
Noise reduction	No	...	No	No	...	No	No	No
Image enhancement mode	No	...	No	No	...	No	No	No
Video effects	No	100 only	100S only	200S only ⁶	200 only ⁷	No	No	No
Freeze frame-field	Yes		No		Yes	Yes	Yes	Yes
Reader Service No	708	709	710	711	712	713	714	715

⁶Limited effects on #250S. ⁷Limited effects on #250. ⁸Includes link to AS-18 audio delay for resynchronizing of audio delayed through transmission or processing. ⁹8400 has 2-frame freeze memory or one frame with continued synchronized output; 8400 has 2-field memory or 1-field freeze with continued output; audio steering for audio synchronizer use.

Editor's Note: Small format 1/2" recording systems appear on the following page.

3/4" U-matic equipment remains available from Sony and Thomson Video (Thomson Broadcast), with AVEC providing "Alphatized" modifications.

D-1 format systems are available from BTS, Sony and Thomson Video.

C format 1" equipment is available from Ampex and Sony.

B format 1" equipment is available from BTS.

Video Recording Equipment

The designs of these products follow specific format criteria for placement of the signal onto the recording medium to permit interchange from one transport to another within the same format. Major variations between machines of the same format are features provided by individual manufacturers. Reader service numbers in parenthesis, braces and brackets refers to manufacturer and product in column above in matching enclosure symbols.

Manufacturer	Betacam SP					M-II			S-VHS			D-2		
	Amplex	BTS	Ikegami	Sony	Thomson Video	JVC	Panasonic	JVC	Panasonic	Sharp	AMPEX	BTS	Sony	
VCR use														
Camcorder	CVR-200 CVR-300	KCB590 LDK 391	HL-V55	BWV-200 BWV-300 BWV-400	TTV3505				AG450/460					
Docking	CVR-5	LDK-391				KR-M260U	AU-400	BR-S411U BR-S511U	AG-7450	(Hitachi)				
Portable	CVR-35	BCB-35	(AVEC)		TTV3535	KR-M470U	AU-500/-505	BR-S600U	AG-7400	(VL-S100)			DVR-2	
Field/office player	CVR-22	BCB-22	(CVR22EXS)		TTV3522		AU-620 AU-630	BR-S601U			(Hitachi) (VL-D500)			
Studio player	CVR-60 CVR-65	BCB-60 BCB-65		BWV-65	TTV3560 TTV3565	KR-M800U	AU-640/X80	BR-S810U	AG-7100 series			[Panasonic] [AJ-D350]		
Studio recorder	CVR-70 CVR-75	BCB-70 BCB-75		BWV-70 BWV-75	TTV3570 TTV3575	KR-M820U KR-M860U	AU-650/-660	BR-S611U	AG-7300 AG-7500	XA-2500S	VPR300, 200 VPR305 VPR350, 250	DCR-10 DCR-18	DVR-10 DVR-18	
Duplicator								BR-S711U						
Circle No.	1171	1172	1173 (1174)	1175	1176	1177	1178	1179	1180	1181 (1182)	1183 (1184)	1185 (1186)	1000	

Videocassette Automation Systems

Manufacturer	Amplex Corporation	ASACA ShibaSoku	AVS France	Odetics Broadcast	Panasonic Broad-cast	Sony Broadcast Products
Model	ACR-225 ¹	ACL-6000C	DIVA ²	TCS 2000 ³	MARC system ⁴	BVC-1000S LMS ⁵
Video record format	D-2	Betacam/SP; M-II	Various	Various	M-II; 1/2" digital	Beta SP; D-2
# playback decks	3-4 & external	4; 5	3/system	6 & external	5 max	4; 6 max
Specific playback model	No	No	No	Per format	Per format	Per format
Output channels	4 simultaneous	...	to 6 systems	Multiple	Multiple	2 simultaneous
# record decks	3-4	1	per transport	6 & external	1 or 2	4; 6 max
Editing features	Full feature	...	per transport	Per transport	Per transport	...
Control computer	IBM PC/comp	Charles River	IBM PC/comp	IBM/PC	IBM/PC AT	UNIX OS
Control protocol	RS-323/422	RS-422	RS-323	422; Ethernet; Ebus	RS-422	RS-422
Master automation port	Yes	Yes	Yes	Yes	Option	Yes
Record/delay play feature	Future opt	No	Yes	Yes	Yes	Option
Cassette ID type	Barcode	Barcode	Barcode	Barcode; TC/UB	Barcode; TC/UB	Barcode; TC/UB
Integral TC reader	LTC	Per transport	LTC	LTC	Yes	LTC/VITC
Integral TC generator	LTC	Per transport	LTC	LTC	...	LTC/VITC
Storage magazine	256 32 min D2	600 max	...	280	107 expandable	1036 for D-2
Shortest segment	7s w/4 decks	15s cycle	4s	12s recycle	10-15s	10s
System TBC	Integral	Per transport	Per transport	Per transport	AU-TB50	Integral
Reader Service No	1145	1146	1147	1148	1149	1150

¹Multi-event per cassette system; features AutoResolve software utility to preview playlist, recognize and automatically resolve playback conflicts. ²Betacam, U-matic, M-II, S-VHS, Hi8; to 99 events per cassette. ³D-2, Betacam/SP, M-II systems available including PAL capability; capacity of system extended with expansion units, maximum of 1495 cassettes in D-2 format. ⁴Expansion units permit systems from 472 to 1176 cassettes; external VTRs may also be used. ⁵Also BVC-10 with 40-cassette storage and 4 BWV-95 VTRs; three external transports may be controlled; several sizes available based on small, medium and large cassettes.

Time Code Generators, Readers

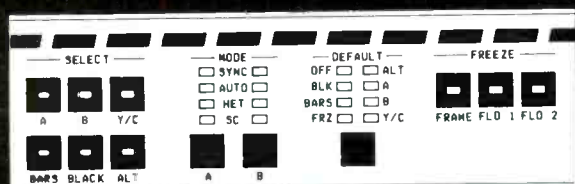
Manufacturer	Adams-Smith	Adams-Smith	ADx Systems	Cipher Digital					
				System 2600	Zeta-Three	ADX-02 (ADX-03)	CDI-4800 Shadow II	CDI-4810 Phantom 2	CDI-710A	CDI-716A	CDI-735L	CDI-735V
Internal reference	Yes	Yes	...	Yes	No	No	Yes	No	No
Reader function	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Generator function	Yes	Yes	Yes	No	No	No	Yes	No	No
Character generator function	Yes	...	Yes	No	No	Yes	No	No	Yes
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports color framing	Yes	Yes	Yes	...	...	Yes	Yes	Yes	Yes
Supports jam sync	Yes	Yes	Yes	No	No	No	Yes	No	No
Supports 3:2 film pull-down	Yes	Yes	...	...	...	No	No	No	No
Supports LTC	I/O	Yes	I/O	Input	Input	I/O	I/O	I/O	I/O
Supports VITC	I/O	MIDI	(-03)	No	No	No	No	No	No
Editor interlace	Yes	...	(-03)	Yes	Yes	No	Yes	Yes	Yes
Character keyer	Yes	No	Yes	No	No	Yes	No	Yes	Yes
Keyed window display	Adj	No	Adj	No	No	Adj	No	No	Adj
Time code entry	Yes	Yes	Yes	No	No	No	Yes	No	No
Time code comparisons	Yes	...	(-03)	Yes	Yes	No	No	No	No
User bit entry	Yes	Yes	Yes	No	No	No	Yes	No	No
User bit comparisons	Yes	...	...	No	No	No	No	No	No
Synchronizer function	Yes	Yes	...	Yes ¹	Yes	No	No	No	No

Manufacturer	Adams-Smith	Adams-Smith	ADx Systems	Cipher Digital					
Model	System 2600	Zeta-Three	ADx-02 (ADx-03)	CDI-4800 Shadow II	CDI-4810 Phantom ²	CDI-710A	CDI-716A	CDI-735L	CDI-735V
TC UB display	LED	Yes	LED	...	...	LED	LED	LED	None
TC UB display size	Various	Yes	...	...	...	0.7"	0.7"	0.7"	...
Reading speed range	1-100x	1/10-100x	1/32-80x	1/30-50x	1/30-50x	1/50-80x	1/30-15x	1/30-80x	1/30-80x
LTC output signal	1Vp-p	Yes	10dBm	...	...	+4dBm 600Ω	+4dBm 600Ω	+4dBm 600Ω	+4dBm 600Ω
Power requirement	110/220Vac	AC power	110Vac	110/220Vac	110/220Vac	110/220Vac	110/220Vac	110/220Vac	110/220Vac
Reader Service No	801	802	803	804	805	806	807	808	809

¹To synchronize and control one master and one slave. ²Interface for single transport, makes it appear as a VPR-3 or BVH-2000 RS-422 serial device.

Manufacturer	Cipher Digital	Denecke	ESE						
Model	CDI-750	TC-1 (Syncbox)	ES257	ES253	ES452	ES453	ES456	ES461	ES488
Internal reference	Yes	Yes	Yes	Yes	No	No	No	Yes	Yes
Reader function	Yes	TC-1	Yes	No	Yes	Yes	Yes	No	Yes
Generator function	Yes	Syncbox	No	Yes	...	No	No	Yes	Yes
Character generator function	Yes	...	No	No	Yes	No	No	No	Yes
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports color framing	Yes	...	No	Yes	No	No	No	Yes	Yes
Supports jam sync	Yes	Yes	No	No	No	No	No	Yes	Yes
Supports 3.2 film pull-down	No	...	No	No	No	No	No	No	No
Supports LTC	I/O	Yes	In	Out	In	In	In	I/O	I/O
Supports VITC	No	No	No	No	No	No	No	No	No
Editor interface	Yes	Opt	No	No	No	Yes	No	No	No
Character keyer	Yes	No	No	No	Yes	No	No	No	Yes
Keyed window display	Adj	No	No	No	Multiline	No	No	No	Adj
Time code entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Time code comparisons	Yes	...	Yes	No	No	No	No	No	No
User bit entry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
User bit comparisons	...	...	Yes	No	No	No	No	No	No
Synchronizer function	No	No	No	No	No	No	No	No	No
TC UB display	LED	TC-1 LED	LED	...	Video	LED	LED	LED	LED
TC UB display size	0.7"	...	0.4"	...	5% of screen	0.56"	0.56"	0.56"	0.56"
Reading speed range	1/30-80x	1/50-50x	1x	...	1x	1x	1/30-30x	...	1/30-30x

INTRODUCING



PERFECT

TIMING

NOVA SYSTEMS, INC.
50 Albany Turnpike, Canton, CT 06019
Tel (203) 693-0238 • Fax (203) 693-1497

NOVA
SYSTEMS, INC.

THE CLEAR CHOICE IN VIDEO TECHNOLOGY

Circle (110) on Reply Card

Time Code Generators, Readers

Manufacturer	Cipher Digital	Denecke	ESE						
Model	CDI-750	TC-1 (Synbox)	ES257	ES263	ES452	ES453	ES456	ES461	ES488
LTC output signal	+4dBm 600Ω	1V 10kΩ	...	1V 0dBm 75Ω	...	...	...	1V 0dBm 75Ω	1V 0dBm 75Ω
Power requirement	110/220Vac	ac/dc	110Vac	Rechargeable bat	110Vac	110Vac	110Vac	110Vac	110Vac
Reader Service No	810	811	812	813	814	815	816	817	818

Manufacturer	ESE	Evertz Microsystems							Fast Forward Video
Model	ES727	3700D	4015 ³	7200e ² 4	Chaser 7000	ECM 4010	Emulator 7100	EV-Bloc ⁵	P1† (F21)
Internal reference	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Reader function	Yes	Yes	No	Yes	Yes	Yes	Yes	611	Yes
Generator function	No	Yes	Yes	No	Yes	Yes	Yes	612	Yes
Character generator function	No	Yes	Yes	No	No	Yes	No	613	F21
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports color framing	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Supports jam sync	No	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Supports 3:2 film pull-down	No	No	Yes	No	No	No	No	...	No
Supports LTC	In	I/O	Opt	In	I/O	I/O	I/O	I/O	I/O
Supports VITC	No	No	Opt	In	In	I/O	No	I/O	No
Editor interface	No	No	No	Yes	No	No	Yes	Yes	No
Character keyer	No	Yes	Yes	No	No	Yes	No	613	F21
Keyed window display	No	...	...	No	No	...	No	Yes	No (Adj)
Time code entry	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Time code comparisons	Yes	No	No	No	Yes	No	No	...	No
User bit entry	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	No
User bit comparisons	Yes	No	No	No	No	No	No	...	No
Synchronizer function	No	No	No	Yes	Yes	No	Yes	No	No
TC UB display	LED	LED	LED	...	LED	LED	LED	LED	LCD (LED)
TC UB display size	0.4"	0.75"	0.75"	...	0.75"	0.75"	0.75"	0.75"	0.55"
Reading speed range	1/30-30x	1/30-70x	...	0-70x	0-70x	0-70x	1/30-70x	0-70x	1x (1/30-15x)
LTC output signal	...	-20/12dBm	-20/12dBm	...	-20/12dBm	-20/12dBm	-20/12dBm	+6dBm	0dBm (0.5-8V)
Power requirement	110Vac	110/220Vac	110/220Vac	12Vdc	110/220Vac	110/220Vac	110/220Vac	110/220Vac	12Vdc (110Vac/9Vdc)
Reader Service No	819	820	821	822	823	824	825	826	827

³Film footage encoder. ⁴Intelligent interface. ⁵Modular system of building blocks to perform required functions.

Manufacturer	For-A	Fostex	Gray Eng. Labs	Horita	OpTex	Skotel			
Model	TGR-2000	4010/4011	DT-213/VID-225	TRG-50 ⁶	AVTC-20	TCG-132	TCG-132c	TCG-311	TCG-313
Portable unit	No	No	No	Yes	Yes	No	No	No	No
Internal reference	Yes	Yes	Yes	No	Yes	No	No	Yes	Yes
Reader function	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Generator function	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Character generator function	Yes	(4011)	Yes	Yes	-20Vl	Yes	Yes	No	Yes
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes	Yes
Supports color framing	Yes	Yes	Yes	No	...	Yes	Yes	Yes	Yes
Supports jam sync	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Supports 3:2 film pull-down	No	...	Yes	No	...	Yes	Yes	No	No
Supports LTC	I/O	Yes	I/O	I/O	Yes	I/O	I/O	I/O	I/O
Supports VITC	No	Yes	I/O	In	...	Input	Input	No	No
Editor interface	Yes	Yes	Yes	No	No	No	Yes	No	No
Character keyer	Yes	4011	Yes	Yes	...	Yes	Yes	No	Yes
Keyed window display	Adj	Yes	Adj	Adj	...	Adj	Adj	No	Adj
Time code entry	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Time code comparisons	No	Yes	Yes	No	No	No	No	No	No
User bit entry	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes
User bit comparisons	No	Yes	Yes	No	No	No	No	No	No
Synchronizer function	...	4030	No	No	No	No	No	No	No
TC UB display	LED	LED	LED	...	LED	...	...	LED	LED
TC UB display size	Adj.	...	0.6"	...	...	...	...	0.6"	0.6"
Reading speed range	1/30-80x	1/10-100x	1/10-100x	1/30-10x	...	1/40-80x ⁷	1/40-80x ⁷	1/40-80x	1/40-80x
LTC output signal	2.2Vp-p	0.1-10V adj	+8dBm 600Ω adj	1V/-6dBm 2kΩ	3dB 1kΩ	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω
Power requirement	110Vac	110/220ac	100/220Vac	110Vac/9-12Vdc	12Vdc	ac/dc	ac/dc	ac/dc	ac/dc
Reader Service No	828	829	830	831	832	833	834	835	836

⁶TCG-50 generator includes window dub insertion feature. ⁷0-50x VITC.

Manufacturer	Skotel						Sony	Telcom Research	
Model	TCG-80N-F7/008	TCG-80N/104	TCR-111 (111c)	TCR-112	TCR-80/114	TCR-80V/114	BVG series	Model 800	T 7000A
Portable unit	No	No	No	No	No	No	(BVG-100)	Yes	Yes
Internal reference	No	No	No	No	No	No	Yes	Yes	Yes
Reader function	Yes	Yes	Yes	Yes	Yes	Yes	BVG-1600	Yes	Yes
Generator function	Yes	Yes	No	No	No	No	BVG-1500	Yes	Yes

Manufacturer	Skotal						Sony	Telcom Research	
	TCG-80N-FT/008	TCG-80N/104	TCR-111 (111c)	TCR-112	TCR-80/114	TCR-80V/114	BVG series	Model 800	T 7000A
Model									
Character generator function	Yes	Yes	No	No	Yes	Yes	Yes	No	No
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports color framing	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports jam sync	Yes	Yes	No	No	No	No	Yes	Yes	Yes
Supports 3:2 film pull-down	No	No	No	Yes	No	No	...	No	No
Supports LTC	I/O	I/O	I/O	I/C	I/O	I/O	Yes	I/O	I/O
Supports VITC	Output	No	No	No	No	Input	Yes	I/O	No
Editor interface	No	No	-111c	No	No	No	Yes	No	No
Character keyer	Yes	Yes	No	Yes	Yes	Yes	Yes	No	No
Keyed window display	Adj	Adj	No	Adj	Adj	Adj	Yes	No	No
Time code entry	Yes	Yes	No	No	No	No	Yes	Yes	Yes
Time code comparisons	No	No	-111c	No	No	No	...	No	No
User bit entry	Yes	Yes	No	No	No	No	Yes	Yes	Yes
User bit comparisons	No	No	-111c	No	No	No	...	No	No
Synchronizer function	No	No	No	No	No	No	No	No	No
TC UB display	LED	LED	LED	...	LED	LED	LED	LED	LED
TC UB display size	0.3"	0.3"	0.6"	...	0.3"	0.3"	...	...	0.3"
Reading speed range	0.9-1.1x	0.9-1.1x	1/40-80x	1/40-80x	1/20-40x	1/20-40x	...	1x only	1/50-8x
LTC output signal	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω	0.5-5V 100Ω	to 8dBm	+3dBm	11dBm 600Ω
Power requirement	ac/dc	ac/dc	ac/dc	ac/dc	ac/dc	ac/dc	110Vac (9dc)	110Vac/9Vdc	6-16Vdc
Reader Service No	837	838	839	840	841	842	843	844	845

Manufacturer	Telcom Research						Time Line	United Media	
	T5010	T6010	TCG-550	TCR 660	TCR 680	TCR-500	Lynx TC module	Model 505	Model 515 TCR/CG
Internal reference	Yes	...	Yes	...	...	No	Yes	Yes	Yes
Reader function	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Generator function	Yes	No	Yes	No	No	No	Yes	Yes	No
Character generator function	Yes	Yes	No	No	Yes	Yes	No	Yes	Yes
Supports drop frame	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports non dropframe	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports color framing	Yes	Yes	Yes	Yes	...	Yes	No	Yes	Yes
Supports jam sync	Yes	...	No	...	...	No	Yes	Yes	Yes
Supports 3:2 film pull-down	No	No	No	No	No	No	Film module	Yes	Yes
Supports LTC	I/O	I/O	Out	Input	Input	Input	I/O	I/O	I/O
Supports VITC	No	No	No	No	No	No	No	I/O	I/O
Editor interface	No	No	No	No	No	No	Yes	Yes	Yes
Character keyer	Yes	Yes	No	Yes	Yes	Yes	No	Yes	Yes
Keyed window display	Adj	Adj	No	No	Adj	Adj	No	Multiline Adj	Multiline Adj
Time code entry	Yes	...	Yes	...	...	No	Yes	Yes	Yes
Time code comparisons	No	...	No	...	...	No	No	Yes	No
User bit entry	Yes	...	No	...	...	No	No	No	No
User bit comparisons	No	...	No	...	...	No	No	No	No
Synchronizer function	No	No	No	No	...	No	Yes	No	No
TC UB display	LED	LED	LED	LED	Video	...	LED	LED	LED
TC UB display size	0.8"	0.8"	0.6"	0.6"	...	1"	0.3"	4"	4"
Reading speed range	1/30-8x	1/30-83x	...	1/50-10x	1/50-8x	1/5-5x	1/2-60x	1/20-50x	1/20-50x
LTC output signal	11dBm 600Ω	...	11dBm 600Ω	...	...	1Vp-p	-1dBm 200Ω adj	0.5-4Vp-p	0.5-4Vp-p
Power requirement	110/220Vac	110/220Vac	110/220Vac	110/220Vac	8-16Vdc	110Vac	110/220Vac	110/220Vac	110/220Vac
Reader Service No	846	847	848	849	850	851	852	853	854

Editor's Note:

The category of Time Code equipment does not include such devices as code translators or character generator/inserters. You may consult any of the manufacturers noted in this section for such products.

Videotape Editing Controllers

Dedicated control equipment, not a software package with plug-in card for use with personal computers (PCs, may, however, perform as a terminal with the editing system).

Manufacturer	Abekas Video Systems	Ampex Corporation	Amtel Systems	BTS	Cipher Digital	CMX		
	A34 Solo ¹	ACE 25 ⁴	E-Pix	BBE-900 ⁶	CDI-5000 Sof-touch II	300	3100B ⁷	3600
Suggested for	On-line	On, Off-line	Off-line	On/off-line	On-line	On/Off-line	On-line	On-line
Editing type	Linear	Linear	Non-linear	...	Linear	Linear	Linear	Linear
Transports controlled R/P	2-R, 4-P	1R, 3P	8 R, 8 P	1R, 3P	4-R, 4-P	1 R/3 P	6 R/6 P	6 R/6 P
Videodisc interface	No	No	Yes	No	No	Option	Option	Option
Control μP type	Centralized	80286 PC	Distributed	Centralized 8-bit	Multiple	Centralized	Distributed	Distributed
# events (internal storage)	512	1000	2000	128	16	999	999	999
External event storage	FD	FD dual 3.5"	Floppy disk	None	3.5" FD	FD	FD	FD, HD
Edit decision list	Yes	Yes	Yes	Yes	Multi per 3.5" FD	Yes	Yes	Yes
Edit data display	CRT	CRT	CRT	CRT	CRT	CRT	CRT	CRT
Printer interface	3.5" disk on PC	RS-232 ser/par	Centronics parallel	None	RS-232, parallel	Parallel	RS-232	RS-232
Command entry via	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard/console	Keyboard, Gismo	Keyboard, Gismo
Deck motion control via	KB, Joystick ²	Keyboard, Knob	Joystick	Keyboard, knob	Keyboard	Keyboard/Gismo	Keyboard, Gismo	Keyboard, Gismo

While U-Matic is often the industry workhorse, be described somewhat

In a field where competition between video formats is often quite fierce, Sony U-Matic SP® can run with the best of them.

More than just an improvement over conventional U-Matic, U-Matic SP is a top-class performer. In terms of resolution, signal-to-

noise ratio, overall picture quality and reliability.

And when you consider how Sony U-Matic SP reduces dropouts and color crosstalk, the fact that SP stands for "superior performance"



becomes undeniably clear.

In fact, U-Matic SP is so good, the quality of a third generation SP tape is as good as a first generation conventional U-Matic tape. Plus every U-Matic SP VTR comes



considered to be
U-Matic SP can
differently.

equipped with Dolby® C noise reduction.
A sound advantage in professional video.

From our basic player/recorder to
advanced studio production equipment,
U-Matic SP is clearly a breed apart. But
it's been bred with the same steadfast

reliability that has given SONY U-Matic
its reputation as a workhorse.

To find out more about the U-Matic SP
line, call 1-800-523-SONY ext. 212.

Because whether you're simply upgrad-
ing your existing equipment or adding new

machines, U-Matic SP will give your video
system a truly thoroughbred performance.

SONY®

PROFESSIONAL VIDEO

Videotape Editing Controllers

Manufacturer	Abekas Video Systems	Ampex Corporation	Amtel Systems	BTS	Cipher Digital	CMX		
Model	A34 Solo ¹	ACE 25 ⁴	E-Pix	BBE-900 ⁶	CDI-5000 Soft-touch II	300	3100B ⁷	3600
Assemble edit	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes
Insert edit	Yes	Yes	Yes	Yes	[Audio editing]	Yes	Yes	Yes
Split A-V edits	Yes	Yes	Yes	Yes	[stores user setup]	Yes	Yes	Yes
A-B sync roll	Yes	Yes	Yes	Yes	[w/edit list]	No	Yes	Yes
Animation mode	No	No	Yes	...	[Interface to four]	No	Yes	Yes
Integral TC reader	No	No	No	Yes	[Shadow II and	No	Option	Option
Integral TC generator	No	No	No	No	[CDI-750 G/R.	No	Option	Option
Time reference support for	LTC VITC Ctl-Trk	LTC VITC CtlTrk	LTC VITC	LTC VITC CtlTrk Sync	LTC	LTC/VITC/CtlTrk	LTC/VITC CtlTrk/Film	LTC/VITC CtlTrk/Film
Color framing	Yes	Yes	Yes	NTSC, PAL	...	NTSC/PAL	NTSC/PAL	NTSC/PAL
Editing accuracy	1 TC ± 2 CtlTrk ³	0 TC ± 1 CtlTrk	± 0 TC	± 0 TC, ± 2 CTL	0:01 Frame w/TC	0 TC	0, 0	0, 0
Interfaces available	AF mixer, Video effects system	AuF mixer, video switcher, multi-track ATR, Serial-parallel interfacing ⁵	AF mixer, video switcher, multi-track ATR, titler	Switcher, mixer, GPI-controlled equipment	Audio mixer, video switcher	Audio mixer, video switcher, telecines, multitrack ATRs, video effects		
Control protocol	RS-422, GPI	RS-232	RS-422	GPI	RS-232/-422/GPI	RS-422, ESBUS, GPI	RS-232, GPI	RS-422, GPI
Reader Service No	911	912	913	914	915	916	500	917

¹Combines editing control with 8-input A/V switcher, 2-D digital effects, 3 TBCs, flying bus, luma and DSK keying. ²Or thumbwheel control. ³Accuracy dependent upon VTRs used in the system. ⁴ACE-200 (20 GPIs, 16 devices), ACE 10 (4 GPI, 2P/1R VTRs), ACE Micro (4 GPIs, 4VTRs) have characteristics similar to the ACE 25 system. ⁵ACE-MIF, digital effects system on GPI. ⁶BBE-600, scaled down version with fewer VTRs and reduced effects type control. ⁷Upgradable to CMX-3600 system.

Manufacturer	CMX	Convergence			Editing Machines Corp.	FOR-A	Grass Valley Group	
Model	OMNI-1000	ECS-185	ECS-195	ECS-985	EMC	EC-740	IPS-100 system	VPE-141
Suggested for	On-, off-line	...	Off- (& on-line)	Off-line	Off-line	On-line	On, Off	On, Off
Editing type	...	Linear	Linear	Linear	Non-linear	Linear	Linear	Linear
Transports controlled R/P	Multiple R/P	2-/3-VTR	1 R/2 P	4 or 6 total	Opt configs	1R, 2P	1-R, 6-P	1-R, 6-P
Videodisc interface	...	No	No	No	Option	...	No	No
Control μ P type	68020	...	Multiple	...	PC	...	...	...
# events (internal storage)	999,999	500-line EDL	450	1000-line EDL	...	1-event	2,000	2,000
External event storage	3.5 FD, 40M HD	Floppy disk	FD/paper tip	Floppy disk	FD	None	FD	FD, papertape
Edit decision list	Yes	Yes	Yes	Non volatile	Yes	No	Yes	Yes
Edit data display	CRT, X-window	External CRT	CRT	External CRT	RGB CRT	LED displays	CRT	CRT
Printer interface	RS-232	RS-232	RS-232	RS-232	RS-232	None	RS-232	RS-232
Command entry via	Knob, keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	KB
Deck motion control via	Knob, keyboard	Joystick	Joystick	Joystick	Keyboard	Knob	Keyboard	KB
Assemble edit	Yes	Yes	Yes	Yes	Option	Yes	Yes	Yes
Insert edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A B sync roll	Yes	Yes	Yes	Yes	...	Yes	Yes	Yes
Animation mode	Yes	Yes	No	...	No	...	Option	Option
Integral TC reader	² interfaces	Yes	Yes	Integral	No	...	No	No
Integral TC generator	² interfaces	No	Yes	Integral	No	...	No	No
Time reference support for	LTC/VITC/Film	LTC CtlTrk	LTC CtlTrk	LTC CtlTrk	LTC	...	L/V/Ct	L/V/Ct
Color framing	Yes	Yes	Yes	No	Yes	...	Yes	Yes
Editing accuracy	0	± 0 TC, ± 1 CtlTrk	± 0 TC, ± 1 CtlTrk	± 0 TC ± 1 CtlTrk	...	± 2	± 0 TC, 1 CT	± 0 TC, ± 1 CT
Interfaces available	9 ports, 16 GPI	2 GPI, 2 serial, PSI interface	AuF mixer, Video switcher, Multi-track ATR, titler	PSI, GPI, parallel equipment	...	Various	Audio mixer, video switcher, still-store, multitrack ATRs, titlers, digital effects	
Control protocol	CMX, ESBUS	RS-232/-422, parallel VTRs	RS-232/-422/GPI, parallel VTRs	RS-422	...	GPI, RS-422	RS-422	RS-422
Reader Service No	918	919	920	921	922	923	924	925

Manufacturer	Grass Valley Group	JVC Professional Products			Paltex			QUANTEL
Model	VPE-151	RM G850U	RM G86U	RM-G810U (-410U)	Abner	ELAN	Elite	Harry Suite
Suggested for	On-line	Off-line	Off-line	Off-line	On-, Off-line	On-, Off-line	On-, Off-line	Either
Editing type	Linear	Linear	Linear	Linear	Linear	Linear	Linear	Random access
Transports controlled R/P	1-R, 6-P	1-R, 2-P	1-R, 1-P	1R, 1P	1 R, 2 P	4/4, any 4 of 8	3/3 or any 3 of 6	[RGB/YUV
Videodisc interface	...	No	No	No	No	Option	Option	[composite
Control μ P type	...	...	...	...	Centralized	Multiple	Multiple	[CCIR 601
# events (internal storage)	16,000	1 event	1 event	1	20	326	250	[I/O support.
External event storage	FD, papertape	None	None	...	FD PT	FD PT	FD PT	...
Edit decision list	Yes	No	No	No	Yes	Yes	Yes	...
Edit data display	CRT	LED display	LED display	LED display	CRT	CRT	CRT	CRT menus
Printer interface	RS-232	...	...	...	RS-232	RS-232	RS-232	...
Command entry via	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard
Deck motion control via	Keyboard	Knobs	Knobs	Knobs	Keyboard, knob	Keyboard, knob	Keyboard, knob	Yes
Assemble edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	[For editing of

Manufacturer	Grass Valley Group	JVC Professional Products			Paltex			QUANTEL
	Model	VE-151	RM G850U	RM G86U	RM-G810U (-41DU)	Abner	ELAN	Elite	Harry Suite
Insert edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	[short segments
Split A V edits	Yes	No	No	Yes	Yes	Yes	Yes	[in memory;
A B sync roll	Yes	No	No	No	Yes	Yes	Yes	[CRT display
Animation mode	Yes	No	No	No	Yes	Yes	Yes	[of video and
Integral TC reader	No	No	No	No	Yes	Yes	Yes	[commands;
Integral TC generator	No	No	No	No	No	No	No	[may link to
Time reference support for	L/V/CT	LTC CtiTrk	CtiTrk	Cti Trk	LTC CtiTrk ⁸	LTC CtiTrk VITC	LTC CtiTrk VITC	[Paintbox
Color framing	Yes	N	N	No	No	No	No	[Mirage, Encore
Editing accuracy	±0 TC, ±1 CT	±0 TC ±2 CtiTrk	±2 CtiTrk	±2 (±6) frms CtiTrk	±0 TC, ±1 CtiTrk ⁸	±0 TC, ±1 CtiTrk	±0 TC, ±1 CtiTrk	[effects.
Interfaces available	AF mixer, video switcher, still-store, multitrack ATR, titler, effects	...	...	None	GPI	Audio mixer, video switcher, teletines, still-store, multitrack ATR, titler, digital effects		
Control protocol	RS-422	RS-422	...	...	RS-422/GPI Parallel	RS-422/GPI, Parallel RS-232		...
Reader Service No	926	927	928	930	931	932	933	934

⁸ Abner-VITC supports VITC time code.

Manufacturer	Sony			United Media			Videomedia	
	Model	BVE-600 (BVE-910)	BVE-9000	RM-450	MultiTasking	UMI 400 series	UMI 500 (600)	Mickey	VLC-32 (Micron)
Suggested for	On (& Off) line	On & Off line	On-line	On, Off-line	On	Off-line	On, Off-line	On/Off line
Editing type	Non-linear	Non-linear	Non-linear	Linear	Linear	Linear	Linear	Linear
Transports controlled R P	1-R/2-P, 1-R/3-P	2-R/12-P	1-R, 1-P	3; 2-6; 2-9	2, 3, 4 total	4 (6) total	R/P	R/P
Videodisc interface	No	Option	Yes	Yes	Yes	...	Option	Option
Control μ P type	Centralized	Central, Distribute	Centralized	Multi distributed	Multi distrib	MC68000	Distributed	Distributed
# events (internal storage)	... (998)	1000	...	2000, 3000	250	1000 (2000)	400	500 (250)
External event storage	Floppy disk	Floppy disk	None	Floppy disk	Floppy disk	3.5 Floppy disk	FD	FD
Edit decision list	No (Yes)	Yes	No	Yes	Yes	Yes	Yes	Yes
Edit data display	LED (CRT)	CRT	LED	CRT	CRT	CRT	CRT	CRT
Printer interface	RS-232	RS-232	...	RS-232	RS-232	RS-232	RS-232	RS-232
Command entry via	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard joystick	Keyboard	Keyboard, Mouse	Keyboard
Deck motion control via	Keyboard	Keyboard	Keyboard	Keyboard	Keyboard	Joystick	Mouse	Keyboard
Assemble edit	No (Yes)	Yes	No	Yes	Yes	Yes	Yes	Yes
Insert edit	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Split A V edits	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
A B sync roll	No (Yes)	Yes	No	Yes	Yes	Yes	Yes	Yes
Animation mode	No (Yes)	Yes	No	Yes	Yes	Yes	No	Yes
Integral TC reader	No (Opt)	Option	No	Yes	Yes	...	Option	Option
Integral TC generator	No (Opt)	Option	No	Yes	Yes	Yes	No	No
Time reference support for	LTC VITC CtiTrk	LTC VITC CtiTrk	LTC VITC CtiTrk	LTC VITC CtiTrk Tmr	LTC VITC CtiTrk Tmr	LTC VITC CtiTrk	LTC/VITC/CtiTrk	LTC/VITC/CtiTrk
Color framing	Yes (Opt)	Yes (Opt)	No	Yes	Yes	Yes	Yes	Yes
Editing accuracy	0 TC, ±2 CtiTrk	0 TC, ±2 CtiTrk	0 TC, ±2 CtiTrk	±0 TC ±2 CtiTrk	±0 TC, ±2 CtiTrk	±0 TC	...	...
Interfaces available	AF mixer, Video switcher, multitrack ATR, digital effects		None	AF mixer, video switcher, multitrack ATR	Audio mixer, video switcher	Various	V-LAN units	V-LAN control-lable networks
Control protocol	RS-422, GPI	RS-422, GPI	RS-422, GPI, parallel for VO, SLO series VTRs.	RS-232/-422/GPI	RS-232/-422/GPI	RS-232/-422, 6 GPI	RS-232/-422/GPI	RS-232/-422/GPI
Reader Service No	935	936	937	938	939	940	941	942

Video Switchers, Production/Master Control

Video control switching equipment for production, master control; effects are described by **Rot** rotary, **S-E** soft-edged, **H-E** hard-edged, **Adj edge** adjustable edge effects

Manufacturer	A. C. E./Midwest Communications	Abekas Video Systems		Ampex Corporation		BTS	Central Dynamics
	Model	ARENA	A82 Digital	A84 Digital Post	AVC Vista series	Century series	MCS-2000	Strata-10
Control application	Production	Post production	Post production	Production	Production	Master control	Production
Standard	NTSC	Composite 0-2	CCIR 601 D-1	NTSC/PAL	NTSC/PAL	NTSC, PAL	NTSC/PAL ⁶
# inputs	13	32 video or key	12 ²	10 or 18	16 or 32	to 250	24/16/30
Integral matte source	6 generators	Yes	Yes	5 generators	per key	4 generators	16 generators
Key sources	4 ext/13 int	Any input ¹	12 ext 12 int	2 ext 10/18 int	2 ext 10/18 int	Ext/int	Int/Ext
Chroma keyers	1 RGB	8 RGB	8 RGB	3 RGB/2 comp ³	3 per ME ⁵	Luminance only	RGB/composite
Downstream keyer	Yes	No	No	w/U&IKEY	w/JNIKEY	Yes	w/1 of 2 titler
Switching buses	4 prime/1 aux	...	...	4 prime, 5 aux	4 prime, 5 aux	3	7 prime/3 aux
# switcher M E amps	3	4 Multilayer	8 layer capability	1.5	2 or 3 multilevel	...	2
# pattern generators	2 gen w/89	2	3	1 w/32 patterns	164 patterns/ME	None	4/>>100 patterns
Wipe effects	Rot, S-E, Adj-Edge	Rot/S-E/Adj edge	Rot/S-E/Adj edge	Hard, soft edge	H-E, S-E, Rot.	No	Rot S-E Adj Edge
Spotlight effects	Yes	...	...	Yes	Yes	No	Yes
Border effects	Yes	Yes	Yes	Opt	Opt	Yes	Yes
Shadow effects	Yes	Yes	Yes	Opt	Opt	Yes	Yes
Programmable routines	Yes	Yes	Yes	24 routines	SuperSTAR Memory	Yes	>100 routines
Memory backup battery	Yes	Yes	Yes	No	No	Yes	Yes
Diagnostic software	No	Yes	Yes	Yes	Yes	Yes	Yes

Video Switchers, Production/ Master Control

Manufacturer	A.C.E./Midwest Communications	Abekas Video Systems		Amplex Corporation		BTS	Central Dynamics
Model	ARENA	A82 Digital	A84 Digital Post	AVC Vista series	Century series	MCS-2000	Strata-10
Digital effects port	Yes	Yes	Yes	Digi-Loop ¹	Yes	No	Yes
Automation port	RS-422	From edit control	From edit control	GPSI, PIPS	GPSI, PIPS	Yes	ESbus
Input timing adjustment	...	...	...	...	...	...	...
Path length	...	440ns	...	...	1.5'	1'	±1'
Crosstalk at subcarrier	-50dB	...	Not applicable	-55dB	<-55dB	<-60dB	<-56dB
Link to rack electronics	1-line digital	1 digital line	1 digital line	Multicore cable	Multicore cable	...	1-line digital
Audio preview function	No	No	No	Option	Option	Yes	No
Audio metering	No	No	No	Option	Option	Yes	No
Audio level control	No	No	No	Option	Option	Yes	No
Audio mixer interface	No	No	No	Option	Option	...	Yes
Edit control interface	Yes	Yes	Yes	Option	Option	No	Yes
Reader Service No	951	952	953	954	955	956	957

¹ Adaptive Sub-Pixel Intelligent Keying; framestores associated with each keyer. ² Frame store associated with each input and all 12 key inputs. Adaptive Sub-Pixel Intelligent Keying. ³ SpectraKey. ⁴ Fully integrated ADO-100 option. ⁵ All keyers capable of linear, RGB luminance, external and encoded modes; SpectraKey processing. ⁶ Models available with 20, 12 and 26 inputs; inputs may include analog composite and components.

Manufacturer	ECHOLab Inc			For-A		Grass Valley Group	
Model	DV-5	DV-7	SE-6	CVM-600 Component	PVM-600 ⁸	110/CV ⁹	200 Composite
Control application	Production	Production	Production	Production	Production	Production/Post	Production, post
Standard	NTSC/PAL	NTSC/PAL	NTSC/PAL	NTSC RGB R-Y/B-Y	NTSC/PAL	RGB or YUV	NTSC/PAL
# inputs	10	6	10	12 component ⁷	12	10	20
Integral matte source	3 generators	3 generators	3 generators	2 generators	2 generators	3 generators	9 generators
Key sources	4 ext/10 int	3 ext/1 int	5 ext 20 int	4 ext/2 int	4 ext/2 int	2 ext/8 int	6 ext/20 int
Chroma keyers	RGB/Composite opts	RGB opt	RGB/Comp opts	CCK-500C Exkey	CCK-500 Exkey	1 RGB optional	to 8 optional
Downstream keyer	Y	Yes	Yes	Yes	Yes w/NAM	DSK-101	Standard
Switching buses	3 primary	3 primary	4 primary 1 aux	2 prime	4	3 prime	8 prime/4 aux
# switcher M/E amps	1 1/2	1	2 1/2	1	1	1	1 or 2
# pattern generators	1 1/2/39 patterns	1; 10 patterns	2/40 patterns	1 w/24 patterns	1 w/24 patterns	1 gen/10 patterns	2 gen 56 patterns\10
Wipe effects	Rotary/adj edge	Soft-edge	Adjustable edge	Soft-edge Adj edge	Adj edge	Soft edge/adj edge	Rot/S-E/Adj Edge
Spotlight effects	Yes	No	Yes	No	No	Yes	Standard
Border effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Shadow effects	Opt	No	Option	Yes	Yes	Yes	Yes
Programmable routines	1 std/5 opt	No	10/297 keyframes	FMX-500 Extrol	FMX-500 Extrol	E-MEM memory	E-MEM system
Memory backup battery	Yes	No	Opt	No	No	Yes	Yes
Diagnostic software	Yes	Yes	No	No	No	Yes	Yes
Digital effects port	Yes	No	No	No	...	to DPM-100	...
Automation port	No	No	No	RS-422	...	Serial editor	Serial editor opt
Input timing adjustment	±0.001ms	±0.001ms	±0.001ms	...	...	Unspecified	...
Path length	...	1'	1...'	... 1'	...	1...'	Unspecified
Crosstalk at subcarrier	-52dB	-51dB	-51dB	...	-60dB	≤-54dB DC-5MHz	≤-54dB
Link to rack electronics	2 coaxial	Single digital line	Multicore cable	...	Multicore	1-line digital	1-cable 2-port serial
Audio preview function	No	No	No	Option	Option	Option	No
Audio metering	No	No	No	Option	Option	Option	No
Audio level control	No	No	No	Option	Option	Option	No
Audio mixer interface	No	No	No	Option	Option	to AMX-170S mixer	No
Edit control interface	GPI Opt	Opt	No	Option	to AFV-500 mixer	Option	Option
Reader Service No	958	959	960	961	962	963	964

⁷ CVM-400 component mixer is 8-source, 6-input system. ⁸ PVM-650 8-input with 5-layer effects, keying capability; 4-bus architecture. ⁹ 110 composite; 110CV component. ¹⁰ Programmable (20+4)x16)+32.

Manufacturer	Grass Valley Group			JVC Professional Products			
Model	200-2CV	KADENZA	MASTER 21	Model 300 2A/2B	KM-1600U	KM-2500U	KM-3000U
Control application	Production, post	Production	Master control	Production	Production	Production	Production
Standard	Y/R-Y/B-Y, YUV	NTSC/PAL ¹¹	NTSC/PAL	NTSC	PAL	S-VHS Y-C	NTSC
# inputs	20	32 maximum	16 V/stereo audio	24/16 ¹²	4	8	8
Integral matte source	9 generators	...	1 Int generator	5 generators	1 generator	2 gen w/DSK	2 generators
Key sources	16 ext	20 int	32 maximum	4 ext std/5 opt	6/31 Ext 18/26 Int	Ext/ Int	Ext/Int
Chroma keyers	...	Options	1 RGB opt	6 RGB, 14/22 Comps	RGB	RGB	RGB soft key
Downstream keyer	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Switching buses	8 prime/4 aux	10-channel	2 prime	9 prime/5 aux	2, flip/flop	3 prime 1 aux	3 prime
# switcher M/E amps	2 M/Es	...	1 opt	2	...	...	...
# pattern generators	2 gen/56 patterns	2 w/44 patterns	1 w/10 patterns	2 w/44 patterns	6 patterns	13 patterns	23 patterns
Wipe effects	Rot S-E Adj Edge	Rot/S-E/Adj-Edge	SE/Adj E	Rot/S-E/Adj-Edge	Soft wipes	S-E	Adj.
Spotlight effects	Yes	Yes	Option	Yes	No	No	No
Border effects	Yes	Yes	Option	Yes	No	Yes	Yes
Shadow effects	Yes	Yes	Option	Yes	No	No	No
Programmable routines	E-MEM 30 event	Yes	Event Stacker	20 per M/E	No	No	16-event
Memory backup battery	Yes	Yes	Yes	Yes	...	No	Yes
Diagnostic software	Yes	Yes	Yes	Yes	No	No	No
Digital effects port	No	Kaleidoscope	Opt w/GVG DPM-100	Yes	No	...	No
Automation port	Serial editor opt	Editor option	RS-422	Editor option	...	GPI	GPI
Input timing adjustment	...	...	...	...	...	...	...
Path length	...	Not applicable	...	100ns length	≤1.5'	...	...

Manufacturer	Grass Valley Group				JVC Professional Products		
	200-2CV	KADENZA	MASTER 21	Model 300 2A/2B	KM-1600U	KM-2500U	KM-3000U
Model	200-2CV	KADENZA	MASTER 21	Model 300 2A/2B	KM-1600U	KM-2500U	KM-3000U
Crosstalk at subcarrier	<-56dB DC-4MHz	...	56dB	-54dB	...	...	...
Link to rack electronics	1-line digital	...	Multicore cable	Multicore cables	...	1-line digital	1-line digital
Audio preview function	No	No	Yes	No	No	No	No
Audio metering	No	No	Yes	No	No	No	No
Audio level control	No	No	Yes	No	No	No	No
Audio mixer interface	No	Option	No	Option	No	No	Yes
Edit control interface	Option	Option	No	Option	No	GPI opt.	Serial, GPI
Reader Service No	965	966	967	968	969	970	971

¹¹Supports RGB, YUV SMPTE, YUV Betacam, CCIR 601/656 digital. ¹²Model 300 3A 24-input system, 300-3B 16-input; Model 300 units includes 3 M/Es.

Manufacturer	Polar Video	Prime Image	Ross Video Ltd		Sony		
	PVM-1 (PVM-2)	# 600 S-Switch	Model 210A/216A	Model 416 (424)	BVS 3100	BVS 3200 (3200C)	BVS 8000 (8000C)
Control application	Production	Production	Production	Production	Production	Production	Production
Standard	PAL/NTSC	NTSC	NTSC	PAL	NTSC/PAL	NTSC	NTSC/PAL (RGB/YCaCa)
# inputs	4 (U-matic/S-VHS)	6	8/14	16 (24)	8	8 composite ¹⁶	24
Integral matte source	Yes	3 generators	3 generators	6	3 generators	4 generators	4 generators
Key sources	Int/Ext	1 Ext 8 Int	3 Ext, 8/14-Int	6-E	14-I	3 ext/8 int ¹³	3 ext/8 int ¹³
Chroma keys	Yes	Composite, Y/C	RGB & composite	4-RGB/1-composite	1 RGB	1 RGB	1 RGB
Downstream keyer	...	Option	Yes	Option	Yes	Yes	Yes
Switching buses	3	2 prime/1 aux	3 prime	6 prime, aux avail	3 prime 0 aux	4 prime 0 aux	4 prime 4 aux
# switcher M E amps	1	1 M/E	1	2 multilevel keys	1	1	2 w/2 keys each
# pattern generators	1 w/8	16 w/16 patterns	1 w/53 patterns	2 w/64 patterns	1 w/18 patterns	1 w/18 patterns	1 w/18 patterns
Wipe effects	Yes	Soft-edge, Adj edge	S-E, Adj E	Rot/S-E/Adj E	Soft-edge, adj edge	Soft-edge/adj edge	Various
Spotlight effects	No	No	No	No	No	No	...
Border effects	No	Yes	Yes	Option	Yes	Yes	Yes
Shadow effects	No	No	No	No	Yes	Yes	Yes
Programmable routines	No	No	No	(40 event 424)	E-File registers ¹⁴	E-File registers ¹⁴	Yes
Memory backup battery	No	No	Yes	Yes	No	No	No
Diagnostic software	No	No	Yes	Yes	Yes	Yes	...
Digital effects port	No	No	Yes	Yes	Yes ¹⁵	Yes ¹⁵	Link to DME-5000
Automation port	GPI	No	RS-422 option	RS-422 opt	No	No	Yes
Input timing adjustment	...	±3ms	...	...	...	...	...
Crosstalk at subcarrier	...	-50dB	-53dB	-53dB	-54dB	-54dB	...
Link to rack electronics	...	...	Dig 1-line	Dig 1-line	Digital/RS-422	Digital/RS-422	Digital/RS-422
Audio preview function	No	Yes	No	No	No	No	No
Audio metering	No	No	No	No	No	No	No
Audio level control	No	No	No	No	No	No	No
Audio mixer interface	No	Yes	No	No	No	No	No
Edit control interface	PSI-I serial	Yes	Option	Option	Yes	Yes	Yes
Reader Service No	972	973	974	975	976	977	978

¹³Any input on key bus may be assigned as an internal key source. ¹⁴10 E-File registers std, may be sequenced from editor. ¹⁵Dedicated RS-422 control of DME 450. ¹⁶3200C is RGB/Betacam component.

Manufacturer	Thomson Video Equipment		Utah Scientific		VGV		Videotek
	IMPULS	TTV5645	MC-500B series	PVS2	D2500	D2500 (D3200)	Prodigy
Control application	Production	Production	Master	Production	Production	Production	Production
Standard	4:2:2 digital	Analog component ¹⁷	NTSC/PAL	NTSC	D-2 Digital	D-2 Digital	NTSC
# inputs	16	16	30	24	20	10 to 20 ²⁰	8
Integral matte source	Yes	9 backgrounds	1 generator	1 generator	8 ¹⁸	8+2 ²¹	1 generator
Key sources	Int/Ext	Int/Ext	3 ext, 1 int	6x12 input	10 ext 20 int	10 ext 20 int	3 ext 8 int
Chroma keys	Yes	3	None	Analog	RGB, R-Y/B-Y	RGB, R-Y/B-Y	RGB Opt
Downstream keyer	...	...	None	Analog	...	...	Yes
Switching buses	5 prime	8 + 6 aux	2 prime/1 aux	3 prime/2 aux	5 prime/4 aux	5 prime/4 aux	3 prime
# switcher M E amps	Multiple	2	1	Dual	3	3, multilevel keys	1 ME
# pattern generators	Multiple digital	4 generators	1 w/4 patterns	1 w/42 patterns	6 w/100 patterns	6 w/100 patterns	24 pat/programmable
Wipe effects	Yes	Yes	Soft-edge	Full feature	Rot/S-E/Adj E	Rot/S-E/Adj E	Soft-edge/adj edge
Spotlight effects	Yes	Yes	No	Yes	Yes	Yes	Yes
Border effects	Yes	Yes	Yes	Yes	Option	Option	Yes
Shadow effects	Yes	Yes	Yes	Yes	Option ¹⁹	Option ²²	No
Programmable routines	Yes	Yes	Opt 99 routines	250 event	More than 100	EZMEM than 100	100 routines
Memory backup battery	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Diagnostic software	Yes	Yes	Yes	...	Yes	Yes	Yes
Digital effects port	Yes	Yes	No	...	Yes	Yes	Option
Automation port	Yes	Yes	Yes	Yes	RS-422	RS-422	Option
Input timing adjustment	...	...	...	...	...	...	...
Crosstalk at subcarrier	...	...	-60dB	-55dB	...	...	<-60dB
Link to rack electronics	...	...	Multicore	Multicore	1-line digital	1-line digital	...
Audio preview function	No	No	Yes	Yes	No	No	Yes
Audio metering	No	No	Yes	Yes	No	No	No
Audio level control	No	No	Yes	Yes	No	No	No
Audio mixer interface	No	No	No	No	No	No	No
Edit control interface	Yes	Yes	No	No	Option	Option	Yes
Reader Service No	979	980	981	982	983	984	985

¹⁷RGB or YCrCb component inputs, outputs; processing in 4:2:2 domain. ¹⁸Including complex functions. ¹⁹Flying total screen. ²⁰D3200 includes 20-input phantom analog package; digital inputs are 8-10 bit parallel or serial. ²¹Eight complex function generators with two paint-type generators. ²²Includes flying the entire screen.

Routing Switchers, Video and Audio

This category contains all matrix type distribution routing switchers of audio only, video only, combined V/A forms and various digital types. These products exclude the utility type unit of N-in¹-out, which could be developed into a matrix by stacking and looping inputs from one group to the next.

Manufacturer	AKAI/IMC		AVS France	Auditronics	AutoPatch /XN Technologies		Barco	BTS
Model	DP2000	DP3200	Onyx	1900 IFB	4XDM	4Y-140DM (8Y-)	BVRS/BARS	BSB-3000
Audio/Video/Data	V/A	Audio only	V/A	Audio	V/A/Data	V/A/Data	V/A	Audio
Basic crosspoint matrix	16x16	32x32	16x8	16x8	4x4; 12x12	4x4 (8x8)	16x16	4x4
Typical system size	...	...	128x128	48x24	16x48	32x128 (64x256)	32x32	...
Audio response \pm dB Hz-kHz	\pm 0.5 5-40k	...	-0.25 20-20k	\pm 0.5 20-20k	5-50k	\pm 0.1 20-30k	\pm 0.1 20-20k	\pm 0.1 20-20k
Harmonic distortion	<0.1%	<0.01%	<0.05%	<0.01%	<0.03%	<0.002%	<0.02%	<0.002%
S/N ratio	...	...	82dB	91dBu	>100dB	120dB	...	95dB
Audio crosstalk (worst)	<0.85dB	<-85dB	<0.75dB	-88dBu 1kHz	<-88dB	<-95dB	-100dB	<-95dB 20kHz
Video response	...	[Designed	-3 to 60MHz	...	to 12MHz	to 50MHz	to 40MHz	...
Diff phase/gain	1/1%	[for digital	<0.5%/<0.5%	...	<0.1%/0.1%	<0.05%/0.1%	<0.1%/<0.1%	...
Chroma Luma delay	...	[audio use.	2ns	...	...	...	1* 4.43MHz	...
Video S/N ratio	...	...	...	...	1.5mV floor	80dB	...	...
Video crosstalk (worst)	-40dB 3.48	...	<-56dB 4.43	...	-65dBdB	<-78dB 10MHz	50dB 5MHz	...
Multilevel audio control	Yes	...	Possible	...	Yes	Yes	Possible	...
Useable for component video	...	...	Possible	...	No	Yes	Possible	...
Reader Service No	744	745	746	747	748	749	750	751

Manufacturer	BTS				CEL Electronics		Central Dynamics	Datatek
Model	BSX-350A-V	BVS-350C	DRS 7	TAS/TVS-2000	TAS/TVS-3000	P169V/P169A	SDS-2+	D-2000
Audio/Video/Data	V/A	Component video	Digital video	V/A	V/A	V/A	V/A	V/A
Basic crosspoint matrix	10x10	3x10x1	8x4	10x10	10x10	8x4	16x8	50x25
Typical system size	10x10-V 20x-A	3x20x1	8x8/8x12/8x16	250x150	200x200	8x4	32x32	50x50; 250x500
Audio response \pm dB Hz-kHz	\pm 0.1 20-20k	...	[This system	\pm 0.1 20-20k	\pm 0.1 20-20k	\pm 0.5 100-15k	\pm 0.2 50-15k	\pm 0.1 20-20k
Harmonic distortion	<0.007%	...	[for CCIR	<0.007%	<0.007%	...	<0.1%	0.05%
S/N ratio	85dB	...	[601 4:2:2	85dB	85dB	<-90dBm	>100dB	105dB
Audio crosstalk (worst)	<-90dB	...	[digital video	<-90dB	<-90dB	-70dB	<-80dB 15k	-85dB 20kHz
Video response	to 20MHz	\pm 0.7 30MHz	[signals in	to 20MHz	to 20MHz	0.1 to 6MHz	\pm 0.1 to 8MHz	0.25 to 10MHz
Diff phase/gain	<0.1%	<0.1%/<0.1%	[8/9/10-bit	<0.1%/<0.1%	<0.15%/<0.15%	\pm 0.2/0.2%	<0.1%/<0.1%	0.15/0.15%
Chroma Luma delay	< \pm 1*	\pm 1.5*	[sampling;	< \pm 1*	< \pm 1*	...	\pm 1* 4.43MHz	5ns
Video S/N ratio	>75dB	>75dB	[system auto-	>75dB	>70dB	>80dB	>66dB	...
Video crosstalk (worst)	-60dB	-40dB 30MHz	[selection of	-60dB 3.58	-30dB 30MHz	<-55dBm	<-60dB	...
Multilevel audio control	Possible	Yes	[525 and 625.	Yes	Yes	...	Yes	Yes
Useable for component video	Possible	Yes	Digital	Possible	Possible	...	Yes	...
Reader Service No	...	753	754	755	756	757	758	759

Manufacturer	Datatek	Di-Tech						
Model	D-2400	5216	5217 Wideband	5616/5618	5815/5820	5856 HDTV/RGB	5862/5861	5865A/5864V
Audio/Video/Data	V/A	Video D1/D2	Video	V/A	V/A AFV	Video	V/A	V/2A
Basic crosspoint matrix	160x20	16x16	16x16	16x8/16x16	15x7/20x6	20x20 RGB	64x32	32x64
Typical system size	40x20x4	64x16	...	16x32 audio	x7n/x6n	60x20 HDTV	256x256	...
Audio response \pm dB Hz-kHz	\pm 0.05 20-20k	[Digital; 75	...	\pm 0.5 20-100k	\pm 0.25 20-20k	...	\pm 0.5 20-100k	\pm 0.1 20-20k
Harmonic distortion	<0.005%	[input/output	...	<0.25%	<0.5% +18dBm	...	<0.1%	<0.05%
S/N ratio	116dB	[at 0.8Vp-p;	...	>70dB	>70dB	...	>70dB	>70dB
Audio crosstalk (worst)	-82dB 20kHz	[data rates	...	<-80dB20-1k	<-70dB	...	<-80dB	<-75dB
Video response	-3/0.5 60MHz	[to 270Mbit/s	\pm 0.25 50MHz	-1/0 20MHz	-3/0 20MHz	-3 to 45MHz	-1.5/0 20MHz	-1/0 20MHz
Diff phase/gain	0.05/0.05%	[in D1 & D2	<0.2%/<0.2%	<0.25/0.25%	<0.25/0.25%	<0.2%/<0.2%	<0.25%/<0.25%	<0.25%/<0.25%
Chroma Luma delay	\pm 0.75*	[formats.	...	<1*dB	<1*	\pm 2*	<1*	<1*
Video S/N ratio	75dB	...	>60dB	>70dB	<-65dBV	>60dB	>70dB	>70dB
Video crosstalk (worst)	<-63dB 5MHz	...	<-40dB	<-60dB 4.5MHz	<-60dB 4.5MHz	<-35dB 40MHz	<-60dB 4.5MHz	<-60dB 4.5MHz
Multilevel audio control	Yes	...	No	Yes	Yes	No	...	...
Useable for component video	Yes	...	...	Possible	Yes	...	...	No
Reader Service No	760	761	762	763	764	765	766	767

Manufacturer	DYNAIR Corporation				Grass Valley Group			HEDCO
Model	DYNA MITE	DYNASTY WB	DYNASTY	DYNASTY 100	20-TEN/TEN-20	Horizon DHX-532	Horizon systems ¹	HD-16X A/V
Audio/Video/Data	V/A	V/A (70MHz)	V/A 30(40)MHz	Video/digital	V/A	Video/digital	V/A	V/A
Basic crosspoint matrix	10x10	10x10	10x10	10x10	20x10/10x20	8x8	8x16	16x4/16x8
Typical system size	30x10 A/V	100x30	100x100 (x50) V	50x100	20x20-10x40	32x32	128x128	16x16-64x64
Audio response \pm dB Hz-kHz	\pm 0.2 30-20k	\pm 0.1 20-20k	\pm 0.1 20-20k	...	\pm 0.1 20-20k	[Conforms to	\pm 0.1 20-20k	-0.05 20-100k
Harmonic distortion	0.1%	0.1%	0.1%	...	0.05%	[SMPTE RP125	<0.05%	<0.02%
S/N ratio	75dB	75dB	75dB	...	120dB	[CCIR 601/F	>100dB	-80dB
Audio crosstalk (worst)	80dB	<-80dB	56dB	...	80dB	[EBU 3246-E	<-80dB	>86dB
Video response	-3dB 40MHz	-3/1.5 70MHz	\pm 0.3 20MHz	\pm 2 to 100MHz	\pm 0.5 10MHz	[standards	\pm 0.015 8MHz	-3dB >32MHz
Diff phase/gain	0.05/0.05%	0.2/0.15%	0.05/0.05%	0.25/0.25%	0.2/0.1%	...	<0.1/0.1%	<0.3/0.2%
Chroma Luma delay	1* 5MHz	1*	1* 5MHz	...	\pm 1*	[DHX-88 8x8;	\pm 1*	< \pm 2ns
Video S/N ratio	30dB RMS	55dB 70MHz	80dB < 1Vp-p	55dB 100MHz	>75dB	[DHX-1616 16x16	>75dB	>70dB 10MHz
Video crosstalk (worst)	<-50dB 5MHz	<-25dB 70MHz	<-60dB 5MHz	-25dB 100MHz	-50dB 10MHz	[DHX-3216 32x16	-60dB 5MHz	<-60dB 4.43MHz
Multilevel audio control	Yes	Yes	Yes	...	Yes	...	Yes	Yes
Useable for component video	Yes	Yes	Yes	Yes	Yes	Digital	Yes	Yes
Reader Service No	768	769	770	771	772	773	774	775

¹Series includes HX-16 16x16; HX-32 8x16/16x16/24x16/32x16; HX-48 to 48x48; HX-64 to 64x64.

Manufacturer	International Tapetronics	JNS Electronic Industries	McCurdy Radio	PESA			Pro-Bel	
	Audio Switcher	9000 series	Century (Mini)	15x series	Model 40x	Series H ²	ADAM	HD series ³
Model	Audio only	Audio	Audio	A/V	A/V	A/V	Analog/digital	V/A
Audio/Video/Data	16x16	15x8 stereo	...	15x12	40x20	123x32	128x128	32x32
Basic crosspoint matrix	64x48 mono	(15x16 mono)	200x24 (24x24)	15x12	40x20	128x128	500 in/a out	256x256
Typical system size	±0.1 20-20k	±0.2dB 10-20k	-0.2 20-20k	±0.5dB 20-20k	±0.25 20-20k	±0.15dB to 20k	±0.35 20-20k	±0.2 20-20k
Audio response ±dB Hz-kHz	0.01%	30k	<0.1%	<0.5%	<0.3%	<0.1%	<0.1%	<0.1%
Harmonic distortion	S/N ratio	+24dBm	>95dB	85dB	80dB	92dB	>86dB	>88dB
S/N ratio	Audio crosstalk (worst)	<-95dB	>80dB	<-80dB	<-80dB	<-88dB	<-96dB	>100dB 16kHz
Audio crosstalk (worst)	Video response	...	Bal 40	...	±0.5dB 12MHz	±0.5 12MHz	-1.5 to 20MHz	148dB 18-bit
Video response	Diff phase/gain	...	+24dBm max	...	<0.5/0.5%	<0.4/0.4%	0 1/0.1%	[3.072MHz
Diff phase/gain	Chroma Luma delay	...	<±0.2dB 10-20k	...	...	...	±10ns	words/s data
Chroma Luma delay	Video S/N ratio	...	<0.01%	...	60dB	60dB	73dB	[rate 29-bit
Video S/N ratio	Video crosstalk (worst)	...	>90dB	...	-52dB 3.58MHz	-60dB 3.58MHz	-62dB 4.43MHz	parallel.
Video crosstalk (worst)	Multilevel audio control	Yes	<-90dB	Yes	Yes	Yes	Yes	Yes
Multilevel audio control	Useable for component video	No	...	No	Yes	Yes	Yes	Yes
Useable for component video	Reader Service No	776	777	778	779	780	781	782
Reader Service No								

²Series H also available in 256x32 and 32x32. ³Prodigy 24x12 model similar to HD series with smaller matrices.

Manufacturer	Sierra Auto-mated Systems	Sierra Video Systems		Thomson Video Equipement	360 Systems	Utah Scientific		
	SAS32000	MAXIN series	Series 16 ⁴	TTV5790	AM-16	AVS-1B (-1BW) ⁵	AVS-2 ⁶	DVS-1
Model	Audio/Video/Data	Video only	V/A	Video/digital	Audio	V/A	V/A	Video/digital
Audio/Video/Data	Basic crosspoint matrix	32x16 stereo	16x4	16x4	30x15	8x8/16x16	10x10	10x10
Basic crosspoint matrix	Typical system size	64x32	32x4 to 80x4	16x8/16x16	30x30	16x16x4	320x (150x10)	1280x1280
Typical system size	Audio response ±dB Hz-kHz	±0.05%	...	±3 150kHz	[Conforms to	-3 to 50k	±0.05 30-20k	±0.05 30-20k
Audio response ±dB Hz-kHz	Harmonic distortion	<0.05%	...	0.1%	[EBU 3247 &	<0.008%	0.05%	0.05%
Harmonic distortion	S/N ratio	>86dB 20kHz	...	>100dB	[CCIR 656 rec.	105dB	85dB	85dB
S/N ratio	Audio crosstalk (worst)	<-70dB	...	<-80dB 1kHz	[for digital	88dB 1kHz	-90dB to 20k	-90dB to 20k
Audio crosstalk (worst)	Video response	...	3dB 30MHz	-3dB 30MHz	[video; for	...	-3/0.5 60MHz	±0.5dB 30MHz
Video response	Diff phase/gain	...	0.25/0.25%	0.25/0.25%	[signals to	...	0.05/0.05%	±0.05/0.05%
Diff phase/gain	Chroma Luma delay	...	5ns	...	[243 Mbits/s	...	±0.75"	±0.75"
Chroma Luma delay	Video S/N ratio	...	60dB	60dB	[data rate.	...	80dB	80dB
Video S/N ratio	Video crosstalk (worst)	...	-50dB 3.58MHz	-50dB 3.58MHz	...	...	-60dB 4.43MHz	-60dB 4.43MHz
Video crosstalk (worst)	Multilevel audio control	...	No	Yes	...	Yes	Yes	Yes
Multilevel audio control	Useable for component video	...	Yes	Yes	Digital	...	Possible	Possible
Useable for component video	Reader Service No	784	785	786	787	788	789	790
Reader Service No								

⁴Series 8 offers 8x8 matrix with similar characteristics; System 16x4/16x8 video or 16x8 with four audio channels; model 61 8x8 may include one to three levels of video with stereo. ⁵-1BW model rated to 100MHz; matrix size determined by bandwidth. ⁶VX-2 video crosspoints offer -3dB to 100MHz.

Production Titlers, Character Generators

Dedicated character generation systems, not software packages for PCs. Abbreviations for storage media include HD hard disk, FD floppy disk, ST streaming tape, RHD removable hard disk.

Manufacturer	Abekas Video Systems	Ampex Corp.	Aston/Paltex		AVS	AVS France	BTS
	A72	ALEX	Aston 4	Caption	Manuscript	S161-M/-T/-GC ¹	Vidifont II
Model	Subtitling	Variable	Variable	Variable	Variable	Variable position	Variable
Subtitling	Yes	Yes	Yes	Yes	Yes	No	Yes
Yes	Underlining by	C/W/L	C/W/L	Yes	Yes	Various	No
Underlining by	Page format	Free-form	Free-form	54 C/14 L	Free-form	Free-form	16Cx4L-16TVL ²
Page format	Resolution	5.5MHz luminance	4.6ns	10ns	<10ns	10ns effective	100ns
Resolution	Anti-aliasing	Hardware 256 level	Hardware, software	Software, hardware	Software	Yes	None
Anti-aliasing	On-line type faces	Unlimited	30	8	Multiple	50 faces	1
On-line type faces	Character planes	Unlimited	16	4	...	Multiple	...
Character planes	Background planes	1	1	Yes	Yes	Multiple	...
Background planes	Animation by	C/W/L	C/W/L	Yes	Yes	Yes	No
Animation by	Type styles	Serif, non-serif	Serif, non-serif	Multiple	Multiple	Serif, non-serif	...
Type styles	Italicize	Variable angle	Variable	Yes	Yes	Variable	No
Italicize	Rotation	No	360°	...	...	360°	No
Rotation	Sizing, scaling	Yes	Yes	Yes	Yes	4-400 scan lines	No
Sizing, scaling	Non Arabic faces	...	...	Yes	Yes	44 languages	No
Non Arabic faces	Type face storage	FD/HD/ST	RAM/FD/HD	Disk	Disk	...	PROM (RAM)
Type face storage	Face font compose	No	Option	Logo opt	Option	Yes	No
Face font compose	Display flash by	No	C/W/L	Yes	Yes	Various	Character
Display flash by	Edging effects	Surround, shadow	Surround, shadow	Yes	Yes	Drop, solid shadow	Surround, shadow
Edging effects	Auto centering	H/V	H/V	Yes	Yes	H/V	No
Auto centering	Roll crawl control	Variable	∞ speed variation.	8 each	Yes	Multiple	...
Roll crawl control	Keyer colorizer	2 encoders std	Integral or external	External	External	Yes	No
Keyer colorizer	Color palette	16.7M/screen	16.7M, 1024/screen	4096, 40/screen	16.7million	16.7M on screen	...
Color palette	S-VHS output format	No	No	No	...	also RGB	YCRB
S-VHS output format	Integral still store	No	No	No	No	40MByte	No
Integral still store	Internal memory	4:4:4/13.5MHz	Pipeline architectur	2 pages	24-bit	RISC architecture	...
Internal memory	Off-line storage	FD/ST	FD/HD	FD/HD	Disk	3.5" FD	...
Off-line storage	Access time per page	...	Per complexity	<1s	<1s	...	...
Access time per page	Remote control	RS-232	...	RS-232/422	RS-232/422	Yes	No
Remote control							

Production Titlers, Character Generators

Manufacturer	Abekas Video Systems	Ampex Corp.	Aston/Paltex		AVS	AVS France	BTS
Model	A72	ALEX	Aston 4	Caption	Manuscript	S161-M/-T/-GC¹	Vidifont II
Image sources	RGB components	C/ CV, Tablet, Comp video, CCIR-601	...	Camera LogoMaster Draw	Any video source	Composite video	RGB, Composite
Multi-user system	No	2 user	2-station	...	...	No	2 Keyboards
Automation interface	RS-232	Ethernet	RS-232/422	RS-232/422	...	RS-232	RS-422
Paint system interface	No	No	...	...	Networked	No	...
Reader Service No	442	443	444	445	446	447	448

¹ -HC clock, counter inserter; -S logo; -V, VU meter; -GC character generator. ² 32Cx16L for 32TVL letters.

Manufacturer	Chyron Corporation				Dubner Computer Systems		ESE
Model	ACG	Chyron IV/4200	INFINITI	Scribe JNR	30K³	Graphics Factory⁴	ES-CG89
Subtitling	Variable	Lower 3rd	Variable	Variable	Any location	Any location	Lower 1/3
Tabs	Yes	Yes	Yes	Yes	Yes	Yes	...
Underlining by	All	All	All	All	by Character	by Character	...
Page format	Free form	64Lx24L 18TVL	Free form	64Cx24L 10TVL/free	Free form	Free form	20x5
Resolution	35ns	27ns	5ns	10ns	760x486	760x486	70ns
Anti-aliasing	Hardware	...	Software	Software	Software	Software	Software
On-line type faces	8	12	8	8	Infinite	Infinite	8
Character planes	Unlimited	2	Unlimited	unlimited	2	2	...
Background planes	1	2	3	1	Infinite	Infinite	...
Animation by	All	All	All	Line	C/W/L	C/W/L	...
Type styles	Serif, non-serif	Serif, non-serif	Serif, non-serif	Serif, non-serif	Serif, non-serif	Serif, non-serif	Non-serif
Italicize	Yes	Yes	Yes	Yes	Variable	Variable	No
Rotation	Row, page	Yes	Yes	Yes	360°	360°	...
Sizing, scaling	No	Yes	Yes	Yes	Yes	Yes	No
Non Arabic faces	...	Cyrillic	Cyrillic	Cyrillic	Cyrillic, Chinese	Cyrillic	No
Type face storage	RAM	RAM	RAM	RAM	Ram/FD/Bernoulli	Ram/FD/Bernoulli	RAM
Face font compose	Option	Yes	No	No	Yes	Yes	No
Display flash by	All	All	All	All	Character	Character	Character
Edging effects	Surr shad to 16lines	Surround, shadow	Surround, Shadow	All	Surround, shadow	Surround, shadow	Surround
Auto centering	H/V	Horizontal	H/V	H/V	H/V	H/V	Horizontal
Roll crawl control	9 speeds	4 speeds	9 speeds	9 speeds	9 speeds	9 speeds	1 speed
Keyer colorizer	Integral	External	Integral	Integral	Integral	Integral	Integral
Color palette	16.7M 527/screen	512 200/screen	16.7M; 16.7M/screen	16.7M 667/screen	16.7M, 256/screen	16.7M, 256/screen	16/16
S-VHS output format	Option	No	No	No	No	No	No
Integral still store	No	No	Yes	No	Option	Option	No
Internal memory	Proprietary	Proprietary	Proprietary	Proprietary	8MBytes, 32-bit	16MBytes, 32-bit	...
Off-line storage	FD HD RHD	FD HD	FD HD RHD	FD/HD/RHD	HD/Bernoulli SCSI/FD	HD, Bernoulli	...
Access time per page	...	...	...	...	...	...	100ms
Remote control	RS-232 MODEM GPI	RS-232	RS-232, Modem	RS-232 Modem	RS-232	RS-232	No
Image sources	Tablet	Composite, Data svc Weather svc	Component, Tablet Data service	Component, tablet	Tablet, weather data	Encoder, composite video, weather data	Composite
Multi-user system	No	Yes	Yes	Yes	2 users	2 users	No
Automation interface	RS-232 GPI	RS-232/-422	RS-232/-422 ARCNET	RS-232, ARCNET	RS-232, -422, GPI	RS-232, -422, GPIB	...
Paint system interface	No	Yes	Yes	Yes	Option	Option	No
Reader Service No	449	450	451	452	453	454	455

³5K, 10K, 20K have similar characteristics with varying amounts of internal storage and FD external storage. ⁴20KWN Weather Station also available with weather background graphics capability.

Manufacturer	For*A	Laird					
Model	VTW-240 (222S)	1450	1500 PROM	CG 7000 (7000 YC)	Legend (Turbo)	Legend GX (Turbo)	Legend-LX
Subtitling	...	Variable	Variable	Variable	Variable	Variable	Variable
Tabs	Yes	Yes	Yes	No	Yes	Yes	Yes
Underlining by	by character	Character	Character	...	Character	Character	Character
Page format	32C x 8L	Free form	Free form	39x16 24TVL	Free form	Free form	Free form
Resolution	24x20 dot matrix	35ns 1506x483	35ns 1506x483	80ns	35ns 1506x483	35ns 1506x483	35ns 1506x483
Anti-aliasing	(12x20 on 222S)	...	...	Hardware	Hardware/software ⁵	Hardware/software ⁶	Hardware/software
On-line type faces	4	6 + 6 opt	6 + 6 opt	1	16	16	16
Character planes	1	1/unlimited overlap	1/unlimited overlap	1	w/unlimited overlap	1/unlimited overlap	2/unlimited overlap
Background planes	1	1	1	1	1	1	2
Animation by	...	Character	Character	Line	Character	Character	Character
Type styles	Serif, non-serif	Serif, non-serif	Serif, non-serif	Non-serif standard ²	S/NS 35 type faces	S/NS 35 type faces	S/NS 35 type faces
Italicize	...	Variable	Variable	No	Variable	Variable	Variable
Rotation	...	H/V/flip	H/V/flip	No	H/V flip options	360° by <1 step	360° by <1 step
Sizing, scaling	...	No	No	4 sizes/face	Option	Yes	Yes
Non Arabic faces	No	No	No	No	No	No	No
Type face storage	FD	ROM	ROM	ROM cartridge	RAM/FD	RAM/FD	RAM/FD/HD
Face font compose	No	No	No	No	Option	Yes	Yes
Display flash by	to character	Character	Character	Character	Character	Character	Character
Edging effects	Shadow edge	Surround, shadow	Surround, shadow	Surround/shadow	Surround, shadow	Surround, shadow	Surround, shadow
Auto centering	H/V	Horizontal	Horizontal	H/V	Horizontal	Horizontal	Horizontal

In broadcasting, Image and Power are everything.

BURLE is committed to providing a full range of camera and power broadcast tubes.

As television celebrates its Golden Anniversary, BURLE continues a 50 year tradition of broadcast technology leadership. We've supplied you with Vistacon, Saticon and Vidicon camera tubes since their introduction. And our power tubes are the industry standard for VHF TV.



BURLE supplies a wide variety of camera and power tubes for the broadcast industry.

It takes a domestic source like BURLE to maintain a half century commitment to producing and supplying a full line of broadcast electron tubes. From camera to transmitter, BURLE provides the tubes that keep the broadcasting industry on the air. Count on us to keep you supplied with the full range of broadcast camera and power tubes you need. Today and tomorrow. Contact your local BURLE broadcast tube distributor, or call us at 1-800-827-TUBE.

Experience counts.

BURLE Electron
Tubes

Production Titlers, Character Generators

Manufacturer	For-A	Laird					
Model	VTW-240 (222S)	1450	1500 PROM	CG 7000 (7000 YC)	Legend (Turbo)	Legend GX (Turbo)	Legend-LX
Roll crawl control	Multiple speeds	9R, 6C	9R, 6C	4 R/4 C	9 R, 6 C	9R, 6C	9R, 6C
Keyer colorizer	Yes	Integral	External	Integral	Integral	Integral	Integral
Color palette	512, 14/screen	65,536/966	65,536/966	Analog 2/screen	65,536/966	65,536/966	65,536/65,536
S-VHS output format	(-222S)	Option	Option	7000YC only	Option	Option	Option
Integral still store	No	No	No	No	No	No	No
Internal memory	1600 page	...	...	...	...	...	...
Off-line storage	3.5" FD	via PC connection	via PC connection	Non-vol RAM module	FD, HD	FD, HD	FD/HD
Access time per page	...	1s average	1s average	1.4s	1s average	1s average	1s average
Remote control	RS-232	RS-422	RS-422	GPI & (Proprietary)	RS-422	RS-422	RS-422
Image sources	Composite video	Composite	Composite	Composite (Y-C)	Composite, tablet	Composite, tablet	Composite, tablet
Multi-user system	No	No	No	No	No	No	No
Automation interface	Remote control	RS-422, GPIB	RS-422, GPIB	GPIB	RS-422, GPIB	RS-422, GPIB	RS-422, GPIB
Paint system interface	No	No	Upgrade option	No	Option	Option	Yes
Reader Service No	456	457	458	459	460	461	462

⁵Serif opt; 18 type styles available for 7000. ⁶anti-aliasing requires additional hardware.

Manufacturer	PESA	Quanta Corporation			Quantel	Ryley Communications Ltd
Model	CG-4722	Delta 1	Microgen Plus	Orion	Cypher ⁸	CAPGEN ser 2
Subtitling	Option	Lower 1/3	Lower 1/3s	Lower 1/3s	Any location	Variable
Tabs	8 tabs	Yes	No	Yes	Yes	Yes
Underlining by	Yes	Character	None	Character	Yes	Word
Page format	32 char x 16 line	Free form	32C x 12 L	64 C 36 L/10-126TVL	Free form	Free form
Resolution	35ns	0.289ns	50ns	5ns	...	11ns
Anti-aliasing	...	Hardware	None	Software	256-level 4:4:4:4	Hardware
On-line type faces	8 in RAM	Unlimited	4	250	Infinite	8
Character planes	...	Unlimited	1	1	Multiple	1
Background planes	...	Unlimited	1	1	Multiple	1
Animation by	No	Character	None	Character	Yes	...
Type styles	Various	Serif, non-serif	Serif, on-serif	Serif, non-serif	Serif, non-serif	Serif, non-serif
Italics	by line	Variable	No	Variable	Variable	Yes
Rotation	No	360° by font	None	360° by font	360°	...
Sizing, scaling	...	Yes	No	Yes by font	Yes	Yes
Non Arabic faces	Script, designer	None	None	None	Various	Roman
Type face storage	3.5" disk	RAM, HD	ROM	Floppy disk	FD cartridge	RAM
Face font compose	Option -4722	Yes	No	Option	Yes	No
Display flash by	Yes	Character	Character	Character	Various	Word
Edging effects	Full control	Surround, shadow	Surround, shadow	Surround shadow ⁷	Surround, shadow	Surround
Auto centering	H/V	H/V	Horizontal	Horizontal	H/V	H/V
Roll crawl control	8 speeds	2560 roll, 10 crawl	9 speeds	99 speeds	...	9 speeds
Keyer colorizer	Integral	Integral	Integral	Integral	Integral	External
Color palette	121, 121/s	16.7million	256, 24/screen	16.7million 1000/s	16.7M, 256/screen	64, 64/screen
S-VHS output format	No	No	No	No	No	No
Integral still store	No	Yes	No	No	Yes, 50-image	No
Internal memory	15 pg/4096 lines	4MB, 32-bit	8-bit 600 row RAM	2.5MB, 16/64-bit	...	...
Off-line storage	3.5" floppy	HD/FD/ST/RHD	None	HD/FD	Yes	FD
Access time per page	...	0.65s	4ms	0.5ms	...	500ms
Remote control	RS-232, timecode	RS-232	RS-232	RS-232/-422	Yes	...
Image sources	Video source	Composite, component	Composite	Compocsite	Any video	...
Multi-user system	-4722 dual channel	No	Option	No	...	No
Automation interface	RS-232	None	RS-232	RS-232/-422	Various	...
Paint system interface	...	Option	No	No	Yes	No
Reader Service No	463	464	465	466	467	468

⁷Also outline, highlight effects. ⁸Cypher Sprint; also Cypher Sports with 3-D effects; both allow mixing of pictures, graphics, titles.

Digital Video Effects Systems

These include systems designed for broadcast facility and production for broadcast; PCs may be used as control terminals for this equipment, but none are software packages for PC-based systems.

Manufacturer	Abekas Video Systems		ALTA Group	Ampex Corporation		CEL Electronics	Digital F/X
Model	A52	A53-D ¹	Pictoris	ADO 100 ²	ADO 2000 ²	P164 series ³	DF/X 200
# inputs channels	1 basic 2 exp	1 basic 2 exp	1 basic	2 basic 4 exp	2 basic 8 exp	4 basic 8 exp	2 basic
# output channels	1 basic 2 exp	1 basic 2 exp	1 basic	1 basic 2 exp	1 basic 4 exp	1 basic 2 ext	1 basic
# image planes	...	...	2 fore & background	...	...	2	1
Control system	Prop CPU/Ctl Pnl	Prop CPU/Ctl Pnl	CtlPnl	Prop. CPU/Ctl Pnl	Prop. CPU/Ctl Pnl	Proprietary/CtlPnl	Prop CPU/Ctl Pnl
Instruction memory form	RAM EPROM Data-Key	Floppy disk	...	FD for effects	FD	FD	HD FD RHD
Parameter display	On Ctl Pnl	On Ctl Pnl	...	Real Numbers	Real Numbers	LCD/TouchScreen	HR 14029x800

Manufacturer	Abekas Video Systems		ALTA Group	Ampex Corporation		CEL Electronics	Digital F/X
Model	A52	A53-D¹	Pictoris	ADO 100²	ADO 2000²	P164 series³	DFX 200
Y/C, S-VHS input, output	No	No	I/O	...	...	I/O Std	No
Component input, output	No	I/O	...	Analog I/O	Analog I/O	I/O Std	I/O
Digital input, output	I/O Composite	I/O Composite	...	Component/composite	Component/composite	I/O Opt	I/O component
Dub input, output	No	No	...	...	...	Input Std	No
Still store functions	No	No	No	No	No	Option	Yes
TBC functions	No	No	No	No	No	Yes	Yes
Remote protocol	RS-232/-422/GPI	RS-232/-422/GPI	GPI	GPI LAN	RS-422/GPI/ESBus	GPI	RS-422/GPI/LAN
System S/N ratio	52dB	52dB	55dB	...	...	56dB	...
Differential phase, gain	2°, 2%	2°, 2%	2°, 2%	...	...	2°, 2%	...
Sample rates, bits	14.3MHz, 8-bit	14.3MHz 8-bit	13.5MHz 8-bit	...	13.5MHz 8-bit	13.5MHz 8-bit	13.5MHz 32-bit
Image size variation	0x min, 99x max	0x min, 99x max	Any size ratio	...	...	0x-8x	Unlimited
Image compression ratio	...	...	Infinite	Zero	Zero	Yes	Unlimited
Image expansion ratio	...	...	None	Zero	Zero	Yes	Unlimited
Rotation around axes	X/Y	X/Y/Z	None	X/Y/Z	X/Y/Z	X/Y	X/Y/Z
Image freeze	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strobe	Yes	Yes	No	...	Option	Yes	Yes
Iterative (trails, streamers)	Yes	No	No	...	Option	Opt	No
Perspective effects	No	Yes	No	Option	Yes	Yes	Yes
Curvilinear effects	No	Yes	Option	...	Yes	Yes	Yes
Picture splits	H/V	H/V Opt	No	...	...	H	No
Mirror effects	No	No	Option	H/V	H/V	H/V	No
Push-on, -off	H/V/Diagonal	H/V Opt	H/V/Diagonal	H/V	H/V Option	H/V/Diagonal	No
Solarize	Yes	Yes	No	Yes	Yes	Yes	No
Posterize	Yes	Yes	Yes	Yes	Yes	Yes	No
Mosaic tiling	Yes	No	Yes	Yes	Yes	Yes	No
Programmed sequences	Yes	Yes	Yes	Yes	Yes	Yes	No
Reader Service No	1288	1289	1290	1291	1292	1293	1294

¹System processes composite or component signals; various connections can be used with editing systems; sampling at 13.5MHz available. ²One key channel is standard. ³MS830/831, MS850/851 single channel systems are based on P164 effects/TBC unit; with Maurice controller forms MS832, MS852 dual channel systems.

Manufacturer	DSC Digital Services Corporation			ECHOlab	For-A	Fougerolle Video	GML/GML Grove
Model	Eclipse 5500CC	Illusion	Paragon	Tempest	MF-2000 Multiflex⁴	MPV 4000	System DVP
# input channels	1 basic	1 basic	1 basic 4 exp	Video	Dual option	1 basic 4 exp	1 exp to 2
# output channels	1 basic	1 basic	1 basic 4 exp	Video, key	Dual option	1 basic 4 exp	1 exp to 2
# image planes	1	1	1	2-D, 3-D	2-D only	Multiplane	1
Control system	Prop CPU/Ctl/Pnl	Prop CPU Ctl/Pan	Prop CPU Ctl/Pnl	34010, mouse	Dedicated panels	Proprietary	Dedicated
Instruction memory form	Floppy disk	PROM	Floppy disk	3.5" floppy	Memory card	FD option	Non-volatile
Parameter display	CRT	7-seg LED	CRT	CRT menu	Keyboard indicators	Fluorescent panel	Lighted keys
Y/C, S-VHS input, output	...	...	...	Yes	)	PAL or SECAM	No
Component input, output	I/O	...	I/O	and composite	and Composite	RGB R-Y/B-Y	No
Digital input, output	...	...	I/O Component	No	No	D-1 interface	No
Dub input, output	...	...	...	No	No	No	No
Still store functions	No	No	No	Yes	...	No	No
TBC functions	No	No	No	...	(MF-1000)	& synchronizer	Dual frame store
Remote protocol	GPI	GPI	RS-422/PI	SCSI	Yes	RS-422/GPI	GPI/RS-232/422
System S/N ratio	52dB	52dB	52dB	52dB	55dB	...	58dB
Differential phase, gain	2°, 2%	2°, 2%	2°, 2%	2°, 2%	2°, 2%	...	2°, 2%
Sample rates, bits	14.3MHz 8-bit	14.3MHz 8-bit	14.3MHz 8-bit	4:2:2 CCIR 601	13.5MHz 8-bit 4:2:2	13.5MHz 8-bit	8-bit
Image size variation	...	...	...	...	Yes	...	...
Image compression ratio	...	...	...	Yes	Yes	1 to infinite	...
Image expansion ratio	...	...	...	Yes	Yes	...	...
Rotation around axes	X/Y/Z	X/Y/Z	X/Y/Z	Yes	X/Y	X/Y Options	...
Image freeze	Yes	Yes	Yes	& multifreeze	Yes	Yes	Yes
Strobe	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Iterative (trails, streamers)	No	No	Opt	Yes	Yes	Yes	Yes
Perspective effects	Yes	Yes	Yes	Yes	No	Yes	...
Curvilinear effects	Yes	No	Yes	Yes	Yes	Yes	Yes
Picture splits	H/V	H/V	H/V	Yes	Yes	H/V	H/V
Mirror effects	H/V	H/V	H/V	Yes	Yes	H/V	H/V
Push-on, -off	...	...	...	Yes	Yes	Yes	H/V
Solarize	No	No	...	Yes	...	Yes	Yes
Posterize	Yes	Yes	Yes	Yes	...	Yes	Yes
Mosaic tiling	Yes	Yes	Yes	Yes	...	Yes	Yes
Programmed sequences	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reader Service No	1295	1296	1297	1298	1299	1300	1301

⁴MF-1000 for S-VHS, 1/2" & 3/4 VCRs; upgrades to 2-channel with perspective capability.

Editor's Note:

The information appearing in this **Broadcast Engineering Equipment Reference Manual** was derived from brochures sent by the manufacturers in response to invitations to participate. It does not contain information from every manufacturer, nor does it contain every model of a product type produced by any specific manufacturer. It does, however, offer you a wide range of products to consider, when you begin the process of searching for new equipment for your facility.

Digital Video Effects Systems

Manufacturer	GML/GML Grove	Grass Valley Group			Microtime		Pinnacle Systems
Model	X-Calibre (II)	DPM-100	Kaleidoscope DP	Genesis Act 3	Impact ser 4	RP-1 3D	2100 Series
# inputs channels	1 exp to 2	1 base 2 exp	1 base 5 exp	1 basic 2 exp	3	1 basic 2 exp	1 basic
# output channels	1 exp to 2	1 base 1 exp	1 base 4 exp	1 basic 2 exp	2	1 basic 2 exp	1 basic
# image planes	1	...	5	2	2	2	2
Control system	Dedicated/soft keys	Prop CPU/Ctl pnl	Prop CPU/ctl pnl	Prop CPU Ctl Pnl	Proprietary	Prop CPU Ctl Pnl	IBM/AT-based
Instruction memory form	ROM/FD opt	FD	FD	EAROM	RAM, 3.5' FD	FD	FD (HD in 2010)
Parameter display	Ctl pnl	2x40-character	Fluorescent/CRT opt	Vacuum fluorescent	CRT	CRT	Menu driven
Y/C, S-VHS input, output	...	No	...	...	No	...	NA
Component input, output	YUV/YIQ/RGB	I/O	I/O	I/O	Composite	I/O	In/Out
Digital input, output	...	I/O C/C	I/O C/C	...	D-2	I/O component	No
Dub input, output	...	No	...	...	No	...	No
Still store functions	No	Option	No	No	No	No	Yes (in 2010)
TBC functions	Dual frame sync	No	No	No	No	No	No
Remote protocol	GPI/RS-232/422	RS-232/422/GPI ⁵	RS-422/GPI	GPI	RS-122/GPI	RS-232/422/GPI	RS-232/-422 GPI/ESbus
System S/N ratio	58dB	55dB	...	58dB	58dB	58dB	58dB
Differential phase, gain	2', 2%	2', 2%	<0.25', <0.25%	3', 3%	2', 2%	2', 2%	2', 2%
Sample rates, bits	8-bit	13.5/14.3 8-bit	13.5MHz 8-bit	8MHz 8-bit	14.3 4:2:2	13.5MHz 8-bit	10MHz 8-bit
Image size variation	1/2 & infinite	0x min, 100x max	0x min, 999x max	...	Infinite	...	0x-8x
Image compression ratio	1/2 & infinite	Infinite	0:1	Infinity:1	...	Infinity:1	Aspect ratio adj
Image expansion ratio	1/2 & infinite	1:100	1:Infinity	2:1	...	Infinity:1	8:1
Rotation around axes	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y
Image freeze	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Strobe	Yes	Opt	Yes	Yes	Yes	Yes	Yes
Iterative (trails, streamers)	Yes	Opt	Yes	No	Yes	Option	Yes
Perspective effects	Yes	No	Yes	Yes	True 3-D	Yes	Option
Curvilinear effects	Yes	No	Yes	Yes	Yes	Yes	Option
Picture splits	H/V	H/V	H/V	H/V	Yes	H V	H/V
Mirror effects	H/V	H/V	H/V	H/V	Yes	H V	H/V
Push-on, -off	H/V	H/V	H/V/diagonal	H/V/diagonal	Yes	H V diagonal	No
Solarize	Yes	Yes	Yes	Yes	Yes	Yes	No
Posterize	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Mosaic tiling	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Programmed sequences	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reader Service No	1302	1303	1304	1305	1306	1307	1308

⁵ESBus, Model 100, 200 interface.

Manufacturer	Pinnacle Systems	QuesTech	Sony		
Model	PRIZM	Charisma	DME 450 ⁶	DME-5000	DME-9000/System-G
# inputs channels	1 basic	3V 2key 2Z 1Bkgrnd	1 basic	4-channel option	1 (4-ch w/combiner)
# output channels	1 basic	Video/Z-axis/Key	1 basic	4-channel option	4:2:2, YCRCB
# image planes	3	Multiple	1	Multiple	Multiple
Control system	PC compatible	Ctl pnl/proprietary	PropCPU Ctl pnl	KB, Proprietary	Ctl pnl, mouse, KB
Instruction memory form	FD/HD	1000 keyframe/3.5' FD	ROM >280 effects	...	...
Parameter display	Menu driven	CRT, panel LEDs	LED of effect #	CRT	CRT, Ctl Pnl LEDs
Y/C, S-VHS input, output	No	No	No	...	...
Component input, output	I/O	CCIR PAL	I/O	YCRCB & composite	Yes
Digital input, output	No	Yes	No	Component/composite	10-bit
Dub input, output	No	No	No	...	...
Still store functions	Option	No	No	...	...
TBC functions	No	Int. synchronizer	Integral	Int. synchronizer	Integral
Remote protocol	RS-232/422/GPI/Esbus	Yes	...	RS-422, -232C, GPI	RS-422
System S/N ratio	58dB	per CCIR spec	52dB	>50dB	55dB
Differential phase, gain	2', 2%	...	<3'	<2', <2%	...
Sample rates, bits	10MHz 8-bit	13.5MHz 8-bit 4:2:2	8-bit 455H sampling	4:2:2	10-bit 4:2:2
Image size variation	0-∞	0-Infinity	...	Infinite	Infinite
Image compression ratio	Infinite	0-Infinity	...	Infinite	Infinite
Image expansion ratio	Infinite	0-Infinity	...	Infinite	Infinite
Rotation around axes	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z	X/Y/Z
Image freeze	Yes	Yes	Yes	Inc multifreeze	w/multifreeze
Strobe	Yes	Yes	No	Yes	Yes
Iterative (trails, streamers)	Yes	Yes	No	Yes	Yes
Perspective effects	Yes	Yes	Yes	Yes	Yes
Curvilinear effects	Yes	CLEO	No	Yes	Yes
Picture splits	H/V	Yes	HV	Yes	Yes
Mirror effects	H/V	Yes	HV	Yes	Yes
Push-on, -off	No	Yes	LED of effect #	Yes	Yes
Solarize	Yes	Yes	...	Yes	...
Posterize	Yes	Yes	Yes	Yes	Yes
Mosaic tiling	Yes	Yes	Yes	Yes	Yes
Programmed sequences	Yes	Yes	No	T-file from DVS-8000	to 60sec
Reader Service No	1309	1310	1311	1312	1313

⁶With 3-input switcher, title key, dual matte generators, BVS-3000 and editor interface.

Still Store Systems

Magnetic and optical disk image storage systems, primarily used as image libraries, but may also be used in graphics production; **HD** hard disk, **RHD** removable hard disk, **M-O** magneto-optical, **ST** streaming tape, **R-O** read-only, **WORM** write-once, read-many.

Manufacturer	Abekas Video Systems		ALTA Group	Ampex Corporation		ASACA/Shiba-Soku	Aston /Paltex	Dubner Computer Systems
Model	A42	A62 (A64)	Centaurus	ESS-3	ESS-5	ADS-300	Wallet	DSS-4
Storage medium	HD on-line, s-tape	HD	HD, RHD	HD/RHD, ST/Optical	HD, RHD, ST, WORM	Rewritable MO, RHD	44Mbyte RHD	HD, RHD, M-O, R-O
# simultaneous output channels	2	1	1	2	2	2	3	2
Multiple control worstations	No	No	Yes	1-10 users	No	No	1	Yes
Standards	NTSC	NTSC ²	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC	NTSC/PAL	NTSC
Stills catalog	Optional library	No	...	Multi-image screen	Proof-sheet	...	Disk directory	...
Integral digital effects	No	Keying	Yes	Yes	No	Options	...	Yes
Edit control port	GPI/RS-422	RS-232/-422/GPI	Yes	...	GPI	VS-422	No	GPI, GVG
Switcher control port	GPI/RS-422	...	Option RS-232/422	...	...	RS-232C	{13.5MHz/8-bit	GPI, GVG
Video response	±0.25 4.2MHz	±0.25 4.2MHz	-3dB 5.5MHz	≤5dB to 5MHz	0.5dB 5.9MHz	±0.5 60Hz-5.5MHz	[System uses	0.5dB 5MHz
YCbCr sample rate	...	D-2 system	14.3MHz	13.5MHz, 4:2:2	13.5MHz	4xfsc, 8-bit	[CCIR 601 4:2:2:4	...
Differential phase, gain	2°, 2%	2°, 2%	2°, 2%	<1°, 1%	2°, 2%	<2°, ≤2%	[sampling with	1°, 1%
Chroma Luma delay	±10ns	...	...	<±10ns	<25ns	...	[processors for	Ons
External TBC required	No	No	Dual TBC/FS	...	No	No	[NTSC/PAL output	No
Composite digital	Yes w/D-2 opt	D-2 interface	Y/C 3.58 (S-VHS)	No	...	No	...	D-2
Component digital	...	(CCIR 601)	...	No	D-1	No	RGB/YUV	...
Integral input A/D conversion	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
Integral output D/A conversion	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
Storage per disk	700 fields, 350 frame	50s or 100s	170 fields, 85 frames	80-800 frames	80-100 frames	3200 fields/1600 frames	39-42	1,000 images
# of drives maximum	3	1 or 2	4	25 in network	4 HD, 7 SCSI	14	2	14
Worst case access time	750ms	Instantaneous	2.1s/frame	<0.8s	1.5s	<1.7s	≤2s	1ms
Sequence, loop programming	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reader Service No	1240	1241	1242	1243	1244	1245	1246	1247

¹Optional smaller disk drive for 200 fields/100 frame. ²I/O of A62 is composite RS170A with optional RGB out; A64 I/O is YCbCr, RGBS, CCIR 601. A60 has 25s-50s 525/60 capacity with CCIR 601 I/O, 4:2:2 processing.

Manufacturer	Harris Video Systems		Leitch Video	Rank Cintel		Sony		TEAC
Model	HarrisVws 5000 (1000)	IRIS II Plus	Still File	Pocket	Slide File	DNS-1000 ser	LVR/LVS-5000⁴	LV-250HC⁵
Storage medium	Floppy& (Winchester)	W/R-W	HO, ST, MO, RO	HO, RHD	HD, streaming tape	WORM (or M-O)	12" CAV videodisc	Recordable optical
# simultaneous output channels	2 (1)	to 72	4 I/O	2	to 4	Dual channel	1	One only
Multiple control worstations	Yes	Yes	Yes	No	Yes	6 in network	No	No
Standards	NTSC	NTSC	NTSC	NTSC/PAL	NTSC, PAL	NTSC, PAL	NTSC, PAL	NTSC
Stills catalog	20 field database	Data list	Data list/3x3 ³	Title list/index	Polyphoto/index	Directory	No	...
Integral digital effects	Option (No)	Option	Yes	Yes	Yes	Key channel	No	No
Edit control port	Option	Yes	Various protocol	Proprietary	Auto Preview, A/B	Yes	RS-232C/-422	RS-232
Switcher control port	Option	Yes	Various Protocol	No	A/B tally	...	...	...
Video response	0.4(0.5) to 4.2MHz	0.4 to 4.2MHz	±0.15dB 4.5MHz	8-bit sampling	CCIR 601	6MHz RGB	4.5MHz	>400 lines
YCbCr sample rate	...	...	N.A.	13.5MHz/6.75MHz	13.5MHz/6.75MHz	[5.5MHz Y/R-Y/B-Y	...	...
Differential phase, gain	≤2°, ≤2% (n.a.)	≤2°, ≤2%	<1°, 2%	CCIR-601 arch	8-bit sampling	<2°/≤2%	...	8-bit sampling
Chroma Luma delay	5ns (ns)	5ns	<±10ns	...	...	...	...	...
External TBC required	No (Yes)	No	Integral synch	No	No	...	...	VY-250
Composite digital	...	...	D-2	No	No	No	[Analog RGB or	No
Component digital	D-1 (...)	D-1	N.A.	D-1	D-1	Serial	[Composite	No
Integral input A/D conversion	Yes	Yes	Yes	Yes	Yes	Yes	...	...
Integral output D/A conversion	Yes	Yes	Yes	Yes	Yes	Yes	...	...
Storage per disk	748 (422) frames	200 fields	1500/3000/5000 fields	40 frames	400 frames	1,800 (or 500)	43,500 frames	5400 frames
# of drives maximum	25	32	4 for 10,000 frames	2	1	7 per mainframe	1	1
Worst case access time	1.9s	1s	0.6s	1.7ms	1	3s (or 2s)	0.5s	<1.5sec
Sequence, loop programming	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reader Service No	1248	1249	1250	1251	1252	1253	1254	1255

³Integrated management system; 2 users/station; Ethernet networking; color frame storage. ⁴LVA-7000 as play-only companion unit. ⁵LV-210 series includes A model with record and playback, P mode with 8kbyte RAM and 150-step programming.

Video Processing Systems

This product group contains signal encoders, format translators, color correction, signal correction products.

Manufacturer	A.C.E./MidwestCommunications			Accom	ALTA Group	Ampex Corp.
Model	205N¹ (204N)	660JN²	ACC200	D-Bridge 122³	DIE-125⁴	DST-300
Standards conversion	Encoder	Color corrector	Color correction	Encoder	Enhancer	Format converter
Supports NTSC	Yes	Yes	No	Yes	Yes	Yes
Supports PAL	No	No	No	Yes	...	Yes
Supports SECAM	No	No	No	No	No	No
Format conversion	No	No	Yes	Yes	Yes	Yes
Supports Y/C-3.58	No	No	No	No	No	No
Supports Y/C-688	No	No	No	No	No	No

Video Processing Systems

Manufacturer	A. C. E./Midwest Communications			Accom		ALTA Group	Ampex Corp.
	Model	205N ¹ (204N)	660JN ²	ACC200	D-Bridge 122 ³	DIE-125 ⁴	Celeris	DST-300
Supports RGB	Yes	Yes	Yes	Yes	Yes	No	No
Supports YCrCb	Yes	Yes	Yes	Yes	Yes	No	No
Supports D-1 CCIR 601	No	No	No	Yes	Yes	No	Yes
Supports D-2	No	No	No	Yes	No	No	Yes
Dubbing applications	No	Yes	Yes	Yes	Yes	Yes	Yes
Production applications	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On-air applications	Yes	Yes	Yes	Yes	Yes	No	Yes
Enhancement	Yes	No	...	No	Yes	No	No
Noise reduction	No	No	...	No	Yes	No	No
Color correction	No	Yes	...	Yes	No	L/C delay	No
Contrast correction	No	Yes	...	Yes	No	No	No
Sync regeneration	Yes (No)	No	...	Yes	Yes	Yes	Yes
Full proc amp control	Yes (No)	No	...	Yes	No	No	No
Programmable system	No	NO	...	Yes	Yes	No	No
Time code control	No	Yes	...	No	No	No	No
RS-232/-422 control	No	No	...	Yes	Yes	No	No
Composite encoder	Yes	No	...	Yes	No	Yes	Yes
Improved NTSC encoding	No	No	...	Yes	No	No	Yes
Video bandwidth	6MHz	5 MHz	6MHz	to 5.75MHz	to 5.75MHz	-3dB 6MHz	10-bit data
Video S/N ratio	60dB	65dB	60dB	65dB	54dB	56dB	...
Envelope delay	1100ns	450ns	30ns	5ns	5ns	Adjustable	...
Differential phase, gain	0.5	0.5%	...	...	0.2°, 0.2%	0°, 0%	...
Reader Service No	1256	1257	1258	1259	1260	1261	1262

¹Model 205N provides genlock feature. ²600JN is similar unit providing color correction for component video. ³D-Bridge 221 is companion decoder unit. ⁴Designed for reduction of noise and grain in film-to-tape transfer operations.

Manufacturer	Broadcast Systems Design			Broadcast Video Systems			BTS	
	Model	Model 300 (305 ⁵)	Model 310	#100, 300 ⁶	#734/#735	#740, 750	EN300/350/450	CNR7
Standards conversion		Color processor	Transcoder	Format converter	Translator	Component translator	Encoders	Noise reduction
Supports NTSC	Yes	Yes	...	...	[#743 for	[#740 RGB to	Yes	Yes
Supports PAL	No	No	...	...	[RGBS to	[YCrCb	EN300	Yes
Supports SECAM	No	No	...	...	[YCrCb	No	No	...
Format conversion	...	...	Yes	Yes	[#735 for	Yes	350, 450	Yes
Supports Y/C-3.58	No	Yes	Yes	Yes	[YCrCb	[#750 RGB from	350, 450	Yes
Supports Y/C-688	No	Yes	Yes	Yes	to RGBS	[YCrCb	No	Yes
Supports RGB	No	...	...	...	Yes	Yes	Yes	Yes
Supports YCrCb	No	...	Yes	Yes	Yes	Yes	350, 450	Yes
Supports D-1 CCIR 601	No	No	No	No	No	No	No	...
Supports D-2	No	No	No	No	No	No	No	...
Dubbing applications	No	No	Yes	Yes	Yes	Yes	350, 450	Yes
Production applications	...	...	Yes	Yes	Yes	Yes	Yes	Yes
On-air applications	...	...	No	No	No	No	Yes	Yes
Enhancement	Yes	Yes	No	No	No	No	No	Yes
Noise reduction	...	...	No	No	No	No	No	Yes
Color correction	I/Q axes adj	I/Q axes adj	No	Yes	No	No	No	Yes
Contrast correction	...	...	No	Yes	No	No	No	Yes
Sync regeneration	Yes	Yes	No	Yes	Yes	Yes	350, 450	TBC
Full proc amp control	Yes	Yes	No	Partial	Yes	No	No	Yes
Programmable system	No	No	No	No	No	No	No	...
Time code control	No	No	No	No	No	No	No	No
RS-232/-422 control	No	No	No	No	No	No	No	...
Composite encoder	Yes	Yes	No	No	No	No	Yes	Yes
Improved NTSC encoding	...	...	No	No	No	No	No	...
Video bandwidth	6.4MHz	10MHz	6MHz	...	10MHz	5/5.5/6MHz	-3, +0.5dB 4MHz	...
Video S/N ratio	58dB	58dB	46dB	...	46dB	45/45/60dB	...	...
Envelope delay	...	...	...	...	4ns Δ	±15/15/10ns	Adjustable	...
Differential phase, gain	1.5°, 1.5%	1.5°, 1.5%	...	...	...	...	...	...
Reader Service No	1263	1264	1265	1266	1267	1268	1269	...

⁵#305 includes chroma level and phase and luminance setup adjustment; both have luminance EQ control. ⁶#100 Y-C to YCrCb; #300 YCrCb.

Manufacturer	BTS	CEL Electronics	Central Dynamics	Faroudja Laboratories			For-A	
	Model	DNR7 ⁷	P164	STAGE ☆1 E-NTSC	CTE-2	LD-1	VHP-N/P	CT-600
Standards conversion		Noise reduction	Enhancement	Encoder	Encoder	Line doubler	Enhancer	Format conversion
Supports NTSC	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Supports PAL	Yes	Yes	No	No	No	No	Yes	Yes
Supports SECAM	Yes	Yes	No	No	No	No	Yes	...
Format conversion	Yes	No	Yes	Yes	Yes	Yes	No	No
Supports Y/C-3.58	No	Yes	Yes	Yes	No	No	No	Yes
Supports Y/C-688	No	Yes	...	No	No	No	No	Yes
Supports RGB	Yes	No	Yes	Yes	Yes	Yes	No	Yes
Supports YCrCb	Yes	Yes	Yes	Yes	Yes	Yes	No	No
Supports D-1 CCIR 601	Yes	Yes	Yes	No	No	No	No	No

Manufacturer	BTS	CEL Electronics	Central Dynamics	Faroudja Laboratories			For-A
Model	DNR7 ⁷	P164	STAGE 11 E-NTSC	CTE-2	LD-1	VHP-N/P	CT-600
Supports D-2	No	No	Yes	No	No	No	Yes
Dubbing applications	Yes	Yes	Yes	Yes	No	Yes	Yes
Production applications	Yes	Yes	Yes	Yes	Yes	Yes	Yes
On-air applications	...	Yes	Yes	Yes	No	Yes	No
Enhancement horizontal	...	Yes	Yes	Yes	Yes	Yes	No
Enhancement vertical	...	Yes	Yes	Yes	Yes	Yes	No
Noise reduction	C/L	No	No	No	Yes	No	No
Color correction	Yes	Yes	No	No	No	No	No
Contrast correction	...L	Yes	No	No	Yes	Yes	No
Sync regeneration	per CCIR	Yes	Yes	Yes	Yes	No	Yes
Full proc amp control	Yes	Yes	No	Yes	No	No	Yes
Programmable system	...	No	Yes	No	No	No	No
Time code control	...	No	No	No	No	No	No
RS-232/-422 control	...	No	Yes	No	No	No	No
Composite encoder	Yes	Yes	Yes	Yes	No	No	No
Improved NTSC encoding	...	No	Yes	Yes	No	No	...
Video bandwidth	per CCIR	5.5MHz	5.5MHz	6MHz	9MHz	4.2MHz	5MHz
Video S/N ratio	...	56dB	>60dB	>60dB	...	>60dB	>60dB
Envelope delay	...	Adj.	<10ns	<25ns	...	<20ns	...
Differential phase, gain	...	2°, 2%	...	1°, 1%	...	2.5°, 2.5%	1°, 1%
Reader Service No	1270	1271	1272	1273	1274	1275	1276

⁷Integration into various production configurations with CD7 encoder, DC7 decoder, D-1.

Manufacturer	Fougerolle Video			•DEN	Leitch Video	Sierra Video Systems	Sony
Model	MPV 2000 series	MPV 2000 series	MPV 3200 series	IVS-3 (-4/-5)	VPA-330/331 (310P)	Delta Series	BVX-D10
Standards conversion	Translators	Encoders	Translators	Translator	Signal processor	Format conversion	Format translation
Supports NTSC	No	No	No	No	Yes	No	Yes
Supports PAL	Yes	...	Yes	[-3 RGB to	310P	No	Yes
Supports SECAM	Yes	#2040/#2045	Yes	[YCrCb	No	No	No
Format conversion	...	No	...	[-4 YCrCb	No	Yes	Yes
Supports Y/C-3.58	No	No	No	[to RGB	No	No	...
Supports Y/C-688	No	No	No	No	No	No	...

Advertising sales offices

NEW YORK, NEW YORK

Diane Gottlieb-Klusner
Telephone: (212) 332-0633
Telefax: (212) 332-0663
Mike Trerotoli
Telephone: (212) 332-0632
Telefax: (212) 332-0663
888 7th Avenue, 38th Floor
New York, NY 10106

CHICAGO, ILLINOIS

Vytas Urbonas
Telephone: (312) 435-2361
Telefax: (312) 922-1408
55 East Jackson
Suite 1100
Chicago, IL 60604

SANTA MONICA, CALIFORNIA

Herbert A. Schiff
Telephone: (213) 393-9285
Telefax: (213) 393-2381
Jason Perlman
Telephone: (213) 458-9987
Telefax: (213) 393-2381
Schiff & Associates
501 Santa Monica Blvd, Ste. 504.
Santa Monica, CA 90401

OXFORD, ENGLAND

Nicholas McGeachin
Intertec Publishing Corp.
Roseleigh House
New Street
Deddington
Oxford OX5 4SP
England
Telephone: (0869) 38794
Telefax: (0869) 38040
Telex: 837469 BES G

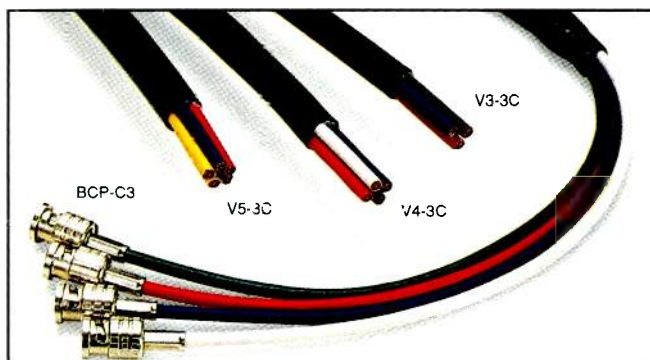
TOKYO, JAPAN

Mashy Yoshikawa
Orient Echo, Inc.
1101 Grand Maison
Shimomiyabi-Cho 2-18
Shinjuku-ku, Tokyo 162, Japan
Telephone: (03) 235-5961
FAX: (03) 235-5852
Telex: J-33376 MYORIENT

FREWVILLE, SOUTH AUSTRALIA

John Williamson
Hastwell, Williamson, Rep. Pty. Ltd.
109 Conyngham Street
Frewville 5063
South Australia
Phone: 799-522
FAX: 08 79 9522
Telex: AA87113 HANDM

CLASSIFIED ADVERTISING
OVERLAND PARK, KANSAS
Renée Hambleton
P.O. Box 12901
Overland Park, KS 66212
913-888-4664



CLEANER & SHARPER VIDEO RESOLUTION

- Optimize the signal to your video monitor with Canare high performance cables and connectors.
- Ideal for computer graphics, video projectors, component (RGB) broadcast and digital VTR's.
- Component coax cable: super flexible, 75 Ohm (<2.2 nanosecond differential delay time). Matched with 75 Ohm BNC connectors (<1.1 VSWR to 2 GHz).
- Available in bulk or pre-assembled fan-to-fan tails.

CANARE
CABLES & CONNECTORS

511 5th St., Unit G, San Fernando, CA 91340
Phone: (818) 365-2446 FAX: (818) 365-0479

REQUEST
FULL-LINE
CATALOG

Circle (93) on Reply Card

Manufacturer	Fougerolle Video			I-DEN	Leitch Video	Sierra Video Systems	Sony
Model	MPV 2000 series	MPV 2000 series	MPV 3200 series	IVS-3 (-4/-5)	VPA-330/331 (310P)	Delta Series	BVX-D10
Supports RGB	Output	Yes	Output	Yes	No	Yes	Digital
Supports Y _C C _B	Output	Yes	Output	Yes	No	Yes	Digital
Supports D-1 CCIR 601	No	No	No	No	No	No	Yes
Supports D-2	No	No	No	No	No	No	Yes
Dubbing applications	Yes	Yes	Yes	Yes	Yes	No	Yes
Production applications	Yes	Yes	Yes	Yes	Yes	No	Yes
On-air applications	Yes	Yes	Yes	No	Yes	No	No
Enhancement	[#2050 PAL/SECAM	No	[#2050 PAL/SECAM	No	No	No	No
Noise reduction	[to SECAM	[MPV 2020 PAL	[to SECAM	[-5 converts	No	No	No
Color correction	[#2060 PAL/SECAM	[& SECAM auto	[#2060 PAL/SECAM	[CTDM & CTCM	Yes	No	[Gamma
Contrast correction	[to PAL	[select decoder	[to PAL	[component to	Yes	No	[Setup of RGB
Sync regeneration	[#2080 PAL/SECAM	[companion unit	[#2080 PAL/SECAM	[Y _C C _B	Yes	No	No
Full proc amp control	[to SECAM	No	[to SECAM	No	Yes	No	Yes
Programmable system	[#2070 PAL/SECAM	No	[#2070 PAL/SECAM	No	No	No	No
Time code control	[to PAL & SECAM	No	[to PAL & SECAM	No	No	No	No
RS 232 422 control	No	No	No	No	No	No	RS-422 comm.
Composite encoder	Yes	Yes	Yes	No	No	No	...
Improved NTSC encoding	No	No	No	No	No	No	No
Video bandwidth	3MHz	...	3MHz	-3dB 5.5MHz	±0.1dB 5MHz	20MHz	13.5MHz Y
Video S/N ratio	...	...	[#3300 translates	58dB	>60dB	60dB	...
Envelope delay	...	...	[RGB-YUV	...	...	5ns	...
Differential phase gain	...	...	[bidirectionally.	...	<0.2°, 0.5%	...	...
Reader Service No	1277	1278	1279	1280	1281	1282	1283

Manufacturer	Thomson Video Equipment	Vistek Electronics		
Model	COLORADO*	V1010 series	V4000 series	V4130 series
Standards conversion	Color correction	Format conversion	Transcoder	Encoders
Supports NTSC	No	...	Yes to PAL-M	3.58/4.43
Supports PAL	No	YUV	I, G, B, N	I/B/G/M/N
Supports SECAM	No	No	Yes	No
Format conversion	No	Yes	No	No
Supports Y/C-3.58	No	No	No	No
Supports Y/C-688	No	No	No	No
Supports RGB	Digital	Yes	Yes	Yes/YUV
Supports Y _C C _B	No	Yes	No	Yes
Supports D-1 CCIR 601	Yes	No	No	No
Supports D-2	No	No	No	No
Dubbing applications	Yes	Yes	Yes	Yes
Production applications	Yes	Yes	Yes	Yes
On-air applications	No	No	Yes	Yes
Enhancement	No	No	...	...
Noise reduction	...	No	[4021 PAL	[encoding and
Color correction	Yes	No	[4022 NTSC	[re-encoding of
Contrast correction	...	No	[decoder units	[original or
Sync regeneration	No	[Models for	[Units for	[decoded RGB
Full proc amp control	Yes	[conversion	[conversion	[or Y _C C _B
Programmable system	Yes	[among RGB	[between NTSC	[signals to a
Time code control	Yes	[RGS, and	[& PAL-M or	[composite output
RS-232/-422 control	Yes	[Y _C C _B	[PAL-I/B/G/N	...
Composite encoder	No	No	[to SECAM	Yes
Improved NTSC encoding	No	No	No	...
Video bandwidth	per CCIR 601	<0.1 5.5MHz	±1 5.5MHz	±0.2 5.5MHz
Video S/N ratio	per CCIR	>66dB	...	>64dB
Envelope delay	...	...	<20ns	<10ns
Differential phase gain	...	...	...	<0.1dB, <0.5°
Reader Service No	1284	1285	1286	1287

Cable Lengths vs. time delays and NTSC/PAL subcarrier degrees of phase

Cable length (feet)	Delay time (ns)	Degrees of phase NTSC	Degrees of phase PAL	Cable length (meters)	Delay time (ns)	Degrees of phase NTSC	Degrees of phase PAL
1	1.54	1.99	2.46	1	5	6.45	7.99
2	3.08	3.97	4.92	2	10	12.89	15.97
3	4.62	5.96	7.38	3	15	19.34	23.96
4	6.15	7.93	9.82	4	20	25.79	31.94
5	7.69	9.91	12.28	5	25	32.23	39.93
6	9.23	11.90	14.74	6	30	38.68	47.91
7	10.77	12.89	17.20	7	35	45.13	55.90
8	12.31	15.87	19.66	8	40	51.57	63.89
9	13.85	17.86	22.12	9	45	58.02	71.87
10	15.38	19.83	24.56	10	50	64.46	79.86
20	30.77	39.67	49.14	20	100	128.93	159.72
30	46.15	59.50	73.71	30	150	193.39	239.57
40	61.54	79.34	98.29	40	200	257.86	319.43
50	76.92	99.17	122.85	50	250	322.32	399.29
60	92.31	119.01	147.43	60	300	386.79	479.15
70	107.69	138.84	172.00	70	350	451.25	559.01
80	123.08	158.69	196.58	80	400	515.72	638.86
90	138.46	178.52	221.14	90	450	580.18	718.72
100	153.85	198.36	245.72	100	500	644.64	798.58

Extreme Measures

110.0

High-performance Audio Testing With System One + DSP

DESIGNING, MANUFACTURING and MAINTAINING high-performance analog & digital audio equipment places **extreme** demands on your test equipment. Your test set must have **extremely** low residual noise and distortion as well as **extremely** high accuracy... and the variety of systems under test calls for **extremely** flexible test set-up and control.

115.0

System One + DSP from **Audio Precision** is the solution. The trace below is a **System One + DSP** FFT spectrum display showing the residual distortion performance of our generator and analyzer. 2nd harmonic distortion of the sine wave is 125dB below the 1kHz fundamental level before nulling. The 3rd, 5th & 7th are all even lower!

120.0

This self test is typical of the high-performance, high-accuracy measurement capability of **System One + DSP**.

125.0

System One + DSP features include:

- Dual Channel FFT Analyzer – Signals up to 80kHz may be acquired and analyzed with 16 bit resolution.
- Waveform Capture – Acquire and display signals on the PC screen for analysis in time domain “digital storage oscilloscope” mode.
- Harmonic Analysis – Perform harmonic analysis such as measurements of individual distortion components, with automatic tracking to 9th harmonic.
- Processing Power – Dual high-speed 24 bit internal DSPs and precision 16 bit analog I/O conversion.
- Low residual THD + N – Total analog system THD + N (22kHz bw) .001%. DSP analysis permits resolution of distortion as low as 145 dB below fundamental.

130.0

135.0

140.0

145.0

150.0

0.0

5.00k

10.0k

15.0k

20.0k

System One + DSP... When you're serious about performance.

System One

Audio precision



P.O. Box 2209, Beaverton, OR 97075
503/627-0832 1-800/231-7350
FAX: 503/641-8906, TELEX: 283957 AUDIO UR

AUDIO SPECS

INTERNATIONAL DISTRIBUTORS Australia: IRT Electronics Pty. Ltd. (02) 439 3744 Austria, Eastern Europe: ELSINCO elektron GmbH, Wien 222) 812 17 51 Benelux: Tans European Music NV, Belgium (02) 466 50 10 Canada: Glentron x Ltd. (416) 475 8494 Denmark: AudioNord Danmark A/S 86 12 88 11 Finland: Genelec OY 77 13311 France: ETS Mesureur(1) 45 88 66 41 Germany West: RTW GmbH 221 70 91 30 Hong Kong: TRP Consumer Electronics, Ltd. 887 2008 Italy: Medea S.r.l. 2 445 38 28 Japan: TOYO Corporation 3 279 0777 Korea: Myung Corporation 784 9942 Mexico: Vari S.A. 5 250 73 94 New Zealand: Audio & Video Wholesalers, Ltd 71 73 414 Norway: Lydconsult (09) 19 03 81 Portugal: Acutron ELA 1 941 40 87 Singapore & Malaysia: TME Systems PTE Ltd 286 4608 Spain: Telco Electronics, S.A. 1 231 7840 Sweden: Tal & Ton AB 31 80 36 20 Switzerland: Technad SA (021) 806 05 06 Taiwan: Litz Technologies Ltd. 703 6280 U.K.: SSE Marketing Ltd. 01 387 1262

Circle (95) on Reply Card

AKG ♦ DBX ♦ ORBAN



The technology
leaders in

the broadcast

industry. Three great
names with one high
standard.



AKG Acoustics, Inc.
1525 Alvarado Street
San Leandro,
California 94577 USA
Tel: (1) 415/351-3500
Fax: (1) 415/351-0500

© AKG 1990-Akustische und Kino-Geräte GmbH, Austria
AKG® is a registered trademark of Akustische und Kino-Geräte GmbH, Austria.
dbx® is a registered trademark of Carllor Electronics Corporation.
Orban® is a registered trademark of AKG Acoustics, Inc.

Circle (96) on Reply Card

AUDIO SPECS

Audio Products

Audio Mixers, On-Air

These audio consoles are desired primarily for radio with some TV applications; in general, the major need for control is that of level and L-R channel balance with little use of equalization and HP or LP filtering.

Manufacturer	AMEK Systems & Controls	Arrakis Systems	ATI/Audio Technologies	Broadcast Audio Corp.	Broadcast Electronics		Dorrough Electronics	EELA Audio
Model	BC II	15,000 (12000)	Vanguard BC8 (BC12)	Series VI	250A (350) ¹	MixTrak 90	Model 700	S-120 (SRM)
Modular system	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Cue amp	Yes	Yes	Yes	Yes		Yes	Yes	Option
Automation port	Option	No	Opt	Yes	No	Limited	No	Opt (No)
Digital control	No	No (...)	Yes	No		No	No	No
Mono mix output	Yes	Yes	Yes	Yes	Opt	Yes	No	Opt
Telephone hybrid	No	No (...)	No	Opt	Option	No	No	Yes
Solid-state bus switching	...	Yes	Yes	Yes	No (Yes)	Yes	No	Yes
VCA gain control	Option	Yes	Yes	No	No	Yes	No	Yes
Compressor/limiter	Option	...	No	No		No	No	Yes
Pan pots	Yes	...	Yes	Option		No	No	Yes
Machine starts/stops	Yes	Yes	Option	Yes	No	Yes	No	Yes
Talkback circuitry	Yes	Yes	No	Yes		Yes	No	Yes
Speaker muting	Yes	...	Yes	Yes		Yes	Yes	Yes
Tone oscillator	Yes	...	No	Opt	No	...	No	Opt
Patch points	Yes	Yes	No	Yes		No	No	Opt
# of inputs (total)	12 (20/28)	8/18/28(56)	16-32	24 (72)	20 (22)	2x position	18	8-24
# of mixing positions	16 (24/32)	8/18/28(28)	8-12	8 (24)	10	12/18/21	7	8-24
# of mixing buses	6	3 (6)	4	2 (4)	2	2	3 Mono	8
Fader type	Slider	P&G slider	Rotary/slider	Slider	Rotary (Slider)	Slider	Rotary	P&G slider
Meter type	VU/PPM	VU/PPM	VU/PPM	VU/LED peak	VU		VU	VU/PPM
Filters	Option	...	...	...	...	...	...	HP
Input connection	A/TB 1.2k/20kΩ	AB	AB 20kΩ	A/TB 150/20kΩ	AB	1.5k/10kΩ	AB 150/UB 10kΩ	AB 2k/13k (1.7k)
Input range	+26dBu	20dB	-60/4dBu	-60/10dBv	-65/20dBv	-60/8dB	Mic/line	-55/20 (-72/22)
Output connection	A/TB >50kΩ	AB	AB 400Ω	TB 150Ω	TB 600Ω	Bal <100kΩ	600Ω	TB <40Ω
Output level max	26dBu	27dB	24dBm	28dBm	18dBm	+29dB	26dBm	21dB (6dB)
AF response dB/Hz-kHz	-1 20-20k	±0.5 20-20k	±0.25 20-20k	±0.5 20-20k	-1 30-20k	-0.25 20-20k	...	-1 20-20k
THD % +dB Hz	0.02	0.006 (0.01)	0.15	0.007	0.5 (0.075)	<0.05%	...	<0.03
S/N Mic EIn/Line dB	-128/81	-126/85(75)	-124/95	80dB	-120/68	>90dB	...	85dB (80dB)
Crosstalk (worst case)	<-90	<-75dB 20kHz	-74dB 10k	-80dB 15k	...	>80db	...	<-60dB 20-20k
Reader Service No	1022	1023	1024	1025	1026	1027	1028	1029

¹Other models available including 150 series with 5 and 8 mixing positions.

Manufacturer	EELA Audio	Hallikainen & Friends	Harris Broadcast	ITAME	Logitek	LPB Inc	MBI Broadcast Systems	McCurdy Radio
Model	S-240 (-90/-50)	TVA series	Medalist (AV)	Sierra 13S	T&2	SIGNATURE III	Series 24	Series S
Modular system	Yes (Yes/No)	No	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	Option	...	Yes	Yes	Yes	Yes	Yes	Yes
Automation port	Yes (Opt/No)	No	No	Yes	No	No	Rmt Ctl	...
Digital control	No	No	No	No	No	No	No	Yes
Mono mix output	Opt	Yes	Opt (Yes)	Yes	Yes	Opt	Yes	Yes
Telephone hybrid	Yes	No	No	Yes	No	No	No	Opt
Solid-state bus switching	Yes	...	Yes	Yes	No	No	No	Yes
VCA gain control	Yes	No	Yes	Yes	...	No	Opt	Yes
Compressor/limiter	Yes	No	No	Yes	No	No	Opt	...
Pan pots	Yes	No	No	No	No	No	Yes	...
Machine starts/stops	Yes	No	Opt (Yes)	No	Yes	Yes	Yes	Yes
Talkback circuitry	Yes	No	No	Yes	...	No	Yes	Yes
Speaker muting	Yes	No	Yes	Yes	Yes	Yes	Yes	No
Tone oscillator	Opt	No	No	No	No	No	Yes	...
Patch points	Opt	No	No	No	...	No	Yes	...
# of inputs (total)	28 (17/4)	36 +x6	24-36(36-72)	16	36	18-36	22-46	12-26
# of mixing positions	28 (17/4)	6	8-12 (12)	8	12	6-12	22-46	12-26
# of mixing buses	20 (8/2)	2 mono	2	8	2	2	6	3
Fader type	P&G slider	Rotary	Rot & (Slider)	Slider	Slider	Rotary	Slider	P&G faders
Meter type	VU/PPM/LED Peak	VU	VU	VU/PPM	VJ	...	VU/PPM	VU/PPM
Filters	HP	None	None	HP/LP	No	VU	HP	No
Input connection	AB 1.5k/12kΩ	Bal 150/15kΩ	AB 5kΩ	TB	AB 10kΩ	...	Bal	AB 150/20k
Input range	-70/22dB	-58dB mic	-60dBv/8dBm	-30/20dB	-60/23dBu	...	...	-70/8dBu
Output connection	TB <60Ω (50k)	Bal 600Ω	AB 20k	TB	AB 60k	TB 600Ω	Bal 600Ω	Bal 60k source
Output level max	20 (6/12)dB	+22dBm	24dBm	15dB	+23dBu	22dBm	+26dBu	28dBm
AF response dB/Hz-kHz	-1 20-20k	±1 20-20k	-0.5 20-20k	0.1 30-20k	±0.25 20-20k	1 20-20k	±0.25 40-20k	±0.5 20-20k
THD % +dB Hz	<0.03	<0.25%	0.05	0.1	0.006%	0.05	<0.1%	<0.1
S/N Mic EIn/Line dB	85dB	74dB	-127dBm	75dB	90dB	75dB	>80dB	<-125/>90
Crosstalk (worst case)	<-70dB 20-20k	-82dB	-85dB 15k	80dB 400Hz	...	-61dB 1kHz	<-75dB	>65B 20-20k
Reader Service No	1030	1031	1032	1033	1034	1035	1036	1037

Audio Mixers, On-air

Manufacturer	Pacific Recorders & Engineering			POWER/COMEL	Radio Systems	Solid State Logic	Sonosax Switzerland	Sony
Model	AMX	BMX II (III)	Stereomixer	PR1705	RS-6 (12/18)	SL 4000G	SX-V	MXP-2900
Modular system	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Cue amp	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Automation port	No	No	No	No	No	Yes	Opt	Opt
Digital control	No	No	No	No	Yes	Yes	Opt	No
Mono mix output	Option	Option	No	Yes	Yes	Yes	Yes	...
Telephone hybrid	No	No	No	w/dial	No	No	No	No
Solid-state bus switching	Yes	No (Yes)	Yes	Yes	Yes	No	No	Yes
VCA gain control	No	No	No	Yes	Yes	Yes	Option	...
Compressor/limiter	Opt	No	No	No	No	Yes	Yes	...
Pan pots	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	Yes	Option	Yes	Option	Option	Yes
Talkback circuitry	Yes	Yes	Yes	Yes	Yes	Yes	Option	Yes
Speaker muting	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Tone oscillator	Yes	No (Opt)	Yes	No	No	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	...	Yes	Yes	Yes	Yes
# of inputs (total)	20-68	10-26(-34)	16	2x positions	12-36	24 to 96	10	2x positions
# of mixing positions	10-34	10-28	8	18	6-18	...	...	8-36
# of mixing buses	3	2 (3)	1	5	3	4	3	3
Fader type		Slider	Rotary	Slider	Slider	Slider	Slider	Slider
Meter type	VU/PPM	VU (& PPM)	VU	VU	VU; LED Peak	VU/PPM/bargraph	VU; LED peak	LED
Filters	HP/LP	...	HP/LP	HP; LP	...	HP/LP	HP	HP
Input connection		AB 40k Ω		200/600 TB	A 10k Ω	T/AB 1k/10k Ω	AB 10k Ω	TB 1.2k/10k
Input range	-10/8dBv	-40/8dBv(-10/8)	-10/8dBv	-60/+20dB	-60/10dBm	-80/24dBu	-85/6dBu	-62/24DBs
Output connection		AB 30k Ω	AB 80k Ω	TB	AB 100k Ω	A 75k Ω	AB 50k Ω	TB <100k Ω
Output level max	+28dBm	+26dBm	24dBm	+26dBm	22dBm	29dBu	24dBu	+24dB
AF response dB/Hz-kHz		-0.8/0 20-20k	-0.7 20-20k	\pm 0.5 20-20k	\pm 0.25 20-20k	\pm 0.5 20-20k	\pm 0.5 30-20k	-1.5 20-20k
THD % +dB Hz	<0.008%	<0.01 (<0.008)	<0.01	0.1%	0.02	0.2	0.01	0.1%
S/N Mic EIN/Line dB		-127/88	-126/88	-126dB EIN	-124/88	-127.5dBm	-129.2dBm	-122/85
Crosstalk (worst case)	-85dB	-80dB 1kHz	-70dB 1kHz	...	<-75dB 20kHz	-70dB 1kHz	80dB 20k	69dB 16kHz
Reader Service No	1038	1039	1040	1041	1042	1043	1044	1045

Manufacturer	Soundcraft	Studer	Ward-Beck	Wheatstone Corporation		
Model	SAC 200 (2000)	Studer 970	Series R	A-20/32	A-50	TV-500
Modular system	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	No	Yes	Yes	No	Yes	Yes
Automation port	Yes	...	Opt	No	No	No
Mono mix output	Yes	Yes	Yes	Yes	Yes	Yes
Telephone hybrid	Opt	...	Opt	No	No	No
Solid-state bus switching	No	Yes	Yes	No	No	No
VCA gain control	Yes	...	Yes	No	No	Option
Compressor/limiter	Yes	Yes	Option	No	No	No
Pan pots	Yes	Yes	Yes	No	No	Yes
Machine starts/stops	Yes	Yes	Yes	Yes	Yes	Yes
Talkback circuitry	Yes	Yes	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	Opt	No	Opt	Yes
Patch points	Yes	Yes	Opt	Yes	Yes	Yes
# of inputs (total)	32-48	18/exp x9's	...	2/position	2/position	3/position
# of mixing positions	16-24	Various	14-22	10/16	8-12	24-56
# of mixing buses	3	Pgm; Aux	...	2	4	3
Fader type	Slider	Slider	Slider		Slider	
Meter type	VU/PPM	VU/Peak LED	VU/PPM	VU		VU/custom
Filters	HP/LP	HP/LP	HP	No	None	LP/HP
Input connection	AB 1k/10k Ω	A/TB >1.6k/10k Ω	Act 20k Ω	...	AB	A/BR; Xfmr
Input range	-80/30dBu	-60/21dBu	-60/15dBm	28dBu max	27dBu max	Mic/line
Output connection	AB	TB <40k Ω	Act	AB	AB	AB
Output level max	26dBu	6.15dBu	...	27dBu		30dBu
AF response dB/Hz-kHz	\pm 0.5 20-20k	-1/5 4.5-45k	\pm 0.5 20-20k	-0.25 20-20k		\pm 0.25 10-40k
THD % +dB Hz	0.02	<0.03	0.005	<0.003%		<0.007
S/N Mic EIN/Line dB	-128dBm	<-125/>95	-127/90	-128/88		...
Crosstalk (worst case)	-58dB 10kHz	>80dB	>90dB 30-15k	-65dB	-85dB 1Hz	-86dB 20k
Reader Service No	1047	1048	1049	1050	1051	1052

Editor's Note:

Information in this section of the **Broadcast Engineering Equipment Reference Manual** does not include every manufacturer, nor does it include every product by a manufacturer. The material included in this issue is derived from spec sheets provided by the manufacturers who responded to requests for most current information. Unfortunately, space considerations ruled out more detailed information on each product.

PeopleLink™ - A Powerful New Solution

This is the most complicated control you'll find on the new PeopleLink™ telephone system.

PeopleLink translates your every desire into reality. Our new multi-line modular telephone system is no more complicated to operate than a simple tone pad and most functions can be initiated with the touch of a single button. PeopleLink is a powerful multi-purpose system that is absolutely user friendly. It is expandable, allowing you to spec exactly what you need to meet today's requirements

PeopleLink provides the ability to custom program "personalized" applications. A few simple keystrokes and each operator can easily pre-set their preferred applications and quickly access their program from any control surface in the system.

PeopleLink is human engineering with the emphasis on human.



The new PeopleLink integrated telephone system, designed for broadcasters by broadcasters, brings to its uniquely designed control panel every capability and every function you ever wanted.

with an open-ended design that easily grows with you. The system handles up to 40 lines and works with any KSU.

The First Fully Personalized Phone System

Multiple control surfaces may be connected to the system and used in simultaneous independent operation.

A Variety Of Applications Handled With A Single System.

PeopleLink makes caller access clean and simple. Touch a single button to take the next call. PeopleLink ends the previous call and puts the new voice on-air. PeopleLink allows multiple callers to be on-air at the same time and,



with the GUEST feature, protects VIP callers from accidental disconnection.

Running contests on-air couldn't be easier. Simply select the number of callers, announce the contest, and punch the CONTEST button. PeopleLink answers the calls, delivers a pre-recorded message and instantly puts the "winner" at your fingertips.

Recording calls is as easy as punching one button. Depress the REC button and PeopleLink sends audio to the recorder and rolls tape. Because PeopleLink includes Gentner's DH-2 Digital Hybrid, you always get the finest audio quality possible.

How To Get In Touch With A Very Simple Solution.

We've only touched on the versatility of PeopleLink. To fully grasp its potential, its flexibility and expandability, its ease of installation and operation, just pick up your phone and give us a call. It's that simple.

GENTNER

*Gentner Electronics Corporation
1825 Research Way
Salt Lake City, UT 84119
(801) 975-7200
Fax: (801) 977-0087*

Call me I'm interested. Circle (37) on reply card.
Send literature. Circle (36) on reply card.

Audio Mixers, Portable

Small mixing systems from ENG mic mixing to smaller production applications. Many can be carried by one person. Most allow use of mic and line level inputs either through switched or separate input circuits. **AB** active balanced; **TB** transformer balanced; **UB** unbalanced; **HP** high pass/low cut; **LP** low pass. When no model in a group includes a particular feature, that feature is not given for the group. Some include peripheral transport start/stop controls.

Manufacturer	Audio Services-Corp./ASC	Audio-Technica	Barco EMT	Broadcast Audio	Comrex	Fostex		Furman Sound
Model	MX-4-S	AT4462	EMT MM standard	System 6RM¹	STLX/SLX²	1240/1840/2440	280 Multitracker³	MM-4AB (MM-8AB)
Modular system	No	No	Yes	Yes	No	Yes	No	Yes
Cue amp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Mono mix output	Yes	Yes	Opt	No	Yes	No	Yes	Yes
Telephone hybrid	No	No	No	No	Yes	No	No	No
Solid-state bus switching	No	No	Yes	No	No	No	...	No
VCA gain control	Yes	No	Opt	No	No	No	No	No
Compressor/limiter	Yes	Yes	Limit	No	AGC	No	Option	No
Pan pots	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Talkback circuitry	Yes	No	Yes	No	No	No	No	...
Speaker muting	No	No	Opt	Yes	No	No	No	...
Tone oscillator	Yes	Yes	Yes	No	...	No	No	No
Patch points	No	No	Yes	Yes	No	No	No	No
# of inputs (total)	4	4	60	12	4M/2L	12/18/24	8	4M/1S (11)
# of mixing positions	...	4	...	6	4	12/18/24	8	(4)
# of mixing buses	2	L/R	18	2	1 mono	4	4	3
# of groups/subgroups	...	No	16/6	...	...	4	4	...
Fader type	Rotary	Rotary	Slider	Rotary	Slider	Slider	Slider	Rotary
Meter type	...	VU	Bar graph	VU	VU	LED	LED	(LED)
EQ types	Swept	No	...	...	None	Parametric	3-band	...
Filters	HP	HP/Low cut	...	...	None	Shelving	HP/LP	HP
Input connection	AB 173Ω	Bal 1.5k/47kΩ	2kΩ/10kΩ	AB/TB	Bal 150/500Ω	3kΩ/16kΩ	10k/20kΩ	A (600Ω)
Input range	...	-15/+22dB	-66/24dBm	-67/+10dBv	-70/+8dBm	-10/+25dBV	-60/-10dBV	-75/18dBV(-60/18)
Output connection	AB	Bal >10Ω	<35Ω	TB	Bal 600	UB 10kΩ	UB >10kΩ	A (200Ω)
Output level max	...	+22dB	+20dBm	+28dBm	+24dB clip	+15dBV	+10dBV	23dBV (21)
AF response (±dB Hz)	...	-3, 1 20-20k	-1, 0.5 30-15k	±0.5 20-20k	±0.5 50-15k	-1.5, 1 20-20k	20-20k	-3 20-20k
THD	0.03% 1kHz	<0.1%	0.08%	0.1%	0.5%	0.05%	<0.05%	0.02%
S/N (Mic EIN/Line) dB	...	<-127dBm	-126dBm/85dB	80dB	-127dBm/80dB	-125/48	-70-80dB	-126/-118dBV
Crosstalk (worst case)	...	65dB L-R	-70dB	-80dB	...	65dB	60dB	-40dB 20kHz
Weight (portable) lb	12 lbs	>5 lb	61.6 lbs	25 lbs	18 lbs	53/70/88	11	6 lbs
Power source (portable)	48Vdc	12-18Vdc/2-9V bat	90Vac	115Vac	Vac cr Nicad	33W/37W/45W	22W	115/230Vac
Reader Service No	1053	1054	1055	1056	1057	1058	1059	1060

¹May configure for on-air use. ²STLX includes 2-line frequency extender; SLX 1-line frequency extender. ³Includes 4-track cassette ATR.

Manufacturer	MBI Systems	Neve Electronics	Pacific Recorders & Eng.	Panasonic/RAWSA		Shure Brothers		Sonosax
Model	Series 12	542 range	NewsMaker	WR-133	WR-S208 (212/216)	FP32 (FP31)	FP51 (FP42)	SX-PR series
Modular system	No	Yes	Yes	No	No	No	No	Yes
Cue amp	Yes	Yes	Yes	No	Yes	No	Yes	No
Automation port	Rmt Ctl	No	No	No	No	...	No	No
Mono mix output	Yes	Yes	Yes	Yes	Yes	No (Yes)	Yes (No)	No
Solid-state bus switching	...	No	Yes	No	No	No	No	No
VCA gain control	Yes	No	No	No	No	Yes	Yes	No
Compressor/limiter	Yes	...	Opt	No	No	Yes	Yes	Yes
Pan pots	No	Yes	No	Yes	Yes	Yes (No)	No (Yes)	Yes
Talkback circuitry	Yes	...	Yes	No	Yes	No	...	Yes
Speaker muting	Yes	Yes	Yes	No	No	...	...	No
Tone oscillator	No	Yes	Yes	No	Yes	No (Yes)	Yes	Yes
Patch points	Yes	Yes	Yes	No	Yes	No	Yes	No
# of inputs (total)	12	Various config.	16	8+3	8 (12/16)	3	4	2 to 6
# of mixing positions	8	...	8	8	8	3	4	...
# of mixing buses	3	4	2	4	5	2 (1)	1 (2)	2
# of groups/subgroups	...	...	...	2/2	2 G/3 S	...	...	...
Fader type	Opt pack	Slider	Rotary	Slider	Slider	Rotary	Rotary	Rotary
Meter type	VU/PPM	...	VU	VU	LED	VU	VU	VU/LED peak
EQ types	None	Presence	Param/Swept	Fixed bass/treble	Sweep	...	...	...
Filters	None	LP/HP	HP/LP	...	...	HP	HP	HP
Input connection	T/AB 1k/10kΩ	1.2k/10k Bal	AB 40kΩ	AB	A 5k	TB 1kΩ	TB 1kΩ	AB >10k
Input range	Mic/line	40dB headroom	-10/8dBv	-50/0dBu	-60/10dBu	Mic/line	Mic/line	-98/6dBu
Output connection	TB 75Ω	50Ω Bal	AB 80Ω	TB	50Ω	330Ω (TB 150)	TB 185Ω	AB <50Ω
Output level max	22dBu	>20dBu	+24dBm	+20dBu	20dBu	+18dBm	+18dBm	21dBu
AF response (±dB Hz)	0, -1 20-20k	±0.5 30-20k	-0.7 20-20k	-2, +0.5 20-20k	-1, -5dB 20-20k	-3, +1(±2) 30-15k	±2(-3, 1) 30-20k	±0.5 30-20k
THD	0.5%	<0.8%	<0.01%	0.1%	0.03%	0.25%	0.4%	0.01%
S/N (Mic EIN/Line) dB	>78dB	-125dBu	-126dBm/88dB	-129dBm	-128dBm	-129dBm EIN	-129dBm EIN	-129.6
Crosstalk (worst case)	<-62dB	<-70dB	-80dB 1kHz	-45dB/10kHz	-60dB 1kHz	45dB 1kHz	(-50dB/1kHz)	80dB
Weight (portable) lb	...	...	...	22 lbs	33 lbs	2.5 lbs (2.2)	6 lbs	4.88 lbs
Power source (portable)	110-240Vac	...	...	120Vac 14W	120Vac	18Vdc	Vac/27Vdc	3Vdc
Reader Service No	1061	1062	1063	1064	1065	1066	1067	1068

Manufacturer	Sonosax	Sony			Stellavox	Studer		
Model	SX-S6 (8/10)	MX-P42	MX-P61VU/PK	MXP-210 (290)	AMI 48	961/962	C279 Compact	Studer A779
Modular system	Yes	No	Yes	No	Yes	Yes	No	No
Cue amp	No	...	Yes	Yes	Yes	Yes	Yes	Yes
Mono mix output	Yes	...	...	L or R	...	Yes	No	...
Solid-state bus switching	No	No	...	(-290)	No	...	Yes	Yes
VCA gain control	No	No	No	(-290)	...	...	Yes	Yes
Compressor/limiter	Yes	Yes	Yes	No	Yes	Yes	No	No
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Talkback circuitry	Opt	No	Yes	Yes	No	Yes	Yes	Yes
Speaker muting	No	No	...	Yes	No	Yes	Yes	...
Tone oscillator	Yes	Yes	Yes	Yes	Yes	Yes	Option	No
Patch points	Yes	No	No	...	Expansion	Yes	Yes	Yes
# of inputs (total)	6/8/10	6	17	9	5	18	12	6
# of mixing positions	...	4	12	4	5	18	6	1
# of mixing buses	3	L/R	3	L/R	1	6	4	2
# of groups/subgroups	...	...	...	...	None	4-main 2-aux	No	No
Fader type	Slider	Rotary	Slider	Slider	Slider	Slider	Slider	Slider
Meter type	VU/LED peak	VU	VU/PPM	LED	Analog meter	VU or PPM	LED w/peak	LED peak
EQ types	Swept	No	3-band	3-band	No	Yes	Swept	Swept
Filters	HP	HP	LP/HP	HP	Baxandall	HP	LP/HP	HP
Input connection	A 10k	Bal	Bal/Unbal	Bal 6k/47k Ω	200 Ω bal	1.6k/10k	1.2k/47k	A/T >47k
Input range	-85/6dBu	Mic/line	Mic/line	-60/24dBs	0.15m-12V	-69/21dBu	-66/10dBv	-66/10dBv
Output connection	A/T <50 Ω	Bal	Bal/Unbal	Bal 600 Ω /10k Ω	200/600 Ω	<40 Ω	<50 Ω <1k Ω	A/T <50 Ω
Output level max	24dBu	Mic/line	...	15dBs	1V	24dBm	24dBv	24dBv
AF response (\pm dB Hz)	\pm 0.5 30-20k	\pm 1 30-20k	\pm 0.5 30-20k	-1.5, .5 20-20k	30-20k	-1, 0.5 4.5-45k	\pm 1 20-20k	\pm 1 20-20k
THD	0.01%	...	...	<0.3%	<0.2%	<0.03%	<0.03%	0.03%
S/N (Mic EIN/Line) dB	-129.2	...	...	-126/80dB	...	<-125/>95	-125/>86	-65/86
Crosstalk (worst case)	-80dB 20kHz	...	...	<-70dB	0.1%	<-90dB	...	...
Weight (portable) lb	14.8lbs	...	...	16.5 lb	9.9 lb	55-75 lbs	24.2 lbs	24.2 lbs
Power source (portable)	9-15Vdc	9Vdc; 12Vdc	110/220Vac	24W ac	12V	110/220Vac	100-240Vac	110/220Vac
Reader Service No	1069	1070	1071	1072	1073	1074	1075	1076

Manufacturer	TASCAM				Unitronic	Vortex Comm.	Yamaha Music Corporation	
Model	M-106	M06 ST	M208 (M216/M224)	M308 (M312/M320)	Remote mixer	PFM-312	M406	MR1642 (1242/842)
Cue amp	No	No	No	No	Yes	Yes	No	Yes
Mono mix output	No	No	No	No	Yes	Mono only	No	Yes
Telephone hybrid	No	No	No	No	Yes	No	No	No
Telephone dial	No	No	No	No	Yes	No	No	No
Compressor/limiter	No	No	No	No	Yes	1/channel	No	No
Pan pots	Yes	Yes	Yes	Yes	No	No	Yes	Yes
Talkback circuitry	...	No	No	...	...	No	No	Yes
Tone oscillator	No	No	No	No	Yes	1kHz	No	No
# of inputs (total)	6	6	8 (16/24)	8 (12/20)	3; expandable	3	6	16 (12/8)
# of mixing positions	6	No	8 (16/24)	8 (12/20)	3	3	...	16 (12/8)
# of mixing buses	4	No	4	...	1; expandable	1 morro	2	4 [2]
# of groups/subgroups	...	No	4/2	...	...	...	2	4/2 [2/5]
Fader type	Slider	Slider	Slider	Slider	Slider	Rotary	Rotary	Slider
Meter type	VU	VU	VU/Peak LED	VU/Peak LED	VU	LED bargraph	VU/LED peak	VU/LED peak
EQ types	Swept	Swept	Swept	Swept	...	None	...	Swept
Filters	...	...	...	...	...	None	...	...
Input connection	UB 100k	UB 100k	A 2.8k/22k	A 2.8k/22k	Bal floating	1k/6k	3k Ω	10k [4k]
Input range	-70/4dBV	-70/4dBV	-70/24dBV	-70/24dBV	...	-14/+22dBm	-60/24dB	-60/20dBV
Output connection	UB 100 Ω	UBb 220 Ω	100 Ω	100 Ω	Bal floating	50	150 Ω	150 Ω
Output level max	18dBV	0dBu	20dBV	20dBV	[Mixer and	+16 to 600 Ω	24dB	24dBV
AF response (\pm dB Hz)	-2, 1dB 20-20k	-2, 1 20-20k	-2, 1 20-25k	-2, 1 20-25k	[expansion	\pm 1 20-20k	-3, 0 20-20k	-3, 1 20-20k
THD	0.01%	0.025%	0.025%	0.025%	[slave units	<0.02%	0.1%	0.1%
S/N (Mic EIN/Line) dB	70dB	51dB (78dB)	83dB	83dB	[packaged in	...	95dB	90dB [92dB]
Crosstalk (worst case)	<-60dB	<-60dB	<-60dB	<-60dB	[brief case	...	-60dB/1kHz	-60dB
Weight (portable) lb	15.4 lbs	5.73 lbs	18.75 lbs	18.75 lbs	[or suitcase.	2 lbs	21 lbs	...
Power source (portable)	110/220Vac	110/220Vac	110/220Vac	110/220Vac	ac/dc	2x9Vdc	120Vac	...
Reader Service No	1077	1078	1079	1080	1081	1082	1083	1084

Audio Mixers, Studio Production/Recording

Manufacturer	Allen & Heath			AMEK Systems & Controls	AMS/Calrec	Arrakis Systems	Auditronics	
Model	SABER series	SIGMA series	System 8 series	Classic	EDIT 1	Virtual console	10,000 series ¹	310 series ²
Modular system	Yes	Yes	No	Yes	Yes	Yes	Yes	Yes
Cue amp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Automation port	Yes	Yes	No	Yes	for editor	Yes	Yes	Yes
Digital control	Yes	Yes	No	Opt	Yes	Yes	Yes	No
Digital processing	No	No	No	No	[Digitally	[Digitally	No	...
Mono mix output	Yes	Yes	No	Yes	[assignable	[assignable	Yes	...

Audio Mixers, Studio Production/Recording

Manufacturer	Allen & Heath			AMEK Systems & Controls	AMS/Calrec		Arrakis Systems	Audiotronics
	SABER series	SIGMA series	System 8 series		Classic	EDIT 1			Virtual console	10,000 series^{1}	310 series^{2}
Model								
Solid-state bus switching	No	No	No	No	[99 setup	[memories	Yes	Yes
VCA gain control	No	Opt	No	Opt	[memories	Yes	Yes	Yes
Compressor/limiter	No	No	No	Opt	Yes	Yes	Yes	Yes
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	Opt	No	No	Yes	Opt	Opt	Yes	Yes
Talkback circuitry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	40 (16, 24, 32)	32 (24, 40, 44)	24 (16)	32 (48, 64)	256 possible	128 (48/72)	48	16-40
# of mixing positions	40 (16, 24, 32)	32 (24, 40, 44)	24 (16)	44 (60, 76)	8	32	24	...
# of direct outputs	40 (16, 24, 32)	32 (24, 40, 44)	24 (16)	40 (56, 82)	...	24 or 32	24	16-40
# of mixing buses	16	24	8	28	1 stereo pair	4 stereo	8	4, 8
# of groups/subgroups	16 G/16 S (8)	In line	8 G/8 S	2ST/8ST	2 aux out	8 (8/16)	8	4 groups
# of sends/returns	6 S/4 R	32 S/32 R	3 S/2 R	8mono/8stereo	...	24 Sends	4	4S, 4R
Fader type	Slider	Slider	Slider	Slider	Rot Lin motorized	Slider	Slider	P&G slider
Solo type	PF, IP	PF, AF, IP	PF	PF, AF, IP	AF, PF, IP	AF, PF, IP	PF, AF	In-place
Meter type	VU	VU	VU	LED VU/PPM	Bargraph	VU, PPM	VU, PPM	VU
EQ types	Swept	Parametric	Swept	Parametric	2-/4-band	Parametric	Parametric	Swept
Filters	HP	HP	...	HP	LP	LP, HP	LP, HP	HP
Input connection	A 3k Ω	A 3k Ω	A 3k Ω	A 20k Ω	Anal/digital	AB 10k Ω /20k	AB	A 1k/50k Ω
Input range	-66, 6dB	-66, 6dB	-66, 6dB	-75, 26dB	1500dB range	28dBu max	Mic/line level	...
Output connection	A 50 Ω	A 50 Ω	A 50 Ω	A/T <50 Ω	Anal/digital	TB 600 Ω	AB	A 60 Ω
Output level max	27dBu	27dBv	21dBv	26dBu	...	22dBu	+27dBV	+24dBv
AF response \pm dB Hz-kHz	-1 20-20k	+1 20-20k	\pm 1 20-20k	\pm 1 20-20k	...	0.5 20-20k	0.5dB 20-20k	-0.5 20-20k
THD	<0.02%	<0.02%	0.05%	0.03%	...	0.02%	0.01% +18 20kHz	0.05%
S/N mic EIN/line dB	-127dBm	-127dBm	-125dBm	-127dBm/85dB	...	-126dBm/80dB	-127dBm/75dB	-129/84
Crosstalk (worst case)	-65dB 1kHz	-70dB	60dB	System dependent	...	...	-75dB 20Hz 20dB	-65 20kHz
Reader Service No	861	862	863	864	865	866	867	868

¹ Available in on-air formats. ² Expands in groups of 8.

Manufacturer	Audiotronics		Barco EMT	Broadcast Audio	Broadcast Electronics		For-A	Fostex
	400 series	900 series			350A	Mix Trak-90			AFV-500	1240 (2440)
Model								
Modular system	Yes	Yes	Yes	Yes	No	Yes	Yes	No
Cue amp	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No
Automation port	Yes	Yes	No	Yes	No	Yes	Yes	No
Digital control	No	Yes	No	No	No	Yes	Yes	No
Digital processing	No	...	No	No	No	No	No	No
Mono mix output	Yes	...	Opt	Yes	Opt	Opt	Yes	No
Solid-state bus switching	Yes	Yes	Yes	Yes	Yes	No	...	No
VCA gain control	Yes	Yes	Opt	No	No	Yes	...	No
Compressor/limiter	Yes	Yes	Yes	No	No	No	No	No
Pan pots	Yes	Yes	Yes	Opt	No	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	Yes	Yes	No	Opt	...	No
Talkback circuitry	Yes	Yes	Yes	Yes	Yes	Opt	...	No
Speaker muting	Yes	Yes	Opt	Yes	Yes	Yes	Yes	No
Tone oscillator	Yes	Yes	Yes	Opt	No	No	Yes	No
Patch points	Yes	Yes	Yes	Yes	No	Yes	Opt	No
# of inputs (total)	18-24	32	60	18-48	22	24-48	8	24-48
# of mixing positions	...	...	...	6-16	10	12-24	8	...
# of direct outputs	18-24	...	1/channel	3-7	0	3	2	12-24
# of mixing buses	4 or 8	4, 8	32	2-4	2	6	2	4
# of groups/subgroups	...	4 groups	24 G/6 S	User defined	...	...	...	4
# of sends/returns	2 S/2 R	...	12 S/8 R	2R/Defined sends	...	...	...	4
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	...	Slider
Solo type	In-place	In-place	...	PF	...	...	...	IP
Meter type	VU, LED peak	VU	Bargraph	VU, peak LEDs	VU	VU, PPM, LED	VU	LED peak
EQ types	Swept	Swept	...	Swept	...	Parametric	...	Parametric
Filters	LP, HP	LP, HP	...	...	...	HP, LP	...	...
Input connection	A 1k/50k Ω	A 1k/50k	2k/10k Ω	AB/TB 150/20k Ω	A	AB >10k Ω	A 600 Ω	A 7k Ω
Input range	-65, 8dBu	...	...	-60, 10dBm	...	-65, 13dBu	-12, 24dB	-70, 15dBV
Output connection	A 60 Ω	A 60 Ω	<35 Ω	TB 150 Ω	T	A <100 Ω	...	...
Output level max	24dBm	+24dBv	20dBm	28dBm	18dBm	26dBu	0, 24dB	15dBV
AF response \pm dB Hz-kHz	0.5 20-20k	-0.5 20-20k	-1, +.5 30-15k	\pm 0.5 20-20k	-1 30-20k	-0.25 20-20k	...	\pm 1 20-20k
THD	0.05%	0.05%	0.08%, +6dBm, 1kHz	0.007% +28dBm	0.5% +18 20-20k	0.05% 0 20-20k	0.15% +20 15kHz	0.05% 1Hz
S/N mic EIN/line dB	-127.5/84	-129/84	-126dBm/85dB	80dB	-120dBm/68dB	-128dBm/90dB	>90dB	52dB (48dB)
Crosstalk (worst case)	-65dB 20kHz	-65dB 20kHz	-70dB/15Hz+6dB	-80dB 1.5kHz +8dBm	...	<-80dB 20-20k 0dB	\hat{a} -20dB 30Hz	-65dB 1kHz
Reader Service No	869	870	871	872	873	874	875	876

³ Usable in on-air applications.

FIELD PRODUCTION

A special job demanding specialized products.



For your audio needs: a growing line of compact, easy-to-use FP amps and mixers.

Shure FP products are built specifically for ENG, EFP, film, and video work. They're not general audio products that "might" work on remotes. And no one offers as wide a selection with this kind of built-in ruggedness and reliability.

FP32



FP42



For Stereo Remotes. The FP32 Stereo Mixer is comparable in size and features to our famous FP31. Its stereo capability, light weight, easy-to-use controls and convenient shoulder harness make it the first choice of field crews. Our FP42 Stereo Mixer simplifies mic cueing, so important in situations like sports remotes. Plus it enables you to easily mix down stereo in your post production booth. It offers all the features of the popular M267 plus stereo capability and a stereo headphone amp.

FP31



FP16



The Industry Standards. The FP31 is Shure's original field production mixer. Thousands bet their audio on it worldwide. The FP16, a one-by-six distribution amp with transformer balancing and link jacks, outperforms all competition. It's also ideal as a portable press bridge.

FP11



FP12



For Long Yardage Situations. The FP11 Mic-to-Line Amp provides freedom from noise in long line situations, with up to 84 dB of gain in 15 6-dB steps. It converts any mic to line level and includes an invaluable limiter circuit. The FP12 Headphone Bridging Amp is a must for shotgun and boom operators. It keeps them on target without need for a return line. It's ideal for multiple headphone feeds, troubleshooting, and as an intercom.

FP51



The new FP51 gated compressor/mixer rides gain automatically. Once you set the compression level, the FP51 adjusts automatically to changing signal levels in critical remote-to-studio feeds to maximize signal output. As a result, your broadcast is quieter, smoother, better balanced and more natural sounding.

For more information on the entire FP line, call or write Shure Brothers Inc., 222 Hartrey Avenue, Evanston, IL 60202-3696. (312) 866-2553.

SHURE®

THE SOUND OF THE PROFESSIONALS...WORLDWIDE®

Circle (98) on Reply Card

Audio Mixers, Studio Production/Recording

Manufacturer	Graham-Patten Systems	Grass Valley Group	ITAME	LPB Inc	McCurdy Radio Industries	Neve	Pacific Recorders & Eng.
Model	ESAM series ⁴	AMX-170S ¹	Sierra 19S	CITATION II	SS 8800E ⁵	51 ser/V-Post	ABX ⁶
Modular system	Yes	No	Yes	Yes	Yes	Yes	Yes
Cue amp	No	No	Yes	Yes	Yes	Opt	Yes
Automation port	To editor	Yes	Yes	No	No	Opt	No
Digital control	Yes	Yes	No	No	No	Opt	No
Digital processing	...	No	No	No	No	No	No
Mono mix output	Yes	No	Yes	Yes	Yes	Yes	Opt
Solid-state bus switching	Yes	Yes	Yes	No	Yes	No	No
VCA gain control	...	Yes	Yes	No	No	No	No
Compressor/limiter	No	No	Yes	No	Opt	Opt	Opt
Pan pots	No	No	No	No	Yes	Yes	Yes
Machine starts/stops	...	No	No	Yes	Yes	Opt	Yes
Talkback circuitry	No	No	Yes	No	Yes	Yes	Yes
Speaker muting	No	Yes	Yes	Yes	Yes	Yes	Yes
Tone oscillator	No	Yes	No	No	Opt	Yes	Yes
Patch points	Yes	No	No	No	Opt	Opt	Yes
# of inputs (total)	12-16	8, 16	26	30	20-48	24-60	36-68 ⁶
# of mixing positions	12-16	1	14	10	10-24	1-4	18-34
# of direct outputs	12-46	...	26	6	...	24-60	18-34
# of mixing buses	2	4	14	2	6	2-8	12 (3)
# of groups/subgroups	...	2	1	...	...	48G (4/8)	9 (...)
# of sends/returns	...	4	2	1	...	8S/8R (4, 4)	4/2 (2/1)
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	...	...	IP	...	...	PF, AF, IP	PF, AF
Meter type	VU analog	VU, PPM, LED	VU, PPM	VU	VU, PPM, LED	VU, PPM, LED	VU, PPM
EQ types	Programmable	Fixed freq	Parametric	...	Param, Swept	Parametric, swept	Param/Swept
Filters	No	LP, HP	HP, LP	...	LP, HP	HP, LP	HP, LP
Input connection	Opt TB >20kW	A Hi-Z	TB	TB	AB 150/20kΩ	AB/TB 10kΩ	AB 40kΩ
Input range	...	-40, 8dBu	-30, +20dB	-65, -10dBm	-70, +10dBu	-10, 10dB	-10, 8dBv
Output connection	3/2 20kΩ	A 60kΩ	TB	TB	AB 600Ω	AB/TB 30Ω	AB 30Ω
Output level max	+8dBu max nom.	20dBm	+15dB	+22dBm	+24dBm	+26dBm	+28dBm
AF response ±dB Hz-kHz	±0.5 20-20k	-0.3 20-20k	0.1dB 30-20k	1.0dB 20-20k	±0.5 30-15k	...	-0.8, 0dB 20-20k
THD	<0.1% 16dBu	0.03% +4 20-20k	0.1%	0.03% 8dBm	<0.1% +18 20-20k	...	<0.008% 28 20-20k
S/N mic EIN/line dB	...	89dB	75dB	75dB	-125dBm/90dB	...	-127dBm/88dB
Crosstalk (worst case)	<-82dB 15kHz	-75dB/20kHz/+4dB	-80dB/400Hz/12dB	-65dB/1kHz/8dB	-65dB 15k +18dB	...	-85dB 1kHz 28dB
Reader Service No	877	878	879	880	882	883	884

⁴Editing suite mixer system. ⁵Available in on-air format. ⁶Inputs vary from 20 to 68 in groups of 8 with 2 inputs per fader

Manufacturer	Pacific Recorders & Eng.	Panasonic/RAMSA		Scantex	Solid State Logic		Sonosax Switzerland	Sony
Model	STX	WR-M10A	WR-T820B	AFDM-208 AEM	SL 5000M ser ⁷	SL 6000G ser ⁷	SX-T ⁷	MXP-2000
Modular system	Yes	No	No	Yes	Yes	Yes	Yes	Yes
Cue amp	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes
Automation port	No	No	No	Yes	Yes	Yes	Opt	Yes
Digital control	No	No	No	Yes	Yes	Yes	Opt	via editor
Digital processing	No	No	No	No	No	No	No	No
Mono mix output	Opt	Yes	Yes	Yes	Yes	Yes	Opt	Yes
Solid-state bus switching	Yes	No	No	Yes	Yes	No	Yes	No
VCA gain control	No	No	No	Yes	Yes	Yes	Opt	Yes
Compressor/limiter	Option	Yes	No	No	Yes	Yes	Opt	Yes
Pan pots	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Machine starts/stops	Yes	Yes	No	No	Opt	Opt	Yes	Yes
Talkback circuitry	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Speaker muting	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Tone oscillator	Yes	No	Yes	No	Yes	Yes	Yes	Yes
Patch points	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	156-252	4+8	20+20	16	to 96	24 to 96	10-32	16-36
# of mixing positions	26-42	6	20	16	1 to 3	One	...	16-36
# of direct outputs	...	3	20+10	16	1 per channel	Option	8-16	16-36
# of mixing buses	15	2	14	4	32	6	8-16	4+2
# of groups/subgroups	...	2 G/1 S	8 G/4 S	2	Variable	1-32/1-32	8	4+2-G, 4R
# of sends/returns	12/1	1 S/1 R	4+20 S/8+20 R	...	8 S/# of channels	6 S/8 R	2	4S, 4R
Fader type	Slider	Slider, rotary	Slider	Slider	Slider	Slider	...	Slider
Solo type	...	...	AF	None	PF, AF, IP	PF, AF, IP	PF, AF, IP	PF, AF
Meter type	VU, PPM	LED Peak	VU, LED peak	VU	VU/PPM, LCD	VU PPM, Plasma	VU	LED peak
EQ types	...	Fixed Base, Treble	Swept	None	Parametric	Parametric	Swept	Swept
Filters	HP/LP	...	HP	None	HP, LP	HP, LP options	HP	HP
Input connection	AB 40kΩ	AB 5kΩ	AB 5kΩ	600/10kΩ	T/AB 10kW	TB/AB 1k/10kW	...	A/TB10kΩ
Input range	-15/10dBv	-60, -6dBu	-60, +10dBu	+24dBu	-80, +16dBu	-80, +24dBu	-85, +6dBu	+27dBm max
Output connection	AB 30Ω	TB 50kΩ	AB 50kΩ	40Ω	AB 30Ω	AB 75Ω	AB/TB	A/TB 50Ω
Output level max	28dBm	+4dBu	+20dBu	+25dBm	+28dBu	+29dBu	+24dBu	+25dBm
AF response ±dB Hz-kHz	-0.9 20-20k	-1, +0.5 20-20k	-0.8, +0.5 20-20k	±0.1 20-20k	±0.5dB 20-20k	±0.5dB 20-20k	±0.5 20-20k	±0.5dB 30-20k
THD	<0.1	0.1% +18 20-20k	0.08% +18 20-20k	0.03%	0.08% +24 1kHz	0.02% +8 1kHz	0.01% 6 20-20k	0.05% 20dB 1kHz
S/N mic EIN/line dB	-127/88	-125dBm EIN	-128dBm EIN	75dB	-125 dBm	-127.5dBm	-129.2dBm	-126dBm EIN
Crosstalk (worst case)	-80dB 1kHz	-65dB	-60B 1kHz	-70dB 15kHz	-80dB/15kHz/+4dB	-70dB/1kHz/+4dB	-80dB/20k/0dB	60dB 15kHz
Reader Service No	885	886	887	888	889	890	891	892

⁷Configures for on-air operations.

Manufacturer	Sony	Soundtracs Plc			Studer	TASCAM		
Model	VSP-8000	ERIC series	IL4832 (3632)	900 series ⁹	Model 963	M-3500	M-600	M512 (M520)
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	Yes	No	No	Yes	Yes	Yes	Yes	No
Automation port	from editor	No ⁸	No	Yes	No	...	...	Yes
Digital control	Yes	Yes	No	Yes	No	No	No	No
Digital processing	Yes	No	No	No	No	No	No	No
Mono mix output	[48, 44.1	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Solid-state bus switching	[or 44.056kHz	Yes	No	Yes	...	No	Yes	No
VCA gain control	[32-bit sampling	No	No	Yes	...	...	Yes	No
Compressor/limiter	Yes	No	No	Yes	Yes	No	No	No
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	...	Yes	No	Yes	Yes	No	No	No
Talkback circuitry	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Speaker muting	...	Yes	Yes	Yes	Yes	Yes	Yes	No
Tone oscillator	...	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	Yes	Yes	...	Yes	Yes
# of inputs (total)	16 or 32 dig	32-48	48 (36)	28	24-60	24, 32	24, 32	12 (20)
# of mixing positions	16 or 32	...	...	41	24-60	24, 32	24, 32	12 (20)
# of direct outputs	...	32-48	48 (36)	24	56	...	16	12 (20)
# of mixing buses	4 out dig	8-24	32	24	2 master	4 aux	Program	3 stereo pairs
# of groups/subgroups	...	8-24	32 In line	8	4 or 8	8 groups	...	8
# of sends/returns	...	8	8 S	Various config.	Various config.	6 send/4 ret	8 aux	4
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	...	PF, AF, IP	PF, AF, IP	PF, AF	AF	IP/PFL	In-place	PF, AF, IP
Meter type	201-seg plasma	LED peak	LED Peak	VU	VU	bar graph	Bargraph	Analog
EQ types	4-band	Parametric	Parametric	Parametric	3-band	4-band	4-band	Swapt
Filters	HP/LP	Swept HP	HP	HF roll-off	HP	HP	HP	...
Input connection	XLR-3-31	AB 710kΩ	AB	T/A ≥1.6k/≥10kΩ	TB >5kΩ	Bal 2.2k/16kΩ	Bal 2.2kΩ	AB 2k/100kΩ
Input range	Per AES/EBU	-60, +10dB	-60, +10dB	-70, +20dBu	-70, +21dBu	-67, +4dBm	-68dBm nom.	-60, +18dBv
Output connection	XLR-3-32	AB <75Ω	AB	TB 850Ω	TB <50Ω	Bal 75Ω	Bal 100Ω	AB 100Ω
Output level max	...	+24dBV	+26.3dBV	+24dBm	+24dBm	+25dBm	+4dBm nom.	+28dBm
AF response ±dB Hz-kHz	-1, +0.5 20-20k	-2, 0dB 20-20k	-2, 0dB 20-20k	-1, +0.5 30-20k	-1, -0.5 4.5-40k	-1.5, +0.5 20-20k	-1.5, +0.5 20-20k	±1dB 20-20k
THD	...	0.008% 0dB 1kHz	0.008% 0dB 1kHz	<0.1%	0.03%	<0.018%	<0.015%	0.025% 1kHz
S/N mic EIN/line dB	...	-127.5dBm	-127dBm	-125dBm/>100dB	<-125dBm/≤95dB	-130dBm/85dB	-130dB/88dB	87dB unwt'd
Crosstalk (worst case)	...	-82dB/1kHz/0dB	-82dB/1kHz/0dB	<-85dB	>90dB	<59dB	<60dB	<-70dB 1kHz
Reader Service No	893	894	895	896	897	898	899	900

⁸ERIC III offers moving faders. ⁹Custom configurations available.

Manufacturer	TASCAM	Trident Audio	Ward-Beck	Wheatstone	Yamaha Music Corporation			
Model	M600 (M700)	Vector 432	ST ser. (ST2442)	SP-5	MC2404 series	PM1800 series	PM2800M-40 (32)	PM3000 ser/40C
Modular system	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cue amp	No	Opt	Yes	No	Yes	No	No	No
Automation port	Yes	Yes	Opt	No	No	No	No	No
Digital control	No	No	Yes	No	No	No	No	No
Digital processing	No	No	No	No	No	No	No	No
Mono mix output	No	Opt	Yes	Opt	Yes	Yes	Yes	Yes
Solid-state bus switching	No	Yes	No	No	No	No	No	No
VCA gain control	No	Opt	Opt	No	No	Yes	Yes	Yes
Compressor/limiter	No	Yes	Opt	No	No	No	No	No
Pan pots	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Machine starts/stops	No	Yes	Yes	No	No	No	No	No
Talkback circuitry	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Speaker muting	No	Yes	Yes	Opt	Yes	Yes	Yes	Yes
Tone oscillator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Patch points	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# of inputs (total)	162 (40)	40-4	24-48	...	12-24	16-4C	40 (32)	24-400
# of mixing positions	32	1-4	24-48	12-56	12-24	1-2	...	...
# of direct outputs	32	40-64	20	Per # mono inputs	12-24	16-40	40 (32)	24-40
# of mixing buses	16	4-8	23	1 stereo/1 mono	10	8	12	16
# of groups/subgroups	16 (32)	32 G/32 S	4 stereo sub-master	8 M/4 S groups	2/2	8/4	8/8	8
# of sends/returns	4/6 (8/8)	8 S/8 R	2-mono, 2 stereo	4/4	4/4	4/4	4/4	...
Fader type	Slider	Slider	Slider	Slider	Slider	Slider	Slider	Slider
Solo type	PF, AF, IP	PF AF IP	IP	PF	AF, PF, IP	PF	PF	PF, AF, IP
Meter type	VU, LED peak	VU, PPM, Peak LEDs	VU/PPM per req.	VU, Custom	VU, LED peak	VU, LED peak	VU, LED peak	VU, LED peak
EQ types	Swept	Parametric, swept	Parametric, swept	Swept	Swept	Parametric	Parametric	Parametric
Filters	... (HP, LP)	HP, LP	...	HP	...	HP, LP	HP, LP	HP, LP
Input connection	AB 2k/100kΩ	AB/TB >10kΩ	AB 20kΩ/TB 1.5kΩ	AB 20kΩ	AB	AB 3kΩ	AB 3kΩ	AB 3k/1kΩ
Input range	-68, +8dBm	-20, +70dB dBu	-6C, +15dBm	Mic, line	-60, +26dBV	-80, +24dBu	-90, +24dBu	-90, +24dBu
Output connection	AB 100Ω	AB/TB 600Ω	AB <100Ω	AB	AB	AB 150Ω	AB 150Ω	...
Output level max	+28dBm	+28dBu	+30dBm	+28dBu	+22dBV	+24dBu	+24dBu	+24dBu
AF response ±dB Hz-kHz	±1dB 20-20k	±0.5dB 10-50k	±0.5dB 20-20k	±.5dB 20-20k	-3, +1dB 20-20k	-3, -1dB 20-20k	-3, +1 20-20k	-3, +1 20-20k
THD	0.015% 1kHz	0.03%	0.05% +24 20-20k	≤0.01% 20-20k +18	0.1% 4 20-20k	0.1% 14 20-20k	0.1% 14 20-20k	0.1% 14 20-20k
S/N mic EIN/line dB	88dB unwt'd	-128dBm/+70dB	-117dBm EIN/90dB	-129dBm/90	86dB	93dB	95dB	95dB
Crosstalk (worst case)	<-60dB 1kHz	<-80dB/0dB	>90dB 30-15k	-90dB 1kHz	-60dB/1kHz/4dB	-63dB 1kHz 14dB	60dB 1kHz 14dB	70dB 1kHz 14dB
Reader Service No	901	902	903	904	905	906	907	908

Audio Processors, Dynamics Control

Signal processing in this category include compression, limiting and expansion to maintain audio signal levels between controlled limits to avoid overdriving of subsequent equipment along the signal chain. **AB** indicates actively balanced; **TB** transformer balanced; **GR** indicates gain reduction; **B/Unb** denotes balanced or unbalanced.

Manufacturer	Aphex Systems		ATI Audio Technologies Inc	Audio Animation	Barco EMT		CRL Circuit Research Labs
Model	Compellor ¹	Dominator 700	EM1000 Emphasizer	paragon	Compact line ³	EMT 266X (277)	Audio Signature
Compression	Yes	Yes	Yes	Yes	Yes	No (Yes)	Yes
Expansion	No	No	Yes	Yes	Yes	No (Yes)	..
Peak limiting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Asymmetric limiting	No	No	No	Yes	No	No (Yes)	No
AGC	Yes	No	Yes	Yes	Yes	Yes	Yes
Loudness control	Yes	Yes	Yes	Yes	No	No	[Width
Stereo system	(#300 only)	Yes	No	Yes	Yes	Yes (No)	Yes [ctf
Digital processing	No	No	No	Yes	No	No	..
Programmable	No	No	Yes	Yes	No	(Yes)	w/memory
Multiband processing	No	3-band	No	4-band	No	No	4-band
Metering	VU GR In/Out	Pk GR	Peak GR Output	GR: In/Out	GR	GR	LED I/O, band
Input connector	AB 80kΩ	AB 160kΩ	AB/TB 38k/30kΩ	Act bal 600Ω	TB 10kΩ	TB 5kΩ	AB 600/10kΩ
Output connector	AB 65kΩ	AB 20kΩ	AB/TB 150kΩ	Act bal 600Ω	TB <40kΩ	TB 40kΩ	AB <50kΩ
Input level range	-30/+27dBm	-30/+24dB	-60/+24dB	-40/+20dB	-10/+6dB	-20/+15dB	-10/+20dB
Output level maximum	+27dBm	+20dBu	+24dBm	+20dBm	+21dB	+22dB	+20dB
AF response (±dB; Hz-kHz)	-0.2 5-100k	±0.2 20-50k	±0.25dB 30-20k	±0.25 5-20k	±0.5 40-15k	±0.3 30-15k	±1 50-15k
Distortion	0.002% in op	<0.01% in op	0.5% ²	0% bypass	<0.5% in op	0.2% (25%) ops	0.05%
S/N ratio	-87dB	80dB below peak	80dB	144dB	73dB RMS	92dB (72dB)	>70dB
Reader Service No	1085	1086	1087	1088	1089	1090	1091

¹ Models 300, 301. ² 10dB compression, 30-20kHz; bypass 0.2% +22dB out. ³ EMT-257 limiter; EMT-260 filter/limiter; EMT-261 compressor/limiter

Manufacturer	CRL Circuit Research Labs					dbx/AKG Acoustics	
Model	BAP-2000	MBL-100	PMC-450 ⁴	SEC-800 (SGC-800)	SMP-850	165A (166)	903
Compression	Yes	Dual band	Yes	Yes (No)	Yes	Yes	Yes
Expansion	No	...	No	No	...	No	No
Peak limiting	Yes	Tri band	Yes	No	Yes	Yes	Yes
Asymmetric limiting	No	Yes	Yes	No	No	...	...
AGC	Yes	Yes	Yes	Yes	Yes	...	...
Loudness control	No	Yes	No	No	No	...	...
Stereo system	No	[For short	No	Yes	Yes	Yes	No
Digital processing	No	[wave brdcast	No	No	No	No	No
Multiband processing	2-band	Yes	3-band	4-band (2-)	2-band	No	No
Metering	Peak GR Out	GR/Out/Overload	Peak/In	Peak/In	Peak/In	LED	LED
Input connector	AB/TB 600/10kΩ	AB 600/10kΩ	AB600/10kΩ	AB 600/10kΩ	AB 600/10kΩ	B/Unb 11k/22kΩ	B/Unb 18.5k/25kΩ
Output connector	AB/TB 100kΩ	AB 100kΩ	AB 200kΩ	AB 200kΩ (100kΩ)	AB 100kΩ	Unb 47kΩ (22kΩ)	Unbal 22kΩ
Input level range	-20/+20dB	-20/+20dB	-10/+20dB	-30/+20dB	-10/+20dB	+24dBu max	+24dBu max
Output level maximum	+20dB	+20dB	+20dB	+20dB	+20dB	+24dBu (+21)	+21dBu max
AF response (±dB; Hz-kHz)	±1 50-15k	±0.5 60-5.82k	-3/0.5 50-9.5k	±0.1(.5)50-20k	+1 50-15k	±0.5 20-20k	±0.5 20-20k
Distortion	0.15% in op	<0.25%	0.25%	0.25% (.15%)	0.25%	<0.2%	<0.2%
S/N ratio	75dB	70dB in op	65dB	70dB (80dB)	80dB	...	...
Reader Service No	1092	1093	1094	1095	1096	1097	1098

⁴ Meets NRSC specifications.

Manufacturer	Dorrough Electronics	Eventide	Furman Sound	Gentner Electronics	Inovonics		
Model	610-A ⁵	Omnipressor	LC-6B	Audio Prism	222 NTSC	255	260 (250)
Compression	Yes	Yes	Yes	Yes	No	Yes	Yes
Expansion	Yes	Yes	Yes	Yes	No	No	No
Peak limiting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Asymmetric limiting	No	...	No	No	Yes	No	No (Yes) ⁶
AGC	Yes	...	Yes	Yes	No	Yes	Yes
Loudness control	Yes	...	No	Yes	No	No	No
Stereo system	Yes	...	Yes	Option	No	Yes	Yes
Digital processing	Yes	...	No	No	No	No	No
Programmable	No	Yes	No	Yes	No	No	No (Yes)
Multiband processing	3-band	...	No	4-band	No	3-band	No (5-band)
Metering	VU GR I/O	I/O Gain	GR (& I/O)	Peak GR	GR	GR	GR
Input connector	AB 10kΩ	AB/TB opt	AB 20kΩ	AB 600/10kΩ	AB 10kΩ	AB 10kΩ	AB 10kΩ
Output connector	AB 30kΩ	UB/TB opt	AB 100kΩ (400)	AB 600kΩ	AB 600kΩ	AB 600kΩ	AB 600kΩ
Input level range	-25/+24dB	+20dBm max	-40(-60)/18dB	0/+12dB	-20/+10dB	-15/+15dB	-20/+10dB
Output level maximum	+22dB	+18dBm max	+23dBV	+10dB	+20dB	+24dB	+24dB
AF response (±dB; Hz-kHz)	±0 15-15k	-0.5 20-15k	±0.5 20-20k	-3, +2 20-18k	-1, 0.5 10-10k	±0.5 20-20k	±0.5 10-15k
Distortion	0.005% in ops	0.5%	0.1% (0.15%)	<0.1% in op	1% in op	1% in op	0.5% in op
S/N ratio	75dB	90dB	115dB (110)	-80dB	70dB	70dB	70dB (75dB)
Reader Service No	1099	1100	1101	1102	1103	1104	1105

⁵ Models available for AM, FM, TV and HF/SW broadcast. ⁶ Asymmetric for AM version only.

Manufacturer	ITAME	JBL/UREI			Kahn Communications	Clark-Teknik	Lectrosonics
Model	90A	1176LN/1178	7110	LA-4	GLN-86/-ST	DN500 (DN504)	Model CL1
Compression	Yes	No	Yes	Yes	Yes	Yes	Yes
Expansion	Yes	No	No	No	Yes	Yes (No)	...
Peak limiting	Yes	Yes	Yes	No	Yes	Yes (No)	Yes
Asymmetric limiting	Yes	No	No	No	Yes	No	...
AGC	Yes	No	No	No	...	No	Yes
Loudness control	No	No	...	No	...	Yes	...
Stereo system	Yes	1178	No	w/2 units	GLN-86-ST	Yes (Yes ⁷)	No
Digital processing	No	No	No	No	No	No	No
Programmable	No	No	Adj	No	No	No	No
Multiband processing	3-band	No	No	No	No	No	No
Metering	VU I/O Pk	VU	LED	VU	No	LED (GR I/O)	LEDs
Input connector	TB 600Ω	AB 10k/20kΩ	Bal 20kΩ	Bal 40kΩ	Bal 600Ω	AB 20kΩ	Bal 20kΩ
Output connector	TB 600Ω	TB 600/150Ω	TB 600Ω	TB 150Ω	Bal 600Ω	Unb/Xlfr <60Ω	Bal 100Ω
Input level range	-20/+18dB	+20dBu max	+22dBu	+20dB max	+10dB	...	+20dB max
Output level maximum	+20dB	+24dBm	+22dBm	+24dBm 600Ω	+10dB	+21dBm	+20dB max
AF response (±dB; Hz-kHz)	±1 50-15k	±1 20-20k	±0.5 20-20k		1 50-15k	±0.5 20-20k	20-20k
Distortion	0.7%	<0.5%	...	<0.25% 30-15k	<1% bypass	... (<0.03%)	<0.1%
S/N ratio	70dB	>81dB threshold	...	-90dB EIN	>50dB	<-94dBm	82dB
Reader Service No	1106	1107	1108	1109	1110	1111	1112

⁷ Quad or two stereo pairs.

Manufacturer	Orban				Orban Pro		
Model	4000A	8100A/XT2	8185A ^B	Optimod-AM	412A (414)	422A (424A)	464A (787A)
Compression	Yes	No	Yes	Yes	Yes	Yes	Yes
Expansion	...	No	No	No	No	No	No
Peak limiting	Yes	Yes	Yes	Yes	Yes	Yes	Yes (opt)
Asymmetric limiting	...	No	No	Yes	No	No	No (...)
AGC	Yes	No	Yes	Yes	No	No	Yes (...)
Loudness control	No	Yes	Yes	Yes	No	No	No (...)
Stereo system	Option	Yes	Yes	Yes	No (Yes)	No (Yes)	Yes (Opt)
Programmable	No	No	No	No	No	No	No (Yes)
Multiband processing	2-band	6-band	3-band	6-band	No	No	No
Metering	LED	VU GR	VU GR I/O	VU GR I/O	GR	GR/Out/peak	GR Out Peak
Input connector	AB 10kΩ	[Accessory	AB 10kΩ	AB 10kΩ	AB >10kΩ (<19kΩ)	AB >10kΩ	AB >10kΩ
Output connector	AB/TB 10Ω	{for 8100A	AB 370Ω	AB 290Ω	AB 100Ω	AB 100Ω	AB 93Ω (30Ω)
Input level range	-30/+10dBu	[Optimod-FM	-30/+10dB	-30/+10dB	-15/+21dB	-15dB	-10/+23dB
Output level maximum	>+20dBm	[processor &	+21dB	+20dB	+20dBm	+26dBm	+20dBm
AF response (±dB; Hz-kHz)	±0.25 30-15k	±1 30-15k	±0.75 50-15k	±1 50-9.5k ⁹	±0.25 20-20k	±0.25 20-20k	±0.25 20-20k
Distortion	<0.035%	0.15% in op	0.25% bypass	0.2% bypass	<0.05% in op	<0.03% in op	<0.03% (<0.1%)
S/N ratio	>87dB	70dB	75dB	75dB	85dB	85dB	85dB
Reader Service No	1113	1114	1115	1116	1117	1118	1119

⁹ Audio processing portion of BTSC TV stereo generator. ^B per NRSC-1 specification; values in "proof mode."

Manufacturer	ProTech Audio	Solid State Logic	Symetrix				Valley Int'l
Model	663CL/CL ¹	Logic FX G384	#525 gated	#544 Quad Gated	501 Peak-RMS	528	#400 mic processor
Compression	Yes	Yes	Yes	No	Yes	Yes	Yes
Expansion	No	No	Yes	Yes	No	Yes	Yes
Peak limiting	Yes	No	No	No	Yes	No	No
Asymmetric limiting	...	No	No	No	No	No	No
AGC	...	No	No	No	No	No	Yes
Loudness control	No	No	No	No	No	No	Yes
Stereo system	No	Yes	Yes	No	Option	No	No
Multiband processing	No	No	No	No	...	No	No
Metering	VU	GR	GR	Gain Reduction	GR	VU GR In/Cut	GR VU I/O
Input connector	TB/Unb 600Ω	AB 20kΩ	AB >40kΩ	>40kΩ	AB >10kΩ	AB 3k/10kΩ	AB >40kΩ
Output connector	TB 600Ω	AB 75Ω	Unb <100Ω	100Ω	AB/TB 200Ω	AB 100Ω	AB 50Ω
Input level range	+27dBm max	-11/+19dBu	-50/+20dB	-40/+20dB	40/+10dB	-80/+18dB	-40/+26dB
Output level maximum	+27dBm	+29dBu	+18dBm 600Ω	+19dBm 600Ω	+24dBm 600Ω	+24dBm 600Ω	+26dB
AF response (±dB; Hz-kHz)	0.25 20-20k	±0.2 20-20k	-1 20-20k	-1dB 20-20k	-1 20-20k	-1 20-20k	±0.5dB 20-20k
Distortion	0.5% 6dB comp	0.005%	0.025% in op	0.025% in op	0.025% in op	0.35% in op	<0.01% in op
S/N ratio	78dB	94dB	85dB	86dB	85dB	>86dB	82dB ref 0dB
Reader Service No	1120	1121	1122	1123	1124	1125	1126

Manufacturer	Valley International					Wheatstone
Model	#430 (#440)	#610	#810 (#817)	#811 GainBrain II	Leveller (816)	Model DDP (DCE) ¹⁰ 1202A
Compression	Yes	Yes	No (Yes)	No	No	Yes
Expansion	Yes	Yes	Yes	No	No	No
Peak limiting	Yes	Yes	No	Yes	Yes	Yes
Asymmetric limiting	No	No	No	No	No	No
AGC	Yes	Yes	No (Yes)	No	No	No
Loudness control	Yes	Yes	No (Yes)	Yes	Yes	...
Stereo system	Yes	Yes	No	No	No	Yes
Digital processing	No	No	No	No	No	No
Programmable	No	No	No	No	No	No
Multiband processing	No	No	No	No	No	8 (No)

Audio Processors, Dynamics Control

Manufacturer	Valley International						Wheatstone
	#430 (#440)	#610	#810 (#817)	#811 GainBrain II	Leveller (816)	Model DDP (DCE) ¹⁰	
Model	GR (VU I/O)	GR	GR	GR	GR VU I/O	VU GR I/O	VU/GR/Out
Metering	AB 94kΩ (100kΩ)	AB >90kΩ	AB 100kΩ	AB 150kΩ	AB 75k (100k)	Digital	AB 20kΩ
Input connector	AB 40kΩ	AB 2kΩ	AB 20kΩ (50kΩ)	AB 40kΩ	AB 50kΩ	Digital	AB 10kΩ
Output connector	AB 40kΩ	AB 2kΩ	AB 20kΩ (50kΩ)	AB 40kΩ	AB 50kΩ	Digital	AB 10kΩ
Input level range	-40/+21dB	-40/+24.5dB	-40/+24.5dB	-44/+24dB	-10(-16)/24dB	[16-bit	-20/+26dB
Output level maximum	+21dB (24dB)	+24dB	+21dB (24)	+21dB	+24dB	[PCM	+22dB
AF response (±dB; Hz-kHz)	±0.5 20-20k	±0.5 20-20k	±0.5 20-20k	±0.5 20-20k	±0.5 20-20k	±0.5 20-20k	±0.5 20-50k
Distortion	<0.05% in op	<0.05% in op	<0.05% (<0.4%)	<0.025% in op	0.04% in op	...	0.04%
S/N ratio	82dB ref 0dB	82dB ref 0dB	83dB ref 0dB	83dB ref 0dB	83dB ref 0dB	94dB ref 0dB	90dB
Reader Service No	1127	1128	1129	1130	1131	1132	1133

¹⁰DDP Digital Dynamics Processor; DCE Digital Compressor Expander.

Audio Cartridge Recorders, Reproducers

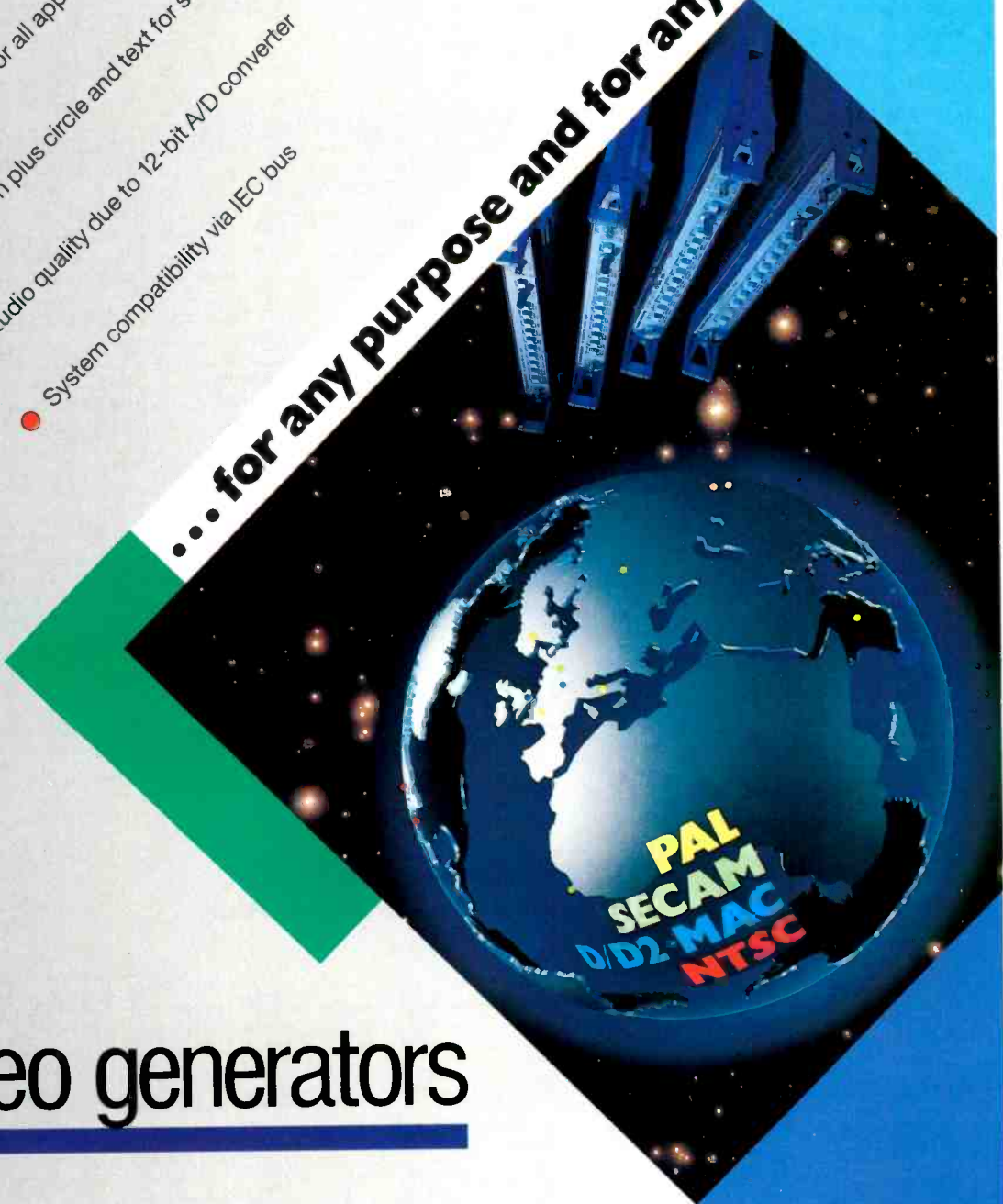
Manufacturer	Audi-Cord Corporation			Broadcast Electronics			
	"S" Series	DL series	2100C	5300C series	5404C/5410C ¹	DT-90 series	PT-90 series
Deck control logic	CMOS	CMOS	CMOS	CMOS	CMOS	CMOS	CMOS
Remote control type	Simple remote	Simple remote	Simple remote	96-pin D	96-pin D	48-pin D	48-pin D
Replay inhibit	Yes	Yes	No	Yes	Yes	Yes	Yes
Record timer	Yes	Yes	No	No	No	No	Yes
Secondary tone	Yes	Yes	Yes	Option	Yes	Yes	Yes
Tertiary tone	Yes	Opt	No	Option	Yes	Yes	Yes
Phase correction	No	No	PhaseLok V	PhaseLok V	PhaseLok V	PhaseLok V	PhaseLok V
Capstan motor	AC hysteresis	AC hysteresis	AC synch	AC synchr	AC synchronous	AC synch	DC servo
Capstan drive	Direct	Direct	Direct	Direct	Direct	Direct	Direct
Play speed	7.5ips	7.5ips	7.5	7.5	7.5	7.5 (3.75 opt)	7.5/3.75/15/var.
Sec/Tert cue outputs	Solid-state	Solid-state	Relay closure	Relay closure	Relay closure	Relay closure	SS
Meter types	VU	VU	VU taut-band	VU taut-band	VU taut-band	LED bar graph	LED bar graph
Monaural model	S-21	DL-RM	2100CRP/-CP	5301C/2C-09C	5403C/5409C	-90RP/-90P	PT-90P
Play only model	S-11	DL-PM	2100CPS	5303/04C-10C	5400C	-90PS	PT-90PS/-RPS
Multideck model	None	DL-DM	None	3-spot	3-cart	None	None
Input connection	TB 5kΩ	TB 5kΩ	Act bal	Xfmr bal	Act bal	Act bal	Act bal
Input impedance	5kΩ	5kΩ	75kΩ	50kΩ	50kΩ	600Ω	10kΩ
Input level range	-12/+10dBm	-12/+10dBm	-20/+20dBm	-20/+20dBm	-70/+20dBm	-18/+20dBm	-18/+20dBm
Output connection	TB 150Ω/600Ω	TB 150Ω/600Ω	Act bal	Xfmr bal	Xfmr bal	Non-Xfmr	Act bal
Output impedance	150Ω/600Ω	150Ω/600Ω	600Ω	600Ω	600Ω	75Ω source	600Ω
Output level max	+18dBm	+18dBm	+10dBm	17dBm clip	17dBm	+20dBm	+24dBm clip
AF response ±dB, Hz-kHz	±2dB 50-15k	±2dB 50-15k	±2dB 50-15k	±2dB 40-16k	±2dB 40-15k	±2dB 40-16k	±2dB 40-16k
referred to nWb/m	160nWb/m	160nWb/m	250nWb/m	250nWb/m	250nWb/m	250nWb/m	250nWb/m
S/N ratio	+52dB	+52dB	42dB stereo	56dB stereo	56dB	52dB stereo	58dB ²
Crosstalk L-R	-50dB	-50dB	<-50dB	<-50dB	-50dB	<-50dB	<-50dB
Crosstalk Pgm-Cue	-50dB	-50dB	<-50dB	<-50dB	-50dB	<-50dB	<-50dB
Distortion	0.5%	0.5%	<2%	<2%	2%	1.5% system	<1%
Wow	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%	0.15%
Reader Service No	1001	1002	1003	1004	1005	1006	1007

¹5500 series similar to 3-cart model with five slots. ²Dynafex noise reduction permits 80dB S/N ratio in stereo operation.

Manufacturer	Cartridge Technology	Fidelipac			ITC/International Tapetronics		
		CTR-10 series	CTR-100 series	CTR-90 series ⁴	99B series	DELTA series	Series 1
Model	CT-1001 ³	CTR-10 series	CTR-100 series	CTR-90 series ⁴	99B series	DELTA series	Series 1
Deck control logic	CMOS	CMOS	CMOS	CMOS	μP	μP	CMOS
Remote control type	Yes	D-connector	D-connector	D-connector	50-pin D	50-pin D	50-pin D
Replay inhibit	...	Yes	Yes	Yes	Yes	Yes	Yes
Record timer	Yes	No	No	No	No	No	No
Secondary tone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tertiary tone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Phase correction	...	No	No	No	ELSA	No	...
Capstan motor	dc servo	AC servo	dc servo	dc servo	DC servo	DC servo	dc servo
Capstan drive	Direct	Direct	Direct	Direct	Direct	Direct	Direct
Play speed	7.5ips	7.5ips	3.75/7.5	7.5ips	3.75/7.5/15	3.75/7.5/15	3.75/7.5/15
Sec/Tert cue outputs	Solid-state	Relay closure	Relay closure	Relay closure	S-S/relay close	S-S/relay close	S-S/ relay close
Meter types	PPM; VU opt	LED bar graph	LED bar graph	LED bar graph	VU taut-band	VU Taut-band	LED ladder
Monaural model	...	CTR-11 P/CTR-13 R	CTR-111/-123	CTR-91P/-93R	Yes	DELTA I/III/IV	Available
Play only model	Available	CTR-12 P/CTR-14 R	CTR-111/-112	CTR-91P/-92P	Yes	DELTA I/III	Available
Multideck model	No	None	[MAXTRAX option]	CTR-30 series	No	DELTA III	None
Input connection	Act; Xfmr opt	AB 10kΩ	Act bal	Act bal	Act/Xfmr bal	Act/Xfmr bal	Xfmr bal
Input impedance	30kΩ	10 kΩ	10 kΩ	10 kΩ	20kΩ	20kΩ	20kΩ
Input level range	-10/0dBm	-17/+20dB	-17/+20dBm	-17/+20dB	-20/+10dBm	-18/+18dBm	-18/+18dBm
Output connection	Xfmr bal	AB 440Ω	Act bal	Act bal	Xfmr bal	Act Xfmr bal	Xfmr bal
Output impedance	<150Ω source	440Ω	≤60Ω	≤60Ω	600Ω	600Ω	80Ω source
Output level max	0dBm typical	20dB	20dBm	20dB	+25dBm	+18dBm	+18dBm

- 30 special signals for all applications
- Test pattern plus circle and text for source identification
- Studio quality due to 12-bit A/D converter
- System compatibility via IEC bus

... for any purpose and for any standard



Video generators

Ask for more information on
TV Generators SGDF, SGMF, SGPF and SGSF

D-8000 München 80
Postfach 80 14 69
Telex 523 703 (r s d)
Telefax (0 89) 41 29-21 64
Tel. internat. +(49 89) 41 29-0



ROHDE & SCHWARZ

An independent concern, founded in 1933.
5000 employees, represented in 80 countries.
Design and turn-key installation
of systems with software and servicing.
Calibration, training and documentation.

F-SG-E

Circle (111) on Reply Card

Audio Cartridge Recorders/Reproducers

Manufacturer	Cartridge Technology	Fidelipac			ITC/International Tapetronics		
Model	CT-1001 ³	CTR-10 series	CTR-100 series	CTR-90 series ⁴	99B series	DELTA series	Series 1
AF response \pm dB, Hz-kHz	\pm 2dB 20-16k	\pm 2dB 50-16k	\pm 2dB 50-16k	\pm 2dB 50-16k	\pm 2dB 50-16k	\pm 1dB 31.5-16k	\pm 2dB 50-16k
referred to nWb.m	200nWb/m	250nWb/m	250nWb/m	250nWb/m	250nWb/m	250nWb/m	250nWb/m
S/N ratio	50dB	+55dB	>60dB	>60dB	58dB	62dB	>55dB
Crosstalk L-R	...	-50dB	-50dB	-50dB	-50dB	-50dB	<-50dB
Crosstalk Pgm-Cue	...	...	<50dB	<-50dB	-50dB	-50dB	<-50dB
Distortion	<1.5%	0.1%	0.1%	0.1%	0.8%	1.5%	<0.2% 0dBm
Wow/flutter	<0.12% DIN	<0.12% DIN	0.12%	0.12%	0.12%	0.15% R/P max	0.15% R/P
Reader Service No	1008	1009	1010	1011	1012	1013	1014

³MAXTRAX headoption available. ⁴MAXTRAX format head option available.

Manufacturer	Otari Corporation	Pacific Recorders & Engineering	Radio Systems	Sonifex Ltd			
Model	CTM-10S series	Micromax ⁵	TOMCAT ⁶	RS-CART 2000	CQ 20 R	HS 200 R.X2	Micro HS 200R
Deck control logic	μ P	CMOS	μ P	...	CMOS	CMOS	CMOS
Remote control type	Yes	Simple remote	Simple remote	Yes	Yes	Yes	Yes
Replay inhibit	Yes	Yes	Yes	...	No	Yes	No
Record timer	Yes	No	No	Yes	No	Yes	No
Secondary tone	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Tertiary tone	Yes	Yes	Yes	Yes	No	Yes	Yes
Phase correction	None	No	No	Yes	No	No	No
Capstan motor	DC servo	DC servo	DC servo	dc servo	DC servo	DC servo	DC servo
Capstan drive	Direct	Belt	Direct	Direct	Belt	Belt	Belt
Play speed	3.75/7.5/15	7.5ips	7.5/15	3-speed	7.5	7.5	7.5
Sec/Tert cue outputs	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Meter types	VU/peak LED	VU	VU	LED ladder	LED bar graph	VU	VU
Monaural model	CTM-10M	Yes	No	Available	CQ 10 R	HS 200 X-2	Micro HS 100R
Play only model	CTM-10	Yes	Yes	Available	CQ 10; CQ 20	HS 200 X-2	HS100; HS200
Multideck model	None	No	No	None	None	None	None
Input connection	AB 10k Ω	Act bal	Act bal	Act bal	Unbal	Xfmr bal	Act bal
Input impedance	10k Ω	40k Ω	20k Ω	...	10k Ω	10k Ω	10k Ω
Input level range	+26dBv max	0-8dBv	-13/+9dBv	...	-22/+22dBv	-22/+22dBv	-22/+22dBv
Output connection	AB 5 Ω	Act bal	Act bal	Act bal	Unbal	Xfmr bal	Act Bal
Output impedance	5 Ω	150 Ω	>95 Ω	...	50 Ω	50 Ω source	50 Ω source
Output level max	+26dBv into 200 Ω	+24dBm max	+25dBm	...	+20dBv	+22dBv	+22dBm
AF response \pm dB Hz-kHz	2dB 20-20k	\pm 2dB 20-16k	\pm 1dB 40-16k	\pm 1dB 40-16k	...	\pm 2.5dB 40-16k	\pm 1.5dB 40-16k
referred to nWb.m	...	250nWb/m	250nWb/m	...	160nWb/m	160nWb/m	160nWb/m
S/N ratio	53dB	56dB MAXTRAX	62dB A wtd	...	>51dB unwt'd	55dB ⁷	61dB
Crosstalk L-R	<48dB 1kHz	45dB separation	<-50dB	...	<-50dB	<-50dB	<-50dB
Crosstalk Pgm-Cue	<48dB 1kHz	<-55dB	<-50dB	...	<-50dB	<-50dB	<-50dB
Distortion	<0.8% 1kHz	0.9% system	0.9%	...	<0.2%	<1.5% 1kHz	0.8%
Wow/flutter	...	<0.15% 7.5ips	0.08%	0.1%	...	<0.12%	0.06%
Reader Service No	1015	1016	1017	1018	1019	1020	1021

⁵Models with standard NAB or MAXTRAX heads. ⁶Uses MAXTRAXheads. ⁷63dB with noise reduction.

Audio Recorders, Reel-to-Reel

Open-reel audio recording systems, 2-track to multi-track equipment, rack-mounted and portable units.

Manufacturer	Fostex				Lyrec Manufacturing a/s			Nagra Kudelski
Model	E16 (E22)	E2	R8 (E8)	FRIDA	P-4400 Loopmaster	TR 533	NAB T-Audio TC	
# of tracks	16 (2)	2	8	2	4	24	2+1 TC	
Tape width	1/2	1/4	1/4	1/4	1/2	2"	1/4"	
Time code track	No (Yes)	Yes	No	No	No	No	Yes	
Deck control logic	μ P	μ P	μ P	μ P	μ P	TTL	μ P/TTL	
Edit control interface	Synchronizer & Autolocator				Rmt Ctl	None	RS-422/Rmt Ctl	
Recording timer	Min/sec	Min/sec	Min/sec	Min/sec	Tape counter	Min/sec	Min/sec; counter	
Cue track	No (Yes)	Yes	No	No	No	No	No	
Phase correction	No	No	No	Yes	No	Yes	Yes	
Capstan motor; drive	Direct (dc servo)	DC servo/Direct	DC servo (Direct)	DC servo; belt	DC servo; direct	DC servo; direct	DC servo	
Reel motors	DC servo	DC servo	DC servo	DC servo	DC servo	AC servo	DC servo	
Tape speeds	15ips (& 7.5)	7.5/15ips	15ips	3.75/7.5/15	480ips	15/30	3.75/7.5/15/30	
# of heads; type	2 (3) Permalloy	3 Permalloy ferrite	2 Permalloy ferrite	3 metal	2 ferrite	3 metal	5 ¹	
Metering types	LED bar (VU)	VU	Bargraph/Peak LED	LED bar graph	VU	VU	VU/Peak LED	
Equalization	NAB	NAB1	IEC1 (NAB)	NAB/AES/CCIR	NAB	NAB/AES/CCIR	NAB/AES/CCIR	
Input connection	Unb 30k Ω (40k)	Bal/Unbal 40k Ω	Unbal 30k Ω	AB 10k Ω	Playback only	TB 8k Ω	TB 10k Ω	
Input level range	...	...	...	...	...	-6/+24	-390mV/+4.4V
Output connection	Unbal 10k Ω	Bal/unbal 10k Ω	Unbal 10k Ω	AB 40 Ω	Unb 5 Ω	TB 40 Ω	TB 30 Ω	
Output level maximum	...	...	...	+26dB	...	+24	+24VdBm
AF response \pm dB; Hz-kHz	\pm 3dB 40-18k(30-30k)	\pm 3dB 30-20k	\pm 3dB 40-18k	-2/+2 30-28k	-2/+2 2k-1280k	-2/+2 50-20k	\pm 1 30-20k	
S/N ratio	80dB (74dB)	74dB	78dB (80dB)	+69dB	+60dB	+63dB	+70dB tape dep.	

Manufacturer	Fostex				Lyrec Manufacturing a/s			Nagra Kudelski
	E16 (E22)	E2	R8 (E8)	FRIDA	P-4400 Loopmaster	TR 533	NAB T-Audio TC	
Model	E16 (E22)	E2	R8 (E8)	FRIDA	P-4400 Loopmaster	TR 533	NAB T-Audio TC	
Distortion	<1%	<1	1%	0.1%	0.1%B	<0.1%	1-5% ²	
Crosstalk Pgm-Pgm	-55dB (-80)	-80dB	-70dB (-55dB)	-40dB	-80dB	-46dB	-88	
Crosstalk Pgm-Cue	(-77dB)	-77dB	...	...	...	...	...
Wow-flutter	0.05% 15ips (30)	0.05% 15ips	0.06 (05)% 15ips	0.06% 15ips	0.06% 480ips	0.04% 15ips	0.025% 15ips	
Reader Service No	716	717	718	719	720	721	722	

¹ 2-audio, 1-TC, 2-erase, opt. Neopilot. ² 3rd harm. max peak level 510nWb/m.

Manufacturer	Nagra Kudelski			Otari Corporation			Sony
	Nagra 4.2	Nagra IV-SJ	ARS-1000 DC-DS	MX-50	MX-55 series ³	APR-24	APR-5002W (5003W)
Model	Nagra 4.2	Nagra IV-SJ	ARS-1000 DC-DS	MX-50	MX-55 series ³	APR-24	APR-5002W (5003W)
# of tracks	1	2+1 TC	4	2	1/2/2TC/4	24	2 (3)
Tape width	1/4	1/4	1/4	1/4	1/4	2"	1/4
Time code track	w/Neopilot	Yes	No	No	MX-55TM	Yes	No (Yes)
Deck control logic	...	No	...	TTL	μP	μP	μP
Edit control interface	...	No	...	None	...	RmtCtl; SMPTE	RmtCtl
	...	Min/meter counter	...	...	...	Synch; Autolocator	Autolocator
Recording timer	Min/meters	counter	FM modulation	...	Yes	Yes	Min/sec; counter
Cue track	No	No	No	Search 0 + 1 cue	Search 0/cue/3-cue	SMPTE	No (Yes)
Phase correction	No	No	No	No	No	Yes	No (Yes)
Capstan motor; drive	DC servo	DC servo	Synchronous	DC servo	belt	DC servo/belt	DC servo
Reel motors	Belt drive reel	Belt drive reels	Induction	AC synchronous	Induction torque	DC servo	DC servo
Tape speeds	3.75/7.5/15	1.5/3.75/7.5/15	3.75/7.5	3.75/7.5/15/var	3.75-30ips	15/30	7.5/15/30
# of heads; type	4	4	...	4 ERP	ERP/P	3 amorphous	3 amorphous (4)
Metering types	VU	Modulometer	[Playback	VU/peak LED	VU w/peak LED	VU/LED/bargraph	VU
Equalization	NAB	CCIR	NAB	CCIR	only system	NAB/IEC	NAB/IEC
Input connection	UB 100kΩ; Bal opt	UB 100kΩ	...	AB >10kΩ	AB >10kΩ	AB 10kΩ	Bal 10kΩ
Input level range	-0.37/+127V	-10mV min	...	-20/+10dBm	-10dBV/+4dBm nom	Variable	Variable
Output connection	Bal 600Ω	UB 600Ω	UB 600Ω	AB <5Ω	AB 200Ω load	AB 120Ω	AB 120Ω
Output level maximum	0dB=4.4V	1V	+4dBm nominal	+22dBm 600Ω load	+26dBm max bal.	+24dBs	+24dBm
AF response ±dB; Hz-kHz	±2 30-15k	±2 25-35k	±2 50-18k	±2dB 20-20k	±2dB 30-20k	-3/0.75 25-24k	-3/+0.75 50-28k
S/N ratio	71dB	62dB	63dB 7.5ips	>54dB	71dB 7.5ips	+66dB	70dB 30ips
Distortion	1.5%	2%	<0.15% 250nWb/m	<0.3%	<0.3% 1kHz	0.15%	0.35% 30ips
Crosstalk Pgm-Pgm	...	...	<-50dB 1kHz	-55dB 1kHz 0VU	<-55dB 1kHz	...	...
Crosstalk Pgm-Cue	...	...	N.A.	<-55dB 1kHz	<-55dB 1kHz	...	...
Wow-flutter	0.07% 7.5ips	0.05% 15ips	0.06% 7.5ips	0.06%	<0.08% 7.5ips	0.03% 30ips	0.025% 30ips
Reader Service No	723	724	725	726	727	728	729

³ MX-55N, MX-55NM, MX-55TM operate 3.75-7.5 or 7.5-15 ips; MX-55N-HS 7.5-15 or 15-30 ips.

Manufacturer	Sony	Stellavox Digital Audio			Studer Revox		
	PCM-3202 (3402)	SP 9 Pro ⁵	TD 9N ⁶	A820 series	Revox C270 ⁹	Revox PR99 Mk III	Studer A807
Model	PCM-3202 (3402)	SP 9 Pro ⁵	TD 9N ⁶	A820 series	Revox C270 ⁹	Revox PR99 Mk III	Studer A807
# of tracks	2	2	4 (2) [2]	2-24	2 (4)	8)	2
Tape width	1/4	1/4"	1/2"-1/4"	1/4"	1/4" (1/2")	1/4"	1/4"
Time code track	Yes	Yes	Yes (No)	Yes	C270 TC	No	[A807 TC ver.]
Deck control logic	μP	Mechanical	μ	μP/TTL/CMOS	μP	μ	μP
Edit control interface	SMPTE autolocator	synch	None Stellalock III	RS-232/422 Autolocator Synchro	RS-232/422; SMPTE autoloc (& synchro)	RS-232/timecode	via rmt ctl Autolocator
Recording timer	Min/sec	Tape counter	Min/sec	Min/sec	Min/sec	Min/sec	Min/sec
Cue track	Y	Yes	Yes (No)	SMPTE ⁷	No	No	No
Phase correction	...	Yes	Yes	Yes	Yes	No	Yes
Capstan motor; drive	DC servo	DC servo	direct	DC servo belt	DC servo brushless	1 dc servo	ac servo
Reel motors	DC servo	...	DC servo	DC servo	2 ac servo	ac servo	DC servo
Tape speeds	15 (& 7.5)	3.75/7.5/15	3.75-30	3.75-30±7 semitones	3.75/7.5/15	7.5/15	3.75/7.5/15 30
# of heads; type	4 ⁴	4/ERP	3/ERP	3 or 4 (3)	3 Revox metal	3 Revox metal	3 amorphous
Metering types	Peak LED	VU	Per request	VU	VU (LED bargraphs)	VU	Peak LED
Equalization	DASH	Any	All	NAB/CCIR	NAB	NAB	NAB/CCIR
Input connection	AB 10kΩ	TB 10kΩ	TB 10kΩ	A8 TB >10kΩ	TB >5kΩ (AB)	TB >5kΩ	TB >10kΩ
Input level range	-6. +10dBs	-74/-6dBm	22dBm	+24dBu max	+10dB	+10dBv	-30/+12dBu
Output impedance	120Ω	10Ω	9Ω	50Ω	<Ω (150Ω)	50Ω	2Ω
Output level maximum	+24dBs	+13dBm	+25dBm	+24dBm	+22dBm	+22dBm	+24dBm
AF response ±dB; Hz-kHz	-1 +0.5dB 20-20k	±2 30-18k	±2 30-20k	±2 30-16k ⁸	±2 30-22k	-3/+2 30-22k	±2d 30-20k
S/N ratio	90dB	67dB	69dB (71dB)	>65dB	64dB (61dB)	66dB	68dB
Distortion	0.05%	<2%	<1%	<0.5% 1kHz	<1% 0.8%	0.3%	<1.0%
Crosstalk Pgm-Pgm	-80dB	-55dB	-55dB	<-55dB 1kHz	>50dB (>55dB)	...	...
Crosstalk Pgm-Cue	...	-80dB	-80dB	...	...	...	...
Wow-flutter	...	0.07% 19ips	0.04% 15ips	0.06%	0.05% 15ips	<0.06% 15ips	0.05% 15ips
Reader Service No	730	731	732	733	734	735	736

⁴ Digital Rec, P/E Analog R/P. ⁵ Portable unit. ⁶ Includes models with 4-tr+cue, 2-tr+cue, 3-tr+cue. ⁷ Also five Locstart memories available. ⁸ Values for 7.5ips tape speed. ⁹ Models C274 4-track, C278 8-track; also time code control.

Manufacturer	TASCAM division/Teac of America						
	Studer A827-24	3030	ATR 60-16	ATR 80-24	MSR 16 (-24)	Series 30	TSR 8
Model	Studer A827-24	3030	ATR 60-16	ATR 80-24	MSR 16 (-24)	Series 30	TSR 8
# of tracks	24-track	2	16	24	16 (24)	2 (4)	8
Tape width	2"	1/4	1/4-1"	2AE	1/2AE-1AE	1/4AE	1/2
Time code track	No	No	Yes	...	No	No	No
Deck control logic	μP	TTL	μP	μP	μP	μP	μP

Audio Recorders, Reel-to-Reel

Manufacturer	Studer Revox			TASCAM division/Teac of America			
Model	Studer A827-24	3030	ATR 60-16	ATR 80-24	MSR 16 (-24)	Series 30	TSR 8
Edit control interface	RS-232/422/SMPTE Autoloc/Synchro	None	SMPTE synchronizer autolocator	SMPTE synchronizer autolocator	SMPTE synchronizer autolocator	SMPTE synchronizer autolocator	SMPTE synchronizer autolocator
Recording timer	Min/sec	Min/sec	Min/sec	...	...	...	Min/sec; tape ctr
Cue track	No	Yes	Yes	No	No	No	Yes
Phase correction	Yes	No	No	RTZ/STC	RTZ/STC	RTZ/STC	No
Capstan motor; drive	DC servo brushless	DC servo	DC servo	DC servo direct	DC servo direct	DC servo direct	DC servo belt
Reel motors	DC servo	DC servo	DC servo	DC servo	DC servo	2 DC servo	DC servo
Tape speeds	7.5/15/30	7.5/15 ips	7.5-30ips	30 ips	15 ips	7.5-15ips	15 ips
# of heads; type	3 amorphous metal	3	3	3	2	2	2
Metering types	VU	VU/LED peak	VU/LED peak	VU/Peak LED	Bargraph	Bargraph	LED bar graph
Equalization	NAB/CCIR/IEC1/AES	NAB/IEC1	NAB/IEC1/CCIR	NAB/IEC1/CCIR	IEC1/CCIR	IEC1/CCIR	IEC1/CCIR
Input connection	TB >10k Ω	AB or AU	AB	AB	Unbal	Unbal 10k	Unbal
Input level range	+24dBu	-72/+4dB	to 28dBm	-10/+4dB	...	-60/+18dBV	...
Output impedance	...	100k Ω	20k Ω	...	...	...	100 Ω
Output level maximum	+26dBm	...	+28dBm	+28dB	-10dBV	+18dBV	-10dBV
AF response \pm dB; Hz-kHz	\pm 2 50-20k	\pm 2 40-22k	\pm 2 30-15k	\pm 2dB	\pm 3 40-20k	\pm 3 40-22k	\pm 3 40-20k
S/N ratio	64dB 30ips	68dB	68dB	69dB	>65dB	>66dB	68dB
Distortion	<1.0% 510Wb/m	0.6%	0.8%	0.8%	0.8%	0.8%	0.8%
Crosstalk Pgm-Pgm	-60dB	<-55dB	<-55dB	-55dB	-80dB	-50dB	-62dB
Crosstalk Pgm-Cue	...	...	...	...	...	...	...
Wow-flutter	0.04% 30ips	<0.07%	0.05% 15ips	0.05%	<0.06%	<0.07%	0.08%
Reader Service No	737	738	739	740	741	742	743

Wireless Microphone Systems

Matched transmitter receiver systems, primarily for in-studio or limited area use.

Manufacturer	AKG Acoustics	Audio-Tech-nica US	beyerdynamic		Comtek		HM Electronics	
Model	WMS wireless	ATW1031/ATW1032	SEM 186	TS 190	Model 180	Model 182	515 (525)	System 55 (50)
RF spectrum	174-216MHz	169-216 MHz	170-240MHz	130-240MHz	169-216MHz	169-216MHz	169-216MHz	169-216MHz
Modulation control	...	Compression	Limiting	...	Compression	Compression	Compression	Compression
Companding function	...	2:1	Low noise	Low noise	2:1	2:1 companding	Dynamic expansion	
System AF response	...	\pm 1 40-16k	\pm 3 50-15k	\pm 3 50-15k	\pm 2 50-15k	\pm 2 80-15k	\pm 3 100-15k	\pm 3 100-15k
System S/N ratio	...	95dB	85dB	85dB	95dB	95dB	NRX II	NRX II
System distortion	...	0.5%	<1%	<1%	0.05%	0.5%	1%	1%
Transmitter Model:	T 185	ATW-T31 UniPak	SEM186	TS-190	M-72	M-182	TX550 (555)	TX555
Transmitter packaging	Handheld	Pocket unit	Handheld	Pocket unit	Pocket	Handheld	Body-Pac (HH)	Body-pac
RF output	25-35mW	30mW	<50mW	>30mW	35mW	50mW	>50mW	>50mW
FM deviation	...	\pm 15kHz	\pm 12kHz	\pm 12kHz	\pm 30kHz	\pm 30kHz	15kHz max	15kHz max
Microphone support	Electret; dynamic	AT831A/ATM73A ²	Electret	ribbon ⁴	Electret ⁵	Elect Dynam Rib	Electret	1.5-5k Ω (dynamic)
Auxiliary line input	Yes	Yes	No	No	Possible	No	...	No
Power requirement	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc	3-AA	9Vdc	9Vdc
Operating weight	13.6	3.2	160g	160g	4	11	4.7	10
Receiver Model:	SR 185-10 (185.11)	ATW-R10	NE 185/US	NE 185-11	MR-180	MR-182	RX522	RX520
RF sensitivity/quieting	...	1 μ V/60dB	1 μ V/55dB	12V/55dB	1 μ V/45dB	1 μ V/45dB	1 μ V/30dB	1 μ V/30dB
Spurious rejection	...	60dB	85dB	>85dB	80dB	>90dB	>50dB	>60dB
Antenna types	Whip	Whip furnished	Whip/Dipole	Whip Dipole	Whip dpl multiel acc	Whip dpl multiel acc	Whip BNC	Whip BNC
Diversity reception	Option	Yes	Yes	Yes	No	No	No	Yes
Multichannel	No	No	No	Option	No	No	No	No
AF output level	-20/+6dBm	-8dBV Unbal ⁶	-20/+6dBm	-20/+6dBm	+9dBm	+10dBm	-4dBV	-4dBV
Power requirement	15-27dc/117V	120ac/12-18dc	15-26dc/110ac	15-27dc/110Vac	6-12dc 50hr	ac/dcV 8W	120ac/12-16dc	120ac/12-16dc
Metered parameters	AF/RF/V	AF/RF	AF/RF/V	AF/RF/V	AF/V	AF/RF/V	Vdc/RF	Vdc/RF/AF
Metering types	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs
Reader Service No	1329	1330	1331	1332	1333	1334	1335	1336

¹ ATW-T32 Handheld. ² Also AT857AMa or any low-Z mic; -T32 uses dynamic only. ³ -20dB balanced. ⁴ MCE81 or M500, element applicable. ⁵ MCE 5, 6, 10; ECM 50, 55, 66, 77; MKE 2; SM 83, 84.

Manufacturer	Lectrosonics				Micron Audio Products			Nady Systems
Model	Pro-STD-T (-L)	PRO-4-Mini	PRO-DIV-L(-T)	PRO-Mini-L (-H)	CTR 501 /H	MDR530-SH	MDS-2	Model 101/201
RF spectrum	150-216MHz	150-216MHz	150-216MHz	150-216MHz	169-216MHz	150-216MHz	150-216MHz	170-216MHz
Modulation control	Compression	Compression	Compression	Compression	Limiting	Limiting	Limiting	Compression
Companding function	2:1	2:1	2:1	2:1	CNS type	CNS type	CNS type	Yes
System AF response	\pm 1 50-15k	\pm 1 50-15k	50-15k	\pm 1 50-15k	\pm 2 50-15k	\pm 2 50-15k	\pm 2 50-15k	\pm 0.3 25-20k
System S/N ratio	96dB A wtd	96dB A wtd	96dB A wtd	96dB A wtd	>115dB	>115dB	115dB	...
System distortion	0.7%	0.7%	0.7%	0.7%	<0.3% THD	<0.3% THD	<0.3% THD	0.3%
Transmitter Model:	T185 (M185)	M185/H185	M185 (T185)	M185 (H185)	TX-501 (503)⁶	TX-503	TX-501 (503)	HT/LT/GT
Transmitter packaging	Handheld (Pocket)	Handheld/plugon	Pocket (HH)	Pocket (Plug-on)	Pocket (HH)	Handheld	Pocket (HH)	HH; Lav; Instr
RF output	50mW	50mW	50mW	50mW	50mW	50mW	50mW	50mW
FM deviation	\pm 15kHz	\pm 15kHz	\pm 15kHz	\pm 15kHz	\pm 15kHz	\pm 15kHz	\pm 15kHz	...
Microphone support	SM58 (Electret ⁶)	Electret or dynamic	Electret (& dynamic)	Electret	dynamic	Electret	dyn.	AKG element
Auxiliary line input	No (Yes)	...	Yes (No)	Yes (No)	Yes	No	Yes (No)	Yes
Power requirement	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc	9Vdc

Manufacturer	Lectrosonics				Micron Audio Products			Nady Systems
	Pro-STD-T (-L)	PRO-4-Mini	PRO-DIV-L(-T)	PRO-Mini-L (-H)	CTR 501/H	MDR530-SH	MDS-2	Model 101/201
Operating weight	13.2 (5.3)	...	5.3 (13.2)	5.3 (0.7)	8.5 (11)	11	8.5 (11)	8.5
Receiver Model:	R185	CR185/CDM4	DR185	CR185	MR-510 (110)⁹	MDR-530¹⁰	MDR-540 (-4)¹¹	101/201
RF sensitivity/quieting	0.5µV/20dB	0.6µV/20dB	0.5µV/20dB	0.6µV/20dB	>5µV >100dB S/N	2µV/60dB	2µV/60dB	...
Spurious rejection	>100dB	>100dB	>100dB	>100dB	>80dB	>80dB	>80dB	60dB
Antenna types	Whip furnished ⁷	Whip furnished	Whip furnished	Whip furnished	Whip furnished	Whips furnished	Dipole	Furnished
Diversity reception	No	No	Yes	No	No	No	Yes	Yes
Multichannel	No	4-channel	No	No	No	No	Yes	Yes
AF output level	-65.0dBm	-65.0dBm	-65.0dBm	-65.0dBm	-53dBV/0dBV	-53dBV; 0dBV line	0dB line	...
Power requirement	12dc/120ac	9-16dc/120ac	12dc/120ac	9-16dc/120ac	12-30dc	12-18dc/Vac	10-22dc/120ac	12dc
Metered parameters	AF/RF/Vdc	AF/RF/Vdc	AF/RF/Vdc	AF/RF/Vdc	AF/RF/Vdc	AF/RF/Vdc	AF/RF/Vdc	RF
Metering types	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs	LEDs
Reader Service No	1337	1338	1339	1340	1341	1342	1343	1344

⁶ M185 also supports dynamic mic units. ⁷ Dipole antenna available as an added accessory. ⁸ 501H includes TX-503 handheld transmitter. ⁹ Model 110 does not include Complementary Noise Suppression. ¹⁰ MDR-550 mobile diversity receiver offers similar characteristics in portable compact dc-powered package. ¹¹ -4 model does not include Complementary Noise Suppression; multiple element accessory available.

Manufacturer	Samson Technologies			Sennheiser Electronics				
	Broadcast STD	Concert TD	MR-1 system	UHF 1B (1H)	UHF 2B (2H)	UHF 2EB (2EH)	VHF 1B-90 (1H) ¹	VHF 2B-90(2H-90)
RF spectrum	174-199MHz	174-199MHz	174.46-199.6MHz	450-960MHz	450-960MHz	450-960MHz	174-216MHz	174-216MHz
Modulation control	...	...	...	Compress (limit)	Compress (limit)	Compress (limit)	Compress (limit)	Compress (limit)
Companding function	NRS dbx I/II	NRS dbx I/II	NRS dbx II	Hi-Dyn	Hi-Dyn	Hi-Dyn	Hi-Dyn	Hi-Dyn
System AF response	±3 30-18k	±3dB 30-18k	±3dB 60-12k	±3 40(70)-20k	±3 40(70)-20k	±3 40(70)-20k	±3 40(70)-20k	±0.3 40-20kHz
System S/N ratio	>115dB	>100dB	95dB IHF	94dB	94dB	94dB	+92dB A wtd (94)	+92dB A wtd
System distortion	<0.5% 400Hz	<0.5% 1kHz	...	<2%	<2%	<2%	<2%	<2%
Transmitter Model:	BH-3 (BT-3)	CH-2 (CT-2)	SH-2 (ST-2(L))	SK-2012-TV(SKM 4031)	SK-2012-TV(SKM 4031)	SK-2012-TV(SKM 4031)	SK-2012-90(4031-90)	SK 2012-90(SKM-4031)
Transmitter packaging	Handheld (Belt)	Handheld (Belt)	Handheld (Belt)	Pocket (handheld)	Pocket (handheld)	Pocket (handheld)	Pocket (handheld)	Pocket (handheld)
RF output	50mW	50mW	50mW	20mW	20mW	20mW	30mW	30mW
FM deviation	±15kHz	±15kHz	±15kHz	±40kHz	±40kHz	±40kHz	±40kHz nom.	±40kHz nom.
Microphone support	Various ¹²	Various ¹³	Various ¹⁴	Electret MKE-2/-40	MKE-2/-40	MKE-2/-40	MKE-2/-40	MKE-2/-40
Power requirement	9Vdc	9Vdc	9Vdc[6-8 hr]	4.5V 3-AAA cells	4.5V 3-AAA cells	4.5V 3-AAA cells	4.5Vdc 3-AAA	4.5Vdc 3-AAA
Operating weight	...	13 (4.2)	7.8 oz (5.1)	7 oz (9 oz)	7 oz (9 oz)	7 oz (9 oz)	7 oz (9 oz)	7 oz (9 oz)
Receiver Model:	BR-3	CR-2	MR-1 Micro	EK-2012-TV¹⁵	EM 2003-TV	EM-2003-TV¹⁶	EK-2012-90¹⁷	EM-2003-90¹⁸
RF sensitivity/quieting	15µV/60dB S/N	15dBµV/60dB S/N	15-45dBu	<20µV/40dB	<10µV/40dB	<10µV/40dB	<20µV/40dB	<10µV/40dB
Spurious rejection	60dB ±60Hz	60dB ±60Hz	60dB ±60kHz	>70dB	>80dB	>80dB	>70dB	>100dB
Antenna types	Dual whips	Dual whips	7" Flex whip	Whip furnished	Whip furnished	Whip furnished	Whip furnished	Whip
Diversity reception	Yes	Yes	No	No	Yes	Yes	No	Yes
Multichannel	10	1 of 10	1 of 10	Option	Yes	Option	No	No
AF output level	Bal/unbal 8dBm	Bal/unbal 8dBm	Bal/unbal 0dBm	-26/+6dBm	-28/+12dBm	-28,+12dBm	-26,+26dBm	-28/+12dBm
Power requirement	110/220ac	110/220Vac	9V	4.5Vdc 3-AAA cells	12-24Vdc 117Vac	12Vdc	4.5Vdc	117Vac
Metered parameters	Vdc/RF A-B Ch/AF	Vdc RF A/B	Vdc	RF	None	AF/RF	RF/AF/Vdc	None
Metering types	LEDs	LEDs	LEDs	...	LEDs	LEDs	...	LEDs
Reader Service No	1345	1346	1347	1348	1349	1350	1351	1352

¹² Various mic possibilities include: AKG, Audio-Technica, E-V, Sennheiser, Shure, Sony. ¹³ Various mic include AKG, Audio-Technica, E-V, Sennheiser, Shure, Sony. ¹⁴ Supports various mics from all major manufacturers in dynamic and condenser types. ¹⁵ Camera mounted receiver. ¹⁶ Includes ENG 2003 carrying case, antenna system, NiCad battery. ¹⁷ VHF camera mount receiver. ¹⁸ EM-2003-90 offers diversity reception; EK-2012-90 is a camera mount receiver.

Manufacturer	Shure Brothers		Sony		Swintek	Telex Comm.	VEGA/Mark IV	
	L-series	W-series	UHF systems	VHF systems	MK50A Hi-Fi-S ²³	ENG Wireless	Pro Plus	Pro Series
RF spectrum	169-216MHz	150-216MHz	400 (900)MHz	176-215MHz	49-470MHz	165-216MHz	150-216MHz	150-216MHz
Modulation control	...	...	Limit/compress	Compression	Limit/compression	...	...	...
Companding function	Yes	Yes	Switchable ²⁰	Yes	Yes	Selectable	Dynex III	Dynex II
System AF response	±2 50-15k	±10B 50-15k	±1.5dB 75-15k	±2.5dB 100-15k	±3dB	60Hz-20kHz	±1dB 100-15k	40-15kHz
System S/N ratio	...	...	57dB linear A-wtd	>60dB	80dB	104dB companded	110dB	104dB
System distortion	0.3%	0.5%	0.3% linear	<0.7%	1%	≤1%	<0.2%	<0.2%
Transmitter Model:	L1	W15HT (W10BT)	WRT-28L (H)	WRT410/420	MK50A HiFi	WT-400	77/DIII (T-81)	T-37 (T-36/38)
Transmitter packaging	Pocket	Handheld (pocket)	Pocket	Handheld	pocket	Pocket	Belt-pack	Body (handheld)
RF output	50mW	50mW	6mW (30mW) ²¹	50mW	50mW	50mW	50mW	50mW
FM deviation	±15kHz	±12kHz	±2.4kHz ²²	±1.9kHz 94dB SPL	±20kHz	±12kHz	...	...
Microphone support	Electret 839W	Dynam & (elec) ¹⁹	Elec Dyn ECM-77BC	Elec Dyn ECM-77BC	Electret; dynamic	Electret	Various ²⁴	Various ²⁵
Auxiliary line input	No	No	No	No	Yes	...	No	No
Power requirement	9Vdc	9Vdc	3Vdc	3Vdc	9Vdc	9Vdc	9V alk	9V alk
Operating weight	5.5oz	16 (6)	4.6 oz	14 oz	5 oz	5.5 oz	7 (9-13.5)	6 (10)
Receiver Model:	L3 (L4)	W20R (W25DR)	WRR-28/37	WRR410/WRR420	ODC Hi-Fi	ENG-4	R-42A	R-32 (R-31B)²⁶
RF sensitivity/quieting	0.35(45)µV/12dB	0.5µV/12dB	10dBµ	>65µV/20dB	1µV/12dB	0.5µV/12dB	1.3µV 50dB SNR	2µV 50dB SNR
Spurious rejection	75dB	>80dB	>70dB	<70dB	80dB	70dB	...	...
Antenna types	Whip furnished (2)	Whip furnished	Whip	Whip	Whip	L/4 rubber ducky	Dual whips	Dual whips
Diversity reception	L4 only	W25DR only	WRR-37	Option	0	No	Yes	R-32 only
Multichannel	No	No	Yes	Yes	0	Yes	No	No
AF output level	0dBm	0dBV (M/L switch)	-58dBs 600Ω	-58dB mic level	56dBm,+10dBm	-7,-21dBm	Line level	Line level
Power requirement	12-18Vdc	13.5Vdc	3/10-17Vdc	9Vdc 6-AA cells	9Vdc	...	ac/dc	ac/dc
Metered parameters	AF/RF/V(Div)	AF/RF/V	AF/RF	AF/RF	AF/RF/V	AF/RF/V	A/B; RF/AF	A/B; RF/AF
Metering types	LEDs	Meter (2 meters)	LEDs	LEDs	LEDs	Meter	LEDs	meter
Reader Service No	1353	1354	1355	1356	1357	1358	1359	1360

¹⁹ W15HT uses SM58 dynamic or SM87 electret; W10BT uses WL83 electret. ²⁰ Linear or companded; >60dB SNR w/companding; 0.7% distortion w/companding. ²¹ 1WP-27 amplifier gives 500mW. ²² per 1kHz linear mode; ±9.4kHz/1kHz companded. ²³ Video camera system. ²⁴ T-series includes elements such as E-V N/D757, Shure SM-58, SM-85, SM-87. ²⁵ T-36, E-V BK-1 element; T-38, E-V N/D457 element. ²⁶ 31B non diversity.

Shotgun Microphones

Hypercardioid is abbreviated to HC.

Manufacturer	AKG Acoustics			Audio-Technica			
	Model	C568	CK6X capsule	ST205	AT4071	AT7403	AT877	AT4073
AF response Hz-kHz	20-20k	30-18k	...	30-20k	30-20k	60-14k	30-20k
Polar pattern(s)	HC/directional	HC/directional	Variable ¹	Lobar	Narrow dir	Unidir	Nar. dir.
Output impedance Ω	600	...	...	250 B	250 B	350 B	250
Output level (mV/Pa)	...	...	...	62mV	52mV	10mV	52mV/Pa -25.7dBm
Maximum SPL dB; % dist.	128dB 0.5%	137dB 0.5%	140dB 0.5%	127dB	129dB	120dB	129dB 1%
Output noise	18dB DIN 45412-A	15dB	20dB per pattern spc	12dB A-wtd	14dB	...	16dB
S/N ratio	76dB	79dB	...	...	...	>70dB	>75dB
Mic capsule type	Electret	Electret	...	Capacitor	Capacitor	Condenser	Ext polarized cap.
Stereo design	No	No	M/S or L/R	No	No	No	No
Power source	9-45Vdc	...	48Vdc or ac	12-48V	12-48V	1.5V	12-48Vdc
Filters	...	...	Bass rolloff	...	HP	...	High-pass
Weight	6.2gm	4.2gm	...	5.8 oz	4.2 oz	>6 oz	4.2oz
Reader Service No	647	648	649	650	651	652	653

¹ Patterns from omni through cardioids to Figure-eight.

Manufacturer	Audio-Technica US		beyerdynamic			Electro-Voice	
	Model	AT815a	AT835	MC 736-PV	MC 737-PV	MCE 86 S	DL42 ²	RE45N/D^{3}
AF response Hz-kHz	40-20k	40-20k	40-20k	40-20k	50-18k	50-12k	150-15k
Polar pattern(s)	Narrow directional	Narrow directional	Cardioid lobe	HC/lobe	HC/lobe	HC	Card.-line
Output impedance	600	600	150	150	190	150	600
Output level (mV/Pa)	9.0mV/Pa -44.5dBm	9.0mV/Pa -45.5dBm	25mV/Pa	25mV/Pa -30dBV	4.2mV/Pa -47dBm	-50dB	5mV/Pa 1kHz
Maximum SPL dB; % dist.	120dB 3%	115dB 3%	128dB	122dB	138dB 0.7%	...	...
Output noise	18dB	17dB	4.5 μ Vs	4.5 μ Vs	3.8 μ Vs	-125dBm hum	130dBm hum pickup
S/N ratio	>70dB	>70dB	74dB	74dB	61dB	...	...
Mic capsule type	Fixed-charge cond.	Fixed-charge cap.	RF condenser	RF condenser	Electret	Dynamic	Dynamic
Stereo design	No	No	No	No	No	...	No
Power source	1.5Vdc AA-cell	1.5Vdc	AA cell	12Vdc	12-48Vdc	8-48Vdc	Not required
Filters	High-pass	High-pass	Bass rolloff	Bass rolloff	...	...	...
Weight	9.2oz	7.5 oz	4 oz	7 oz	2.5 oz	13 oz	7.5 oz
Reader Service No	654	655	656	657	658	659	660

²Windscreens, case, coiled cord, handle. ³Shock mount, case, handle, clamp, attenuator.

Manufacturer	Georg Neumann†		Sennheiser Electronics				Shure Brothers
	Model	KMR8 1i(KMR821) ⁴	RSM190i MS-stereo ⁵	MKH 416 P48 ⁶	MKH 60 P48	MKH 70 P48	MKH 816 P48 ⁷	SM89
AF response Hz-kHz	40-18k (40-20k)	40-18k	40-20k	50-20k	\pm 2 70-20k	40-20k	60-20k
Polar pattern(s)	HC	HC/fig-8	Sup card./lobe	Sup card./lobe	Sup card. lobe	Ultra dir/lobe	HC: LOBAR
Output impedance	150	50	10	130	150 bal	10	100 source
Output level (mV/Pa)	18mV/Pa (21mV/Pa)	23mV/Pa	1.25	1.3V	40mV/Pa	1.2V	2.2mV/Pa -53dBV
Maximum SPL dB; % dist.	>128dB	134mV/Pa	128dB	125dB	124dB	124dB	127dB 0.5% dist
Output noise	...	...	17dB	9dBa	10dB/DIN 45500	15Ba	16dB A wtd
S/N ratio	82dB	78dB M/72dB S	>77dBa	>85dBa	...	>78dBa	79dB
Mic capsule type	...	...	RF condenser	RF condenser	RF condenser	RF condenser	Electret
Stereo design	No	Yes	No	No	No	No	No
Power source	48Vdc \pm 4V	48Vdc \pm 4V	48V	48V	48Vdc	48Vdc/8	11-52Vdc
Filters	...	...	...	Low cut	hi boost	Low cut	Highpass
Weight	145 g	300 g	6.25 oz	5.25 oz	6.5 ozams	13.4 oz	6.9oz
Reader Service No	661	662	663	664	665	666	667

⁴Windscreens, case, mounting accessories. ⁵MTX 190i matrix amp ⁶MKH 416 TU3 12Vdc. ⁷MKH 816 6 TU3 12Vdc. †Available in US from Gotham Audio.

Telephone Bandwidth Extender

Manufacturer	Comrex Corporation				Gentner Electronics		
	Model	2XP/2XR	3XP/3XR	LX/T, LX/R	PLXmicro/TH-X	EFT-1000A ¹	EFT-100 ¹	EFT-3000
System type	2-line	3-line	1-line	1-line duplex	1-line	1-line	3-line duplex
Offset line 1 Hz	250/2k	250/2k/2k	250	250	250	250	320/2.82k/5.32
Translation error	\pm 0.02Hz	\pm 0.02Hz	\pm 0.02Hz	\pm 0.02Hz	\pm 0Hz	\pm 0Hz	\pm 0Hz
Processing analog/digital	Analog	Analog	Analog	Analog	Digital	Digital	Digital
AF response dB/Hz	0.5 50-5k	0.5 50-10k	0.5 50-5k	0.5 50-5k	0.5 50-3.5k	0.5 50-3k	0.5 50-7k
Compression/expansion	...	Auto lvl ctl	Yes	...	Yes	Yes	No
System transmitter	2XP	3XP	LX-T	PLX micro	EFT-1000A	EFT-100	EFT-3000
Packaging	Portable	Portable	Rack/Table	Portable	Portable	Rack/Table	Rack/Table
AF input impedance	600 Ω	600 Ω	600 Ω	150 Ω /10k Ω	600 Ω	>10k Ω	150/600 Ω
AF input level dBm	+4	+4	-20; +8	-60; +0	-55; 0	-10; 0	10
Mic input	...	...	...	Bal	Bal	...	Bal
Line input	Bal	Bal	Yes	Bal	Bal	Bal	Bal
Output connection	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Ext hybrid	Xfmr bal
Output impedance	600 Ω	600 Ω	600 Ω	600 Ω	600 Ω	600 Ω	600 Ω
Output level	-9dBm	-9	-9	-9dBm	-15	-2	-10

Manufacturer	Comrex Corporation				Gentner Electronics			
	Model	2XP/2XR	3XP/3XR	LX/T; LX/R	PLXmicro/TH-X	EFT-1000A ¹	EFT-100 ¹	EFT-3000
Power requirement	120/240Vac	120/240Vac	120Vac	120Vac; ±15Vdc	117/234Vac; dc	117/234Vac	117/234Vac	117/234Vac
System receiver	2XR	3XR	LX-R	TH-X	EFT-1000A	EFT-100	EFT-3000	EFT-3000
Packaging	Rack mount	Rack mount	Rack/Table	Rack-mount	Portable	Rack/Table	Rack/Table	Rack/Table
Power requirement	...	120/240Vac	...	...	117/234Vac	117/234Vac	117/234Vac	117/234Vac
Telco connection	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Ext hybrid	Xfmr bal	Xfmr bal
Telco input level	-40; +8	-40; +8	-40; +8	-40; +8	-30; +17	-20; 0	0	0
Telco impedance	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω
AF output connection	Act bal	Act bal	Act bal	Act bal	Act bal	Act bal	Act bal	Act bal
AF output impedance	600Ω	...	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω
AF output level dBm	0	0	0	0dBm	0	-10; 0	10	10
Reader Service No	855	856	857	858	859	860	943	943

¹ Transceiver.

Manufacturer	Gentner Electronics	Kahn Communications	Rood Megatronics BV				
	Model	EFT-900A ¹	LPGP-1	BAX 110	BAX 111 ²	BAX 112	BAX 2010 ³
System type	1-line	2-line	2-line	1-2-line duplex	1-line	2-line	2-line
Offset line 1 Hz	250	...	350/2.1k	350/2.1k	350	350/2.1k	350/2.1k
Translation error	±0Hz	0%	±0.5Hz	±0.5Hz	±0.5Hz	±0.5Hz	±0.5Hz
Processing analog/digital	Digital	Analog	Anal & Dig	Anal & Dig	Anal & Dig	Anal & Dig	Anal & Dig
AF response dB/Hz	0.5-50-3.5k	50-5k	1.50-4.95k	1.50-4.95k	1.50-3.05k	1.50-4.95k	1.50-4.95k
Compression/expansion	Yes	Yes	Yes	Yes	w/auto EQ	Yes	Yes
System transmitter	EFT-900A	LPGP-1-T	BAX 110/m	BAX 111/m	BAX 112/m	BAX2010	BAX2010
Packaging	Portable	Portable	Rack/Table	Rack/Table	Portable	Attache case	Attache case
AF input impedance	150/600Ω	600Ω bal/unbal	600/10kΩ	600/10kΩ	600/10kΩ	600/12kΩ	600/12kΩ
AF input level dBm	-55; 0	0dBm	±6	±6	±6	±12	±12
Mic input	Bal	...	Bal/unbal	Bal/Unbal	10kΩ unbal	Bal/unbal	Bal/unbal
Line input	Bal	...	Bal	Bal	Bal 600Ω	Bal	Bal
Output connection	Xfmr bal	Bal/unbal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal
Output impedance	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω
Output level	-15	0dBm	±12	±12dB	-6	12	12
Power requirement	117/234Vac; dc	115/230Vac	110/220Vac	110/220Vac	6Vdc (4-D)	110/220Vac	110/220Vac

Your Problem Solvers

from **ATI**

- Mike
- Line
- Phono
- Mixing
- Matching
- Metering
- Monitoring
- Processing
- Distribution
- Rack Mounting



AUDIO TECHNOLOGIES, INC.

328 W. Maple Ave., Horsham, PA 19044 • (215) 443-0330 • FAX (215) 443-0394



Circle (101) on Reply Card

Telephone Bandwidth Extender

Manufacturer	Gentner Electronics		Kahn Communications		Rood Megatronics BV		
	Model	EFT-900A ¹	LPGP-1	BAX 110	BAX 111 ²	BAX 112	BAX 2010 ³
System receiver	EFT-900A	LPGP-1-R	BAX 110/d	BAX 111/d	BAX 112/d	BAX 110/d	BAX 110/d
Packaging	Portable	Rack-mount	Rack/Table	Rack/Table	Rack/Table	Rack/Table	Rack/Table
Power requirement	117/234Vac	115-230Vac	110/240Vac	110/240Vac	110/240Vac	110/240Vac	110/240Vac
Telco connection	Xfmr bal	Bal/unbal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal	Xfmr bal
Telco input level	-35; +4	-20dBm	-30; +17	-30; +17	-30; +12	-30; +17	-30; +17
Telco impedance	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω
AF output connection	Act bal	Bal/unbal	Act bal	Act bal	Act bal	Act bal	Act bal
AF output impedance	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω	600Ω
AF output level dBm	-60; 0	0dB	0; +12	+12	0; +12	0; +12	0; +12
Mixer feature	...	No	...	...	...	...	2M/1L
Mixing channels	...	No	...	...	...	...	3
Reader Service No	944	945	946	947	948	949	949

²BAX 114/m transmitter offers similar characteristics in a portable configuration operating on 90-270V, 40-400Hz. ³Includes 2-mic, 1-line mixing capability.

Audio Distortion Measurement Equipment

Manufacturer	Amber Electro Design		ASACA ShibaSoku			Audio Precision
	Model 3501	Model 5500 ²	AD60A	AD725C	AM50B	System One
Auto level set	Yes	Yes	...	Yes	...	Yes
Auto null set	Yes	Yes	Yes	Yes	Yes	Yes
μP-control	No	Yes	Yes	No	Yes	Yes
Auto ranging	No	Yes	Yes	Yes	Yes	Yes
X-Y display output	No	Option	...	No	...	No
Printer-plotter output	No	Option	Option	No	Option	Yes
Automation bus port	No	Yes	GP-IB	Yes	GP-IB	Yes
Audio recorder tests	Yes	Yes	CD spec	No	...	Yes
Transmit-receiver units	Yes	Yes	No	Opt	No	Yes
Portable unit	Yes	Yes	No	No	No	No
AF range (fundamentals)	10-100k	10-100k	10-120kHz	5-110kHz	10-109kHz	10-200kHz
Range (on harmonics)	10-300k	10-500k	...	5Hz-110kHz	to 330kHz	10Hz->500kHz
Input level range	-30/+40dBm	-30/+40dBm	1mV-100Vrms	0.1V-100V	-26.8/+42.2dBm	-90dBu/-140Vrms
Input impedance	100kΩ	100kΩ	200kΩ/100kΩ	100kΩ	2-ch 600Ω	100Ω
Input connection	AB/AU	AB/AU	2-ch Bal/unb	UB	Bal/unb	Bal/Unbal
Fundamental rejection	>100dB	>100dB	>115dB	120dB	>85dB	...
THD minimum	0.0008%	0.001%	<-110dB	0.001% f.s.	0.2%-100%	0.0004% 20-20k
THD accuracy	±1%	±1%	...	...	...	0.5dB
IMD measurements per	SMPTE ¹	SMPTE ¹	...	...	...	SMPTE ³
IMD accuracy	±2%	±1%	...	...	...	±1dB
IMD minimum	0.003%	0.001%	...	...	...	10mV
AC voltage range	<3μ-100V	10μ-100V	30μV-100V	110V-230V±10%	200μV-100V	300μV-160Vrms
Audio noise range	<1μ-100V	<1μ-100V	...	...	-80dB	75μ-160Vrms
Signal generator range	<-60/+28dBm	<-80/+30dBm	No	...	Yes	10Hz-204.775kHz
Generator output	TB/TU	TB/TU	...	...	Bal/unb	Bal/Unbal Xfmr
Frequency counter range	10Hz->500kHz	to 500kHz	Yes	5Hz-500kHz	Yes	10Hz->500kHz
Meters-displays	Mechanical	LED	Dual analog	LED	7-seg LEDs	CRT
Reader Service No	987	988	989	990	991	992

¹Also per DIN 45045 & CCIF specifications. ²AudioCheck package allows control from PC for automated measurement system. ³IMD also perDIN 45045/45043; measurements also per CCIR IEC 2683 IHF A202.

Manufacturer	Neutrik			Panasonic	Rohde & Schwarz	
	A1 System	Audiograph 3337/5	TT402A	VP-7722P	SUN-2 system	UPA analyzer
Auto level set	Yes	Yes	Yes	Yes	Yes	Yes
Auto null set	Yes	Yes	Yes	Yes	Yes	Yes
μP-control	Yes	Yes	Yes	Yes	Yes	Yes
Auto ranging	Yes	Yes	Yes	Yes	Yes	Yes
X-Y display output	Yes	Yes	Yes	No	Yes	Yes
Printer-plotter output	Yes	3302 mainframe	Yes	Yes	Yes	Yes
Automation bus port	RS-232	Yes	-488/-232	Yes	Yes	Yes
Audio recorder tests	Possible	Possible	Possible	NA	Yes	Yes
Transmit-receiver units	No	No	No	No	No	No
Portable unit	Yes	Yes	Yes	...	Yes	Yes
AF range (fundamentals)	20Hz-40kHz	20Hz-40kHz	19Hz-21kHz	10-110k	10-100k	10-100k
Range (on harmonics)	to 130kHz	to 200kHz	to 200kHz	to 10th harmonic	...	300k
Input level range	10mV-200V	20mV-200V	30μV-100V	0.05-110Vrms	-84/+32dB	12mV-400V
Input impedance	100kΩ	100kΩ	2 100kΩ	100kΩ	1MΩ	600Ω/10kΩ
Input connection	Act bal	Bal	Bal A/B	BNC floating	TB/unbal	Bal/unbal
Fundamental rejection	...	...	...	>140dB	>65dB	...
THD minimum	0.0025%	<0.005%	<0.01%	0.001%	0.06%	-90/0dB range
THD accuracy	...	±0.5dB	±1.5%	<±2%	±0.1dB	±1dB to 100kHz
IMD measurements per	...	SMPTE; DIN	Options	per SMPTE	DIN method	No
IMD accuracy	...	...	...	±1dB	...	...
IMD minimum	...	<-74dB	...	0.01%	...	...

Manufacturer	NeutrÅk			Panasonic	Rohde & Schwarz	
Model	A1 System	Audiograph 33375	TT402A	VP-7722P	SUN-2 system	UPA analyzer
AC voltage range	10µV-200V	10µV-200V	30µV-100V	0.316mB-100V±2%	Yes	10µV-300V unbal
Audio noise range	-111dBu residual	Yes	<-106dB min	0-130dB SNR	Yes	0-120dB SNR
Signal generator range	Yes	Yes	Yes	10-110k	SUN-2/S 10-100k	UPA-B6 opt 10-100k
Generator output	<0.2Ω bal	Bal	Bal	BNC floating	Telco jack	Bal
Frequency counter range	...	Yes	Yes	Yes	...	8-250k
Meters-displays	LCD	LCD	Multi-LED	VU	7-seg LEDs	LED displays
Reader Service No	993	1134	1135	1136	1137	1138

⁵3302 mainframe is required for operation.

Manufacturer	Schmid Telecom-munications	Sound Technology			Tektronix	
Model	SIAT SZ 346/3166	1510A ⁷	1530A analyzer	3200B/3100B ⁹	AA5001	AA501
Auto level set	Yes	Yes	Yes	Yes	Yes	Yes
Auto null set	Yes	Yes	Yes	Yes	Yes	Yes
µP-control	Yes	Yes	Yes	Yes	Yes	Yes
Auto ranging	Yes	Yes	Yes	Yes	Yes	No
X-Y display output	...	Yes	Yes	Opt	Yes	No
Printer-plotter output	Thermal printer	Yes	Yes	Yes	Yes	No
Automation bus port	RS-232	Opt	Opt	Yes	Yes	No
Audio recorder tests	Possible	Yes	No	Yes	No	No
Transmit-receiver units	Xmt 316/Rcv 346	Yes	Opt	Yes	No	No
Portable unit	Yes	Yes	Yes	Yes	No	No
AF range (fundamentals)	30Hz-20kHz	20-40kHz	20-40kHz	1-102.39kHz	10-100kHz	10-100kHz
Range (on harmonics)	...	315Hz-1kHz	100Hz-5kHz	10Hz-300kHz	to 300kHz	to 300kHz
Input level range	-44dBm/+21dBm	100µV-30V	100µV-40V RMS	10mV-100V	60mV-200V 100kΩ	60mV-200V 100kΩ
Input impedance	600/10kΩ	100kΩ	100kΩ	100kΩ	100kΩ	100kΩ
Input connection	2 bal	AB	AB	...	AB	AB
Fundamental rejection	...	...	...	...	10dB ¹⁰	10dB ¹⁰
THD minimum	>0.1%	0.05%	0.05% ⁸	0.001%	0.0025%	0.0025%
THD accuracy	...	5%	5%	10%	±10%	±10%
IMD measurements per	Opt SMPTE	...	SMPTE	SMPTE	CCIF/DIN/SMPTE	CCIF/DIN/SMPTE

THE NEW **MASTERKEY** SERIES FROM **bvs**

Flawless LINEAR KEYS of anti-aliased DVE's and CG's. Halos, comet tails, air brushed edges and sparkles are no longer a keying problem.



FOUR MODELS WITH FEATURES AND CONTROL SYSTEMS FOR EVERY APPLICATION.

- Downstream or stand alone
 - Frame accurate mix to key, fade to black
 - Serial remote control
 - GPI interface
 - Key source input switcher
 - Processed black
 - Key set memory
 - Preview output
 - Internal key area masking

broadcast video systems ltd.

40 West Wilmot St., Richmond Hill, Ontario L4B 1H8
Telephone: (416) 764-1584 Fax: (416) 764-7438

Circle (103) on Reply Card

CAMERA TUBES
(800) 346-6667
In CA: (213) 774-1255
DAILY ELECTRONICS CORP.
Master Tube Distributor

Circle (104) on Reply Card

Free Catalog & Audio/Video Applications
Mic, EQ, Line, Tape, Phono, Osc, Trans., Video, ACH, Pwr. Supp.

Routing Switchers (S-T-A/V) (24, 16, 12, 8, 4, 2 stations)

Press Boxes
1-in/16-out
Video/Audio
2-In/24-out Audio

Video & Audio Dist. Amps.
RGB-Sync Dist. Amps.

OPAMP LABS INC (213) 934-3566
1-333 N Sycamore Av LOS ANGELES CA, 90038

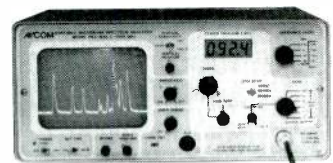
Circle (105) on Reply Card

AVCOM's New PSA-65A Portable Spectrum Analyzer

The newest in the line of rugged spectrum analyzers from AVCOM offers amazing performance for only \$2,855.

AVCOM'S new PSA-65A is the first low cost general purpose portable spectrum analyzer that's loaded with features. It's small, accurate, battery operated, has a wide frequency coverage - a must for every technician's bench. Great for field use too.

The PSA-65A covers frequencies thru 1000 MHz in one sweep with a sensitivity greater than -95dBm at narrow spans. The PSA-65A is ideally suited for 2-way radio, cellular, cable, LAN, surveillance, educational, production and R&D work. Options include frequency extenders to enable the PSA-65A to be used at SAT-COM and higher frequencies, audio demod for monitoring, log periodic antennas, 10kHz filter for .2 MHz/DIV range, carrying case (AVSAC), and more. For more information, write, FAX or phone.



AVCOM BRINGING HIGH TECHNOLOGY DOWN TO EARTH

500 SOUTHLAKE BOULEVARD
RICHMOND, VIRGINIA 23236; 804-794-2500
FAX: 804-794-8284, TLX: 701-545

Circle (102) on Reply Card

Audio Distortion Analyzers

Manufacturer	Schmid Telecom-munications	Sound Technology	Tektronix
Model	SIAT SZ 346/316 ⁶	1510A ⁷	1530A analyzer, 3200B/3100B ⁹ , AA5001, AA501
IMD accuracy	...	...	5%, 1.0%, 0.002%, ±10%, ±10%
IMD minimum	...	...	0.1%, 0.002%, 0.0018%, 0.0018%
AC voltage range	-70dBm/+21dBm	300μV-40V	100μV-40V, 30μV-100V
Audio noise range	-70dBm/+1dBm	-92/-10dBV	-92/-10dBV, <4μV
Signal generator range	Yes	-80,+30dBm	-80/+30dBm, -90/+30dBm
Generator output	Bal<5/600Ω	AB	AB, 28dBm Bal, 28dBm Bal
Frequency counter range	...	20Hz-40kHz	20Hz-40kHz, 10Hz-500kHz
Meters-displays	LEDs	CRT	CRT, LED
Reader Service No	1139	1140	1141, 1142, 1143, 1144

⁶SIAT "Short Interval Audio Testing" is a signal generator and receiver for operation of wired or radio links; complete set of measurements made within 5-sec interval. ⁷Audio signal and recording test system; measures 2nd, 3rd harmonics separately. ⁸Measures 2nd, 3rd harmonics separately. Includes precision 10.396Hz for Bessel Null adjustment. ⁹Two-unit package for programmable transmission path tests; transmission package is 3100B programmable generator with LED metering displays. ¹⁰Value is below specified residual THD & noise or actual THD, whichever is greater.

CD Players

Manufacturer	Barco EMT	Denon America	Panasonic Pro Audio	Pioneer	
Model	EMT 980	EMT 981	DN-950FA	SL-4300, SL-4700	PD-4300/4350
Configuration	Single player	Single	Single player	Single	6-disc cap., Single player
Player trays	...	...	1	1	1
Programmable events	None	4-event	None	20-event	36 event
Output connection	Balanced	Balanced	Balanced	Unb	UN
Output level	+6dB	+6dB	+4dB	-10dBu	-10dB
Digital output	No	Yes 44.1kHz	No	No	No
Digital resolution	16-bit	16-bit	16-bit	16-bit	16-bit
Oversampling factor	x2	x4	x4	x4	x4
AF response ±dB Hz-kHz	±0.5 20-19.8k	±0.2dB 40-20k	20Hz-20kHz	±0.5 2Hz-20kHz	±0.5 2Hz-20kHz
Distortion	0.03%	0.04%	<0.01%	0.003%	0.003%
Dynamic range	90dB	98dB	92dB A wtd	94dB	94dB
Crosstalk (worst case)	-60dB	<-75dB	...	...	...
S/N ratio	+94dB RMS	+105dB RMS	92dB	96dB	96dB
Access time (worst)	4s	3.5s	3s	...	...
Reader Service No	401	402	403	404	405, 406

Manufacturer	Pioneer	Studer Revox	TASCAM
Model	PD-7300 (6300)	A727, A730	CD 401/501, CD 701
Configuration	Single player	Single	Single player
Player trays	1	1	1
Programmable events	Yes	No ¹	3-event ¹
Output connection	Unbal	Bal/UB <50Ω	Bal/UB <50Ω
Output level	2.0V	+15dBm	15dBm
Digital output	Optical & (coaxial)	Yes	Yes
Digital resolution	18-bit	16-bit	16-bit
Oversampling factor	x8	x4	x4
AF response ±dB Hz-kHz	±0.5 4-20k	±0.1 20-20k	±0.1 20-20k
Distortion	0.0025% (0.0035%)	0.006%	<0.006%
Dynamic range	98dB	>100dB	>100dB
Crosstalk (worst case)	106dB separation	<-90dB	<-90dB
S/N ratio	110dB (104dB)	>100dB	>100dB
Access time (worst)	...	<3s	<3s
Reader Service No	408	409	410, 411, 412

¹A729 CDS series controller may be used with 4 A727 or A730 units for multiple event program.

Intercom Systems, Matrix

Manufacturer	Audio Visual Systemes	Clear-Com Inter-com Systems	Heikki Malkki Ltd	HM Electronics	McCurdy Radio Industries
Model	S70 (\$69)	Matrix Plus	00DS-Intercom	RP753 station, RP755 station	CS9400+, CS9500
Matrix size range	12 (8-16) sets	50x50	11x11-100x100	6x12	2x2-25x40
# of stations standard	12 max (16 max)	2 expand to 50	30 expand to 300	64 w/call, 200 w/o	expand >640x640
Status display	None	LCD panel	LEDs	Switch position	CRT, LEDs
Party line function	No	Yes	Yes	Yes	80 lines
Programmable grouping	No	Yes	Yes	Yes	48 lists
Configuration storage	No	Yes	Yes	No	HD, bus cflrs
Simultaneous conversations	12 (16)	25	110-9000	6	Unlimited
System control	...	μP, PC/compatible	μP, PC, terminal	Manual	HP 9000 #310 32-bit
Station priority	Yes	Yes	Not needed	No	3-level
Station selection	Keyboard	Keypad, keyboard	Keypad/station	Y-Y button	Y-Y/k.pad/kboard

Manufacturer	Audio Visual Systemes	Clear-Com Intercom Systems	Heikki Malkki Ltd	HM Electronics		McCurdy Radio Industries	
Model	S70 (\$69)	Matrix Plus	ODDS-Intercom	RP753 station	RP755 station	CS9400+	CS9500
Channel selection	4-wire	Star, twisted pair	Star shielded pair	wire/channel, shield	wire/channel, shield	4-wire, star, 3 pair	4-wire, star, 3 pair
Wiring (matrix)	...	2-/4-wire	Star shielded pair	ed pair	ed pair	per station	per station
Wiring (party line)	...	Wire/channel Daisy chain Star Shld 2-w	Star shielded pair	Daisy chain, shielded pair	Daisy chain, shielded pair	...	...
Wiring (control)	...	Star	Star shielded pair	...	...	...	...
	...	twisted pair 2-wire	...	...	...	...	...
Voice processing	Analog	Analog & digital	Analog	Analog	Analog	Analog & digital	Analog & digital
Camera interface	Indirect	Direct/indirect	indirect	Indirect	Indirect	Direct 4-wire	Direct 4-wire ¹
Wireless interface	...	Direct/indirect	Direct	Indirect	Indirect	Direct	Direct
Telco interface	...	Direct/indirect	Direct	Direct	Direct	Option	Option
IFB interface	...	Direct/indirect	Direct	Indirect	Indirect	80 circuits	24 circuits
2-way radio interface	No	Option	Yes	Yes	Yes	48 w/TX ctl lines	8 w/TX ctl lines
Program audio	No	Yes	Not needed	No	No	Yes	Yes
Call waiting	No	Yes	Option	No	No	Yes	Yes
Caller tally	...	...	...	...	...	-wired user stations	-Wired user stations
Reader Service No	416	417	418	419	420	421	422

¹Controlled 16-camera ISO optional.

Manufacturer	PESA	Philip Drake Electronics		RTS Systems		Ward-Beck Systems	
Model	TB-8000 series	PD 6000 series	PD 8000 series	810-AA (810)	848A	MicroCom II	MiniCOM
Matrix size range	8x8-64x64	16x16-128x128	4x4-24x24	2x2-1Cx10	2x2-24x24	48x48-960x960	24x36
# of stations standard	Multiples of 8	16 expand to 128	4 expand to 12	2 expand to 10	2 expand to 24	960 max	24 max
Status display	LEDs on panel	LEDs, LCD panel	LEDs	Lighted button	VDT	CRT dot matrix	CRT dot matrix
Party line function	Yes	Yes	Yes	No	Yes	Option	Option
Programmable grouping	Yes	Yes	Yes	No	Yes	Yes	Yes
Configuration storage	Yes	Yes	No	No	Yes	Yes	Yes
Simultaneous conversations	Multiple	As # of stations	Per # of stations	5	14	1/2 matrix inputs	12
System control	Multi-μP, PC	μP PC/compatible	Pin-patch program	...	μP, PC, modem	Integral μP ²	μP, PC/compatible

SOCIETY OF
MOTION
PICTURE &
TELEVISION
ENGINEERS

JOIN
PARTICIPATE
913-761-1100

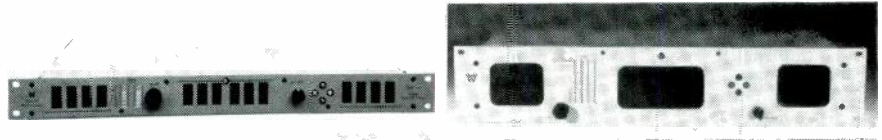
PHASE REVERSAL REVEALED

1 R.U. STEREO AUDIO MONITOR

2 R.U. STEREO AUDIO MONITOR

AMP-1A shown with optional level meters and phase indicator

AMP-2 includes phase indicator and extended-range level meters



The AMP series Ultra Near Field powered audio monitors provide high fidelity "confidence monitoring." yet occupy minimal rackspace in the critical operating zone of video equipment bays. Their tightly focused soundfield also reduces annoying adjacent-bay acoustic crosstalk. And compared to bracket-mount types, they provide much clearer audible alert of out-of-phase feeds. A unique LED phase indicator is available which clearly shows dynamic channel separation and phase at a glance-- with NO mode switching! Wide variety of special options (e.g. input switching) available to suit any application.

Experience this new monitoring at SMPTE booth 1856 or SBE booth 922 or contact:



Wohler Technologies, Inc.
1349 Kansas St. San Francisco 94107
(415) 285-5462 FAX: (415) 821-6414

Circle (107) on Reply Card

TIME AND DATE ON YOUR MONITOR



- MICROPROCESSOR CLOCK
 - M/D/Y OR JULIAN CALENDAR
 - 12 OR 24 HR. FORMAT
 - VARIABLE SIZE
 - POSITION ANYWHERE
 - INSERTS 3 VIDEO SOURCES
 - UP/DN TIMER MODE
- ES206A \$550**

A MODIFIED 206A CAN READ ESE MASTER CLOCK TIME AND INSERT IT IN THE VIDEO

ES2559 \$745

DON'T HAVE A MONITOR?
ES280 - 10 DIGITS \$578
DAYS/HR/MIN/TENTHS — PUTS CODE ON AUDIO TAPE READS IT BACK. GREAT FOR LOGGING!



PRACTICAL SOLUTIONS FOR 19 YEARS 142 SIERRA ST. • EL SEGUNDO • CA 90245 • (213) 322-2136

Circle (106) on Reply Card

Manufacturer	PESA	Philip Drake Electronics		RTS Systems		Ward-Beck Systems	
Model	TB-8000 series	PD 6000 series	PD 8000 series	810-AA (810)	848A	MicroCom II	MiniCOM
Station priority	Panel switch	Keypad, X-Y	X-Y buttons	X-Y button	...	Keyboard, keypad	Keyboard, keypad
Station selection	Panel switch	Keypad, X-Y button	X-Y buttons	X-Y button	...	Keypad	Keypad
Channel selection	Ribbon cable	Star,,twisted pair,, Wire/channel twisted	Wire/channel twisted	Wire/channel twisted	4-wire	4-wire	
Wiring (matrix)			4-wire	pair, 4-wire	pair	pair	
	...	Star,,twisted pair,, Wire/channel twisted	...	Wire/channel	Shielded pair	Shielded pair	
Wiring (party line)			pair	4-wire	...	shielded pair	...
	Ribbon cable	Star, twisted pair, Wire/channel twisted	...	Shielded pair	2-wire	Shielded pair	
Wiring (control)	...	4-wire	pair	...	...	...	...
Voice processing	Adapter	Direct	Direct	Indirect	Indirect	Direct	indirect
Camera interface	Adapter	Direct	Direct	Indirect	Indirect	Direct	Direct
Wireless interface	Adapter	Indirect	Indirect	Indirect	Indirect	Direct	Direct
Telco interface	Adapter	Direct	Direct	Indirect	Indirect	Direct/indirect	Direct/indirect
IFB interface	Adapter	Direct	Direct	Indirect	Indirect	Direct	Direct
2-way radio interface	Adapter	Yes	Yes	No	No	Option	Yes
Program audio	...	Yes	No	No	Yes	Yes	Yes
Call waiting	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Reader Service No	423	424	425	426	427	428	429

²System is PC/compatible.

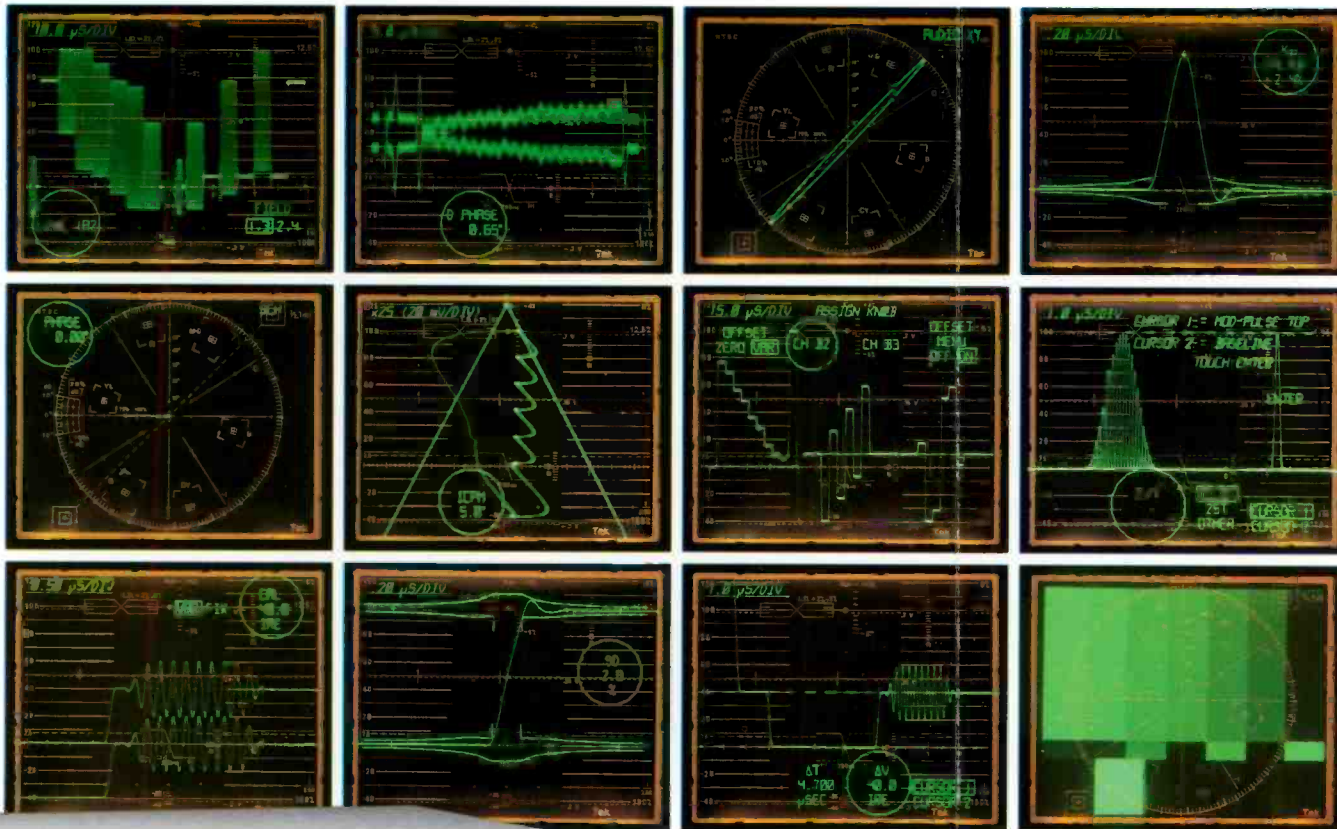
Intercom Systems, Party Line/Conference

Manufacturer	Clear-Com	HM Electronics		Philip Drake	RTS Systems	
Model	Party line series	RP733 (RP735 ²)	RP743 power station	PD 5001	802	810-CL/810-5CTL
Communications line	3-wire shielded Unba	3-wire unbalanced	3-wire unbalanced	4-wire balanced	2-/4-wire balanced	2-wire balanced
Maximum cable length	1 mile	...	...	500 ft	5000 ft	5000 ft
# of stations maximum	100	32 w/call (100 w/o)	64 w/call (200 w/o)	12	30	30
# of channels	Unlimited	2	4	12	12	10
Full duplex capability	Yes	Yes	Yes	Yes	Yes	Yes
AF response HzkHz	100Hz-12kHz	120-12k	120-12k	50Hz-8kHz	100Hz-10kHz	100Hz-10kHz
Variable sidetone	Yes	Yes	Yes	...	Yes	Yes
Visual signalling	dc powered	dc powered	dc powered	Yes	ac powered	No
State-stage announce	Yes	No	No	Option	Yes	Yes
Selectable program feed	Yes	Yes	Yes	No	Yes	No
Microphone type	Dynamic ¹	Dynamic/electret	Dynamic/electret	Dynamic	Carbon/dynamic	Carbon/cynamic
Remote mic mute	Yes	No	No	No	Yes	Yes
Mic control	PTT/footxch/latch	Latch	Latch	PTT, latch	PTT/latch/footxch	PTT/latch/footxch
Volume control	Conf line/Pgm	Program	Program	Conference line	Conf line/Pgm	Conference line
Camera interface	Option	No	No	Option	Option	No
IFB cue interface	Option	No	No	Yes	Option	No
Telco interface	Option	No	No	Option	Option	No
Wireless interface	Option	No	No	Yes	Option	No
2-way radio interface	Option	No	No	Option	Yes	No
Speaker stations	Yes	Yes	Yes	Yes	Yes	Option
Belt packs	1-/2-channel	1-/2-channel	1-/2-channel	2-channel	...	...
Belt pack weight	0.5 lb	0.69 lbs	0.69 lbs	1 lb	...	...
Reader Service No	431	432	433	434	435	436

¹Electret and carbon options. ²RP735 includes a speaker in the power station.

Manufacturer	RTS Systems			Telex Communications	Ward-Beck Systems
Model	824	Series 17	TW Intercom	IC-2 MAX (BP-1/BP-2)	M8220/PH-2
Communications line	2-wire balanced	2-/3-wire shielded unbalanced	2-wire unbalanced	2-wire, shielded balanced	2-wire, shielded unbalanced
Maximum cable length	5000 ft	500 ft	5000 ft	5280 ft	1000 ft
# of stations maximum	50	30	75	50	15
# of channels	24	1	...	...	2
Full duplex capability	Yes	Yes	Yes	Yes	Yes
AF response HzkHz	100Hz-10kHz	100Hz-10kHz	100Hz-10kHz	200Hz-20kHz	250Hz-5kHz
Variable sidetone	Yes	Yes	Yes	BP-1/BP-2 units	Yes
Visual signalling	No	No	ac powered	ac powered	No
State-stage announce	No	No	Yes	Yes	Yes
Selectable program feed	No	No	Yes	...	No
Microphone type	Carbon/dynamic	Dynamic	Carbon/dynamic	Dynamic/electret	Dynamic
Remote mic mute	No	No	Yes	Yes	No
Mic control	PTT/Latch/footxch	Latch	PTT/latch/footxch	Latch	...
Volume control	Conference line	Conference line	Conf line/Pgm	...	Conf line/Pgm
Camera interface	No	Option	Yes	No	Yes
IFB cue interface	No	No	Yes	No	Yes
Telco interface	Option	Option	Yes	No	Yes
Wireless interface	Option	Option	Yes	No	No
2-way radio interface	Option	Option	Yes	No	No
Speaker stations	Yes	No	Yes	Option	Option
Belt packs	...	1-channel	1-/2-channel	1-/2-channel	2-channel
Belt pack weight	...	0.25 lb	0.75 lb	1 lb	3 lbs
Reader Service No	437	438	439	440	441

The Tek 1780R: We don't mind if you judge by appearances.



Even at first glance, you can see that the Tek 1780R is in a class by itself. Only the 1780R offers full-bandwidth analog measurement capabilities with separate, complementary waveform and vector displays. Component and composite capabilities are provided through four video inputs and a front-panel probe

Nobody's watching closer.

input. You get polar SCH presentation, precision differential gain and phase displays required to test modern television systems, and more. All made easy enough for even first-time operators.

But enough said. Ask your nearest Tektronix representative for a demonstration of the 1780R: by all appearances, the most advanced analog video measurement set you can buy!

Tektronix
COMMITTED TO EXCELLENCE

TRANSMITTER/TEST & MEASURING SPECS

If you thought they were just for HDTV,



think again:

Sure, our TSG 1000 Series Television Generators support the major proposed HDTV standards. But they're good for a lot more than high definition.

The fully programmable TSG 1001 and companion SDP 1000 Signal Development Program, for example, support signal generation in NTSC, Betacam®, MII and HDTV formats. With the PC-based SDP 1000, signals can be defined in arbitrary line and field rates.

FORMAT	TSG 1001	TSG 1050	TSG 1125	TSG 1250
525/59.94/2:1	•	•		
525/59.94/1:1	•	•		
787/59.94/1:1	•			
1050/59.94/2:1	•	•		
1050/59.94/1:1	•	•		
1125/60/2:1	•		•	
625/50/2:1	•			•
625/50/1:1	•			•
1250/50/2:1	•			•
1250/50/1:1	•			•
GBR	•	•	•	•
Y. PB, PR	•	•	•	•
Analog	•	•	•	•
Parallel Digital	•	•	•	•

The TSG 1050, TSG 1125 and TSG 1250 generate signals in HDTV as well as lower line rate interlaced formats.* With an optional RAM or PROM board and the SDP 1000, signals can be generated in a wide range of line and field rates. Plus, a programmable zone plate generator is included in the TSG 1001 and is available as an option with the rest of the family.

All in all, once you get the full story from your nearest Tek representative, we think you *will* think again about looking anywhere else!

*TSG 1125 excepted.

RF Transmission & Test/measurement equipment

AM/SW Radio Transmitters

These transmitters use amplitude modulation for standard broadcast (550-1650kHz) or international shortwave (3-30MHz) frequencies. Models with tube-type IPAs are noted with a dagger (†); Units with a separate power supply are indicated with a double dagger (‡). Auto recycling is standard on models rated greater than 1kW. A 50Ω monitor port is available on all systems.

Manufacturer	CCA Electronics				Continental Electronics			
	Model	AM-25000 FHF†	AM10000F ¹	315-R1‡	316F-1	317C-3‡	419F-2 ² ‡	420B ⁴ †‡
Band of service	1.5-10MHz	0.5-22MHz	Broadcast			Shortwave	Shortwave/SSB	
RF output	25kW	10kW	5kW	10kW	50kW	250kW ³	500kW	
RF output connection	...	...	1½"	1½"	3½"	75W/300Ω	9" 75Ω/300Ω	
Carrier stability	±10Hz	5Hz	±5Hz			±1x10 ⁻⁶ Hz		
Carrier shift	...	3%	2%	<2% 10W mod	<2%	...	<5%	
Modulation maximum	100% 125% pk	125%	125%			100%		
Audio input connection	Bal 600Ω	600Ω	Act bal			600Ω	Bal/Unbal	
Audio response (dB Hz)	1 50-10k	1.5 50-10k	±1 20-7.5k	1.5 10-15k	±0.5 20-7.5k	±1 50-7.5k		
Audio distortion	≤3%	95%	<3% 95% mod	<2% 100%	<3% 100% 50-10k	<2% 100%	<3% 95%	
AM noise figure	60dB	55dB	<-60dB unwt'd			<-55dB residual	<-55dB unwt'd	
Final amplifier	4CX20000A	4CX15000A	3CX3000F7	4CX15000A	4CX35000C	4CV250000C	4CV250000B	
Modulator final	4CX5000A		3CX3000F7	Solid-state	3CX3000A	3CW20000A7	2-4CV250000B	
Input AC power	220-440V 3φ	208-380V 3φ	208-250Vac 3φ			460 3φ	4160Vac 3φ	
Power consumption	53kW 95% mod	...	12.8kVA	28.4kW	118kVA	568kW	1075kVA	
Power factor	>0.9 min	...	0.95	0.93	0.95	>0.95	0.9	
System efficiency	...	...	>55%	53%	60%	65-70%	60%	
Stereo capable	...	...	Yes			No		
Fault logic	...	Relay	Relay			Relay	μP system	
Fault diagnosis	...	No	No			No		
Floor space used (in.)	...	76x34	35x34	67x26	144x54	400x72	42m ²	
Reader Service No	1400	1401	1402	1403	1404	1405	1406	

¹ Models available at 5kW and 15kW. ² 418D-2 rated 100kW has similar characteristics. ³ In SSB option, output power is 500kW PEP. ⁴ 3CW20000A7 with solid-state driver stage as IPA.

Manufacturer	Continental Electronics	Harris Broadcast		ITAME	LPB Inc	Marconi Comm.	
	Model	XL-301 (-310)	DX-50 ⁵	Gates Five ⁶	SX-5A ⁷	TAURO S 10 ⁸ †	AM-100P ⁹
Band of service	Broadcast	Broadcast			Broadcast	Broadcast	Broadcast
RF output	1kW (10kW)	50kW	500-5.6kW	5.6kW	10kW	100W	1kW
RF output connection	N (1½")	3½ 50Ω	7/8"	7/8" 50Ω	1½"	S0-239 UHF 50Ω	6½" 50Ω
Carrier stability	±5Hz	±2Hz typical	±4Hz	±10Hz PLL	±5Hz	±10Hz	±10Hz
Carrier shift	0.5% (2%)	<1%	...	<2% 100%	<3%	<2%	<5%
Modulation maximum	125%	145% 50kW	130% peak	125%	125% PDM	+125%	100%
Audio input connection	Act bal	600Ω bal			Bal 600Ω	600Ω	Bal 600Ω
Audio response (dB Hz)	±1 20-12k	-0.9, 1 30-10k	±0.5 20-10k	-1.5, 5 20-12.5k	±1 20-10k	±1.0 20-15k	±2 40-10k
Audio distortion	<2% 100%	≤1% 95% mod	<0.8% 95% mod	<1% 95%	<2% 99%	<2%	95% mod
AM noise figure	<-60dB unwt'd	65dB	>60dB		60dB	-55dB	-50dB
Final amplifier	MOSFET modules	MOSFET			3CX10000A7	Solid-state	Solid-state
Modulator final	Solid-state	AM digital	Polyphase PDM		4CX15000A	Solid-state	Solid-state
Input AC power	220Vac 1φ (3φ)	220Vac 3φ		240Vac 3φ	220/380Vac	117Vac 3φ	230Vac 3φ
Power consumption	2.6kW (17kW)	59kW	7.7kW	11.6kW	11kW	400W	3.5kVA
Power factor	...	0.98	...	...	...	0.9	0.9
System efficiency	>57% (75%)	85%	65%	>65%	40%	25%	48%
Stereo capable	Yes	Yes			Yes	Yes	No
Fault logic	Digital	Relay	Solid-state	Relay	μP	Solid-state	relay
Fault diagnosis	Option	Yes	"ColorStat"	μP	Yes	No	Yes
Floor space used (in.)	22x26	120x33	28x30	28x30	45x37	Wall-mount	32x22
Reader Service No	1407	1408	1409	1410	1411	1412	1413

⁵ Similar models using digital modulation include: DX-25U at 25kW, DX-10 at 10kW, DX-100 at 100kW. ⁶ Gates One 1kW; Gates Two 2.5kW. ⁷ Model SX-2.5A at 2.5kW; SW-1A at 1kW. ⁸ Systems available at 7kW, 5kW and 2kW available featuring similar characteristics. ⁹ Units rated at 5W through 60W available.

Manufacturer	Marconi Communications				Nautek			
	Model	B6034 ¹⁰	B6040†	B6126 (6127)	B6140 series ¹¹	AMPFET ND 10 (5)	AMPFET ND1	AMPFET ND50 (25)
Band of service	Broadcast			Shortwave		Broadcast		
RF output	50kW ¹⁰	5W/10kW	300kW (500kW)	3kW	10kW (5kW)	1kW	50kW (25kW)	
RF output connection	50Ω/300Ω	50Ω unbal	50Ω/300Ω	50Ω unbal	1½± 50Ω	50Ω UB 7/8	3½± 50Ω	
Carrier stability	<1 ppm/year	±10Hz	<1 ppm/year		±5Hz			
Carrier shift	<2.5%	<5%	<2.5%	...	<1%			
Modulation maximum	125%	100%	100%		125% at 10kW	125% PDM	125% at 50kW	
Audio input connection	Bal 600Ω		Bal 600Ω		Bal 600Ω			
Audio response (dB Hz)	±1 50-6k	±1 50-6k	±1 50-6k	-2, +* 60-6k	±0.5 30-10k			
Audio distortion	4% 90% mod	3% 90% mod	4%	90% mod	2.5% 90%	<1% 95% mod	<1% 95% mod	
AM noise figure	<-56dB	-55dB	<-56dB	-55dB	60dB			
Final amplifier	Tetrad	2 4CX5000A	TH 537 (TH 558)	Power tetrad	Modular Solid-state			

Manufacturer	Marconi Communications				Nautel		
Model	B6034 ¹⁰	B6040†	B6126 (6127)	B6140 series ¹¹	AMPFET ND 10 (5)	AMPFET ND1	AMPFET ND50 (25)
Modulator final	Tetrode	Solid-state	TH 555 (TH 581)	Solid-state	IRF 140	IRF 130	TRF 130
Input AC power	230Vac 2φ	380/415Vac 3φ	11kVac 3φ	110-440Vac 3φ	208Vac 3φ	240Vac 1φ	480Vac 3φ
Power consumption	...	30kVA	429kW (...)	...	20kVA	2.14kVA	100kVA
Power factor	...	...	0.9	...	0.98	0.82	0.98
System efficiency	...	...	64%	...	75%	>70%	75%
Stereo capable	Yes	...	No	...	...	Yes	...
Fault logic	Solid-state	Relay	...	Solid-state	Relay	MOS TTL/Relay	Solid-state
Fault diagnosis	...	...	Yes	...	...	...	Yes
Floor space used (in.)	3.65x1.54m ²	65x33	72(85)m ²	59x28 (118x40)	48x24	23x24	159x24
Reader Service No	1414	1415	1416	1417	1418	1419	1420

¹⁰B6035 rated 100kW, B6036 rated 150kW and B6037 rated 200kW are combinations of the B6034 system. ¹¹B6140 rated 3kW; B6141 rated 7.5kW; B6142 rated 12.5kW

Manufacturer	Nautel	Radio Systems	RF Dynamics	TELEFUNKEN Sendertechnik	
Model	AMPFET P400	TR-20	A-710	S4005 ^{12†}	S4006 ^{13†}
Band of service	Broadcast	Broadcast (LP)	0.1-10MHz	Shortwave	Broadcast/MW
RF output	0.4kW	20W	10kW	500kW	600kW
RF output connection	Type N 50Ω	50Ω	UHF SO-239; ...	50Ω 100/230	50Ω 66/152
Carrier stability	±5Hz	±0.002%	±10Hz	...	0.5x10 ⁶ Hz/yr
Carrier shift	<1%	2%	...	...	≤3%, 1kHz
Modulation maximum	125%	100%	100% 125% pk	...	100%
Audio input connection	600Ω bal	Bal 600Ω	Bal 600Ω	...	600Ω Bal
Audio response (dB Hz)	±0.5 30-10k	1 20-15k	1 50-10k	...	±1 40-4.5kHz
Audio distortion	1% 95% mod	2% 99% mod	2%	≤3% 80% mod	≤2% 80% mod
AM noise figure	60dB	-60dB	55dB	...	>55dB unwt'd
Final amplifier	TRF 140	Solid-state	4CX5000A	...	TH558
Modulator final	TRF 130	Solid-state	4CX5000A	...	TH558
Input AC power	115Vac	100Vac 1φ	220-440V 3φ	...	400V
Power consumption	0.92kVA	0.1kVA	22kW 95% mod	1103kVA	1253kVA
Power factor	0.8	...	>0.9 min	...	>0.9
System efficiency	65%	27%	...	68%	73%
Stereo capable	Yes	Yes	...	...	No
Fault logic	Solid-state	...	Relay; TTL	...	Solid-state
Fault diagnosis	Yes	No	...	...	Yes
Floor space used (in.)	10.75± in rack	Wall-mount	76x34	...	5.5x5.6m
Reader Service No	1421	1422	1423	1424	1425

^{12, 13}Models S4004, S4003 rated 300kW; S4002, S4001 rated 100kW; TH 573 and TH-555 devices are used; all models use PDM/PANTEL modulation and DAM volume-dependent carrier control for improved efficiency.

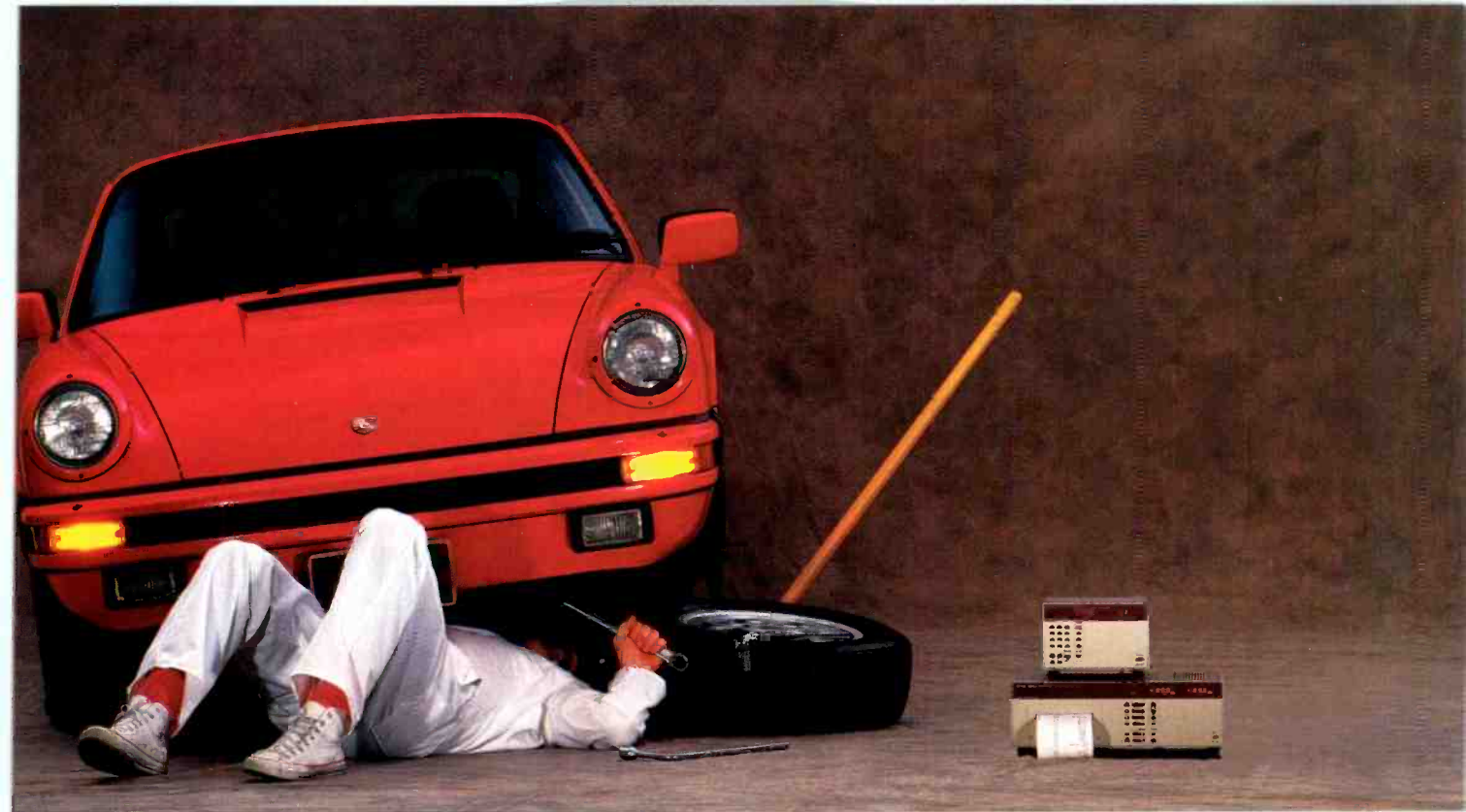
FM Exciters & LPFM Transmitters

These units are all designed for 87.5-108MHz operation, each using direct carrier frequency modulation. LPFM units included in this list are those transmitters rated at less than 1kW output.

Manufacturer	BEXT		Broadcast Electronics	C.T.E. Int'l	CCA Electronics	Continental Electronics	Harris Broadcast	ITAME
Model	PTX30 (TEX20)	PTX80	FX-50	S20	FM 20G	802A ²	THE-1	Europa series
Power output range	2-30W	5-80W	3-50W	30W	5-20W	5-50W	3-15W; 3-55W	100-600W
Output connector; Z	50Ω N	50Ω N	50Ω BNC	50Ω type N	50Ω Type N	BNC 50Ω	BNC 50Ω	50Ω Type N
Carrier stability Hz	±500Hz	±500Hz	±300Hz	<0.5ppm var	±500Hz	±250Hz	±300Hz	10ppm
Modulation capability	>75kHz	>75kHz	±350kHz	>±75kHz	±150kHz	±200kHz	±200kHz	>±75kHz
Asynchronous S/N	65dB	...	80dB	>66dB	>60dB	73dB	73dB	>65dB
Synchronous S/N	55dB	...	60dB	>66dB	>55dB	65dB	55dB	>65dB
Composite input Z	10kΩ	5kΩ	10kΩ/50Ω	10kΩ	...	5kΩ B/Ub	2kΩ	1kΩ unbal
Composite input level	2.2Vp-p	3.5Vp-p	3.5Vp-p	1Vp-p	...	1.25VRMS	1Vrms	3.5Vp-p
Composite THD	<0.05% (<0.1)	...	≤0.005%	<0.4%	<0.25%	0.08%	0.08%	<0.5% 30-15k
Composite IMD	<0.05%	...	≤0.005%	...	...	0.08%	0.02%	...
Composite response	30-100k ¹	...	±0.025%	...	±1dB 50-100k	±0.1 20-100k	±0.1 30-53k	±0.5 40-15k
Phase response	...	...	±0.1°	...	...	±0.5°	-1, +0.5°	...
Composite group delay	...	...	125ns	...	...	±25ns	...	...
Stereo separation	>45dB (>40)	>40dB	52dB to 15kHz	>45dB	...	50dB	to 50dB	55dB
SCA inputs	3	...	3 unbal BNC	...	...	Two	Bal	...
SCA input Z	10kΩ	...	100kΩ	...	...	15kΩ	600Ω	...
SCA inputs level	2.2Vp-p	...	3.5Vp-p	...	...	1.25V RMS	10dBm	...
Amplitude response	40k-100k ¹	...	±0.2dB	...	...	40k-100k	±0.5 30-15k	...
Stereo generator	Ext.	TDSS2 opt	FS-30	CS/300; COD250	Available	External	Option	Integral
SCA generator	Ext.	...	FC-30	...	Available	External	Option	...
Reader Service No	1477	1478	1479	1480	1481	1482	1483	1484

¹0.8dB for same frequency range for TEX20 unit. ²Model 813A rated 500W LPFM using 802 exciter.

Manufacturer	ITAME	Itelco	QEI Corporation		Rohde & Schwarz		Rood Megatronics	
Model	FM90D ³	T 241	#695	BBT500	Model 675 ⁴	SU115	SU155R2	FM-200
Power output range	5-25W	25W	5-20W	600W LPFM	5-20W	10W	50W	2V into 50Ω
Output connector; Z	50Ω Type N	Type N 50Ω	50Ω Type N	50Ω	BNC 50Ω	BNC 50Ω	BNC 50Ω	50Ω
Carrier stability Hz	±250Hz	±100Hz	±200Hz	±200Hz	±300Hz	...	±1kHz	±300Hz TCXO
Modulation capability	±200kHz	>±75kHz	100%	150kHz pk dev	150kHz pk	>±75kHz	>±75kHz	±200kHz
Asynchronous S/N	>65dB	>60dB	>55dB	>60dB	>55dB	≥56dB	≥56dB	...
Synchronous S/N	>65dB	>52dB	>55dB	>60dB	>55dB	...	...	...
Composite input Z	>1kΩ unbal BNC	Bal 600/5kΩ	10kΩ	10kΩ	10kΩ	>3kΩ	>3kΩ	Bal/Unbal 22kΩ



Out of Service.

In Service.

Unfortunately, our Porsche Targa Carrera is in for a pit stop. Seems there's an annoying noise in the front end. *Pity.*

Meanwhile, the incredible Schmid SIAT is still going strong. In fact, this fully automated marvel is fast enough to conduct complete audio tests in under 5 seconds. Which means you can now measure audio network quality *in-service*. Without the noise and intrusion of lengthy tone tests. Without interrupting programming. And without annoying your audience. *Amazing.*

Even more amazing, SIAT lets you measure noise, distortion and crosstalk during peak broadcast periods, when quality is critical and the transmission environment is noisiest.

Of course, SIAT comes fully loaded with features even a Porsche would be proud of. Its modular design means SIAT can expand as your needs expand. And it can help maintain audio quality for any transmission media: fiber optic, satellite, microwave or physical line.

All of which proves: In the race for satisfied viewers and listeners, SIAT leaves the competition in the dust. For a free copy of our SIAT video or more information, race to the phone and call 1-800-955-9570.

SZ Schmid
Telecommunication
15 West 26th Street □ New York, NY 10010

Circle (112) on Reply Card

Manufacturer	ITAME	Iteco	QEI Corporation			Rohde & Schwarz		Rood Megatronics
Model	FM900 ³	T 241	#695	BBT500	Model 675 ⁴	SU115	SU155R2	FM-200
Composite input level	3.5Vp-p	-4.12dBm	3.5Vp-p	3.5Vp-p	3.5Vp-p	-6.9.5dBm	-6.9.5dBm	+6dBm
Composite THD	0.09%	<0.07%	0.025%	0.025%	0.25%	≤0.6%	≤0.6%	<0.05%
Composite IMD	...	...	0.025%	...	...	≤0.15%	≤0.15%	...
Composite response	±0.2 30-55k	0.2dB to 100kHz	±0.15 30-75k	±0.5 30-15k	±1 30 15k	≤0.3 to 75kHz	≤0.3 to 75kHz	...
Phase response	...	...	±0.1°	...	...	...	...	...
Stereo separation	>55dB	>50dB to 15kHz	60dB	>60dB	>40dB	≥43dB	≥43dB	>55dB
SCA inputs	2	Also RDS	3 inputs	3	2	Available	Available	Yes
SCA input Z	>1kΩ	600Ω unb	10kΩ	10kΩ	10kΩ	≥2k unb	≥2k unb	...
SCA inputs level	3.5Vp-p	-10.12dBm	1Vp-p	1Vp-p	1Vp-p	...	...	...
Stereo generator	GE90A	Integral	Any	#772F	Model 772	Integral	GC001	GC003
SCA generator	...	Integral	Any	...	...	Integral	Integral	Option 8
Reader Service No	1485	1486	1487	1488	1489	1490	1491	1492

³Model 20DTA includes stereo generator in stereo version. ⁴675T300 rate 300; 67T150 rated 150W.

Manufacturer	Telefunken Sendertechnik	TEM/Comad	Thomson-LGT		TTC/Television Technology		Varian TVT	Vector Technology
Model	S3233	7P10EZ18	FMT series	FMT100 Ramsès	FM-300J	Model X	1248	FMT-03
Power output range	2-20W	to 1kW LPMF	4W	30-100W LPMF	150-275	1-30W	15-100W	8-30W
Output connector: Z	Type N	7/8" 50Ω	50Ω N	50Ω N	50Ω Type N	50Ω type N	50Ω	50Ω N
Carrier stability Hz	<300Hz	±0.2PPM TXCO	±200Hz/yr	±200Hz/yr	±100Hz	±100Hz	±150Hz	±250Hz
Modulation capability	±120kHz	±75kHz	±150kHz	±150kHz	±500kHz	±500kHz	±150kHz	150kHz
Asynchronous S/N	>58dB unwt'd	>70dB	>80dB	>80dB	>60dB	80dB	58dB	55dB
Synchronous S/N	≥50dB unwt'd	>70dB	>74dB stereo	>74dB	>60dB	80dB	46dB	...
Composite input Z	600Ω/2kΩ	600Ω bal/unbal	15kΩ bal	15kΩ bal	BNC	10kΩ	...	5kΩ
Composite input level	-4,+9.4	-8	+15dBm	...	6dBm	...	3.5Vp-p	...
Composite THD	≤0.3%	≤0.4%	<0.15%	<0.3%	0.01%	≤0.01%	<0.3%	0.35% mono
Composite IMD	<0.1%	≤0.2%	...	...	0.01%	≤0.01%	<0.3%	...
Composite response	±0.3dB 75kHz	±0.1 30-30k	±0.3 to 75kHz	±0.3 to 75kHz	±0.5 25-100k	±0.05 20-100k	±0.5% 30-100k	0.1 30-15k
Phase response	...	0°; ±0.02°	...	...	...	...	±0.3°	...
Stereo separation	>40dB	>50dB	>50dB	>50dB	...	...	40dB	50dB 30-15k
SCA inputs	Option	...	Yes	and RDS	...	5 BNC	Yes	3
SCA input Z	...	...	...	15kΩ	...	10kΩ	...	5kΩ
SCA inputs level	...	...	...	6dBm	...	1Vp-p	...	1Vp-p
Stereo generator	Option	Model 7182	Integral	Integral	...	...	Yes	External
SCA generator	Option	...	Option	Option	...	...	Yes	External
Reader Service No	1493	1494	1495	1496	1497	1498	1499	1500

FM broadcast transmitters

These systems are rated power outputs of 1kW or greater. Additional parameters of operation may be found by looking in the chart for the suggested exciter model. All provide a 50Ω output. Models not indicating integral automatic power control are designated with a dagger (†). Those without an integral harmonic filter are designed with a double dagger (‡).

Manufacturer	BEXT	Broadcast Electronics			C. T. E. Int'l	CCA Electronics	
Model	T5000 (15000)	FM-100 (-250) ²	FM-35A (-35B) ³	FM-5A (-5B) ⁴	S 2000 ⁵	FM-10000G ⁶ ‡	FM-27500G ⁷ ‡
Exciter suggested	TEX20	FX-30	FX-30	FX-30	S20	FM-20G	FM-20G
Output power range	5kW (15kW)	100W (250W)	10-38.5kW	5kW	2kW	5-10.5kW	12.5-30kW
Output connector	15/8"(31/8")	Type N	31/8"	15/8"	LC type	15/8"	31/8"
Typical VSWR	...	1.1:1 max	1.8:1 max	1.8:1 max	Protected	...	...
Auto modulation control	...	...	...	...	Yes	No	No
Integrated remote control	Yes	Yes	Yes	Yes	Yes	No	No
µP diagnostics	No	...	Yes	Yes	Yes	No	No
PA device or	3CX3000A7 ¹	Solid-state	4CX20000C or	4CX3500A	Solid-state	3CX10000A7	3CX20000A7
Tube complement	...	...	8990 tetrode	-tetrode	2-160W and	triode	triode
PA circuit type	Grounded-Grid	...	Folded 1/2-λ cavity	Folded 1/2-λ cavity	8-250W modules	Grounded-grid	Grounded-grid
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	3CX800A7	3CX1500A7
Floor space (in.)	23x28	24x31	91x32	35x38	27x20	38x34	38x34
Input ac power needed	240-380Vac 3φ	194/266V	208Y/240D	208Y/240D	220Vac	240V 3φ	240V 3φ
Power consumption (PF) efficiency	<9kVA (24.5)	524W (830W)	51kW (.94PF) 68%	8.3kW (.92PF) 60%	3.9kW 51%	...	...
Reader Service No	1439	1440	1441	1442	1443	1444	1445

¹3CX15000A7. ²FM-300A, 300W. ³FM-20A, 22kW; FM-30A, 20kW; -B models include extended metering; integral envelope detector for measurement of synchronous AM noise. ⁴FM-1.5A, 1.5kW; FM-3.5A, 3.5kW; -B models include extended metering; integral envelope detector for measurement of synchronous AM noise. ⁵VL 5000, 5kW. ⁶FM-1000G, 1.5kW; FM-2500G, 3kW; FM-4000G, 4.8kW; FM-5000G, 5.6kW. ⁷FM-12000G, 13kW; FM-20000G, 22kW; FM-25000G, 30kW; FM-27500G, 30kW.

Manufacturer	Continental Electronics					Harris Broadcast	
Model	814C	814R-1 ⁸	816A	816R-4B ⁹	817A	817R-5B ¹⁰	FM 1FM ¹¹
Exciter suggested	802A	802A	802A	802A	802A	802A	THE-1
Output power range	3.8kW	2.5kW	11kW	27.5kW	to 60kW	70kW	1kW
Output connector	15/8"	15/8"	31/8"	31/8"	61/8"	61/8"	7/8"
Typical VSWR	1.2:1 max	2:1 max	2:1 max	2:1 max	2:1 max	2:1 max	1.5:1
Auto modulation control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Integrated remote control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
µP diagnostics	...	Yes	Yes	...	8-bit	8-bit	...
PA device or	Multiple 700W	5CX1500A	Tetrode	4CX15000A	4CX40000G	9019/NC130	FET modules
Tube complement	Solid-state	...	...	Tetrode	Tetrode	2-tetrodes in	...
PA circuit type	modules.	1/4-λ-cavity	...	Grounded Screen	Class C GS	90° hybrid	...
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Floor space (in.)	38x34	35x24	45x34	72x28	128x40	160x28	23x25



25000J
FM Transmitter

300J
FM Transmitter

Model X
FM Exciter

UHF
TV Transmitter

UHF
TV Transmitter

1000W UHF
TV Transmitter

100W UHF
TV Transmitter

FOR BROADCASTING EXCELLENCE... SOLID, POWERFUL, TELEVISION AND RADIO EQUIPMENT

High Power UHF TV Transmitters

TTC's High Power UHF TV Transmitters provide the ultimate in picture quality, reliability and efficiency. These transmitters are designed that way, without compromise.

All new state-of-the-art design utilizes CMOS logic for control functions. TTC multiple klystron/klystrode transmitters maximize reliability by offering total redundancy. Each multiple klystron/klystrode transmitter includes two or more amplifier cabinets, control circuits, high voltage contactors, beam supplies, cooling systems and excitors. Klystron, MSDC klystron & klystrode systems are available.

Low Power Transmitters

TTC offers a full line of outstanding VHF and UHF translator-transmitters, with an ultra-stable design that assures high quality and trouble-free operation.

For both VHF and UHF TV up to the 100W level, TTC offers solid state translator-transmitters designed for worry-free unattended operation in remote and hostile environments.

The 1000 Watt TTC XL1000 has become the best selling UHF transmitter in the world. Long-term reliability, performance, advanced capabilities, and versatility for use with UHF, VHF, satellite, or video inputs provide you with assurance of lasting quality.

FM Radio Transmitters

TTC has established a longstanding track record for producing highly reliable and durable FM radio transmitters—combining unsurpassed value and performance.

A complete line of transmitters is manufactured including solid state units with a power output of as low as 30 Watts and ranging upward to 8000 Watts.

Featuring our clean, uncomplicated designs incorporating refinements developed from over twenty years of proven performance in radio stations worldwide, today's TTC radio transmitters provide unmatched price-performance value and quality.

**Put TTC, the leading manufacturer of transmitters/translators,
to work for you. Call or write us with your requirements.**

TELEVISION TECHNOLOGY CORPORATION
P.O. BOX 1385 • BROOMFIELD, COLORADO 80020 USA • (303) 665-8000 • TWX: 910-938-0396 TTC COLO

Circle (113) on Reply Card

Manufacturer	Continental Electronics						Harris Broadcast
Model	814C	814R-1 ⁸	816A	816R-4B ⁹	817A	817R-5B ¹⁰	FM 1FM ¹¹
Input ac power needed	220Vac	220Vac	220Vac 3 ϕ	220Vac 3 ϕ	220Vac 3 ϕ	220Vac 3 ϕ s.ps.	220Vac
Power consumption	10.5kW	4.9kW	18.45kW	42kW	94.4kW	108kW	2.9kW
Reader Service No	1446	1447	1448	1449	1450	1451	1452

⁸ 815A system offers similar characteristics with 4CX3500Atetrode final; 5kW output with 9.8kW consumption. ⁹ 816R-2B rated 21.5kW; 816R-3B rated 25kW; using the 816B units in tandem results in 817R-2B 40kW; 817R-3B 50kW; 817R-4B 55kW; all other characteristics are similar. ¹⁰ 816R-5B rated 35kW uses a single 9019/YC130 tetrode with similar characteristics. ¹¹ HT 500FM 500W and HT 250FM 250W available.

Manufacturer	Harris Broadcast			ITAME SA			ITELCO
Model	HT 10FM ¹² ‡	HT 35FM ¹³ ‡	ES-2000 (-1000)	Tauro Mod 10 ¹⁴	Tauro Mod 30 ¹⁵	TFM-3000 (1000)	S233
Exciter suggested	THE-1	THE-1	20W	10W	15W	W	T 241
Output power range	5-10kW	10-35kW	2kW (1kW)	5-10kW	10-30kW	3kW (1kW)	2kW
Output connector	3/8"	3/8"	1 5/8" (7/16)	1 5/8"	3/8"	1 5/8" (7/16)	...
Typical VSWR	1.7:1 max	1.7:1 max	...	Protected	Protected	Protected	...
Auto modulation control	No	...	...	...	...	...	Yes
Integrated remote control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
μ P diagnostics	Yes	Yes	...	...	...	...	...
PA device or Tube complement	4CX7500A	4CX20000D	Solid-state V-MOS; 600W	4CX-7500A ¹⁵ Tetrode	4CX-20000C Tetrode	4CX-3500A Tetrode	Solid-state four 500W
PA circuit type	1/4- λ cavity	1/4- λ cavity	...	...	...	...	FET modules
IPA device	300W S-S	600W S-S	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state
Floor space (In.)	33x34	34x34	24x36	45x38	68x38	31x33	22x30
Input ac power needed	220-380 3 ϕ	220-380 3 ϕ	220Vac	220-380 3 ϕ	220-380 3 ϕ	220Vac	380Vac 3 ϕ
Power consumption (PF)	15.7kW (0.95PF)	52kW (0.95PF)	<4.5kW (<2.3kW)	18kW	43kW	7kW (3kW)	4.5kVA
Reader Service No	1453	1454	1455	1456	1457	1458	1459

¹² Similar models include HT 3.5FM at 4kW; HT 5FM at 5kW; HT 7M at 7kW. ¹³ Similar models include HT 30FM at 30kW; HT 25FM at 25kW; HT 20FM at 20kW. ¹⁴ Tauro 5 at 5kW; Tauro 3 at 3kW; Tauro 1 at 1kW. ¹⁵ Thomson TH341, Philips YL 1631. ¹⁶ Philips YL 1530 also available.

Manufacturer	ITELCO	Marconi	QEI Corporation		RF Dynamics	Rohde & Schwarz	
Model	T224 (T254)	B6526 (-25)	FMQ-10000B ¹⁷ ‡	FMQ-30000B ¹⁸ ‡	F-712 ¹⁹ ‡	NR 350 T ²⁰	NU411 ²¹
Exciter suggested	T 241	Integral	#695 or #675	#695 or #675	FE180 int.	SU115/SU155	SU155 R2
Output power range	15kW (30kW)	20kW (10kW)	10kW	10-30kW	1.5-11.5kW	5kW	10kW
Output connector	3/8"	3/8"	1 5/8"	3/8"	1 5/8"	1 5/8"	Dezifix D
Typical VSWR	...	1.4:1	...	...	...	1.5:1 max	\leq 1.8:1
Auto modulation control	Yes	...	Automod	Automod	...	Yes	Yes
Integrated remote control	Yes	Option	ARC-27 opt	ARC-27 opt	Yes	Yes	Yes
μ P diagnostics	Yes	C-MOS logic	Option	Option	...	Yes	Yes
PA device or Tube complement	4CX12000 (4CX20000C)	9011 (8986) Coaxial tetrode	YU148 Triode	3CX15000A7 Triode	YU148 triode	Four VU315 1.5kW PA modules	RS2024CL tetrode
PA circuit type	FET modules	Class C	Grounded-grid	Grounded-grid	Grounded-grid	Solid-state	Grounded cathode
IPA device	Solid-state	200W S-S	Solid-state	3CX3000A7	Opt Tube-type	Solid-state	Solid-state
Floor space (In.)	32x43	42x40	24x30	72x30	38x34	23x40	23x29
Input ac power needed	208/380V 3 ϕ	380-415V 3 ϕ	208-240V 3 ϕ	208-240V 3 ϕ	208 3 ϕ	220/380V 3 ϕ	220/380V 3 ϕ
Power consumption	22 (43)kVA	33kW (17kW)	17kW	50kW	17.2kW	8.86kW	21kVA
Reader Service No	1460	1461	1462	1463	1464	1465	1466

¹⁷ MQ-3500 at 3.5kW; FMQ-5000 at 5kW; both include internal low-pass filter. ¹⁸ FMQ-20000B at 20kW. ¹⁹ -710 to 10kW; F-550 to 5kW; F-510 to 5kW. ²⁰ NR330 rated 3kW uses 2 modules; NR315 rated 1.5kW uses 1 module. ²¹ Other connectors available upon request. Model NU351 rated 5kW also uses Siemens RS 2024CL tetrode.

Manufacturer	Telefunken Sendertechnik			TEM Technologie Electroniche	Thomson LGT	TTC/Television Technology Corp	
Model	S3185 ²²	S3206	S3217	7P10EZ18	FMT 2000 S	FM-2500J ²³	FMS-8000 ²⁴
Exciter suggested	S3161	S3161	S3161	07A960 1Q/14	Integral	Model X	Model X
Output power range	1.5kW	5kW	3kW-10kW	1kW	2kW	15-25kW	8kW
Output connector	...	...	1 5/8"	7/8"	7/8"	3/8"	1 5/8"
Typical VSWR	...	...	...	...	1.4:1 max	...	2:1 max
Auto modulation control	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Integrated remote control	Yes	Yes	Yes	Yes	Yes/RS-232C	Option	Option
μ P diagnostics	Yes	Yes	MCSG5364	...	Yes	...	...
PA device or Tube complement	Multiple SV3169 500W modules	Four SV3206 13kW modules	RS2032CL Single tetrode	Solid-state 500W modules	Solid-state modules	4CX15000A tetrode	Solid-state
PA circuit type	Solid-state	Solid-state	Grounded cathode	...	Solid-state	...	...
IPA device	Solid-state	Solid-state	Solid-state	Solid-state	Solid-state	4CX250B	Solid-state
Floor space (In.)	24x24	24x40	24x40	22x25	19x27	35x38	46x31
Input ac power needed	220Vac 47-70Hz	380Vac 3 ϕ	220/380Vac 3 ϕ	220V	220V	240V 3 ϕ	240V
Power consumption	2.5kW	9kW	19kVA	<2.5kVA	4kW	38kW	13kW
Reader Service No	1467	1468	1469	1470	1471	1472	1473

²² S3175 rated 1kW; uses S3169 500W modules. ²³ M-5000J to 6kW; FM-1000J to 11kW. ²⁴ FMS-4000 to 4kW.

Manufacturer	Varian TVT Ltd		Vector Technology
Model	1239 ²⁵	1242-1247 ²⁶ ‡	FMT-3/FMT-5‡
Exciter suggested	1248	1248	FMT-03
Output power range	1kW	1.5kW-10kW	3kW-5kW
Output connector	Type N	1 5/8"	1 5/8"
Typical VSWR	...	...	2:1
Auto modulation control	No	No	No
Integrated remote control	Yes	Yes	Yes
μ P diagnostics	No	No	No
PA device or Tube complement	Solid-state 330W modules	Solid-state MRF141G FET modules	3CX3000A7 ...
PA circuit type	...	...	Grounded-grid

PLATINUM™ SERIES
1-60 KW SOLID-STATE VHF TV TRANSMITTERS

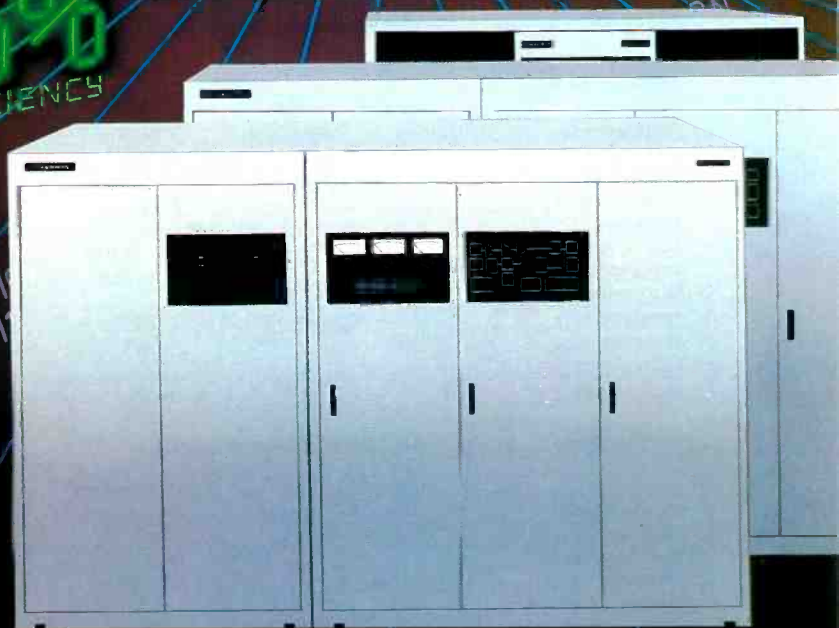
Products of forward thinking

DX SERIES

10-50 KW AND HIGHER* DIGITAL SOLID-STATE AM TRANSMITTERS

86%
EFFICIENCY

118-8111
178-8111



THE-1
55 WATT SOLID-STATE FM EXCITER

At Harris, we've set our sights on the future of broadcasting. And every day, more AM, FM and TV broadcast stations around the world are reaping the benefits: Higher efficiency. Enhanced performance. Easier operation. Reduced maintenance. Increased reliability.

Harris' forward-thinking design engineers have worked with broadcasters to produce some of the most advanced—and most widely acclaimed—products in our history. Our patented digitally-modulated DX Series AM transmitters, all solid-state and single tube Platinum™ Series VHF TV transmitters, high efficiency MSDC UHF TV transmitters, and field-proven 55 watt THE-1 FM exciter are ready for you today. Each is a breakthrough product in its category.

For more information on these and other Harris RF products, call toll-free (800) 4-HARRIS, Ext. 3020. Outside the continental US, fax your request to (217) 224-2764.



HARRIS

ENGINEERING THE FUTURE OF BROADCASTING

Harris Broadcast Division • Marketing Department
P.O. Box 4290 • Quincy, IL USA 62305-4290

*Call us for DX applications to 500 kW.

Manufacturer	Varian TVT Ltd	Vector Technology
Model	1239 ^{25*}	1242-1247 ^{26†}
IPA device	Solid-state	Solid-state
Floor space (in.)	23x29	43x43
Input ac power needed	380/415Vac	190-415Vac 3φ
Power consumption	2.34kVA	3.2kW-21kW
Reader Service No	1474	1475

²⁵1238, 0.5kW; 1237, 300W. ²⁶Six models cover powers 1.5kW, 2.5kW, 3.5kW, 5kW, 7kW and 10kW.

UHF Television Transmitters

These systems are operable on any UHF CCIR IV/V band. All models not marked with a dagger (†) accommodate BTSC stereo aural transmissions; applicability to other systems should be discussed with the manufacturers.

Manufacturer	Acrodyne Industries			BEXT	Comark Communications			Harris Broadcast
	TL series	TR series	TRU/1000 ²		NS 1000S†	Klystrode equipped (10kW-360kW)	S-series	
Visual peak power	1kW (100W)	25kW (10/5) ¹	1kW	1kW	2%	3%	5%	60kW (120kW) ³
Carrier level regulation	...	3%	...	...	...	...	...	3%
Modulation capability	...	3%	...	...	...	97%	...	0%
Response vs brightness	...	±0.75dB	...	...	...	±0.75dB	...	±0.75dB
Low frequency linearity	...	0.45dB	...	...	...	1.0dB	...	<1.0dB
ICPM uncorrected	...	±2°	...	...	...	2°	<2°	±2.0°
Diff phase/gain	...	±1.5°/5%	<2°/2%	...	...	±3°/5%	...	3°/0.5dB
S/N ratio	...	1%	70dB	...	...	55dB	...	55dB
K factor for 2T/12.5T	3%	2%/5%	...	...	...	2%/5%	...	2%/3%
Harmonics below visual	...	-60dB	-60dB	...	...	-60dB	≤-60dB	-60dB
Visual PA device	Solid-state	Tetrode	Solid-state	YL1057	Klystrode	Klystron ext	Solid-state	Klystron MSDC
Aural output power	10% of visual	100W	100W	100W	10% of visual	100W	100W	12kW (24)
Carrier deviation	...	100kHz	...	...	±25kHz	±75kHz	...	±120kHz
Audio response	...	±0.1 50-50k	...	±0.5 30-15k	...	±0.5 30-15k	...	±0.5 to 110k
Harmonic distortion	1%	0.5%	<0.4%	...	...	0.5%	...	0.5%
AM/FM noise	...	-50dB/-60dB	65dB	...	...	-50dB/-60dB	...	-55dB/-60dB
Aural PA device	Solid-state	Common to visual	Solid-state	Multiplexed	Klystrode	Klystron ext	Solid-state	Klystron MSDC
Cooling method	Forced air	Water (5kW air)	Forced air	Forced air	Forced air/water	Forced air	Vapor phase	Vapor phase
Input AC power	120Vac (120/230)	208Vac	230Vac	220V	...	480Vac 3φ	230Vac	480Vac ±5% 3φ
Power consumption	4.4kVA (1.2kVA)	46kVA (26/16)	4.4kVA	3.6kVA	...	>70% efficient	...	137kVA (253)
Reader Service No	1376	1377	1378	1379	1380	1381	1382	1383

¹TRU/25k 10kV available with 1kW solid-state driver; 10KVC model uses 400W solid-state driver. ²TLU/1000T available with TCU frequency converter for translator use. ³TV-240UM rated 240kW also available.

Manufacturer	Information Transmission Systems			Marconi Communications	PESA	Rohde & Schwarz	Technologix Midwest	Television Technology
Model	ITS-220 ⁴	ITS-230 ⁵	ITS-242(-235)	B7540 series ⁶	TT5000 series	NT UHF series ⁷	TX series	Silverline ⁸
Visual peak power	100W	1kW	10kW (5kW)	10kW-60kW	1W-20kW	100W-40kW	30kW-300kW	60-240kW
Carrier level regulation	5%	2%	...	±1%	≥1%	≤0.3dB	±2%	3%
Modulation capability	...	1%	...	3%	1% of sync	>75%	1%	2%
Response vs brightness	±0.7dB	±0.5dB	...	±0.5dB	<5%	<0.3dB	±1dB	1dB
Low frequency linearity	10%	5%	...	95%	<5%	...	10%	0.8dB
ICPM uncorrected	±3°	±2°	...	±4°	...	...	...	3°
Diff phase/gain	±3°/5%	±2°/5%	±1°/5%	3°/0.95	<±3°/5%	≤3°/5%	±3°/5%	4°/5%
S/N ratio	...	55dB	...	60%	>60dB	>63dB	55dB	50dB
K factor for 2T/12.5T	2%/5%	2%/4%	...	2% for 2T	2%	<2% 20T	2%/5%	2%/2%
Harmonics below visual	-70dB	-60dB	-60dB	-60dB (20mW)	-60dB	≤-60dB	≤-60dB	-65dB
Visual PA device	Solid-state	9017 tetrode	TH582 (382)	Klystron Ext	SS or tube	Per power ⁷	Klystron ext	MSDC Klystron
Aural output power	5W	100W	1kW (500W)	1kW to 6kW	Adjustable	1/10-1/20 visual	Per request	10% of visual
Carrier deviation	...	±75kHz	...	±50kHz	±25kHz/-50kHz	≤50kHz	25kHz	±25kHz
Audio response	...	±0.5dB 30-50k	...	±1dB 30-15k	±1dB 30-15k	≤±0.3 to 60kHz	±0.5dB 30-15k	1 30-15k
Harmonic distortion	...	0.5%	...	0.5%	≤1% 30-15k	≤0.4% ±50kHz	≤0.5%	1%
AM/FM noise	...	-50dB/-60dB	...	-50dB/-60dB	-55dB/52dB unwt'd	≥46dB/≥56dB	≤-50B/-60dB	-55dB/-55dB
Aural PA device	S-S Int Diplex	Int Diplex	SS/Ext Klystron	SS or tube	Per power ⁷	Klystron ext	MSDC Klystron	
Cooling method	Convection	Forced air	Vapor & (Air)	Vapor	Forced air	Per PA type	Water/glycol	Vapor
Input AC power	117Vac	208/240Vac 1φ	208/240Vac 1-3φ	380-415Vac 3φ	Per output	220-380Vac 3φ	460-500Vac 3φ	480Vac
Power consumption	0.75kW	5kW 50% APL	26kW (19)	38kW-129kW	...	1.8kVA-119kVA	Per model	100kVA
Reader Service No	1384	1385	1386	1387	1388	1389	1390	1391

⁴ITS-222 available as 100W translator; ITS-210/-212 are 10W transmitter and translator. ⁵Available as ITS-232 1kW translator; [TS-1230 1kW model all solid-state model. ⁶B7545 10/15kW; B7546 20/30kW; B7547 30/45kW; B7548 55/60kW. ⁷PAs use solid-state, tetrode or klystron devices, based on power level. ⁸UHF-60S rated 60kW; UHF-120S rated 120kW; UHF-240S rated 240kW.

Manufacturer	Television Technology Corp/TTC			Thomson-LGT	Varian TVT Division			
Model	UHF-10MA	UHF-30SK	XL 1000U ⁹	EUHF1000U ¹⁰	1740 series ¹¹	1790 series ¹²	Type 1781	VISTA series ¹³
Visual peak power	10kW	30kW	1kW	10kW	10-30kW	60-240kW	10kW	60-240kW
Carrier level regulation	...	3%	...	...	...	...	±2%	...
Modulation capability	...	2%	...	...	...	...	to 0.5%	...
Response vs brightness	...	1dB	...	...	...	...	±1.0dB	...
Low frequency linearity	...	0.8dB	...	5%	...	...	≤0.8dB	...
ICPM uncorrected	...	3°	...	<3°	...	...	≤±3°	...
Diff phase/gain	...	4°/5%	...	±3°/95%	...	...	≤±3°/0.4%	...
S/N ratio	...	>55dB	...	...	...	...	60dB	...
K factor for 2T/12.5T	...	2%/2%	...	±1.5%	...	...	<2%/<2%	...

Manufacturer	Television Technology Corp/TTC			Thomson-LGT	Varian TVT Division			
Model	UHF-10MA	UHF-30SK	XL 100U ⁹	EUHF10000 ¹⁰	1740 series ¹¹	1790 series ¹²	Type 1781	VISTA series ¹³
Harmonics below visual		-65dB		-60dB				-70dB
Visual PA device	Klystrode	Klystron ext	TH-347 tetrode	Solid-state	Klystron external cavity		TH382 tetrode	VKP 7990
Aural output power	10% of visual			1kW	1-3kW	6-24kW	1.0kW	6.6-24kW
Carrier deviation	±120kHz		±25kHz	50kHz				>100kHz
Audio response	±0.5 30-15k		1dB 30-a5k	±0.5dB 40-20k			0.5dB 30-15k	
Harmonic distortion	0.5%		1%	0.5%			0.5%	
AM/FM noise	-55dB/-60dB			-50dB				-50dB/-60dB
Aural PA device	Multiplexed	Klystron ext	Multiplexed	Solid-state	Klystron external cavity		TH327 tetrode	VKP7990 ¹⁴
Cooling method	Forced air			Forced air	Air/vapor		Forced air	Air/water
Input AC power	480Vac	480Vac	230V _{ac}	380Vac	380/415Vac	480Vac	380Vac or 415Vac	480Vac
Power consumption	27kVA	81kVA	4.8kVA	34kVA	28-70kW	140-553kVA	25kVA	76-296kW
Reader Service No	1392	1393	1394	1395	1396	1397	1398	1399

⁹ Available with VHF or UHF inputs for translator; XL 100U rated 100W visual uses MOS devices. ¹⁰ EUHF 5000 rated at 5kW visual; RUHF 500S rated 500W; RUHF 100S rated 1kW with provisions for translator operation. ¹¹ 1740 rated to 30kW; 1741 rated to 15kW; 1472 rated 20-25kW. ¹² 1790 rated 60kW; 1791 rated 120kW; 1792 rated 240kW. ¹³ 1890 rated 60kW; 1891+1890 120kW; 1891+3x1890 240kW; all use MSDC type klystrons. ¹⁴ PT5080 standard klystron may be used in aural service.

VHF Television Transmitters

These systems are designed for use on VHF (CCIR I/III) bands as indicated. Models restricted to Band III are designated with a dagger (†).

Manufacturer	Acrodyne Industries		Harris Broadcast		ITELCO	LDL/LARCAN
Model	TR series		Platinum HT-LS series		T134 (383A) ^{4†}	TTS22M/TTP44M ⁵
Visual peak power	30kW (20)	10kW (5)	1kW-5kW ¹	10kW-30kW ²	20kW (5kW)	22kW (44kW)
Carrier level regulation	3%			3%	...	2%
Modulation capability	3%			0%	...	0%
Response vs brightness	±0.75dB			±0.75dB	0.5dB	±0.75dB
Low frequency linearity	0.45dB			<0.5dB	0.5dB	0.5dB
ICPM uncorrected	±2°			±1.5°	...	±1°
Diff phase/gain	±1.5°/3%			1°/3%	≤±3°/4%	±1°±3%
S/N ratio	1%			55dB	>50dB	55dB
K factor for 2T/12.5T	2%/5%			1.5%/3%	...	1%/3%
Harmonics below visual	-60dB			-70dB	<1mW	-80dB
Visual PA device	Tetrode			Solid-state modules	TH 371 tetrode	MOSFET SS
Aural output power	10% of visual			10% (20% opt)	1/10, 1/20	2.2kW (4.4kW)
Carrier deviation	100kHz			±200kHz	±50kHz	±200kHz
Audio response	±0.1 50-50k			±0.5 to 110k	0.5 40-15k	±0.5dB
Applicable to stereo	BTSC			Yes	...	Yes

More Power To You.

MAXIMUM VELOCITY AND MINIMUM ATTENUATION

That's what MYAT rigid line and RF components deliver. We manufacture them using highest quality pure copper or aluminum, and thoroughly test each one before shipping. Princeton University's Plasma Physics Laboratory evaluated MYAT performance, and chose our components for their research reactor.

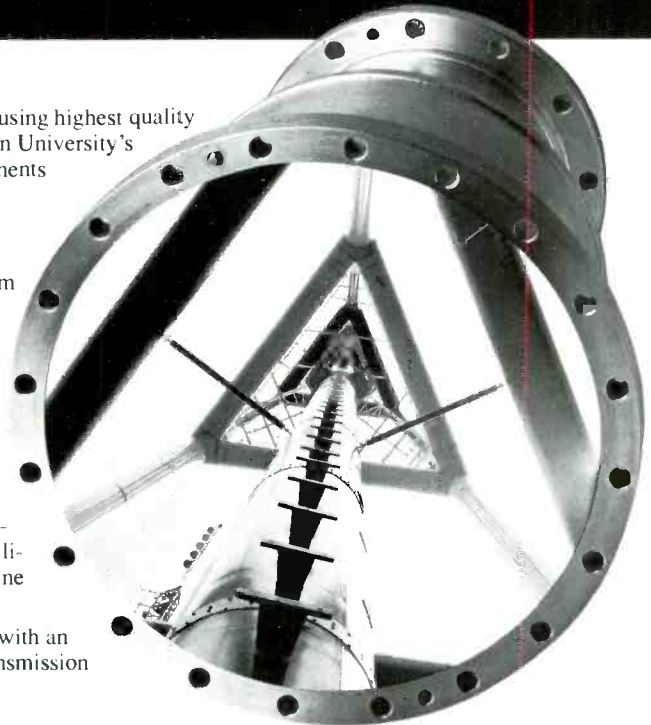
RELIABILITY AND LONGEVITY

They're important to you—and to us. So we use non-galling silver plated beryllium copper contact springs, brass elbow reinforcements and pure virgin Teflon inner supports. Every MYAT rigid line section and component is warranted for a full year. That's why you'll find the bright blue MYAT logo in transmitters and systems by Harris, Acrodyne, QEI, Micro Communications and Broadcast Electronics. And at thousands of broadcast stations worldwide.

SERVICE AND SUPPORT

Need a replacement fast? Check our catalog—virtually every item listed is ready for immediate shipment. Not sure what you need? Ask a MYAT engineer for technical assistance. Unusual requirements? Our computerized design and testing facilities turn them into "routine" projects. We did it with high-power 9³/₁₆" 50 Ohm line for KGON-FM's multi-station tower, and we can do it for you.

Whether you're planning a new tower, upgrading an older installation, or coping with an emergency, MYAT power is as close as your phone. Put it to work in your RF transmission system. Contact your RF distributor, or phone us at (201) 767-5380.



Circle (115) on Reply Card



MYAT, INC.

Manufacturers of RF transmission equipment since 1951.

40 Years of Experience, 40 Years of Excellence.

380 Chestnut Street • P.O. Box 425 • Norwood, NJ 07648 • Tel (201) 767-5380 • Fax (201) 767-4147

Manufacturer	Acrodyne Industries		Harris Broadcast		ITELCD	LDL/LARCAN
Model	TR series		Platinum HT-LS series		T134 (383A) ^{4†}	TTS22M/TTP44M ⁵
Harmonic distortion	0.5%		0.25%		<0.3%	0.05%
AM/FM noise	-50dB/-60dB		-55dB/-70dB		>50dB/>60dB	-60dB/-62dB
Aural PA device	Common to visual		Solid-state modules		Solid-state	MOSFET SS
Cooling method	Forced air		Forced air		Air	Forced air
Input AC power	208Vac		280-415Vac 3φ		380Vac 3φ	208-242Vac 3φ
Power consumption	68kVA (39)	31kVA (21)	5.5-13.2kW	24.4-69kW	93-120kW	41.5kVA
Reader Service No	1361	1362	1363	1364	1365	1366

¹ Power levels include: 1LS/1HS 1kW; 2LS/2HS 2kW; 5LS/5HS 5kW. ² Power levels include: 10LS/10HS 10kW; 15LS/15HS 15kW; 20LS/20HS 20kW; 30LS/30HS 30kW. ³ Power levels include: 45LS/45HS 45kW; 60LS/60HS 60kW. ⁴ T383A high-band with common amplification of visual and aural carriers. ⁵ TTS30M rated 30kW, TTS3M rated 3kW.

Manufacturer	LDL/LARCAN	Marconi Communications		PESA	Rohde & Schwarz	Thomson-LGT	Toshiba Corp.
Model	TTS6M/TTS12M	B7530 series ^{6†}	B7530 series ^{7†}	TT5000 series	NT VHF series†	EVHF20000 ⁸	Series 2000
Visual peak power	6kW (12kW)	1kW (2kW/5kW)	10kW (25/30kW)	1W-20kW	100W-20kW	20kW	To 64kW
Carrier level regulation	2%	±1%		≥1%	≤0.3dB	...	≤±2%
Modulation capability	0%	3%		1% of sync	>75%	...	12.5%±2%
Response vs brightness	±0.75dB	±0.5dB		<5%	<0.3dB	...	...
Low frequency linearity	0.5dB	90%		<5%	...	5%	<10%
ICPM uncorrected	±1°	±4°		...	...	<3°	±2%
Diff phase/gain	±1°/±3%	±3°/0.95dB		<±3°/5%	<±3°/5%	<±3°/5%	±3%/±5%
S/N ratio	55dB	60dB		>60dB	>63dB	...	>50dB
K factor for 2T/12.5T	1%/3%	2% for 2T		2%	<2% 20T	±1.5%	<1.5%
Harmonics below visual	-80dB	60dB		-60dB	≤-60dB	-60dB	<-60dB
Visual PA device	MOS FET	Solid-state & tetrode		Solid-state or tube	Solid-state or tetrode	Solid-state	RF MOSFET array
Aural output power	600W (1.2kW)	0.1kW (2/5kW)	1kW (2.5/3kW)	Adjustable	1/10-1/20 visual	2kW	10%-20% visual
Carrier deviation	±200kHz	±50kHz		±25kHz/±50kHz	≤50kHz	50kHz	±100kHz
Audio response	±0.5dB	±1 30-15k		±1dB 30-15k	≤±0.3dB to 60kHz	±0.5dB 40-20k	±0.5dB 30-15k
Applicable to stereo	BTSC	Yes		Dual carrier	Dual carrier	Yes	BTSC
Harmonic distortion	0.05%	0.5%		≤1% 30-15k	≤0.4% ±50kHz	0.5%	<0.5% 30-15k
AM/FM noise	-60dB/-62dB	-50dB/-60dB		-55dB/52dB unbrtd	≥46dB/≥56dB unbrtd	-50dB	>50dB/>60dB
Aural PA device	MOSFET	Solid-state & tetrode		Solid-state or tube	Solid-state or tetrode	Solid-state	RF MOSFET array
Cooling method	Forced air	Forced air		Forced air	Per PA type	Forced air	Forced air
Input AC power	380-440Vac 3φ	380-415Vac 3φ		Per output	220-380Vac 3φ	380Vac	220Vac 3φ
Power consumption	9.5kW (17.5kW)	4.9 for 1kW	59.5kW for 30kW	...	1kVA-52kVA	36kVA	...
Reader Service No	1368	1369	1370	1371	1372	1373	1374

⁶ All units high-band, B7530 1kW; B7531 2kW; B7532 5kW. ⁷ All units high-band; B7533 10kW; B7536 25/30kW. ⁸ EVHF 5000S rated 5kW; EVHF 10000S rated 10kW.

Vectorscope

Transmission standards are abbreviated N NTSC, P PAL, S SECAM; variants of the standards are noted, for example, "PAL-N".

Manufacturer	Electronic Visuals ¹	Hamlet Video ²	Hitachi	Leader Instruments		Magni Systems
Model	EV4021	HVI 203 VIDEO ³	V-069 (-089)	5850C	5851V	5854
Display size	8x10cm	128 linesx8.5μs	6" (3.5")	8x10cm	8x10cm	2.75" diagonal
Graticule	Internal	Electronic	Internal	Int/ext	Internal	Internal
Waveform mode	No	Yes	No	No	No	No
Standards	NTSC; PAL-M	N; P; S	N; PAL avail.	NTSC	PAL	NTSC
Function control	Manual	Manual	Manual	Manual	Manual	Manual
Integral calibrator	No	Yes	Yes	Yes	Yes	No
# composite inputs	A	B	2	2	...	2
Subcarrier reference	Yes	A/B/Black	A/B/ext.	A/B/Black	A/B/Black	A/B
Sync reference	A/B/Black/Composite	A/B/Black	A/B/ext.	A/B/Blackburst	A/B/Blackburst	A/B
Display reference	A/B/Ext	A/B/Ext	A/B/ext.	A/B/Ext	A/B/Ext	A/B
Diff phase/gain measurements	2°/2%	1°/1%	±1° phase	1°/1%	1°/1%	1°/1%
VITS line select (range)	No	Full line range	No	...	Yes ⁴	No
Luminance measurements	No	Yes	No	No	No	No
Reader Service No	1187	1188	1189	1190	1191	1192

¹ Represented in US by Broadcast Video Systems. ² Represented in US by BPI Group/Brabury PortaPattern. ³ Unit displays vectorscope and waveform patterns on standard video monitor; freeze, store functions; dual standard opt.; outputs can be recorded or transmitted; expanded mode to 512 linesx34μs. ⁴ Determined by companion line select waveform monitor.

Manufacturer	Magni Systems	Philips Test & Measuring/BTC		Systems Video	Tektronix	Videotek
Model	VS 560/561	PM5667	PM5668	1255	1720 series	VSM-60
Display size	4x3.25"	8x10cm	8x10cm	10x10cm	8x10cm	8x10cm
Graticule	Internal	Internal	Internal	Internal	Internal	Internal etched
Waveform mode	No	Vector; δφ	Vector; δφ; SC/H φ	No	Stereo audio phase	Vector only
Standards	NTSC, PAL	N, P-G/-M/-N	N, P-G/-M/-N	N, PAL-M	N, P	N, P/-M
Function control	Man/WFM530/560	Manual; remote	Manual; remote	μP control panel	μP control	Manual
Integral calibrator	Test mode	Yes	Yes	Yes	Yes	Yes
# composite inputs	6 composite ⁵	A/B	2	A/B	A/B	2
Subcarrier reference	A/B/C/Black	A/B/Blk CompSync	A/B/Blk/CompSync	A/B/Ext Int	Ext ref	A/B/Sync
Sync reference	A/B/C/Blackburst	A/B/Blk CompSync	A/B/Blk/CompSync	A/B/Ext Int	Yes	...
Display reference	A/B/C/Ext	A/B/External	A/B/External	A/B/Ext Int	Int; Ext	A/B/Ext
Diff phase/gain measurements	<1°/1%	0.2°	0.2°	to 0.05°/0.05% ⁶	2°/2%	±10°/±10%
VITS line select (range)	w/WFM530/560	...	from 5665 WFM	...	From 1730 WFM	No
Luminance measurements	No	No	No	No	No	No
Reader Service No	1194	1195	1196	1197	1198	1199

⁵ Or component inputs. ⁶ With 1407 δφ/δG measurement option.

Waveform Monitors

Units with a dagger (†) are capable of indicating audio stereo phase.

Manufacturer	Electronic Visuals ¹			Hamlet Video ²	Hitachi	Leader Instruments			Magni
Model	EV4042 (EV4031)	EV4050 Component	EV4061 combo	HVI 204 ³	V-079 (-099)	5860C (5860H)	5864 (5865)	5870 (5871) ⁵	WFM 530
Display size	8x10cm	8x10cm	8x10cm	128 linesx8.5µs	6" (3.5")	8x10cm	2.75" (8x10cm)	8x10cm	4x3.25"
Graticule	Int. Illum	Internal	Illuminated	Internal	Internal	Int illuminated	Int (illuminated)	Int illuminated	Int illuminated
Standards supported	N, P/-M, S	N, P, S	N, P/-M, S	N, PAL/-M, S	N, PAL avail.	NTSC	NTSC	N, (PAL)	N, P, S
Internal calibrator	Yes	Yes	Yes	Yes	Yes	Yes	No (Yes)	Yes	Y
Vertical response	Chroma, LP, 8G, Linearity, Flat	Chroma, LP, Flat Linearity,	Chroma, LP, Flat, 8G	Chroma, LP, Flat, 8G	Flat, IRE, Chroma, 8G	Chroma, LP, Flat, 8G, Linearity ⁴	LP, Flat, (Chroma, 8G)	Chroma, LP, Flat, 8G	Chroma, LP, Flat
Time bases	H 2H 2Hx V 2V 2Vx	H 2H 3H V 2V 3V	H 2H 2Hx V 2V 2Vx	H 2H 2Hm 3H V Vm	2H 2V	H 2H 2Hm V 2V 2Vm	2H 2V (H 2Hm V 2Vm)	H 2H 2Hm V 2V 2Vm	H 2H 2Hm 2V 2Vm
Time base magnification	1µs; 200µs/div	x5; x50	Yes	x3	2V Mag; 1µs/div	x10 H; x20V	(x10 H; x20V)	x10 H; x20V	x10 (H/2H) x25(2V)
RGB-YRGB displays	Yes (No)	Yes	Yes	Also YUV; YC	Yes/YRGB opt.	Yes	No (Yes)	Yes	Yes
DC restore	Back porch	Back porch	Back porch	Back porch	Yes	Back porch	Back porch	Back porch	Back porch
VITS line select	7-22 (No)	No	No	2-line	Yes	No (Yes)	No (Yes)	Yes	Yes
Programmable	No	No	No	No	No	No	No (Yes)	Yes	Yes
Remote control	No	No	No	Yes	...	No	No	Yes	Yes
Composite inputs	Yes	Yes	A/B	Yes	A/B	Yes	Yes	Yes	Yes
Component inputs	No	YCbCb	No	Yes	RGB	No	No	No	Yes
Line strobe pulse	No	No	No	...	...	No (Yes)	No (Yes)	No	No
Vectorscope function	No	Component	Yes	Yes	No	No	No	Yes	No
Waveform comparison	No	Superimposed	No	Yes	No	No	No	Yes	Yes
Reader Service No	1200	1201	1202	1203	1204	1205	1206	1207	1208

¹Represented in US by Broadcast Video Systems. ²Represented by BPI/Brabury PortaPattern. ³Generates waveform and vectorscope patterns for display on standard video monitor; expanded 512 linesx34µs. ⁴5860H does not include Linearity response or 1-line H or 1-line V timebase. ⁵Also performs SC/H measurement, simultaneous A/B signal displays and full line select; model 5872 uses same specifications as 5870, 5871 but without SC/H measurement, simultaneous A/B display and full line select.

Manufacturer	Magni Systems		Philips Test & Measuring/BTC ⁶			Systems Video ⁹	Tektronix		
Model	WFM 560/561	WV 560/561	PM5661 Combo (5662)	PM5664 Component	PM5665	1258	1480 series	1710B series†	1730 (1730-HD/-D2) ¹⁰
Display size	4x3.25"	4x3.25"	8x10cm	8x10cm	8x10cm	10x10cm	8x10cm	8x10cm	8x10cm
Graticule	Internal illuminated		Internal	Internal electronic	Internal	Internal	Int	Ext	Internal
Standards supported	N, P, S	NTSC, PAL	NTSC, PAL	RGB, YCbCb, YIQ ⁷	NTSC, PAL	N, P/-M	N, P/-M, S	N, P	N, P (multistd)
Internal calibrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

SOLID STATE TOWER CONTROLS

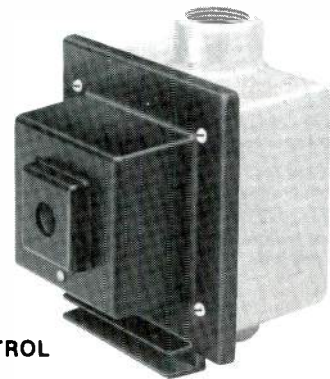
**TOWER FLASHER
FS155-30T**



**SEQUENTIAL FLASHER
CS-306-30**



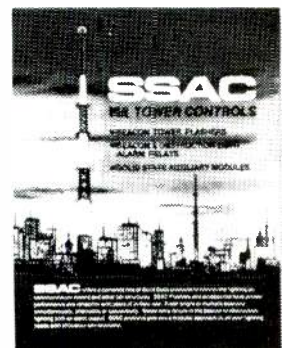
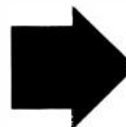
**LIGHT ALARM RELAY
CS Series**



**PHOTO CONTROL
PCR11**

SSAC offers a complete line of solid state products to control and monitor the lights on communication towers and other tall structures. SSAC solid state products have proven performance and reliability with years of infield use. Flash single or multiple beacons: *simultaneously, alternately, or sequentially*. Sense lamp failure in the beacon, side lamps, or other obstruction lighting with an alarm output. The PCR11 Photo Control with its all plastic housing is ideal for turning on complete tower lighting at dusk (factory calibrated).

FREE



**PHONE OR WRITE FOR YOUR FREE TOWER CONTROLS MANUAL
TELEPHONE (315) 638-1300 • FAX (315) 638-0333**

SSAC^{INC}

P.O. Box 1000 • Baldwinsville, NY 13027

Circle (116) on Reply Card

Manufacturer	Magni Systems		Philips Test & Measuring/BTC ⁶			Systems Video ⁷	Tektronix		
Model	WFM 560/561	WV 560/561	PM5661 Combo (5662)	PM5664 Component	PM5665	1258	1480 series	1710B series†	1730 (1730-HD/D2) ¹⁰
Vertical response	Chroma, LP, Flat	Chroma, LP, Flat, ♂G	Chroma, LP, Flat, ♂G, ♂ Linearity	LP, Flat	Chroma, LP, Flat, ♂G, Linearity	Flat, LP, Chroma, Linearity	Flat, chroma, LP, IRE, ♂G	LP, Flat	Flat, LP, chroma, (30MHz, 2-trace filter)
Time bases	H 2H 2Hm 2V 2Vm	H 2H 2Hm 2V 2Vm	H 2H 2Hx V 2V 2Vx	H 2H 3H V 2V 2Vx	H 2H 2Hx V 2V 2Vx	H/V 2H/V 5H/V 10H/V	H 2H 2Hm V 2V 2Vm	2H 2Hm 2V 2Vm	H 2H 2Hm 2V 2Vm/2
Time base magnification	x10 (H/2H); x25 (2V)	x10 (H/2H); x25 (2V)	x10; x20	x10; x25	x10; x20	...	x5 10 20 25 50	x10	x10; 20; 25
RGB-YRGB displays	Yes	Yes	Yes	RGB only	Yes	Yes	Yes	No	Yes
DC restore	Back porch	Back porch	Back porch/ sync	Back porch/black	Back porch/sync	Yes	Back Porch, Sync	Back porch	Back porch
VITS line select	Yes	Yes	Any line	Any line	Any line	Yes	1L & 15L	None	Any (& 14-line)
Programmable	Yes	Yes	No	Yes	No	Yes	No	No	Yes
Remote control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Yes
Composite inputs	Yes	Yes	Yes	No	Yes	A/B	A/B/Aux	A/B	A
Component inputs	Yes	Yes	No	Yes	No	...	...	No	3 each/A/B
Line strobe pulse	No	No	Yes	No	Yes	...	Yes	No	Yes
Vectorscope function	Yes	Yes	Yes (w/SC-H ♂)	Yes ⁸	No	No	No	Burst phase	No
Waveform comparison	Yes	Yes	Yes	Overlay	Yes	Overlays	Overlay/parade	No	Parade/overlay
Reader Service No	1209	1210	1211	1212	1213	1214	1215	1216	1217

⁶Represented in US by BTC Test & Measurement Inc. ⁸Star mode, Gamut, RGB out. ⁹Represented in US by A.F. Associates. ⁷Also accepts Betacam and M-II inputs. ¹⁰D-2 model for digital D-2 signals; 10ns/div and 1-2/-3-line rates included for -HD.

Manufacturer	Tektronix				Videotek		
Model	1740 series	1750 series combo	1780R series combo†	WFM 300A	TSM-50	TSM-60	TVM-620
Display size	8x10cm	8x10cm	2 8x10cm	8x10cm	8x10cm	8x10cm	8x10cm
Graticule	Internal	Internal	Ext/ill/int/elect	Elect 1% accuracy	Internal	Internal	Internal
Standards supported	NTSC; PAL/-M	NTSC; PAL	N, P	525/60 625/50 RGB	N, PAL/-M	NTSC; PAL/-M	NTSC; PAL/-M
Internal calibrator	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vertical response	Flat, IRE, Luma, Chroma		Chr, LP, Flat, Luma, ♂-step ¹¹	Lightning, Bowtie, LP	Chroma, LP, Flat	Chroma, LP, Flat, ♂G	Chroma LP Flat
Time bases	H 2H 2Hm; V 2V 2Vm		H 2H 2Hm V 2V 2Vm	H 2H 2V 2Vm ♂-step	2H 2Hm 2V 2Vm	H 2H 2Hm 2V 2Vm	
Time base magnification	x10 20	x2 10 20 50	x5 10 20 25 50 100	x20	x20	x20	x5V; x10H
RGB-YRGB displays	Yes	Yes	Yes	Yes	No	Yes	Yes
DC restore	Back porch; sync tip	Back porch; sync tip	Back porch Sync tip	Back porch	Back porch	Back porch	Back porch
VITS line select	Internal jumper set	8-23; 6-21; 319-334	1H or 15H	Any line	No	Yes	No
Programmable	All functions	All functions	Yes	...	No	No	Yes
Remote control	Yes	Yes	RS-232/-422	Yes	No	No	No
Composite inputs	A/B	A/B	A/B1/B2/B3 ¹²	Yes	Yes	Yes	3
Component inputs	No	No	A/B1 B2 B3	RGB; YCrCb ¹³	No	No	No
Line strobe pulse	...	Yes	Yes	Any 2; any 15	No	No	Yes
Vectorscope function	♂ in R-Y mode	w/SC/H ♂	Yes	Yes	No	No	Yes
Waveform comparison	Parade display	Overlay Vctr/Wfm	Overlay & Parade	Overlay & parade	No	No	Yes
Reader Service No	1218	1219	1220	1221	1222	1223	1224

¹¹SCIH polar display, Diff Phase, Diff Gain. ¹²Auxiliary in/out. ¹³Transcoders for YIQ, YCrCb available.

Television Demodulators

Manufacturer	Barco Industries	Hans Plisch	Philips T&M/BTC	Rohde & Schwarz	Tektronix	Telemet	Videotek
Model	VSD 1000 ¹	FME 488/499 ²	PM 5560 ³	EMFT	1450-1	5401-B series	DM-141S
Serviceband	VHF, UHF	VHF	UHF	VHF, UHF, IF, CATV	VHF UHF IF	V/UHF IF CATV	IF
CCIR designations	CCIR I-IV	III	IV/V	CCIR I-V	Band I/III/IV/V	CCIR I-V	CCIR I/III/IV/V
Channel select	Xtal or PLL	PLL	PLL synthesized	Xtal, PLL, D/C	Fixed & tunable	Xtal, converter	Synthesized
RF input impedance	75, 50 opt.	50Ω	50Ω	50/75Ω	50Ω	50/75Ω	75Ω
Direct input range	-30/+30dBmV	...	3V max	0.5-100mV	80μV-5V	500mV	...
Offair input range	300μV-30mV	30-126μV	>100mV	0.5-100mV	80mV-5V	5-50mV	100μV-630mV
IF input range	0-40dBmV	...	70mV ±3dB	5-100mV	80μV-22mV	N.A.	...

AS-101 AUDIO SWITCHER

- Illuminated and legible control buttons
- Instant or overlap switching
- Front panel accessible level controls
- Optional RS-232 interface
- Optional relay follow switch outputs
- Plug-in screw-clamp terminals

CONEX ELECTRO SYSTEMS ■■■■ P.O. Box 1342 Bellingham, WA 98227 12061 734-4323

Circle (119) on Reply Card

PRECISION MAGNETIC TEST TAPES

STL

Standard Tape Laboratory, Inc.
26120 Eden Landing Road #5, Hayward, CA 94545
(415) 786-3546

Circle (117) on Reply Card

TRANSMITTING TUBES
(800) 346-6667
In CA: (213) 774-1255
DAILY ELECTRONICS CORP.
Master Tube Distributor

Circle (118) on Reply Card

Manufacturer	Barco Industries	Hans Plisch	Philips T&M/BTC	Rohde & Schwarz	Tektronix	Telemet	Videotek
Model	VSD 1000 ¹	FME 488/499 ²	PM 5560 ³	EMFT	1450-1	5401-B series	DM-141S
Input level indicator	4-LED ladder	LED	Analog meter	Yes	LED display	Meter	No
Intercarrier input	...	...	Yes	Yes	50Ω	No	...
Split carrier mode	...	...	Yes	Yes	Yes	Yes	Yes
Zero-carrier reference	Yes	...	Int/Ext	Internal	Int	ext	Internal
Envelope detector	Yes	Yes	Yes	Yes	Yes	Nes	No
Synchronous detector	Yes	Yes	No	Yes	Yes	Yes	Yes
Quadrature detection	...	...	Yes	Yes	Yes	Yes	No
Aural signal reject	Yes	...	Yes	Yes	Yes	Yes	No
SAW filter design	Yes	Yes	No	Yes	Yes	μP	Yes
# video outputs	2	1	3	1	2 75Ω	Yes	2
Aural deviation out	Yes	Yes	75kHz	±25kHz	50mV/kHz 600Ω	75kHz	No
Audio line out	2-line	+6dBm±0.5dB	0-6dBm var.	Yes	...	+3dBm	+4dBm
Speaker out	2-speaker	Yes	...	Yes	Yes	No	Yes
Video clamp position	...	Sync	back porch	Backporch/sync	Backporch	Sync	blank
Carrier failure alarm	Yes	...	Yes	Yes	...	Yes	No
Modulation fail alarm	Yes	...	No	Yes	...	Yes	No
Stereo audio type	Dual channel	Dual carrier	BTSC/dual aural/Nica	BTSC & dual sound	BTSC system	BTSC	BTSC
Reader Service No	792	793	794	795	796	797	798

¹ Available for I and BG (dual carrier stereo). ² Base unit contains picture CRT; modules permit measurement of TELETEXT; for G/B/I standards. ³ Accepts BTSC dual aural and Nicam type signals from stereo audio.

AM Modulation Monitors

Manufacturer	Belar Electronics Laboratory		Broadcast Electronics	Harris/Broadcast Division	ITAME	Motorola	TFT Inc
Model	AMM-2B (-3)	AMM-3V	AS-10	AM-90	Mod AM 90A	1410 AM/Stereo	753/755A
Frequency range	200k-160MHz		530-1620kHz	450kHz-30MHz	530k-4MHz	530-1620kHz	500kHz-4MHz
Off-air RF range	100μV-300mV w/RFA2	...	500mV-15V RMS	Uses ext RF amp	1-10Vrms	...	100μV-10V
Direct input range	5-10Vrms		...	1-10Vrms	...	500mV-15V RMS	1-10V 50Ω
Input attenuator range	Continuous		0-30dB+AGC	0/+50dB 10dB steps	0-50dB	0-30dB 5 steps	0/-50dB 10dB steps



The only thing it won't test is your tolerance.

Amber 5500: a broadcast-ready, fully programmable audio test system with optional AudioCheck™ PC automation software.

Whether you're testing electronics, tape machines or room acoustics, you want fast, accurate, reliable information — not programming, interfacing or connection headaches.

That's why the Amber 5500 has "broadcast-ready" stereo balanced ins and outs, plus a fully functional front panel so you can run routine bench tests in seconds — without having to hook up a PC.

For PC-automated test routines, the Amber 5500 offers AudioCheck, our powerful PC-based software package. It lets you automate, store and recall transmitter tests, tape deck measurements, console evaluations, any audio measurement you need:

With simple menus, NOT complicated programming.

You can depend on the 5500 everywhere from the studio to the satellite link: Even in high-RFI areas where many other test sets give invalid readings. For a fact-filled 14 page brochure on the broadcast-ready Amber 5500, call 800-361-3697 from anywhere in the USA.

amber

6969 Trans-Canada Highway
St. Laurent, PQ, Canada H4T 1V8
Tel: (514) 333-8748 • FAX: (514) 333-1388

Circle (120) on Reply Card

Broadcast-Ready 5500 Features

- 0.001% (-100 dB) distortion — "digital audio" accuracy
- > +30 dBm power output checks pro-level headroom
- GPIB/IEEE 488 and RS 232 interfaces
- Stores 10 front panel setups in non-volatile memory
- Tests tape recorders and satellite links with asynchronous send & receive signals
- High speed plotting option produces 256-point high resolution swept measurements in seconds
- Effective shielding provides excellent RFI immunity
- Filters & detectors for all international standards
- Optional sum/difference output matrix simplifies stereo tests
- High level stereo balanced ins and outs: 3 switchable impedances



Manufacturer	Belar Electronics Laboratory		Broadcast Electronics	Harris/Broadcast Division	ITAME	Motorola	TFT Inc
Model	AMM-2B (-3)		AS-10	AM-90	Mod AM 90A	1410 AM/Stereo	753/755A
Modulation range	0-133%		0-133%	0-140%	0-133%	-0	+133%
Peak modulation indicator	Adjust (Program)	Programmable	Autoranging	Adjustable	LEDs	Adjustable	Adj. & 100%/125%
Peak flasher accuracy	2% (1%)	1%	...	±1%	...	2%	±10%
Audio output level	+10dBm 600Ω		2.45VRMS	+10dB 500Ω	10dBm	10dBm 600Ω	0dBm
Audio output connection	Unbal active	Bal Xfmr	600Ω bal	Bal	600Ω bal	Active balanced	Bal/Unbal
AF response (mono) ±dB Hz-kHz	±0.5dB 20-25k		...	0,-0.5dB 20-20k	±0.5 20-25k	±2dB	30-20k
AF distortion (mono)	0.25% 99% mod		...	0.15%	...	0.25%	0.15%
Audio S/N ratio (mono)	75dB	75dB	...	75dB	75dB	+67dB	75dB
Meter, display type	Analog meters		Analog meters	Neon bar graph	Analog meter	Analog meter	Analog meter
Oscilloscope test output	Yes	Yes	Possible	Yes	...	Yes	No
Remote metering output	Yes	Yes	Possible	Yes	...	Yes	Yes
Failure alarms	Carrier off; modulation opt.	±30% carrier; modulation opt.	...	Carrier off; modulation low	Carrier fail.	...	Carrier off; Modulation low
Reader Service No	1225	1226	1227	1228	1229	1230	1231

FM Modulation Monitors

Manufacturer	Belar	QEI	TFT Inc	
Model	FMM-2	Model 691	844A	884
RF channel selection	Xtal (Opt presets)	PLL	Preselector	Preselector
Off-air RF range	50μV-300mV	3.16-80mV	250μV-100mV	50μV - 100mV
Direct input range	1V-10V	1mW-50W	100mV-10V	0.5mV-100mV
Input attenuator range	Continuous	...	0/-50dB 10dB sterep	
AGC circuitry	Yes	...	Yes	Yes
Modulation range	0-133% on meter	0-133%	0,+133%	
AF response (meter) ±dB Hz-kHz	±0.1 10-100k	0.2 30-75k	±0.25 50-15k	
Peak mod. adjustment range	199%	0-199%	50-199%	
Peak flasher accuracy	1% 75kHz dev	±1%	1% 5kHz	20% 75kHz
Residual AM monitor	Integral	Yes	Integral	Integral
Audio output	+10dBm	1Vp-p	0dBm	0dBm
AF response (out) ±dB Hz-kHz	±0.01dB 10-50k	...	±0.5dB 30-120k	±0.5dB 50-15k
AF distortion (mono)	0.003% THD/IMD	0.05%	0.1%	0.2%
S/N ratio (mono)	90dB	>75dB	75dB	70dB
Composite output V	1.5Vrms 75kHz dev	1V p-p	5Vrms 75kHz dev	50Vrms 75kHz
Meter display types	Analog	Dual analog	Analog meter	Analog meter
Modulation alarms	Yes	Yes	Yes	Yes
Stereo monitor	Options	...	Yes	No
SCA monitor	FMS-2, 4-channel	Integral	Dual TFT 845	
Reader Service No	1232	1233	1234	1235

TV Aural Monitors

Manufacturer	Belar	Tektronix	TFT Inc	
Model	TVM-101 (TVM-100)	751 BTSC	701 (Mono) ²	850
RF range-channel	Any per request	Any US TV channel	Ch 2-83 (UHF/VHF)	Ch2-38 UHF/VHF
Off-air RF range	200μV-1V 50Ω	from 1450-1 demod	250μV-5mV 75Ω	200μV-5mV 50Ω
AGC circuitry	Yes	per Demod	Yes	Yes
Modulation range	0-133% on meter ¹	100% 73kHz max	0/133%	0/133%
AF response (meter) ±dB Hz-kHz	±0.1dB 10-100k	±0.7kHz total	±0.2dB 50-15k	±2.0dB 50-120k
Audio output	+10dBm 600Ω bal	+8dBm 600Ω	2Vrms 600Ω	1.5Vrms 600Ω
AF response (out) ±dB Hz-kHz	±0.01 10-50k	±0.1 50-15k	0.2 15-15k	±0.5 50-50k
AF distortion (mono)	0.003% THD/IMD	<0.1dB main ch.	0.25%	0.1% 1kHz
S/N ratio (mono)	80dB	>70dB	-65dB	70dB
Composite output V	1.5V 75Ω 75kHz dev	No	...	1.5V 75Ω
Meter display types	Analog (& digital)	EL bar graph	...	Analog meter
ATS compatible	Yes	...	No	Yes
Oscilloscope output	Yes	...	No	Yes
Carrier alarms	Low level	Loss/unlocked pilot	Off frequency	Low level/lost of lock
Modulation alarms	Mod loss option	Stereo phase reverse	Loss of modulation	Loss of modulation
Stereo monitor	TVM-210	Integral	No	Integral
SCA monitor	SCM-2 4-channel	SAP/PRO integral	Single	Option TFT855 for
PRO/SAP monitors	PRO SAP opt	...	...	SAP & PRO
Reader Service No	1236	1237	1238	1239

¹ RF frequency counter, intercarrier freq error measurements, remote meter. ² Switched for mono-BTSC stereo. Integral residual AM, FM noise meter; split sound, quasi-parallel detection.

Professional services

Professional services

Why not run your Business Card here?

It's a great way to promote your service and increase business, all for as low as \$110 per insertion.

For information just call Renée Hambleton at (913) 888-4664

VIR JAMES P.C.
CONSULTING ENGINEERS
Applications and Field Engineering
Computerized Frequency Surveys
3137 W. Kentucky Ave. - 80219
(303) 937-1900
DENVER, COLORADO
Member AFCCE & NAB

CALL US For New and Rebuilt
Radio Broadcast Equipment

HE HALL
Electronics
(804) 974-6466

1305-F Seminole Trail • Charlottesville, Va. 22901

TEKNIMAX
TELECOMMUNICATIONS

DENNIS R. CIAPURA
PRESIDENT

11385 FORESTVIEW LN.
SAN DIEGO CA 92131 (619) 695-2429

CHUCK JONES
ANTENNA SYSTEMS SPECIALIST
618-564-2481

SOUTHERN ILLINOIS ANTENNAS
ROUTE 3 BOX 114
METROPOLIS IL 62960

EVANS ASSOCIATES
CONSULTING TELECOMMUNICATIONS ENGINEERS
AM-FM-CATV-ITFS-CELLULAR

216 N. Green Bay Road
Thiensville, Wisconsin 53092
Phone (414) 242-6000 Member AFCCE

Robert J. Nissen

THE NISSEN GROUP, INC.
Communications Technology Consultants

32 Ridge Drive • Port Washington, New York 11050
(516) 944-5477

NETCOM (201)837-8424
NETWORK COMMUNICATIONS CONSULTANTS
931 TEANECK RD TEANECK, N.J. 07666

STATE-OF-THE-ART ENGINEERING FOR AUDIO & VIDEO

- FACILITY PLANNING
- SYSTEM DESIGN
- CAO SERVICES

JAMES TRONOLONE
ENGINEER

JOHN H. BATTISON PE.
CONSULTING BROADCAST ENGINEER,
FCC APPLICATIONS AM, FM, TV, LPTV
Antenna Design, Proofs, Fieldwork
2684 State Route 60 RD*1
Londonville, OH 44842
419-994-3849

TOWER NETWORK SERVICES

TNS
Strobe Light Repair
DISCOUNT RATES
FLASH TECH / EG+G
NATIONWIDE SERVICE

Timer
(305) 989-8703

D. L. MARKLEY
& Associates, Inc.
CONSULTING ENGINEERS
2401 West Moss Ave.
Peoria, Illinois 61604
(309) 673-7511
Member AFCCE

SMITH and POWSTENKO
Broadcasting and Telecommunications
Consultants
2033 M Street N.W., Suite 600
Washington, D. C. 20036
(202) 293-7742

ERIC NEIL ANGEVINE, P.E.
consultant in acoustics
specializing in broadcast studio acoustics

910 Lakeridge Drive Stillwater, OK 74075
405-744-8444 405-372-3949

PATCHPRINTS VIDEO TIE LINES
In 1 2 3 4 Aux

Custom Patch Bay Labeling
By

PATCH BAY DESIGNATION COMPANY
Div. of Glendale Rubber Stamp & Printing Co., Inc.
P.O. Box 6278, Glendale, CA 91205 Telephone (818) 241-5585
4742 San Fernando Road Glendale, CA 91204 FAX (818) 507-5050

East Coast Video Systems
ON LINE In Time

A full service company providing...

- Consultation
- Engineering & Design
- Installations
- Training

Serving...

- Cable Systems
- Corporate Facilities
- Broadcast Facilities
- Teleproduction Facilities

52 Ralph Street, Belleville, NJ 07109 (201) 751-5655

BROADCAST DATABASE[®]
dataworld
MAPS
Coverage/Terrain Shadowing
Allocation Studies • Directories
P.O. Box 30730 301-652-8822
Bethesda, MD 20814 800-368-5754

Why not run your business card here?
Only \$125 per insertion.
Frequency discounts available.
Call 913/888-4664

Ad index

	Page Number	Reader Service Number	Advertiser Hotline		Page Number	Reader Service Number	Advertiser Hotline
A.F. Associates Inc.	97	66	201/767-1200	Inovonics, Inc.	38	26	800/733-0552
Abekas Video Systems	23	12	415/369-5111	Intraplex, Inc.	99	69	508/486-3722
Acrodyne Industries	57	43	800/523-0596	Itime	75	53	
AKG Acoustics, Inc.	146	96	415/351-3500	Jampro Antennas, Inc.	102	75	916/383-1177
Amber Electro Design, Inc.	185	120	514/333-8748	JVC Professional Product Co.	21	11	800/582-5825
Ampex Corp (AVSD)	112		800/25A-MPEX	Kay Elemetrics Corp.	104	78	201/227-2000
Ampex Recording Media	60	47	415/367-2911	Leader Instruments Corp.	33	17,18	800/645-5104
Anvil Cases, Inc.	99	70	818/575-8614	Lectrosionics, Inc.	91	61	800/821-1121
Arrakis Systems, Inc.	93	62	303/224-2248	Leitch Video of America, Inc.	87	60	804/424-7290
Audio Accessories, Inc.	106	80	603/446-3335	Lexicon, Inc.	77	56	617/891-6790
Audio Animation	59	46	615/689-2500	Magni Systems, Inc.	79	57	503/626-8400
Audio Precision	145	95	800/231-7350	Mark Antennas, Div. of Radiation Systems	98	67	708/298-9420
Audio Services Corporation	108	85	818/980-9891	Matco	98	68	408/998-1655
Audio Technologies Inc.	165	101	215/443-0330	MCL, Inc.	103	76	708/759-9500
Audio-Video Engineering Co.	101	74	516/546-4239	Midwest Communication Corp	1	3	606/331-8990
Audiolab Electronics	50	35	916/485-0500	Mohawk Wire & Cable	109	86	800/422-9961
Autopatch, Div. of XN Technologies	10	6	800/622-0246	Moseley Associates, Inc.	83	58	805/968-9621
Avcom of Virginia, Inc.	167	102	804/794-2500	Myat	181	115	201/767-5380
Belar Electronics Laboratory, Inc.	106	81	215/687-5550	Nautel	54	40	902/823-2233
Belden Wire and Cable	27	14	800/BEL-DEN4	Nesbit Systems, Inc.	56	42	609/799-1482
Benchmark Media Systems	108	84	800/BNC-HMRK	Nikon Corporation	19	10	516/222-0200
Berc	39	21	818/841-3000	North Hills Electronics, Inc.	44	29	516/671-5700
Broadcast Electronics, Inc.	17	9	217/224-9600	Nova Systems, Inc.	125	110	203/693-0238
Broadcast Equipment Sales	103		601/857-8573	Odetics, Inc.	49	33	800/243-2001
Broadcast Video Systems, Ltd.	167	103	416/764-1584	Omicron Video	100	71	818/700-0742
Bryston Vermont	107	82	416/746-0300	Opamp Labs, Inc.	167	105	213/934-3566
BTS Broadcast Television Systems	111	88	800/962-4BTS	Orban Div. of AKG Acoustics, Inc.	7	4	800/227-4498
Burle Electron Tubes	137	92	800/827-TUBE	Panasonic Broadcast Systems Co.	64-65	45	201/348-7336
Cablewave Systems	37	20	203/239-3311	Panasonic Pro Industrial Video	46-47	31	800/553-7222
Canare Cable, Inc.	143	93	818/365-2446	Ramsa/Panasonic	9	5	714/895-7277
Cel Electronics, Inc.	25	13	800/325-CEL1	Rhode & Schwarz, Inc.	159	111	
Cipher Digital, Inc.	109	87	800/331-9066	Schmid Telecommunications	175	112	201/530-8555
Clear-Com Intercom Systems	105	79	415/527-6666	Sennheiser Electronic, Corp.	85	59	203/434-9190
Comark	67	49	215/822-0777	Shure Brothers, Inc.	153	98	708/866-2553
Conex Electro Systems	184	119	206/734-4323	Sierra Automated Systems	104	77	818/840-6749
Control Concepts Corp	42	23	607/724-2484	Sierra Video Systems	101	73	916/273-9331
Crown International	55	41	219/294-8000	Snell & Wilcox	94	63	415/856-0900
Daily Electronics Corp	167,184	104,118	800/346-6667	Sony Communication Prod/ Broadcast Div	14-15		800/635-SONY
Datatek, Inc.	69	50	800/882-9100	Sony Communications Products/Pro Video	128-129		800/523-SONY
Di-Tech, Inc.	IBC	2	516/667-6300	SSAC, Inc.	183	116	315/638-1300
Dolby Labs, Inc.	13	7	415/558-0200	Staco Energy Products Company	100	72	513/253-1191
Drake Electronics, Ltd.	52	38	615/254-7400	Standard Tape Laboratory, Inc.	184	117	415/786-3546
Dynair Electronics, Inc.	35	19	619-263-7711	Systems With Reliability, Inc.	50	34	800/762-7743
EEV, Inc.	71	51	914/592-6050	Tektronix, Inc.	119,171	91,108	800/452-1877
Emcor Products	41	22	507/289-3371	Tektronix, Inc.	172	109	800/452-1877
ESE	169	106	213/322-2136	Telemetrics, Inc.	45	30	201/427-0347
For-A Corp. of America	73	52	213/402-5391	Thomson Tubes Electroniques	53	39	201/812-9000
Fostex Corp. of America	51	97	213/921-1112	Thomson—CSF/LGT	30-31	16	
Fujinon, Inc.	29	15	201/633-5600	TTC-Television Technology Corporation	177	113	303/665-8000
Gentner Electronics Corp	149	36,37	801/975-7200	Varian, CED (Continental Electronics)	48	32	214/381-7161
Gray Engineering Laboratories	107	83	912/883-2121	Vinten Equipment, Inc.	63	48	516/273-9750
Harris Corp	179	114	800/4HA-RRIS	Ward-Beck Systems Ltd.	BC		416/438-6550
Hedco	43	28	800/433-2648	Wohler Technologies, Inc.	169	107	415/285-5462
Hitachi Denshi America, Ltd	3	24	800/645-7510				
Ikegami Electronics, Inc.	4-5	8	201/368-9171				
illbruck	IFC	1	804/358-3852				

“Did you have your serial today...?”

If not, try our

SERIAL DIGITAL VIDEO ROUTING SWITCHER

SERIAL IN • SERIAL OUT • NO CONVERSIONS

If you're going directly to serial or upgrading from parallel to serial —
Go the Di-Tech way for your D1, D2 distribution solution

Revert forward to BNC connectors and coax cable for simplified signal distribution.



2 Frame Sizes -

Both Expandable

Model 5216 (16 x 16) or

Model 5264 (64 x 16)

*Advanced Technology Today
...For Tomorrow!*



di-tech inc.

48 Jefryn Boulevard, Deer Park, New York 11729 • (516) 667-6300 Fax: (516) 595-1012

Circle (2) on Reply Card



MiniCOM[®] brings a totally new dimension to professional communications!

Until now setting up a production communications system required bulky hardware and plenty of space.

MiniCOM[®] changes all that! It delivers mainframe performance in a "desktop" sized package. A 24 x 36 matrix in just 8³/₄" of rack space (5 rack units).

And, because we've been able to put all that traditional Ward-Beck quality and performance into such a compact frame, the price has come down to "desktop" proportions too!

No need to dream any more about having a MicroCOM System sometime in the future... You really can afford one today!



WARD-BECK SYSTEMS

Ward-Beck Systems Ltd., 841 Progress Avenue, Scarborough, Ontario, Canada M1H 2X4.
Tel: (416) 438-6550. Fax: (416) 438-3865.