PROFESSIONAL TELEVISION EQUIPMENT

CAMERAS • ACCESSORIES • TERMINAL EQUIPMENT • SWITCHING SYSTEMS • FILM EQUIPMENT

PROFESSIONAL TELEVISION EQUIPMENT CATALOG

THE MOST TRUSTED NAME IN TELEVISION

ABOUT THIS CATALOG

This catalog provides information on RCA Professional Television Equipment, a complete new line of equipment designed and built to broadcast industry quality standards. Systems made up of these equipment units provide stability of operation, reliable performance and crisp picture clarity, at a cost within the reach of most serious users.

The information contained in this catalog is intended to serve as a buying guide for the user. Complete specifications and ordering information are supplied. When you are considering a television system, we would be glad to assist. We are experienced in both routine and unusual applications of television and can be helpful in providing general system recommendations and cost estimates.

OTHER RCA TECHNICAL PRODUCTS

In addition to the equipment shown in this catalog, RCA manufactures a complete line of "broadcast-type" television equipment designed specifically for television broadcast station use. Catalogs describing this equipment are available on request.

RCA also manufactures many other electronic products, including: radio broadcasting equipment; two-way radio and microwave relay communications equipment; optical and magnetic film recording equipment; sound systems of all types; instructional electronics products including 16mm projectors, record players, tape recorders, and dial access systems; industrial inspection and automation equipment; scientific instruments, such as the electron microscope; and many types of custom-built equipment for industry, the military, educational and medical services. Information describing these products may be obtained from RCA Sales Offices in the United States and Canada or internationally from RCA International Marketing Subsidiaries and local RCA Authorized Distributors.

PRICES

Prices of the equipment shown in this catalog for United States and possessions are provided in a separate price list. Equipments are identified by type and MI (Master Item) numbers which are used to identify apparatus on invoices and packing slips. International prices for the various equipment items shown in this catalog are available from RCA International Marketing Subsidiaries. Authorized RCA Distributors outside of the United States or RCA's International Sales Dept.

HOW TO ORDER

The RCA Professional Television Equipment shown in this catalog is sold in the United States through RCA Broadcast Representatives, RCA Professional Television Systems Representatives, and selected "Specialists." These RCA Representatives are located in convenient offices throughout the United States. Domestic orders for equipment, or requests for additional information, should be directed to the nearest RCA Sales Office. Readers outside the United States are invited to contact their local RCA Authorized Distributor or the RCA International Marketing Subsidiary for their area.

RCA Professional Television is a quality product line which combines simplicity of operation with long-term reliability. It includes a full line of transistorized vidicon cameras, including studio, film and non-viewfinder types. Complementing the cameras are many other related equipment items which extend their flexibility and range of usefulness. This matched equipment line is a logical outgrowth of RCA's "System Design" concept which is of prime importance in television planning. System components are matched not only in common color and styling, but also in electrical and mechanical designs. The integrated system provides superior performance and the attractive appearance is an extra which adds nothing to the cost.

With RCA Professional Television, you can add capabilities when you need them. Expansion is more economical, since later system "add-ons" are fully compatible. Your investment is protected against premature obsolescence.

Vidicon Studio Camera,

Everything about the PK-330 Studio Camera is new and imaginative . . . an ultra sensitive, high performance vidicon pickup tube . . . a pan and tilt head built into the camera . . . a viewfinder that never swings up or down . . . fully transistorized plug-in module construction . . . and many other features in a camera only half the size of most cameras. Fresh, user-engineered concepts incorporated in the PK-330 have replaced traditional designs to bring new economy, reliability and higher standards of performance to educational, broadcast and military studios.

Crisp, High Resolution Pictures

A new excellence in picture quality is achieved by the broadcast type aperture and gamma correction circuits in the PK-330 working in conjunction with the RCA Type 8507 magnetic focus and deflection vidicon. Developed especially for live pickup use, this one-inch tube employs a separate field mesh electrode together with an extremely sensitive and uniform photo surface. Resulting picture background is completely free of "flare" and picture fidelity is increased. The exceptionally high resolution of 850 lines in the center of the picture and at least 600 lines in the corners is achieved through the advanced engineering concepts incorporated in the PK-330 camera.

Built-In Pan and Tilt Head

Through unique packaging, the lens pan and tilt mechanisms are integral parts of the PK-330, permitting the camera to mount directly to the tripod or pedestal and eliminating any need for the costly external cradle or friction head required for other cameras. This industry "first" results in a lighter, more compact camera-pedestal assembly; it also has the important advantage that the viewfinder kinescope always stays at eye level regardless of the position of the camera lens. No more need for cameramen to tip-toe and squat, and they can touch up the framing and focus at any time. The camera lens can be operated through a 360 degree pan range and an 80 degree vertical tilt angle, which exceeds the normal tilt angle of friction-head mounted cameras.

General

Type of Reproduction ..... Monochrome
Scanning Standards ..... 525 lines, 60 fields, 2:1 interlace
Vidicon Beam Alignment ..... Electromagnetic
Vidicon ..... 1" electromagnetic focus and electromagnetic deflection, Type 8507

Picture Quality

Horizontal Resolution ..... 850 lines in center, 600 lines in corners
Video Amplifier Response ..... 10 MHz ±1 dB before high peaking and aperture correction
Gamma Correction ..... Choice of 1.0 or 0.7
Aperture Correction ..... Phaseless delay line correction adjustable 12 dB, switchable to 4 or 8 MHz
Gray Scale ..... Reproduces 10 shades of gray from standard test chart
Signal-to-Noise Ratio ..... At least 40 dB, camera viewing standard test chart with f/1.5 lens and 50 foot-lambert highlight brightness
Total Raster Distortion ..... Within 2% of picture height
High Peaking ..... Adjustable for optimum compensation
Automatic Sensitivity Control ..... Compensates for 2,000:1 change in scene brightness with less than 50% change in video level

Electrical

Video Outputs ..... Two 75-Ohm source terminated, composite or non-composite, conforming to EIA or CCIR Standards
Video Output Level ..... 0.7 Volt peak-to-peak non-composite, 1.0 Volt peak-to-peak composite
Pulse Inputs ..... 4.0 Volts EIA/CCIR Sync or sync and blanking, depending on desired operating mode
Protective Circuits ..... Automatic lens capping when camera is turned off. Automatic vidicon protection in the event of vertical or horizontal deflection failure
Power Requirements ..... 115/230 Volts ±10%, 47 to 63 Hz, 70 Watts
Control Panel:
  Local ..... On rear of camera
  Remote ..... Rack or console mounting, up to 5,000 feet from camera
Camera Cable Length ..... Specified performance with up to 1,000 feet

Environmental

Temperature ..... –20°C to 50°C
Relative Humidity ..... Up to 95%
Altitude ..... Up to 10,000 feet

Mechanical

Lens ..... Motor-driven zoom lens, standard "C" mount Choice of 4:1 range (17mm-70mm, f/2.0) or 10:1 range (15mm-150mm, f/2.8)
Camera Case ..... Built-in viewfinder light hood, hinged cover
Finish ..... Aluminum and shadow blue textured vinyl
Dimensions and Weight:
  Camera/Viewfinder ..... 10" high, 12" wide, 23" long, (25.4 cm, 30.5 cm. 58.5 cm)
  Power & Control Unit ..... 5¼" high, 8½" wide (13.3 cm, 21.6 cm)
  Weight ..... 50 lbs. (22.7 kg.)

Accessories

Rack Mount Adaptor for Standard Remote Control Panel MI-47792
Adaptor to Mount Standard Remote Control Panel in unused half of MI-557300 Processor Frame MI-48178
Blank Half Panel, occupies one half of MI-47792 ..... MI-47793
Pair of Blank Quarter Panels, occupies one half of MI-47792 ..... MI-47794
Rack Mounting Adaptor for "New Look" Remote Control Panel MI-557306
Blank Panel, occupies one quarter of MI-557306 ..... MI-556530-1
Blank Panel, occupies one half of MI-557306 ..... MI-556530-2
Blank Panel, occupies three quarters of MI-557306 ..... MI-556530-3
Blank Module, occupies unused space in MI-557300 Rack Frame (2 required in single camera systems) MI-557302-9
Heavy Duty Tripod MI-48139
Heavy Duty Dolly MI-48140
Mounting Adaptor, mounts PK-330 on heavy duty tripod MI-48158
Mounting Adaptor, mounts PK-330 on Houston Fearless pedestals ..... CB
Bulk Remote Control Cable MI-48177

Ordering Information

Single PK-330 Camera System, including:
  (1) Camera/Viewfinder MI-48003-A
  (1) Processor MI-48004-C
  (1) Rack Mounting Frame MI-557300
Dual PK-330 Camera System, including:
  (2) Camera/Viewfinder MI-48003-A
  (2) Processor MI-48004-C
  (1) Rack Mounting Frame MI-557300

Lenses

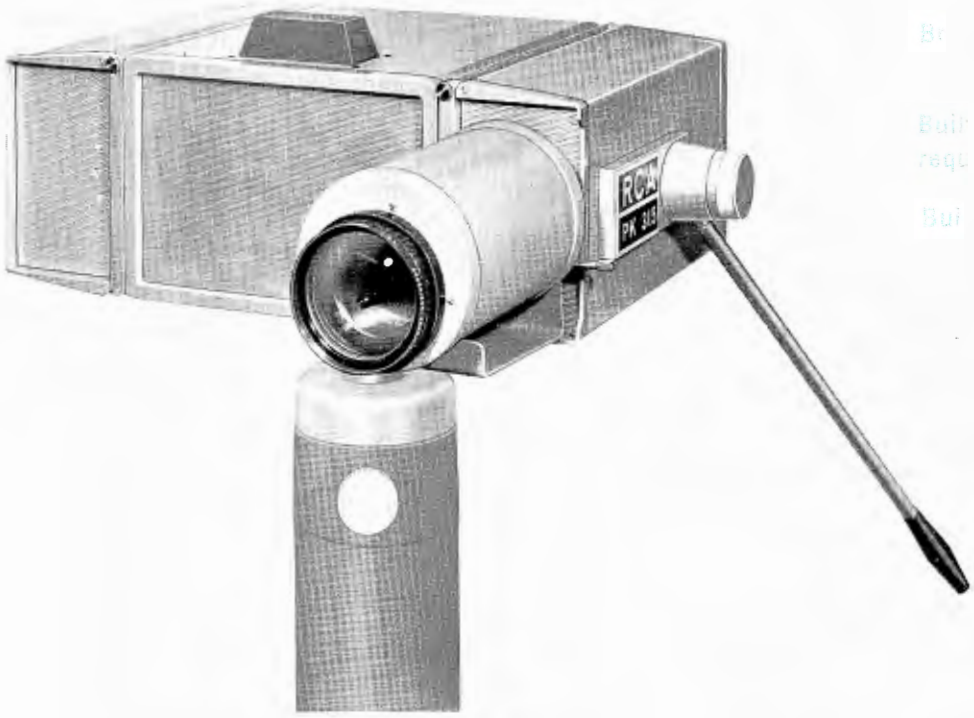
Motorized 4:1 Zoom Lens, 17-70mm, f/2.0 ..... MI-48179
Motorized 10:1 Zoom Lens, 15-150mm, f/2.8 ..... MI-48180

Remote Control Panels

Standard Remote Control Panel, occupies half of MI-47792 adaptor MI-47839
"New Look" Remote Control Panel, occupies one quarter of MI-557306 adaptor MI-47844

Cable

50 ft. Camera Cable with right angle male connector ..... MI-26725-E9 (must be used when processor is mounted in 18" depth)
50 ft. Camera Cable with straight connectors MI-26725-E5
100 ft. Camera Cable with straight connectors MI-26725-E6
200 ft. Camera Cable with straight connectors MI-26725-E7
50 ft. Remote Control Cable Assembly with connectors MI-48188-50
100 ft. Remote Control Cable Assembly with connectors MI-48188-100
200 ft. Remote Control Cable Assembly with connectors MI-48188-200



Vidicon Viewfinder Camera,

The PK-315 Vidicon Viewfinder Camera is the newest addition to the RCA PK-300 series of field proven cameras. Designed for teaching and training applications, the PK-315 employs compact, power saving solid state circuits, built-in electric zoom lens controls, a unique cost-saving pan and tilt mechanism, plus many broadcast camera features. There is a PK-315 model available for each of three synchronizing options: 525 line positive interlace requiring no external sync; EIA/CCIR sync drive—an exclusive Professional Television type sync which meets broadcast specifications but requires a sync-only drive signal; and EIA/CCIR sync and blanking drive, where the camera will be used in a system with other types of cameras.

Imaginative Design

Several cost-saving innovations are offered by the PK-315. For example, a built-in pan and tilt mechanism provides the tripod-mounted camera with a 70-degree tilt range and 360-degree pan. This feature eliminates any need for the cradle or friction head normally required. Other conveniences not usually found in cameras in this price range include built-in zoom lens controls and power supply. Also available is a choice of optional motor driven zoom lenses for 4:1, 6:1 or 10:1 ranges.

Superior Picture Quality

These systems produce sharp, crisp, attention-getting pictures with high response to important scene detail, low noise, and faithful tonal rendition. Phaseless, adjustable aperture correction adds "snap" to images by restoring sharp black-to-white transitions. Gamma correction circuits establish pleasing gray scale and faithful tones with high response to low-light scene detail. High-definition performance is a result of careful circuit design and balancing of all parameters. It has not been artificially inflated with excessive high peaking and improper aperture correction which is often the cause of objectionable noise. A third distinguishing feature is the automatic target control (ATC) circuit which maintains picture quality despite variations in scene lighting of as much as 3000 to 1. ATC maintains optimum camera sensitivity without need for manual adjustment.

A keyed clamp circuit provides a stable DC reference. A peak white "soft" clipper prevents system overload from speculars or other excessive scene highlights. Adjustable shading correction assures uniform picture luminance.

Tally light

Camera head
tilts 70 degrees

Convenient handle
for pan and tilt operation

Choice of
motor driven zoom lenses . . .
4:1, 6:1 or 10:1 range

Completely solid state
modular construction

Double action
motorized zoom focus contro

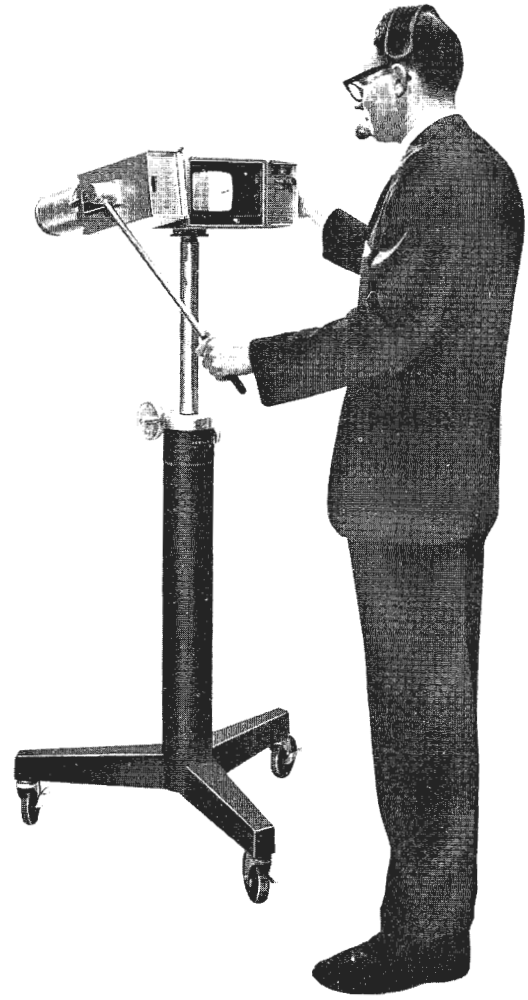
Built-in 360 degree pan—
no cradle or friction head required

Bright picture viewfinder
always at eye-level—
no need to tip-toe or squat

PROFESSIONAL CAMERA FEATURES

Some bonus values of the moderately priced PK-315 normally found only in broadcast cameras are listed below. These and other features enable this professional camera to provide the ultimate in picture quality and to operate continuously with minimum attention:

- **Tally lights**
- **Phaseless adjustable aperture correction for pictures with "snap"**
- **Selectable gamma correction of 0.7 and 1.0 for faithful tonal response—even under poor lighting**
- **Keyed clamp circuit for a stable DC reference**
- **A peak white clipper prevents system overload**
- **Adjustable shading correction assures uniform picture luminance**
- **A dynamic automatic target circuit maintains picture quality over light variations up to 3,000:1**
- **A synchronous power supply for efficient high voltage generation.**



Operational Simplicity

There are only five operating controls aside from those for the zoom lens: "auto-manual target," "day-night" (gamma), "brightness" (pedestal), "electrical focus" and "optical focus." A double-action knob on the right side of the camera provides finger tip control of both zoom and lens focus. Speed of the zoom lens may be controlled with a thumbwheel. A pushbutton-controlled iris assures correct exposure under all conditions. The viewfinder always stays at eye level regardless of the position of the camera lens. No need for cameramen to tip-toe and squat to keep the picture in view. The camera control panel can be located remotely, if desired, by the addition of a control panel extender kit. Also available is an optional remote control panel designed for console mounting.

The PK-315 camera is ready to use when removed from the shipping container. All adjustments are performed during the production test cycle for optimum operation, and the cameras are shipped with the vidicon tube installed. Simplified controls and factory adjustment make it possible to place the cameras in operation with a minimum of technical knowledge.

Solid State, Modular Construction

The PK-315 is self contained and completely solid state, the only tubes being the vidicon in the camera, and the high-voltage rectifier and kinescope in the viewfinder. Plug-in, modular construction simplifies inspection and service, and all circuit modules are interchangeable with other PK-300 Series cameras. Hinged sections open to provide instant and easy access to circuit board modules. An "extender" is available for testing modules while operating in camera.

High Performance Vidicon

The reliability and performance capabilities of the PK-315 are enhanced by a one-inch electrostatic focus, magnetic deflection vidicon tube developed by RCA especially for spacecraft television systems. This tube provides several significant advantages:

- Improved stability
- The bulky focus yoke and power supply are eliminated
- Lower deflection power
- Greatly reduced heat dissipation —0.6 Watt heater
- Improved uniformity in center-to-edge focus

General

Camera Packaging	Single Unit
Camera Construction	Plug-in Modules
Vidicon	1" electrostatic focus, electromagnetic deflection, Type 8134
Scanning Standards	525 lines, 60 fields, 30 frames or 625 lines, 50 fields, 25 frames
Interlace Modes:	
Standard	2:1 Positive Interlace
Optional	EIA/CCIR Sync or Sync and Blanking Drives
Vidicon Alignment	Electromagnetic

Picture Quality

Horizontal Resolution	700 lines in picture center 500 lines in corners (all at same control settings)
Video Amplifier Response	10 MHz ±1 dB
Aperture Correction	Phaseless aperture correction adjustable from 0-12 dB
Gamma Correction (Day-Night Switch)	Choice of 1.0 or 0.7 local or remote control
Gray Scale	Reproduces 10 shades of gray from standard test chart (Gamma 1:0)
Signal-to-Noise Ratio	Nominal 40 dB, p-p signal to rms noise
High Peaking	Adjustable for optimum compensation
Total Scan Distortion	Within 2% at any point on raster
Automatic Light Compensation	Handles range of cover 3,000:1 with less than a 50% change in video level
Recommended Scene Illumination	100 foot-candles minimum

Electrical

Video Output	0.7 Volt non-composite or 1.0 Volt composite
Output Impedance	75 Ohms, source terminated
Power Input	105-130 Volts, 47-63 Hz
Power Dissipation	35 Watts
Control Panel:	
Standard	Mounted on rear of camera
Optional	Up to 10,000 ft. from camera
Video Signal Distribution	Up to 1,500 ft. on RG-11A/U without equalization
Viewfinder Kinescope	5"
Viewfinder Brightness (highlights)	50 foot-lamberts
Viewfinder Resolution	400 lines horizontal, 300 lines vertical

Environmental

Temperature	−20°C to 50°C
Relative Humidity	Up to 95%
Altitude	Up to 10,000 ft.

Mechanical

Lens Mount	Standard 16mm C-Mount (1"-32 thread)
Camera Mounting	¼"-20 tapped mounting hole
Camera Case	Dust and Splash-proof Formed steel covers
Dimensions and Weight (overall, camera and viewfinder):	
Height	7" (18 cm)
Width	17" (43 cm)
Length	10¼" (26 cm)
Weight	30 lbs. (13.6 kg)

Ordering Information

PK-315 Camera System	
EIA/CCIR Sync Drive	MI-47735
525 Line Positive Interlace (EIA Standards only)	MI-47734
EIA/CCIR Sync and Blanking Drive	MI-47733
PK-315 Zoom Lenses—motorized	
4:1 Zoom Range, 17-70mm f2.0	MI-48181
6:1 Zoom Range, 25-150mm f3.5	MI-48190
10:1 Zoom Range, 15-150mm f2.8	MI-48151-A

ACCESSORIES

Console Remote Control Panel (occupies ¼ of MI-47792 Rack Adapter)	MI-47842
Rack Mounting Adapter for above panels	MI-47792
Pair of Quarter Panels to fill unused space in MI-47792 Rack Adapter	MI-47794
Control Panel Extender Kit (Required with remote control panel)	MI-48146-*
Tripod Mount for PK-315	PT-2
Dolly for above	PD-2
Adapter to Mount PK-315 directly on PT-2 or PPD-2	PTA-2
Vidicon Deflection Gauge	MI-48123-A

(* add to MI- number to indicate cable length in feet)

Transistorized Vidicon Film Camera,

The PK-310 Vidicon Film Camera is a completely new all transistorized TV system designed for high quality reproduction of motion picture film and slides. It stands alone in versatility and performance, and may be ordered with any one of three options: positive 2:1 interlace, EIA operation with external sync drive, or EIA operation with external sync and blanking drive. The positive interlace camera may also be equipped with an optional RF output kit to provide both a standard video output and a 75 Ohm RF output on one of the low-band television channels 2 through 6.

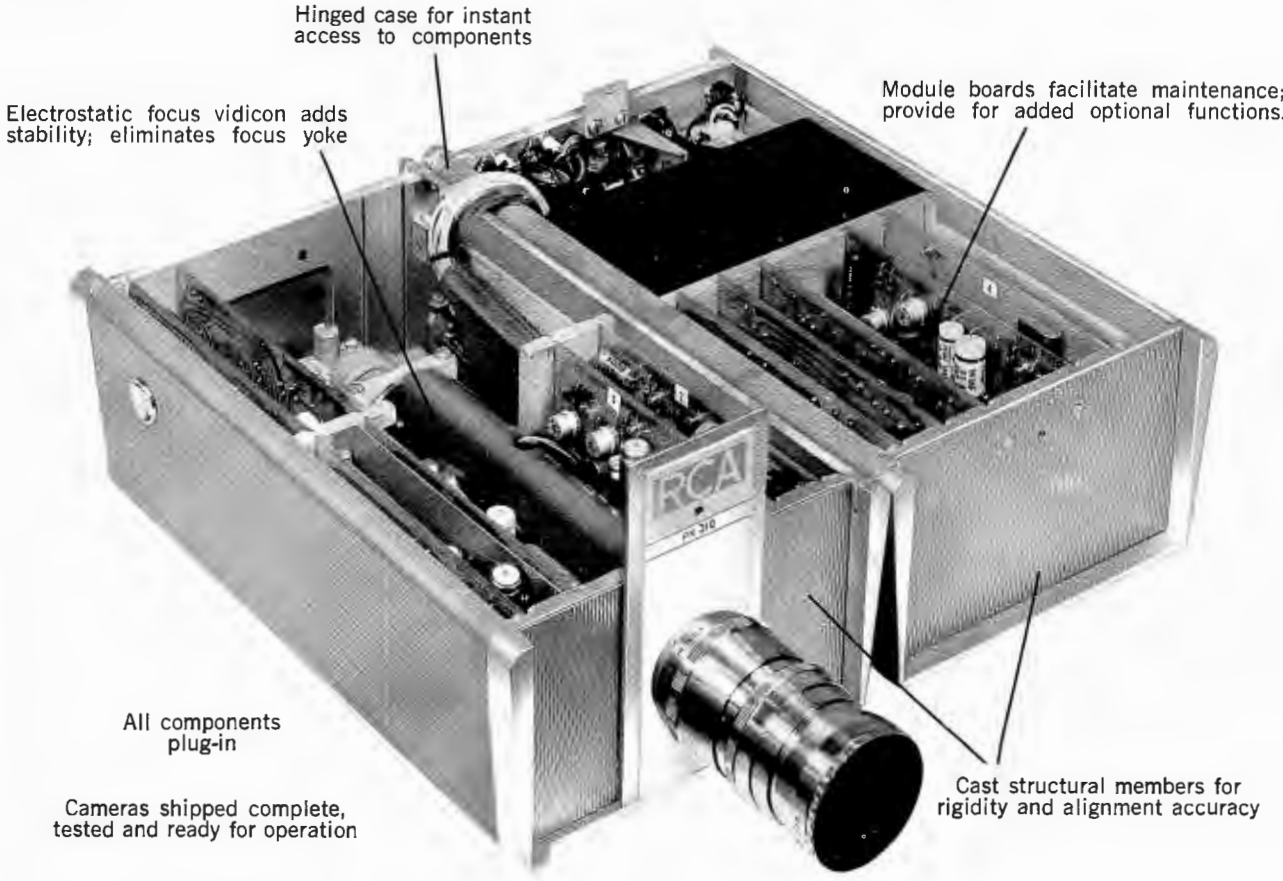
Economical, Professional

Knowledgeable, budget minded educators versed in instructional television techniques will welcome this ultra compact camera . . . its space saving features, "no hands" operating simplicity, and excellent picture quality. They may also specify the option of remote control convenience. Military technicians may be attracted more by its flexibility; finding the same PK-310 system that works so well on its internally generated sync can also be adapted for standard EIA operation with only one drive pulse required—sync. For studio applications where the PK-310 camera is to be integrated into a system of other type cameras, however, a third option of "sync and blanking drive" is recommended for optimum EIA operation with timing compatibility between cameras.

Thus, the flexibility and wide range of functional options offered by the PK-310 extend the usefulness of this professional camera system to many areas in education, military, government and industry.

Single, Compact Unit

The PK-310 Vidicon Film Camera system is self contained in one compact camera unit, requiring only primary power input and sync or sync/blanking drive pulses for EIA operation. No external control units or power supplies are required. The camera tube is a high performance Type 8134 vidicon developed by RCA to meet the exacting requirements for space craft television systems. It is shipped in place in the camera.



"Uniplex" or "Multiplex" Operation

The PK-310 can be uniplexed by mounting it in-line with a single film projector or slide projector to provide limited continuous projection time, or multiplexed with two film projectors and a slide projector to form a three-picture-source film "island." Any number of film islands can be set up to feed video signals to a master control switcher or video distribution system.

Choice of Operating Modes

The PK-310 offers a choice of three modes of operation to meet a wide variety of system requirements: (1) Positive 2:1 interlace; (2) EIA/CCIR sync drive (525 line domestic or 625 line international standards); or (3) EIA/CCIR sync and blanking drive. Positive interlace, suitable for domestic use only, is the simplest. Here, the TV system is synchronized by circuits in the camera and no external sync or drive pulses are required. Maximum stability is achieved by a four-stage countdown module which derives the 60 Hz vertical deflection rate from the master oscillator module. The frequency of the master oscillator is referenced to the power line by a sensitive AFC circuit. Options (2) and (3) provide standard EIA broadcast signals. Addition of the blanking signal as in (3) precludes any time delay between input sync and output sync signals, and permits lap dissolves and "supers" between the video output from the PK-310 and those from other types of cameras. The desired operating mode may be specified with the order and the appropriate modules will be factory installed and tested in the camera prior to shipment. Easy to install, plug-in module kits are also available for modifying cameras in the field from one mode to any other.

Superior Pictures

Several design advances result in exceptionally sharp film and slide reproductions. The newly developed pickup tube is electrostatically focused, takes less power, runs cooler. This reduces camera heat, minimizes drift and component fatigue, and lets the camera run longer without adjustment or picture fuzziness. A "phaseless" delay line type aperture correction gives the vidicon picture added "snap." Picture contrast that is ideal can be selected from the gamma circuit. These features plus an all solid state video preamplifier and feedback stabilized, wideband

video amplifiers provide exceptionally clear, noise-free pictures with excellent day-to-day stability. PK-310 Cameras are ready to use when removed from the shipping container. All factory set-up controls have been adjusted during the test cycle for optimum operation, and the units are shipped with the vidicon tube installed. All cameras are subjected to a 48-hour stabilization test to insure that performance specifications are met or exceeded.

Plug-In Solid State Modules

Designed for continuous operation, the PK-310 is completely transistorized providing the highest order of reliability and attention-free operation. The new vidicon is the only tube in the system. As a result, power consumption is only 20 Watts. All components plug in—circuit modules, high voltage power supply and control panel. Identical modules are interchangeable between cameras. Numerous test points provide for checking waveforms, and a module extender provides full access to both sides of an operating module.

Professional Extras Built-in

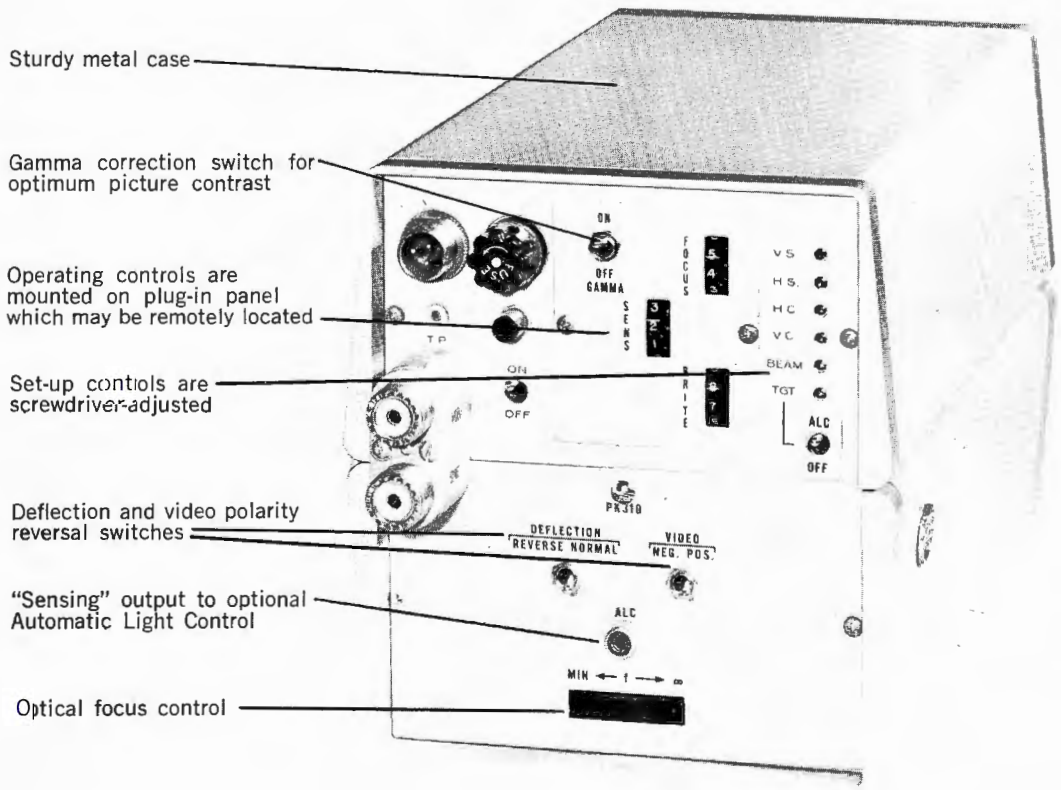
Incorporated in the PK-310 are features normally found only in broadcast type equipment. In addition to gamma correction and phaseless aperture correction, the high voltages required for vidicon operation are derived from a synchronous high frequency power supply. This new technology reduces component size, increases efficiency, eliminates hazardous high-energy filter capacitors, and eliminates 60 Hz and 120 Hz hum. Also built in are switches for horizontal deflection reversal and video polarity selection for positive or negative film.

Automatic Light Control

This optional accessory maintains uniform picture brightness (video level) despite changes in average film or slide density. Used with an optional unit that controls projector lamp intensity, the automatic light control regulates film and slide projector brightness in accordance with variations in film and slide density, eliminating the need for manual adjustment.

Remote Control Operation

Operating controls on the rear of the camera, including gamma, electrical focus, sensitivity and brightness (pedestal) may be duplicated on an accessory remote control panel designed for rack or console desk mounting. The local control can be unplugged and itself used as a remote control panel or replaced by an accessory remote panel with larger thumb-wheel controls. The accessory panel is available in the standard RCA Professional Television format which provides for any two remote control panels to be mounted side by side in a 3½ inches high by 19 inches wide rack mounting frame. A 12-conductor cable assembly is required to interconnect the PK-310 camera with a remote control panel.



Specifications

General

Type of Reproduction.....Monochrome

Scanning Standards (basic camera).....525 lines, 60 fields, 2:1 positive interlace

Optional Scanning.....525/625 lines, 60/50 fields interlaced 2:1 with EIA/CCIR sync content; requires external EIA/CCIR sync drive (for PTV camera system) or sync and blanking drive (for system of mixed camera types)

Vidicon Pickup Tube.....Type 8134 1" electrostatic focus and electromagnetic deflection, shipped in place in the camera

Vidicon Alignment .....Electromagnetic

Picture Quality

Horizontal Resolution.....700 lines in center, 500 lines in corners

Video Amplifier Response .....10 MHz ±1 dB before high peaking and aperture correction

Gamma Correction.....Choice of 1.0 or 0.7 for positive film, 1.0 or 1.4 for negative film

Aperture Correction.....Phaseless delay line correction, variable from 0-12 dB, max. boost at 5.5 MHz

High Peaking.....Adjustable for optimum compensation

Gray Scale.....Reproduces 10 shades of gray from standard test chart

Signal-to-Noise Ratio .....At least 40 dB, camera viewing standard test chart with f/1.5 lens and 50 foot-lambert highlight brightness

Total Raster Distortion.....Within 2% of picture height

Electrical

Video Output .....One 75-Ohm source terminated, black negative

Video Output Level .....Adjustable to 0.7 Volt peak-to-peak, non-composite, or 1.0 Volt peak-to-peak, composite

High Voltage Power Supply.....Synchronous high frequency DC to DC converter, regulated

Vidicon Protection.....Automatic vidicon protection in the event of vertical or horizontal deflection failure

Power Requirements .....115 Volts ±10% 47-63 Hz, 20 Watts

Environmental

Temperature.....–20°C to 50°C

Relative Humidity.....Up to 95%

Altitude.....Up to 40,000 feet

Mechanical

Lenses.....Standard 16mm C-mount

Control Panel.....Standard: mounted on rear of camera Optional: up to 10,000 feet from camera

Camera Mounting.....Three ¼"—20 tapped mounting holes in base

Dimensions.....6¼" high, 5⅞" wide, 10¼" deep (15.8 cm, 14.9 cm, 26.0 cm)

Weight .....17 lbs. (7.7 kg.)

Accessories:

Lenses.....Select from lens catalog sheet PTV.1250

Control Panel Extender Kit.....MI-48146-(*)
(*Specify length in feet of cable required.)

Remote Control Panel with Larger Controls; Occupies One-Half of 3½" high by 18" wide mounting adaptor MI-47837

RF/Video Output Kit (requires crystal) MI-48134-A

Crystal for RF/Video Output Kit.....MI-48141-(**)
(**Specify Channel number 2-6)

Ordering Information

PK-310 Camera System

Positive Interlace MI-47731

With EIA/CCIR Sync Drive MI-47730

With EIA/CCIR Sync and Blanking Drive MI-47732

Note: Type 8134 vidicon tube shipped installed in camera.

Solid State TV Cameras, PK-301 PK-302

The precision PK-301, PK-302 solid state camera systems set a new standard of value in professional television equipment. They offer broadcast quality performance, operational simplicity, great flexibility for a variety of applications—all at moderate cost. They can be depended upon to achieve the highest reliability. Hundreds of these cameras are operating continuously and automatically, many in outdoor installations under the most extreme environmental conditions.

Superior Picture Quality

These systems produce sharp, crisp, attention-getting pictures with high response to important scene detail, low noise, and faithful tonal rendition. Phaseless, adjustable aperture correction adds "snap" to images by restoring sharp black-to-white transitions. Gamma correction circuits establish pleasing gray scale and faithful tones with high response to low-light scene detail. High-definition performance is a result of careful circuit design and balancing of all parameters. It has not been artificially inflated with excessive high peaking and improper aperture correction which is often the cause of objectionable noise. A third distinguishing feature is the automatic target control (ATC) circuit which maintains picture quality despite variations in scene lighting of as much as 3000 to 1. ATC maintains optimum camera sensitivity without need for manual adjustment.

A keyed clamp circuit provides a stable DC reference. A peak white "soft" clipper prevents system overload from speculars or other excessive scene highlights. Adjustable shading correction assures uniform picture luminance.

Operational Simplicity

PK-301, PK-302 cameras are ready to use when removed from the shipping container. All factory set-up controls have been adjusted during the production test cycle for optimum operation, and the units are shipped with the vidicon tube installed. There are only five operating controls: "auto-manual target;" "day-night" (gamma); "brightness" (pedestal); "electrical focus" and "optical focus." These simplified controls and factory adjustment make it possible to place the cameras in operation with a minimum of technical knowledge.

Design Flexibility

The PK-301 is a completely self-contained system with a hinge-open top which gives instant access to the interior components. The processor circuits are mounted in the top portion of the camera. The PK-302 is a

two unit system with the processor circuits housed in a separate case which may be mounted up to 1000 feet from the camera. This is ideal where space is critical or where the camera head must be located in a hazardous area. A PK-301 can be field-converted to a PK-302 at any time if operational requirements change.

The basic camera operating controls (electrical focus, brightness, day-night gamma) may be remoted up to 10,000 feet from the camera processor. A remote optical focus kit may be added to the camera and operated over the same remote control cable as the basic operating controls. An automatic sun shutter is available which automatically caps the camera if it is pointed into the sun or a light source bright enough to burn the vidicon. The PK-301 can be factory converted to a PK-310 film camera or a PK-315 viewfinder camera. The wide range of options allows the PK-301 and PK-302 cameras to keep pace with changing requirements offering the best possible insurance against obsolescence.

High Performance Vidicon

The reliability and performance capabilities of these cameras are enhanced by a one-inch electrostatic focus magnetic deflection vidicon tube developed by RCA especially for spacecraft television systems. This tube provides several significant advantages:

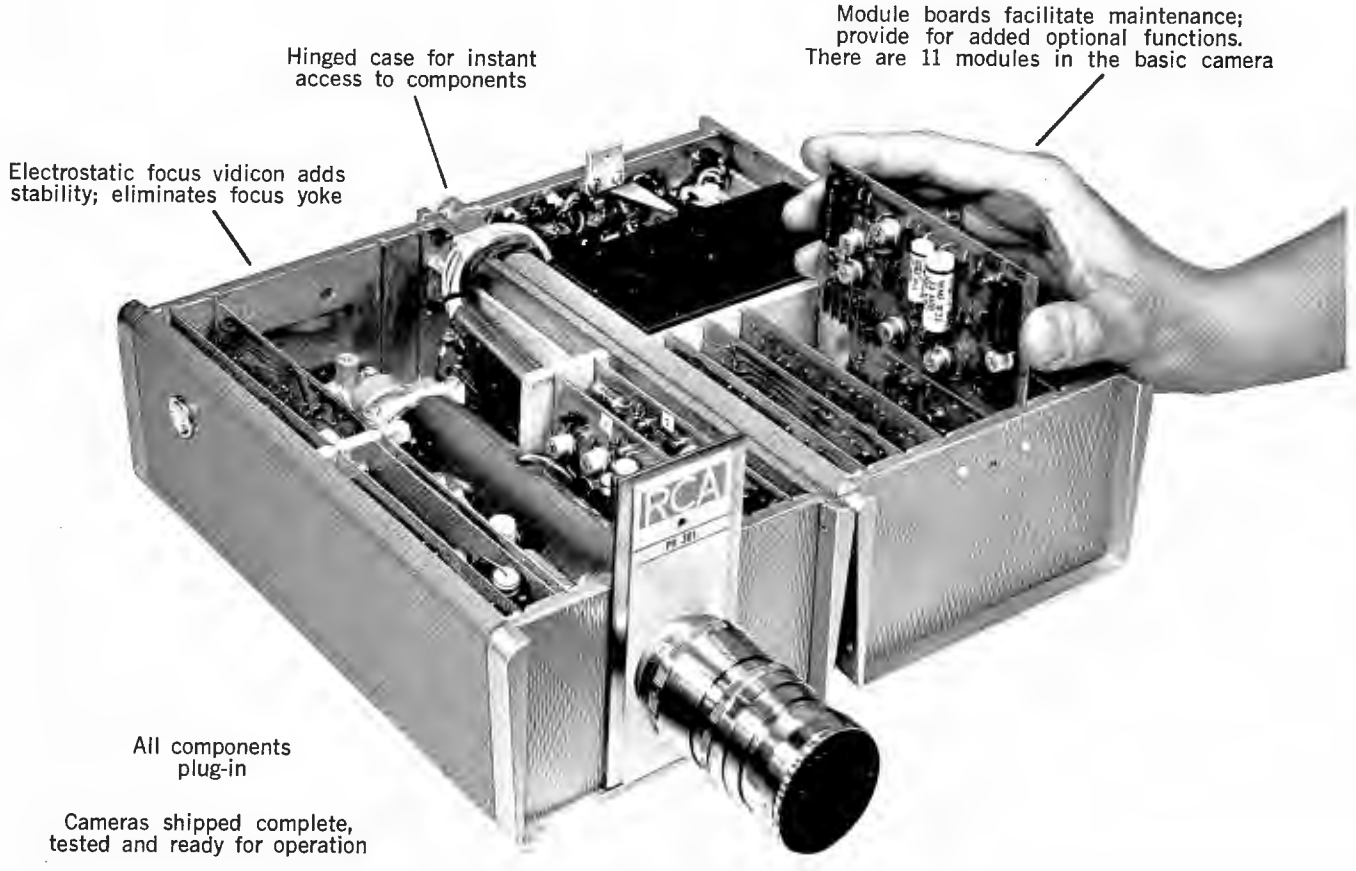
- Improved stability.
- The bulky focus yoke and power supply are eliminated.
- Lower deflection power is required.
- Greatly reduced heat dissipation—0.6 watt heater.
- Improved uniformity in center-to-edge focus.

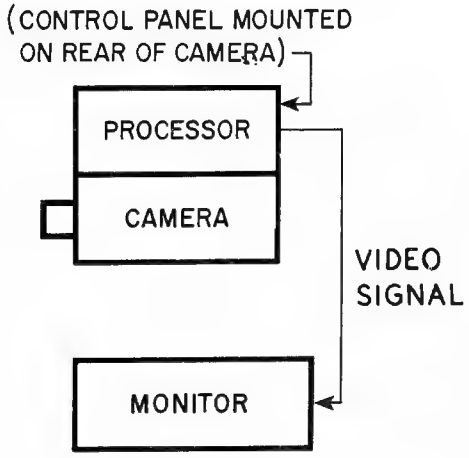
Modular construction and computer-logic sync circuits of the PK-301, PK-302 make possible a wide range of options as follows:

Scanning Standards of random interlace at 525 or 675 lines, positive 2:1 interlace at 525 lines, EIA/CCIR operation with only a composite sync drive, and EIA/CCIR operation with sync and blanking drive where the camera will be used with cameras other than the RCA Professional Television Series. The EIA/CCIR sync drive is an exclusive PTV type signal which meets broadcast specifications.

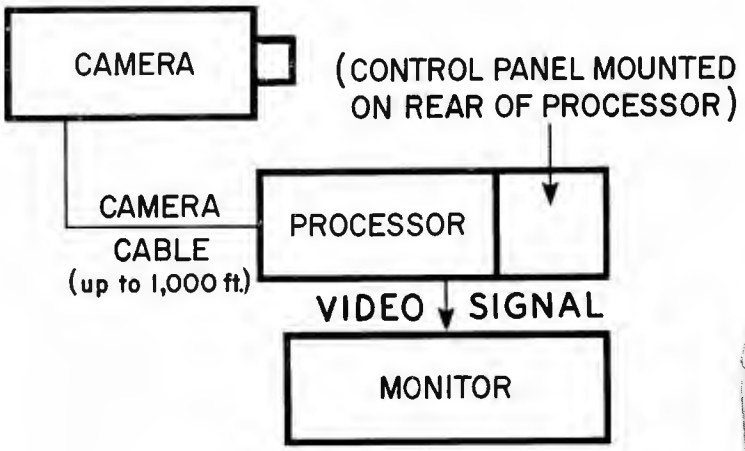
Power may be either 115 Volts AC or 12 Volts DC.

Camera Outputs of 75 Ohm unbalanced video, 124 Ohm balanced with 75 Ohm unbalanced video, or RF (channels 2-6) with 75 Ohm unbalanced video.





Rear view of PK-301, a compact, self-contained camera.



PK-302 is a 2-unit camera, with the processor separated from the camera head.

Specifications

General

Camera Packaging:
PK-301 ..... Single unit
PK-302 ..... Two units

Camera Construction ..... Plug-in modules

Vidicon ..... 1" electrostatic focus, electromagnetic deflection, Tvpe 8134

Scanning Standards ..... 525/675 lines, 60 fields, 30 frames or 625 lines, 50 fields, 25 frames

Interlace Modes:
Standard ..... Random Interlace
Optional ..... Positive interlace. EIA, sync drive. EIA, sync and blanking drive

Optical Focus:
Standard ..... Manual vidicon focus
Optional ..... Remote motor-driven vidicon focus

Vidicon Alignment ..... Electromagnetic

Picture Quality

Horizontal Resolution ..... 700 lines in picture center, 500 lines in corners (all at same control settings)

Video Amplifier Response ..... 10 MHz ± 1 dB

Aperture Correction ..... Phaseless aperture correction adjustable from 0-12 dB

Gamma Correction (Day-Night Switch) ..... Choice of 1.0 or 0.7 Local or remote control

Gray Scale ..... Reproduces 10 shades of gray from standard test chart (Gamma ratio 1:0)

Signal-to-Noise Ratio ..... Nominal 40 dB, peak-to-peak signal to rms noise

High Peaking ..... Adjustable for optimum compensation

Total Scan Distortion ..... Within 2% at any point on raster

Automatic Light Compensation ..... Handles range of over 3,000:1 with less than a 50% change in video level

Recommended Scene Illumination ..... 50 foot-candles minimum

Electrical

Video Output ..... 0.7 Volt non-composite or 1.0 Volt composite

Output Impedance ..... 75 Ohms, source terminated

Power Input ..... 105-130 Volts, 47-63 Hz
May also be ordered for 12 Volts D.C.

Power Dissipation ..... 20 Watts

Control Panel:
Standard ..... Mounted on rear of camera
Optional ..... Up to 10,000 ft. from camera

Separation between Camera Head and Processor (PK-302) ..... Up to 1,000 ft.

Video Signal Distribution ..... Up to 1,500 ft. on RG-11A/U without equalization

Environmental

Temperature ..... –20°C to 50°C

Relative Humidity ..... Up to 95%

Altitude ..... Up to 10,000 ft.

Mechanical

Lens Mount ..... Standard 16mm C-Mount (1"-32 thread)

Camera Mounting ..... Three ¼"-20 tapped mounting holes in base

Camera Case ..... Dust and Splash-proof Formed steel snap-off covers

Dimensions and Weight:

	PK-301 (single unit)	PK-302 (2-unit) Camera	Processor
Height	6¼" (16 cm)	4¼" (11 cm)	4¼" (11 cm)
Width	6" (15 cm)	6" (15 cm)	6" (15 cm)
Length	10¼" (26 cm)	10¼" (26 cm)	10¼" (26cm)
Weight	16 lbs. (7.5 kg)	8 lbs. (3.75 kg)	11 lbs. (5 kg)

Accessories

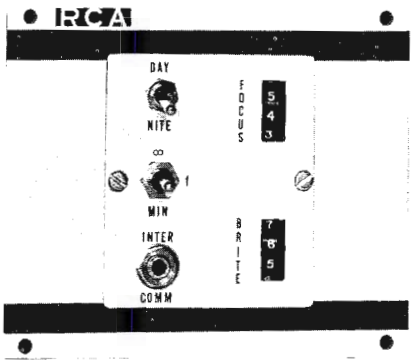
Positive Interlace Kit MI-48128
EIA/CCIR Sync Drive Kit MI-48127-A
EIA/CCIR Sync and Blanking Drive Kit MI-48136
Balanced Video Output Kit MI-48109
RF Output Kit MI-48134
Crystal RF for Output Kit MI-48141-*
* Add to MI-number desired RF channel (2 through 6)
RF Transformer, 75-300 Ohm MI-48138
Remote Optical Focus Kit MI-48120
Sun Shutter Kit MI-48123
Perforated Camera Covers for warm environments MI-48149
Mounting Adapter for camera control panel when mounted remotely MI-47966
Console Type Remote Control Panel (occupies ¼ of MI-47792 Rack Adapter) MI-47836

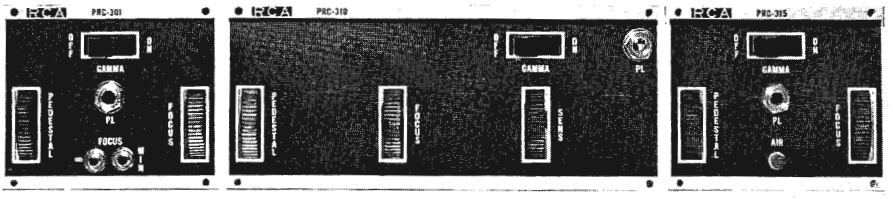
Rack Mounting Adapter for MI-47966 and MI-47836 ..... MI-47792-A
Control Panel Extender Kit (required for remote control) MI-48146-*
* Add to MI-number required cable in feet
Rack Mounting Shelf for two PK-302 Processors MI-47821-A
NOTE: For a description of the above accessories see RCA PTV Catalog 1150.
Camera Lenses (See RCA PTV Catalog 1250, 1254, 1256, 1258)
Camera Mounting Tripod Type PT-1 ..... MI-36253
Camera Stand, Type PCS-1 ..... MS-9502
PK-302 Bulk Camera Cable MI-13339
PK-302 Male Camera Cable Connector MI-48129-1
PK-302 Female Camera Cable Connector MI-48129-2
PK-302 Camera Cable with Connectors MI-48125-*
* Add cable length in feet

Ordering Information

PK-301 Camera (Single Unit System)
525 Line Random Interlace MI-47701
525 Line Positive Interlace MI-47702
EIA/CCIR Sync Drive MI-47703
525 Line Positive Interlace, 12 Volt DC operation MI-47704
EIA/CCIR Sync and Blanking Drive MI-47709
675 Line Random Interlace MI-47721-A
Insert Camera for use with PIA-1 Insert Amplifier (see Catalog Sheet PTV-1050) MI-47722

PK-302 Camera (Two Unit System—Requires Camera Cable)
525 Line Random Interlace MI-47711
525 Line Positive Interlace MI-47712
EIA/CCIR Sync Drive MI-47713
525 Line Positive Interlace 12 Volt DC operation MI-47714
EIA/CCIR Sync and Blanking Drive MI-47719
675 Line Random Interlace MI-47723





- Perforated camera covers
- Automatic sun shutter
- Processor rack mount

Professional Camera Accessories

This line of accessories enhances the utility of RCA Professional Television Cameras, (PK-301, PK-302, PK-310, and PK-315), making them more versatile than ever and in many cases giving them features and capabilities not found in other types of equipment. Offered as options, they may be selected according to specific needs.

Remote Control Panels

Console type control panels with large thumbwheels and switches for easy, positive control of cameras in studio operations are available for the PK-301, PK-302, PK-310, and PK-315 Cameras. Panels mount in an MI-47792 Rack Adapter 3½ inches high x 19 inches wide. The PK-301, PK-302 and PK-315 panels each occupy one fourth the available space in the adapter; the PK-310 panel occupies one-half.

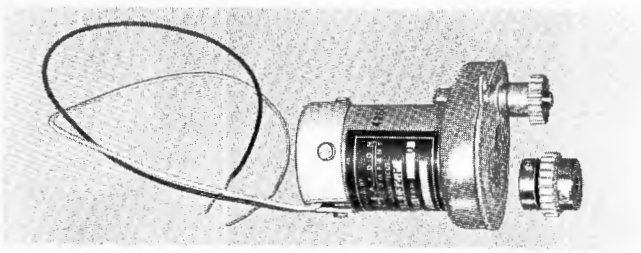
The PK-301, PK-302 panel contains controls for pedestal, electric focus, gamma, optical focus (requires remote focus kit), and an interphone jack. The PK-315 panel contains controls for pedestal, electrical focus, gamma, on-air light and interphone jack. The PK-310 panel contains controls for sensitivity, pedestal, electrical focus, gamma, and an interphone jack. An Extender Kit, MI-48146-* is required with all remote control panels. (* Add number to indicate cable length in feet.)

Camera Control Panel Mounts

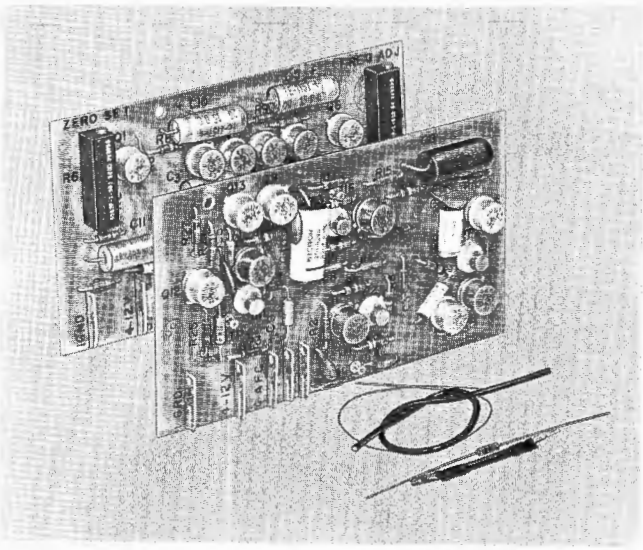
The local control panel of the PK-300 Series cameras may be mounted remotely, if desired, in either the MI-47966 or MI-47965 panels. MI-47966 holds one control panel and occupies one-fourth the mounting space in an MI-47792 adapter. MI-47965 holds three control panels and occupies one-half the rack adapter. Remote use of the control panel requires the MI-48146-* Extender Kit. (* Add number to indicate cable length in feet.)

Remote Focus, MI-48120

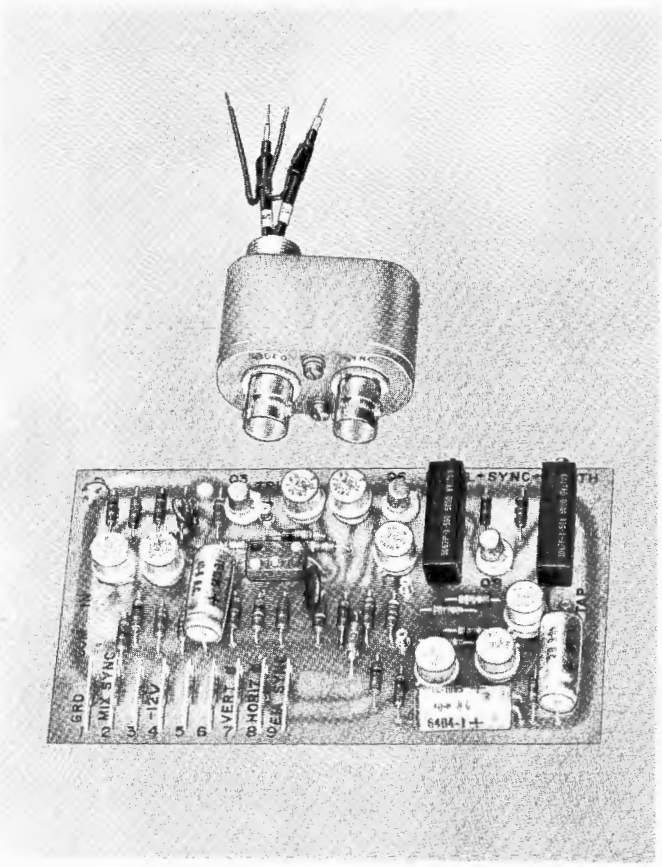
This compact, self-contained kit provides remote control of optical focus on PK-301 and PK-302 cameras over distances up to two miles. The bi-directional drive motor is operated by a switch on the camera control panel (which may be remotely located from the camera by an MI-48146-* Plug-in Control Panel Extender). (* Cable length in feet.)



MI-48120 Focus Kit



MI-48128 Positive Interlace Kit



MI-48127-A Sync Drive Kit

The remote focus motor drive assembly is easily attached by screws to tapped vertical mounting bosses inside the camera behind the vidicon and yolk assembly and operates from power within the camera.

Positive Interlace, MI-48128

This camera accessory comprises two transistorized plug-in modules that convert PK-300 Series camera circuits for positive interlace on internally generated signals with no external sync required. One of the simplest of sync systems for domestic use, positive interlace is achieved by counting down from a 31.5 kHz master oscillator to provide both the 15,750 Hz horizontal line rate and the 60 Hz vertical repetition rate. An AFC loop around the master oscillator controls the horizontal rate and locks the vertical rate to the power line. High stability is provided by four drift-free frequency counters with ratios of 7:1, 5:1, and 3:1. Relative horizontal and vertical timing remains constant with any shifts in power line frequency, giving excellent system definition. Kit consists of plug-in master oscillator and countdown modules, and is easily installed in field or at factory prior to camera shipment.

EIA/CCIR Sync Drive, MI-48127-A

An exclusive feature of Professional Television cameras is their ability to produce broadcast standard EIA or CCIR video signals with only sync drive pulses. This concept provides the ultimate in system simplicity and greatly reduces the need for pulse distribution amplifiers and cabling.

The EIA/CCIR Sync Drive Kit includes a transistorized plug-in module and a BNC connector unit. It is easily added in the field or at the factory to any PK-300 Series camera. Either composite or non-composite video may be obtained by adjusting the sync level control on the camera.

The kit produces a 4.5 microsecond delay between input and output sync signals. Thus, systems which include cameras other than the PK-300 Series require the EIA/CCIR Sync and Blanking Drive Kit, MI-48136.

EIA/CCIR Sync & Blanking Drive, MI-48136

This accessory includes transistorized module and BNC connector kit and adapts PK-300 Series cameras for broadcast operation with sync and blanking drive pulses. The video output signal may be composite or non-composite, and fully meets EIA or CCIR standards. The sync and blanking drive adaptor eliminates any delay between camera input and output sync pulses, precisely synchronizes all cameras in the system, and permits mixing of Professional Television cameras and other type cameras for "supers" and lap dissolves. This kit is easily installed in the field, or can be ordered factory-installed prior to camera shipment.

OUTPUT OPTIONS

Balanced Video Output, MI-48109-A

The MI-48109-A is a transistorized plug-in module and connector kit. It is designed to modify the PK-301 and PK-302 cameras to provide at standardized levels both the normal 75-Ohm unbalanced output plus a 125-Ohm balanced video output for long line transmission. Exclusive with Professional Television cameras, balanced video output gives greater immunity from cross-talk and noise, reduces attenuation, and makes possible transmission of good picture quality over distances of several thousand feet without intermediate amplifiers. The unbalanced 75-Ohm output appears at a BNC type connector; a UHF type connector supplies the 125-Ohm balanced output from the camera. This kit is easily installed in the field or ordered on cameras prior to shipment.

RF Output, MI-48134-A

This kit, consisting of a plug-in module, BNC connector assembly and crystal of designated frequency, may be added to PK-301, PK-302 cameras, or to the PK-310 film camera. It provides a standard 75-Ohm video output for monitoring, plus a 75-Ohm RF output on any standard TV channel from 2 to 6. The crystal oscillator generates a stable RF carrier of 0.4 Volt peak-to-peak sufficient to drive a TV receiver over a long coaxial line. No tuning is required; simply set the receiver on the selected channel. All components except accessory RF transformer are contained in the camera.

When ordering this kit, the proper frequency is designated by adding the desired channel number to the crystal MI number when ordering, i.e., for Channel 2, order crystal MI-48141-2. This accessory is easily installed in the field or factory-installed on new cameras before shipment.

RF Matching Transformer, MI-48138

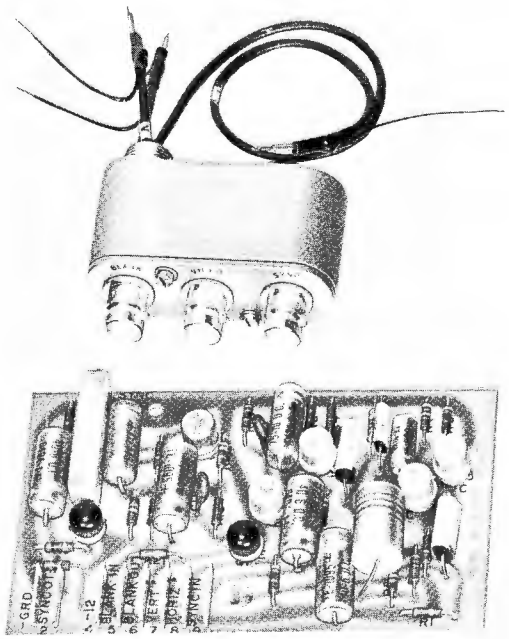
If a 300 Ohm RF output is required, this transformer will match the 75 Ohm camera output to the 300 Ohm line. The input connector is BNC on a 6-inch lead of RG-59. The output is a 6-inch length of 300 Ohm twinlead.

MISCELLANEOUS OPTIONS

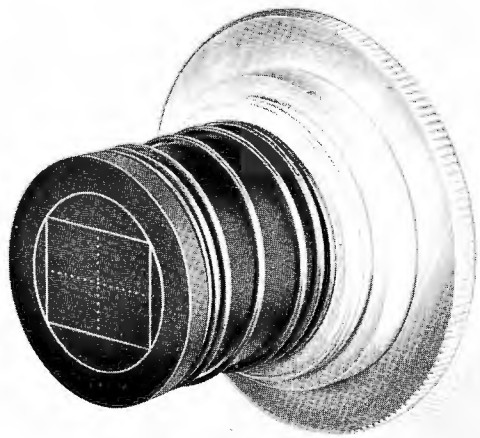
Vidicon Deflection Gauge, MI-48123-A

A useful maintenance aide, the vidicon deflection gauge simplifies adjustment of vidicon linearity, image size, and centering. It threads into all one-inch vidicon cameras with "C" type lens mount. The gauge consisting of a spring loaded holder containing a Lucite cylinder with a ½-inch by ⅜-inch precision mask etched on one end, is inserted into the lens mount in place of the lens. Seated by the tension spring against the vidicon face plate, the fine line pattern on the end of the Lucite cylinder appears on the vidicon target producing the monitor display. Length of gauge is 1½ inches. Weight, one ounce. Mounting thread is 1 inch 32 thread for "C" mount lens opening.

MI-48136 Sync and Blanking Drive Kit



MI-48123-A Vidicon Deflection Gauge



Perforated Camera Covers, MI-48149

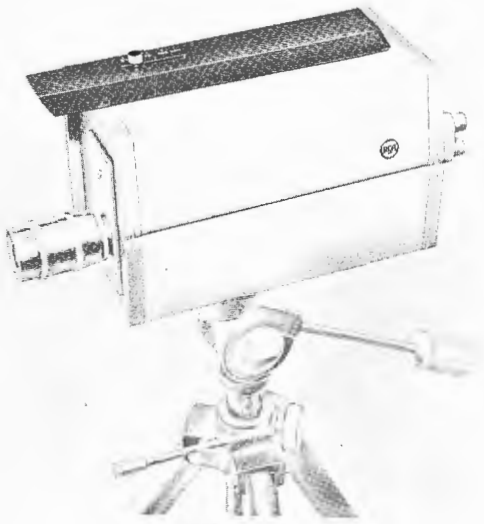
These covers replace the solid covers normally supplied on the PK-301/PK-302 cameras. The perforated covers for use in extremely warm environments help reduce temperature rise in the cameras.

Sun Shutter, MI-48143

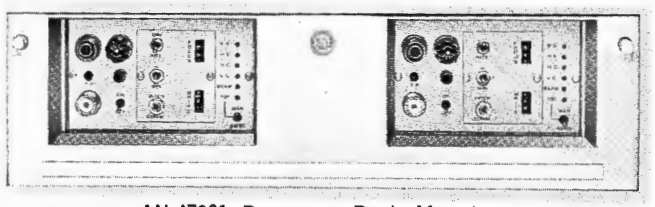
The sun shutter accessory is used with PK-301 and PK-302 cameras to protect the vidicon from damage due to direct sunlight and other bright lights in outdoor applications. Acceptance angle of the photo sensitive control device is adjusted to "see" a wider field of view than the camera lens. When the sun comes into view the vidicon is automatically capped by a solenoid operated opaque shutter. Vidicon is automatically uncapped when camera is moved away from the sun. For use with a zoom lens, the acceptance angle of the photocell is adjusted for widest angle of the lens. Easily installed, the device offers added fail-safe protection by capping the vidicon when the camera is turned off. The Sun Shutter Kit can be ordered factory installed on new cameras or installed in the field.

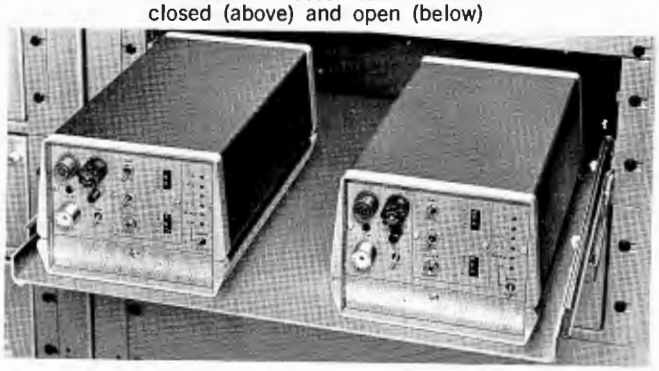
Processor Rack Mount, MI-47821

This accessory mounts two PK-302 processors in 5¼ inches of rack space. Processors are mounted on a slide-out tray for easy servicing. All operating controls are accessible through cut-outs in the front escutcheon. Mounting hardware is supplied with adapter.



MI-48143 Sun Shutter





MI-47821 Processor Rack Mount closed (above) and open (below)

Ordering Information

PK-301/302 Console Control Panel (occupies ¼ of adapter width)	MI-47836
PK-310 Console Control Panel (occupies ½ of adapter width)	MI-47837
PK-315 Console Control Panel (occupies ¼ of adapter width)	MI-47842
Rack Mounting Adapter, 3½" high x 19" wide	MI-47792
Blank Half Panel to fill unused space in above	MI-47793
Pair of Blank Quarter Panels to fill unused space in adapter	MI-47794
Single Camera Local Control Unit Mounting Panel (occupies ¼ of adapter width)	MI-47966
Three Camera Local Control Unit Mounting Panel (occupies ½ of adapter width)	MI-47965
Positive Interlace Kit	MI-48128
EIA/CCIR Sync Drive Kit	MI-48127-A
EIA/CCIR Sync and Blanking Drive Kit	MI-48136
Balanced Video Output Kit	MI-48109-A
RF Output Kit	MI-48134-A
Crystal for above (*add number for RF channel desired, 2 thru 6)	MI-48141-*
75 to 300 Ohm RF Transformer	MI-48138
Remote Optical (Vidicon) Focus Kit	MI-48120
Sun Shutter Kit	MI-48143
Perforated Camera Covers	MI-48149
Control Panel Extender Kit (* add number to indicate cable length in feet)	MI-48146*
Rack Mounting Shelf for two PK-302 Processors	MI-47821

"TeleTitle" Video Insert System

The TeleTitle Video Insert System offers broadcast stations and closed-circuit facilities a convenient, low-cost means for inserting captions into a monochrome or color video signal. At the receiver, the captions appear as easy-to-read white letters superimposed on the picture. A unique and versatile system, TeleTitle can produce captions in a horizontal or vertical format, either stationary or in motion.

Compact in size and simple to operate, the system can easily be used where making video inserts might otherwise be difficult. Typical studio applications include news bulletins inserted into regularly-scheduled programs, identification of persons appearing on the screen, and program credits. On remotes such as football games, the system may be used to identify participants, announce future events, and display scores of other games. Anyone who can type can operate the system with minimum training, eliminating the necessity of scheduling artwork and studio cameras to make inserts.

Completely self-contained, the basic system includes (1) an IBM Executive typewriter, modified to produce large, crisp white letters on black tape, (2) a dispatcher unit which holds the tape, either keeping it stationary or moving it horizontally across the camera's field of vision, (3) a unit to control tape speed through the dispatcher, (4) a mounting base with adjustable pan and elevation contained in a sturdy carrying case having a snap-on cover for convenient transportation to remotes, (5) built-in lighting, (6) camera lens, and (7) RCA's PK-301 Professional Television Camera, widely accepted for use in broadcast and closed-circuit studios. The basic system is suited for use in studios where sync and blanking signals and special effects equipment are readily available, as shown in Figure 1.

Insert Amplifier Kit Adds Versatility

Adding RCA's exclusive solid-state Insert Amplifier Kit to the basic system, as shown in Figure 2, eliminates the need for external sources of timing pulses and makes the system independent of a special effects unit. In this configuration, the *only* system input required is a composite video signal.

The kit consists of the compact PIA-1 Insert Amplifier and two circuit modules which are placed in the camera. It may be installed at the factory or readily added in the field by studio engineers. Operating in conjunction with the unique computer logic sync circuitry in the PK-

301 Camera, the kit enables the system to derive sync pulses from any composite video signal, uses them to drive the camera, and produces a standard EIA composite video signal with keyed insert.

Perfect Inserts From Any Source

The resulting independence from external sources creates unmatched versatility for the system in studio and remote applications. "Picture roll" is eliminated when making inserts on network feeds or other video signals not driven by the studio sync generator. Further, availability of studio sync and special effects generators ceases to be a problem when scheduling program production. Perfect inserts may be made at any time over video from tape, film, studio cameras, mobile units, or *any* other source. The kit is especially useful on remotes, eliminating "picture roll" when inserts are made over composite video from two or more mobile units.

To provide optimum contrast, the Insert Amplifier Kit also permits inserts to be made in a wide range of shades between white and black. Thus, light inserts may be made on dark backgrounds and dark inserts on light backgrounds. For increased clarity, a thin black outline is placed around the vertical elements of each letter throughout the shading range.

PK-301 Camera Provides Reliable Operation

The PK-301 is a solid-state vidicon camera with a hinge-open top for instant access to the interior components. Processor circuitry is mounted in the top portion of the camera. Set-up controls (screwdriver operated) are located on the rear of the camera. Optical focus is achieved through a thumb wheel on the camera or by an optional remote focus mechanism. A non-linear drive mechanism provides a constant "through-focus" rate. Occasionally-used operating controls are mounted on a plug-in panel which can be located up to 10,000 feet from the camera. These include "Brightness," "Electrical Focus," and "Day-Night." The latter switch offers a choice of gamma correction ratios for optimum picture contrast, and is usually left at the setting determined to be best for a specific installation.

Optionally available is the RCA PK-302 Professional Television Camera, which is identical to the PK-301 except that it is a two-unit system with the processor circuitry housed in a separate case. This system provides a minimum of camera circuitry and a much smaller package at the camera location. The processor circuitry may be placed in the studio control room or another location as far as 1,000 feet from the camera.

Accessories for System Expansion

System accessories include a vertical crawl which moves the inserted copy upward through the camera's field of vision and a continuous loop adaptor for the horizontal tape dispatcher, permitting inserts to be repeated as long as desired.

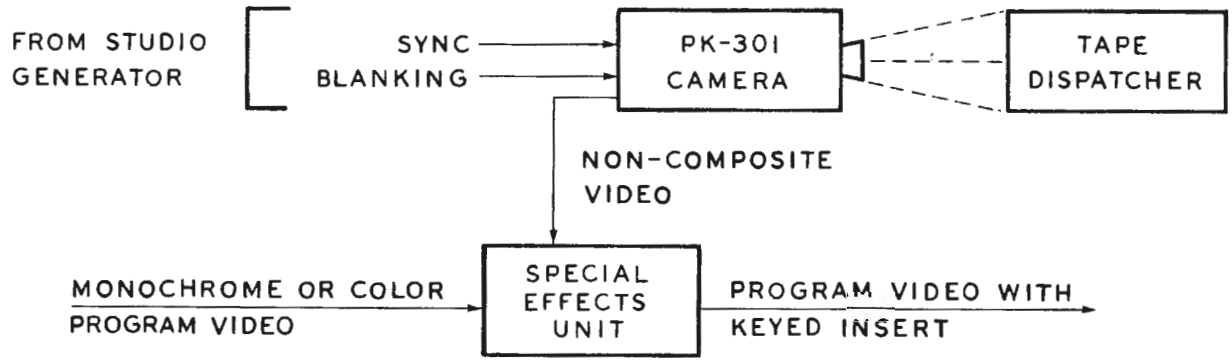


FIGURE 1

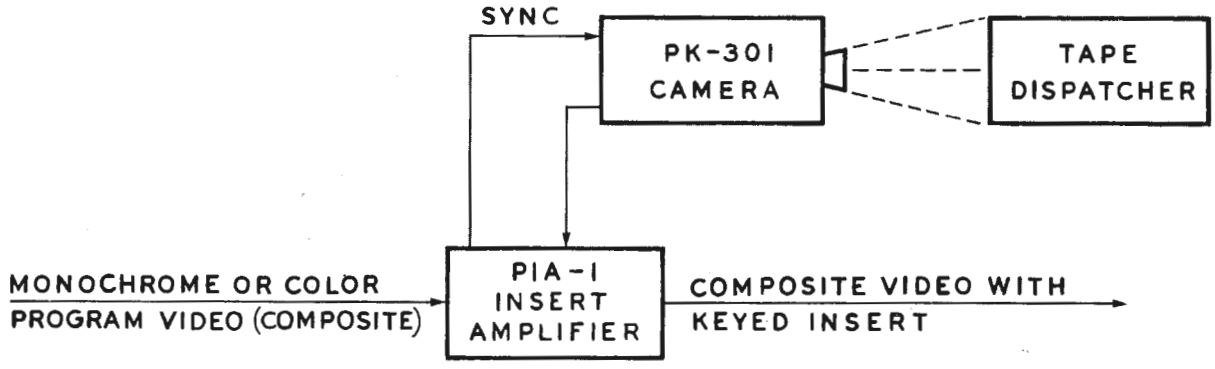


FIGURE 2

Easy to use. Simply type the insert copy, place it in the dispatcher . . . and put it "on the air".

Vertical crawl (optional) produces inserts moving upward through picture. Typewriter supplied with basic system also makes tapes for the vertical crawl unit.

Insert Amplifier Kit (optional) can be ordered factory installed, or easily added to the system at any time.

RCA "TeleTitle" System permits making perfect inserts from any source.

Specifications

General

Operating controls:

Light ..... On-off

Tape direction ..... Forward, reverse, stop

Tape speed ..... Variable for normal use; high speed (momentary button) for rewinding

Camera controls ..... See catalog PTV.1000

Finish:

Carrying cases ..... Shadow blue

Camera ..... Shadow blue

Mounting base ..... Non-reflecting black

Carrying cases ..... Dust and splash-proof formed aluminum, snap-off covers

Dimensions and Weight (including carrying cases)

	TeleTitle System	TeleTitle Typewriter	Vertical Dispatcher
Height	18″ 46 cm	12″ 30 cm	17¼″ 44 cm
Width	21″ 53 cm	21″ 53 cm	15¾″ 40 cm
Length	29″ 74 cm	26″ 66 cm	11″ 28 cm
Weight	100 lbs.* 45 kg.	70 lbs. 32 kg.	41 lbs. 19 kg.

*Add 6 lbs. (3 kg.) for Insert Amplifier Kit.

Electrical

Power requirements ..... 115 Volts ±10%, 60 Hz, 100 Watts
NOTE: TeleTitle System may be ordered for 115 Volt, 50 Hz operation.

Power cord ..... 10 feet

The following specifications apply only to systems using the Insert Amplifier Kit. For additional specifications on systems not using this kit, see catalog PTV.1000.

PIA-1 Insert Amplifier

Program Video Input Level ..... 0.5-1.0 Volt peak-to-peak, composite video

Program Video Input Impedance ..... Nominal 7,000 Ohms bridging input; parallel BNC connectors for loop-through operation

Sync Output (for "insert camera" drive) .... Nominal 4.0 Volts negative, BNC connectors

Insert Input Level .... 0.7 Volt peak-to-peak non-composite video

Insert Input Impedance ..... Nominal 75 Ohms terminating, BNC connector

Video Output Level (program plus insert) .... 1.0 Volt peak-to-peak composite, BNC connector

Video Output Impedance ..... Nominal 75 Ohms source terminated

Control Adjustments .... Video gain; key sensitivity; insert level

Test Points ..... Video In; Sync Out; Video Out; Key In

Temperature Range ..... 4°F. to 122°F. (–20°C. to 50°C.)

Performance (with Insert Amplifier Kit)

Frequency Response uniform to ..... 10 MHz ±1.0 dB

Low Frequency Tilt less than ..... 1.0%, 60 Hz square wave

Differential Gain less than ..... 1.0%, 10-90% APL

Differential Phase less than ..... 1.0°, 10-90% APL

Internal Hum and Noise ..... 60 dB below 1 Volt peak-to-peak

ACCESSORIES

Insert Amplifier Kit for Field Installation, Including One Each of the Following:

PIA-1 Insert Amplifier MI-47796

Sync Module MI-48155

Horizontal Generator Module MI-48107

Vertical Crawl Unit, Control Unit, and 150 feet vinyl tape MS-9122

Remote Focus Kit for PK-301 Camera MI-48120

Control Panel Extender Kit (for use with remote focus) MI-48146-*

Carrying Case for Vertical Tape Dispatcher

Continuous Loop Adaptor for Horizontal Tape Dispatcher

*Add number to indicate length of control cable in feet.

Ordering Information

TeleTitle System (Requires External Sync and Blanking and Special Effects), Including one Each of the Following MS-9121

PK-301 Camera MI-47709

13mm f/1.5 Lens MI-36316

Horizontal Tape Dispatcher and Control Unit

Model H-V Typewriter

Mounting Base with Light and Carrying Case

(2) 75-foot rolls vinyl tape

TeleTitle System (Self-Contained, Includes a Factory Installed Insert Amplifier Kit), Including One Each of the Following MS-9120

PK-301 Camera MI-47722

13mm f/1.5 Lens MI-36316

PIA-1 Insert Amplifier MI-47796

Horizontal Tape Dispatcher and Control Unit

Model H-V Typewriter

Mounting Base with Light and Carrying Case

(2) 75-foot rolls vinyl tape

TELEROAMER

RCA TELEROAMER is a compact "TV studio" on wheels, giving the instructor fingertip facilities for perfect TV lesson production and delivery. At the touch of a button he can select pictures from: camera closeups; films; slides; TV tape; or off-the-air TV broadcasts. The mobile console is easily rolled to the classroom, laboratory and lecture hall.

TELEROAMER is an ideal TV presentation center with a durable, mar-resistant top designed for convenience in conducting experiments and demonstrations before the TV camera. To view the work area and produce bright, clear TV pictures for classroom display, cameras such as the RCA PK-301 can be vertically mounted on a camera stand. Pictures from remote TV cameras, film and slide systems, or TV tape recorders can also be programmed through TELEROAMER.

The TELEROAMER console has a sloping section with mounting space for two standard 5¼ x 19-inch control panels. Below are two rack areas for mounting power supplies, video switching modules, TV tuners and other accessories.

Complete Electrical Convenience

Plug-in versatility is provided by four external and eight internal power outlets. A circuit breaker mounted on the front panel controls power to the twelve outlets. Included with TELEROAMER is a 25-foot heavy-duty power cord. Hinged front doors and removable rear panels permit ready access to equipment mounted inside.

Attractively finished in shadow blue and aluminum epoxy, the console is constructed of welded steel for the ultimate in strength, durability and shake-free operation. Large 4-inch hidden casters provide utmost mobility for classroom and lecture hall use.

TELEROAMER System Combinations

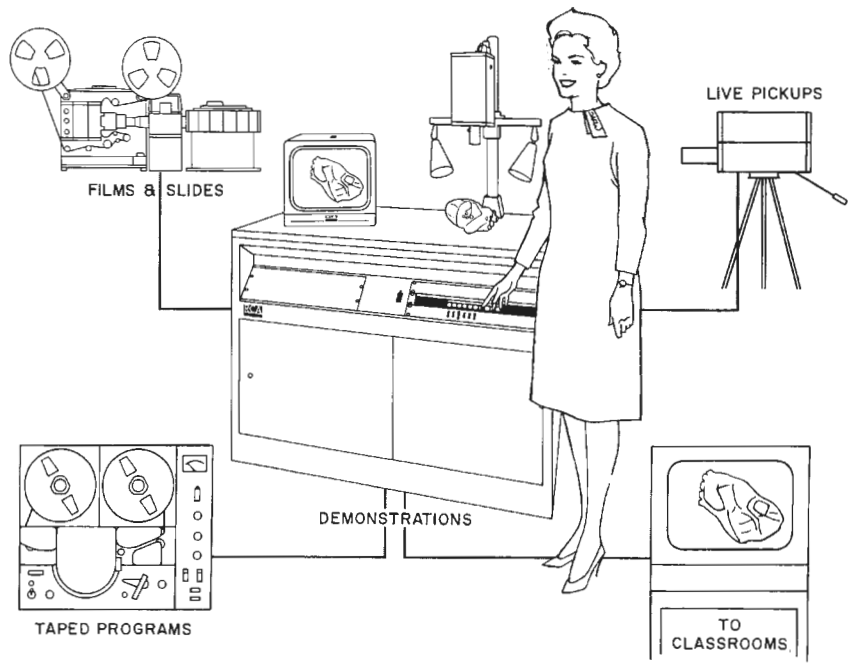
With the TELEROAMER console numerous equipment combinations can be selected to meet individual instructional requirements. These systems range from a single PK-301 camera mounted on TELEROAMER to a complete TV production center involving several cameras and additional sources such as film and slide projectors, television tape recorders and tuner for direct pick-up of commercial or educational broadcast programs. Since all of the RCA Professional Television equipment is intermatched, a basic system can be readily expanded at any time without obsoleting the initial investment.

Specifications

Power Facilities ..... 12 receptacles for 3-wire 115 Volt AC power; maximum load current 20 Amperes

Dimension ..... 36″ high, 48″ wide, 24″ deep (91.5 cm, 122 cm, 61.0 cm)

Weight ..... 200 pounds (90.8 kg)



Ordering Information

TELEROAMER Mobile Consolette MI-47798

Accessories

PCS-1 Elevator Column MI-47896

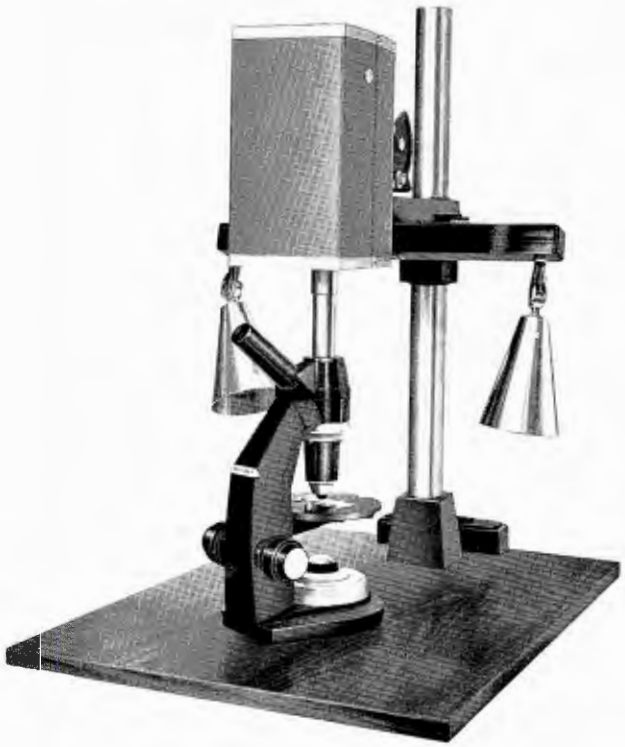
Microscope Adaptor for Vidicon Camera MI-47898

Light Bar with Lights for PCS-1 ..... MI-47897

1¾-inch blank panel—alum. epoxy MI-36547-1

3½-inch blank panel—alum. epoxy MI-36547-2

5¼-inch blank panel—alum. epoxy MI-36547-3



Camera Stand,

The PCS-1 Camera Stand facilitates precise positioning of the RCA PK-300 Series Professional Television Cameras for viewing microscopic slides, documents, and other objects. Included in the unit are a durable Formica, non-tilt platform, a unique elevator column with rack-and-pinion drive for smooth camera positioning, and a friction head. The head is faced with anti-slip material and contains a captive thumb screw which holds the camera securely. It is designed to permit panning the camera 360 degrees and tilting it upward 45 degrees and downward 90 degrees. Pan and tilt are separately controlled so that either function may be accomplished without affecting adjustment in the other plane. Since the elevator column is stationary, no large holes are needed in the mounting surface. The stand is completely self-contained, readily portable, and requires no special installation.

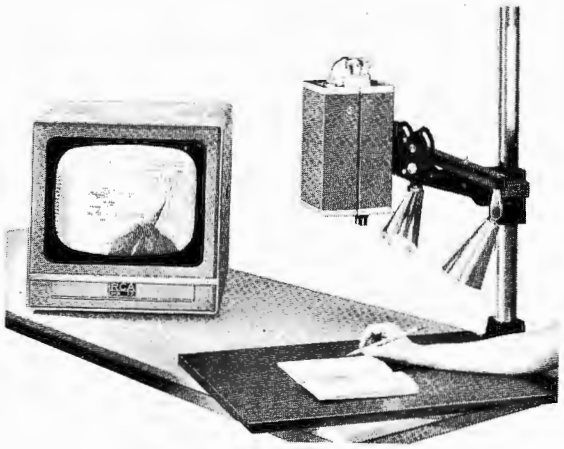
Viewing Microscopic Slides

When used with the PK-300 Series Professional Television Cameras, and an optical microscope, the PCS-1 enables the educator to present full-screen enlargements of microscope slides. In the classroom, it increases student comprehension by permitting the teacher to present and explain a slide to all students simultaneously. In the studio, it facilitates consecutive presentation of many slides without the necessity for extensive camera adjustments between each picture.

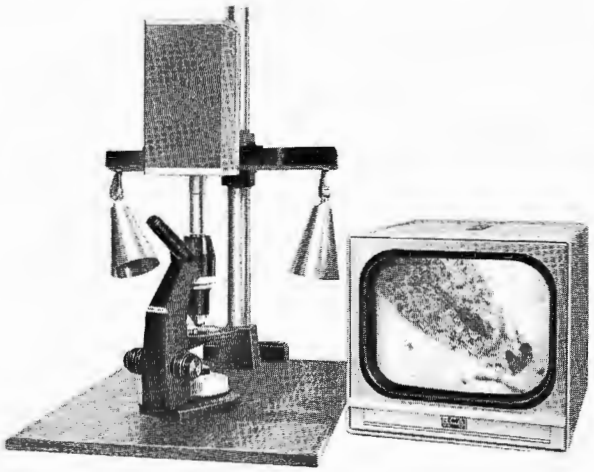
The PCS-1 is readily coupled to any microscope with a universal adaptor which eliminates the need for a camera lens. Because of the excellent sensitivity of the PK-300 Series Cameras, the light provided by a standard microscope illuminator will produce a high-quality picture on the screen.

Viewing Documents and Other Objects

In the classroom, the PCS-1 provides a flat, stable surface for showing documents, pictures, and three-dimensional objects to all students simultaneously, thus enabling the teacher to complete discussion of each item before showing another and eliminating the need for passing objects around the room. Studio use of the PCS-1 provides an economical means for presenting a series of close-ups without constant "dollying" or "zooming." For proper illumination, an accessory light is available which is easily attached to the elevator column.



PCS-1 Camera Stand used with PK-301 Camera in document viewing application as an instructor-controlled TV system.



PCS-1 Camera Stand is ideally suited for science classroom demonstrations.

Specifications

Camera elevation above platform ..... Adjustable from 8½" to 27" (21 to 68 cm.) with camera in vertical position, excluding lens

Dimensions ..... 20" high, 28" deep, 31" high (50 cm, 70 cm, 78 cm)

Weight ..... 23 lbs. (10.3 kg.) excluding camera

Finish:

- Platform ..... Wood-grained Formica
- Elevator column ..... Aluminum
- Friction head ..... Black anodized

Microscope adaptor ..... 16 mm. C mount, 1½" (3.1 mm.) diameter eyepiece

Document Light:

- Power requirements ..... 110 Volts, 60 Hz, 60 Watts
- Power Cord ..... 5 ft. (1.52 M.)
- Finish ..... Lights, brushed aluminum; Bracket, black anodized

Ordering Information

PCS-1 Microscope Camera Stand, MS-9501—Including:

Camera Stand Platform	MI-47895
Elevator Column & Friction Head	MI-47896
Universal Microscope Adaptor	MI-47898

PCS-1 Document/Microscope Camera Stand, MS-9502—Including:

Camera Stand Platform	MI-47895
Elevator Column & Friction Head	MI-47896
Universal Microscope Adaptor	MI-47898
Document Light	MI-47897

- High-efficiency "quartz" lighting fixtures
- Complete systems include fixtures, power distribution and control equipment
- Experienced lighting specialists available to help plan studio requirements
- Recommendations based on many successful installations

Television Lighting Systems

Introduction

Proper lighting is a prime consideration for the production of a first-quality television picture, requiring selection of the correct lighting fixtures and the skill to use them well. The television lighting director's job is very similar to that of the motion picture photographer. In the broadest sense, both must accurately reproduce three dimensional objects in a two dimensional format.

Good lighting is the key to accurate television reproduction. Lighting may also establish a mood or place emphasis on a performer or object to achieve various dramatic effects. Basic lighting skills can be learned in a relatively short time, and can readily be refined with greater experience.

A Systems Approach to Television Lighting

As a guide to effective television lighting, complete lighting plans for seven representative studios are shown later in this catalog. A systems approach is used in each plan to assure the proper balance of lighting fixtures, control systems, and power distribution equipment.

Each plan incorporates the latest in high-reliability lighting equipment and provides for a wide variety of television programming. Power distribution, electrical service, and equipment recommendations have been specified for easy, economical expansion to color operation.

These recommendations are based on broad experience in supplying lighting systems for many installations. Highly specialized programming requirements, studios of unusual size or shape, and other special situations may require changes in the equipment. These situations should be discussed with your RCA representative so that you may utilize his experience and that of other specialists to your best advantage.

Advantages of Tungsten-Halogen "Quartz" Lamps

The major advantages of tungsten-halogen "quartz" lamps are that color temperature and light output remain constant throughout their operating life. Also, the bulb life is longer than that of an equivalent standard incandescent lamp at a given color temperature.

These new lamps have made possible the design of smaller, lighter, and substantially more efficient lighting fixtures with the full range of characteristics required to accomplish the tasks of the television lighting designer. In many cases, the fixtures are nearly twice as efficient as those using conventional incandescent lamps.

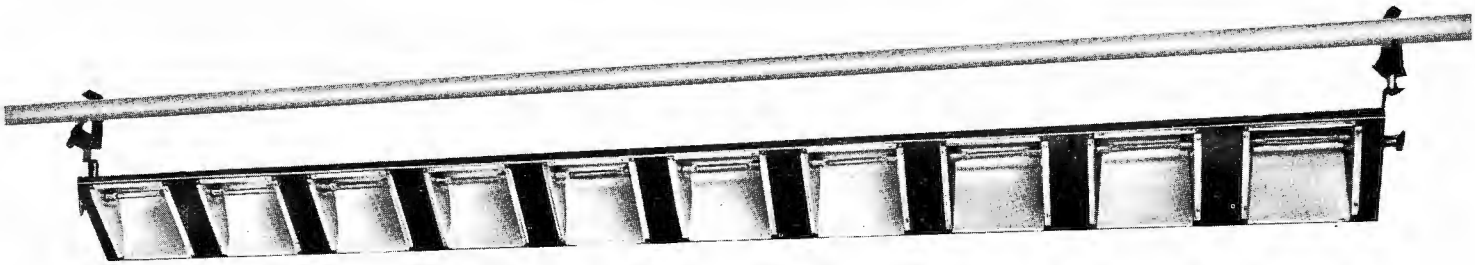
Since the peak sensitivity of vidicon tubes is in the green region of the visible spectrum, lamps with higher relative blue-green output (higher Kelvin temperatures) render a better picture. For this reason, 3200 degree Kelvin lamps have been specified for the equipment listed in the systems recommendations. While the life of conventional incandescent bulbs is shortened when they are operated at this temperature, the single and double-ended tungsten-halogen "quartz" lamps used in ColorTran fixtures are specifically designed for economical operation at this rating.

Lighting Functions

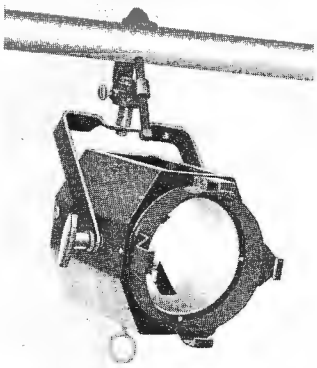
The descriptions of television lighting functions presented in this section are not absolutes. Experience and experiment will dictate when the "rules" should be broken.

Key Lighting

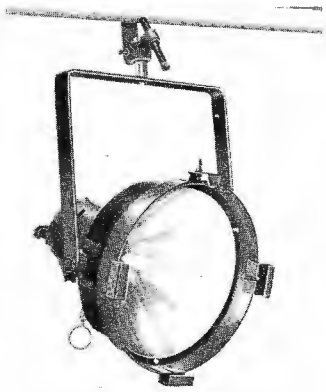
Key lighting is usually described as being "hard" in character, i.e., it



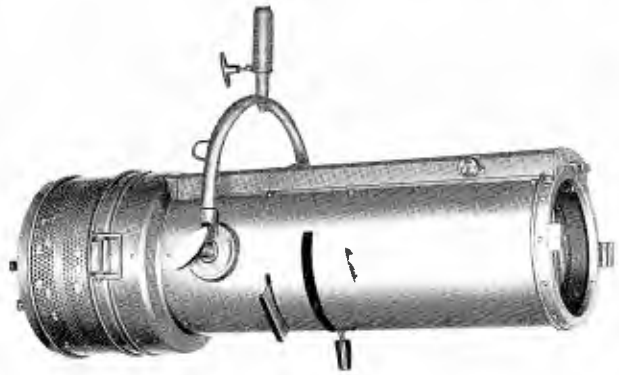
10 Light Cyc Strip LQC-10/2



Vari-Beam "1000" LQV-10/TV



Super-Beam "1000" LQF10-50/TV



Follow Spot LQFS-1

casts a distinct shadow and appears to come from a single source. It is usually accomplished with a fixture which is capable of a wide range of beam angle and intensity variation. Barndoor control is also needed since it is often important to light only those areas of the subject which are to be "keyed."

The key lighting level is normally 25 to 50 percent higher than the base light level. The key light fixture is placed to one side of the camera, thus producing shadows which give depth to an object or performer.

Fill Lighting

Fill light is utilized to control the contrast range which would be too great with the key light alone. It is applied to set areas and set pieces, as well as to performers.

This type of lighting is generally "soft" in nature, and either broads or scoops can be used. The Color-Tran focusing scoops and broads shown in the systems recommendations have adjustable beam characteristics to provide greater control over spill light and fill-to-key level ratios. Beam intensity of these fixtures may be adjusted by as much as three-to-one. Horizontal spill light may be further controlled with barndoors.

While typical fill light level is approximately two-thirds that of the key, the ratio of fill to key light varies widely with the effect being sought. In a dramatic scene, for example, it may be desirable to use fill light at less than two-thirds of the value of the key light in order to obtain a higher contrast ratio.

Base Lighting

A base light is characterized as a broad area fill light with very uniform diffusion. It may, under certain circumstances, be desirable to approach a virtually shadowless condition with the base lighting. Typically, Soft-lites, scoops, and broads may be used for this purpose.

The Soft-lite's uniform diffusion makes it extremely useful in specialized situations such as lighting a performer with sharp facial features. It is invaluable in lighting glossy objects or items wrapped in plastic. Due to their low source brightness, Soft-lites do not distract performers as sometimes occurs with direct lighting.

Back Lighting

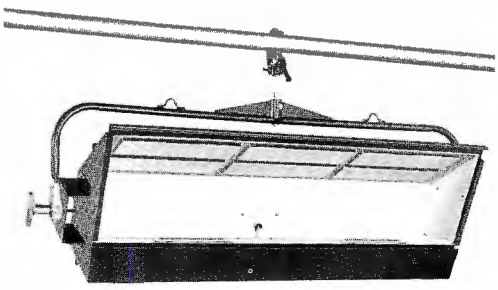
Back lighting is applied from behind a performer or set piece to establish a degree of separation from the background. This lighting function is the one which adds the greatest illusion of depth to the total picture. It puts a highlight on the performers' hair and can be said to "rim light" the subject.

It is important that some degree of barndoor control be available on the fixtures used in back lighting to control the spill light. Further, barndoors prevent the lamps from projecting light directly into the camera lens. The fixture used for backlighting is usually angled rather steeply downward, typically about forty-five degrees.

Back lighting levels may range from one and a half to two times the fill or base light level on the set. This will vary with the specific situation and must be determined through experience.

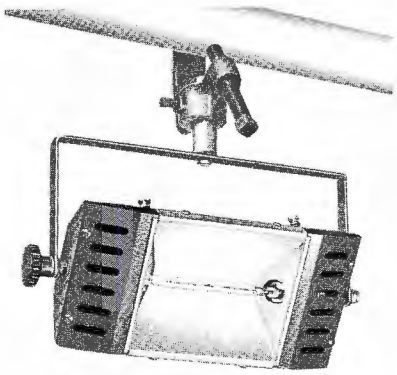
Set Lighting

Set lighting describes the lighting of individual set pieces, cycloramas and backings. It should be established in terms of the character of the set piece and the effect which is desired. The size, shape, texture, gray scale value, and the mood or

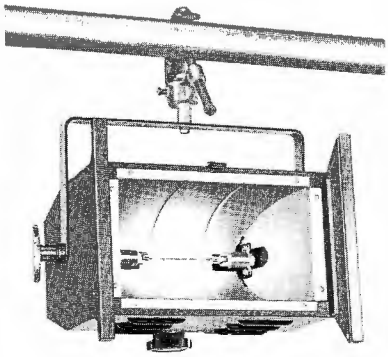


Soft-Lite LQBS-20/TV

Variable Scoop "2000" LQCS-1SF/TV with focusing ring



Mini-King "10" LQML-10/TV



Focusing Multi-Broad LQBM-10F/TV

effect being sought are some of the elements which help to determine the type of fixture to be used.

The cyclorama or backing light permits the illumination of cycloramas or backings from distances of approximately three feet. This allows the lighting designer to illuminate these surfaces virtually independently of the lighting in the balance of the set.

The cyclorama or backing light may be used from above or below. Where it is possible to light from below, it is helpful if a "ground row" can be used to hide the fixtures unless the set is designed so that the fixture can be concealed without this device. In many new studios, a light pit is installed below the level of the studio floor and approximately three feet in width. This permits the installation of cyclorama lighting strips below floor level.

The use of these fixtures permits some unusual lighting effects. As an example, if only the cyclorama or backing lights are on, and they are located close to the cyc or backing, performers or set pieces in the foreground are sharply silhouetted against this illuminated surface.

Lighting Control and Electrical Distribution*

A television studio lighting control and electrical distribution system includes power distribution, lighting support and connection, and control systems which permit the intensity of the lights to be varied from a remote location.

The systems proposed offer the simplest approach to equipment selection. More sophisticated systems and equipment are available for installations requiring greater control and adjustment.

Since the need for free camera movement dictates that the studio floor must be as clear as possible, television lighting systems are usually hung overhead on a grid.

A grid system is usually constructed of pipes hung from the ceiling which are spaced to provide even distribution of lighting fixtures over the studio floor. Lighting fixtures are mounted on the grid pipes with C-clamps. Power is brought directly to the grid and terminates in a series of connector strips placed at selected intervals along the grid.

* Note: In reading this section, it will be helpful to refer to the accompanying electrical system **schematic representation.**

For installations with very high ceilings, it may be desirable to use a counterweighted grid which permits raising and lowering the lighting fixtures. This is useful where frequent changes of large numbers of fixtures are contemplated. Experience has shown, however, that a fixed grid is adequate to meet everyday production requirements of small and intermediate studios.

Power Distribution

The power distribution equipment used to bring power to individual lights or groups of lights in the studio are connector strips (also called "plugging strips"). These are electrical distribution fixtures of specified lengths with pigtails extending from them. Each pigtail consists of approximately three feet of flexible power cord with a female connector on the end. Each circuit is brought back through the connector strips to a termination point, and then continued into the patch panel where it can be attached to a dimmer.

A modification of the connector strip is available for wall mounting and is called a "wall box." It provides electrical outlets near floor level. These "wall box" circuits are terminated at the patch panel in the same way as the circuits from the connector strips.

Because of the high efficiency of Berkey-ColorTran fixtures, 20 Ampere circuits are adequate for most of the lighting in the recommended studio layouts. Since cyclorama lights are usually controlled in groups, 50 Ampere outlets are provided for these lights.

Electrical Connectors

To eliminate the inconvenience of using connector adapters, the same type of electrical connector should be used throughout the studio. Three pin connectors are used exclusively in the recommended systems.

Adjustable Fixture Hangers

It is often desirable to move individual lights up and down. For these instances, adjustable fixture hangers and pantographs are included in the systems proposals. These are easy-to-use mounting devices which are simply placed between the fixture and grid pipe. Each hanger has its own C-clamp

and the fixture is attached to the bottom of the hanger.

Load Patching

Normally, it is not economically feasible to provide a dimmer for each outlet in the studio. A substantially smaller number of dimmers than outlets in the studio will satisfactorily meet typical production requirements. It becomes necessary under these conditions to provide some means for connecting a group of circuits to individual dimmers. The most satisfactory method for doing this is the use of a load patch panel.

The load patch panel provides a single location at which it is possible to interconnect the load circuits in arrangements which meet the requirements established by the lighting designer.

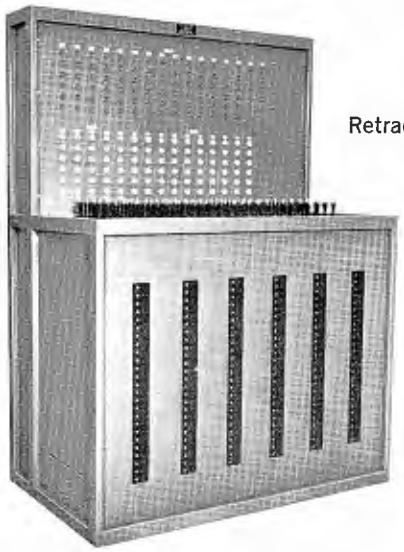
Dimming Equipment

Dimming equipment permits changing the level of light to balance the lighting effects in a scene. Further, it becomes possible to make lighting changes during a performance to supplement the actions of the performers, to affect the mood of the scene, and to change the visual emphasis.

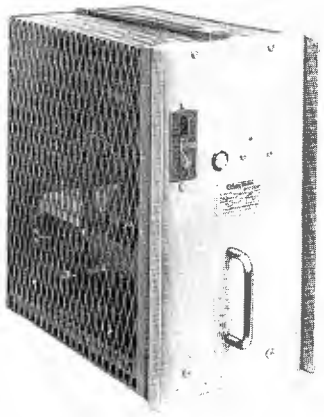
The dimming system consists of two major elements, the Dimmer Rack and the Control Center. The Dimmer Rack contains dimmer modules (which are solid-state electronic devices permitting the control of large amounts of power with low-voltage control signals), input power connections, main circuit breaker, distribution system for bringing the input power to the various modules, and dimmer output terminations. From these terminations, the dimmer outputs are brought to the jack fields in the load patch panel.

The Control Center is the "lighting console" from which all lights in the studio are operated. Because low-voltage control signals are used, the Control Center may be placed at any convenient location in the studio.

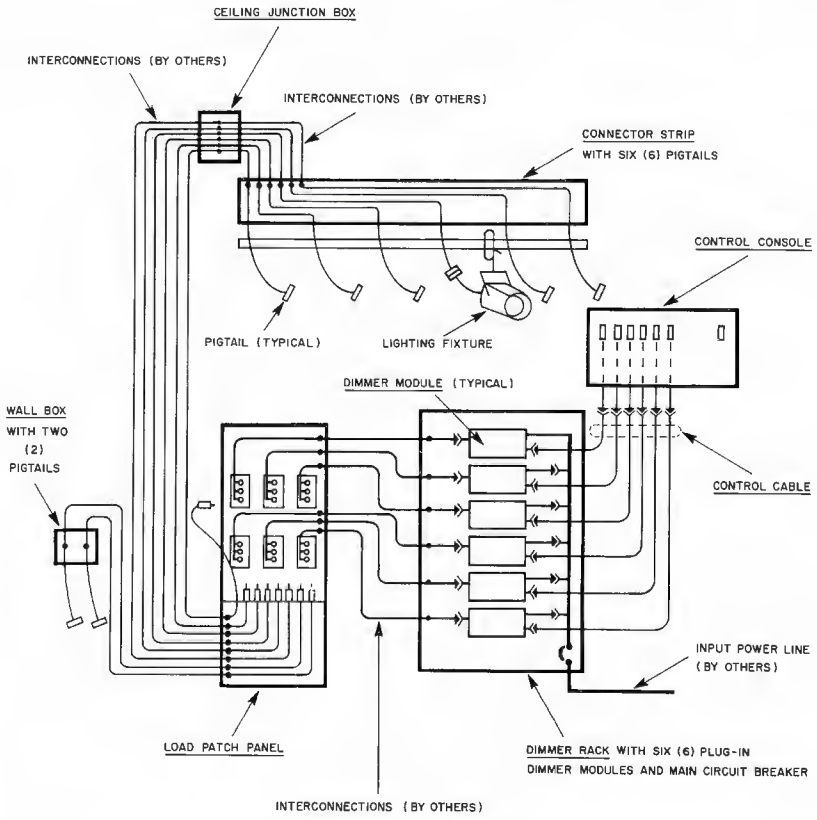
The dimming systems proposed for use in the recommended studio layouts represent only that degree of sophistication necessary to accomplish typical programming functions for each studio. Many variations of this equipment are available to meet specific needs.



Retractable Cord Patch Panel



12 kW SCR Power Pack (12,000-Watt capacity) CP12-120B



Electronic Dimmer Modules

Electronic dimmer modules are highly reliable, rugged components suitable for everyday service virtually without maintenance. The main power control devices on all dimming equipment recommended are silicon controlled rectifiers.

The dimmer module contains the power control devices, a circuit breaker, and provisions for electrically filtering the output of the dimmer to eliminate radio frequency interference. From the simplest low-cost system to the systems recommended for larger installations, the dimmer power circuitry is identical. The only major difference is in the design of the control circuit.

In the "CP" dimming line, it is possible to remove the dimmers from the rack individually, attach cord and control accessories and use them on remote operations. This additional degree of flexibility has proved to be useful in many situations.

Non-dim controls are provided in the systems recommended to handle loads for which on/off control only is required. At the Control Center, the non-dim may be available either as an on/off switch or with switching which permits mastering groups of non-dims. The non-dim contactor is a mercury relay which is placed in the dimmer rack and terminates in the patch panel in the same way as the dimmer circuits.

Systems Descriptions

The following section contains complete lighting equipment recommendations for seven different studio sizes. Two portable and five permanent systems are shown. The equipment recommended has been carefully chosen to provide efficient operation for a wide range of programming typically handled in each studio.

A variety of control options are available for each system, ranging from circuit breaker panels which provide on-off control of all studio circuits to sophisticated dimming systems.

Since no two studios are used in exactly the same ways, we suggest you contact your RCA representative for any variations from these recommendations to meet your specific requirements.

Dimmer Rack with 12 kW dimmers RS12-12-1

Dimmer System Control Console (24 channels) RCS-2/24-1

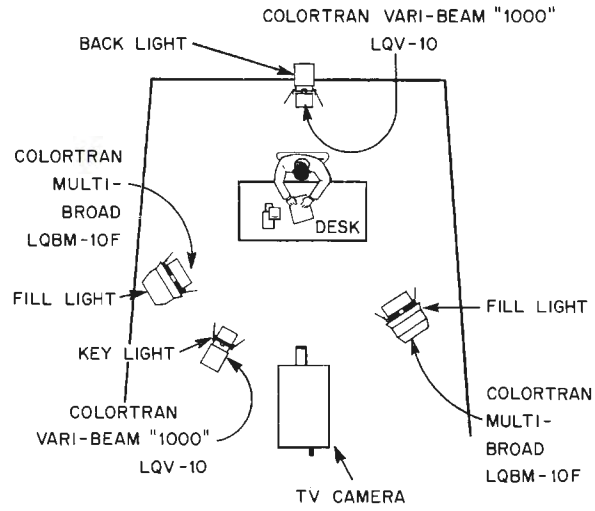
Hanging Cord Patch Panel

12 Channel Remote Control Center with 6 non-dims RCMD1-12LC/6N

Typical Dimmer Control Console (left) incorporating a five scene pre-set system (right).

Portable Lighting Kit for a 10′ x 10′ Area

This portable lighting kit is designed to provide illumination for a one man interview setup or a small office area. It is designed so that one man can do the lighting equipment setup and then operate the camera, if necessary. It will provide a minimum level of 400 footcandles.

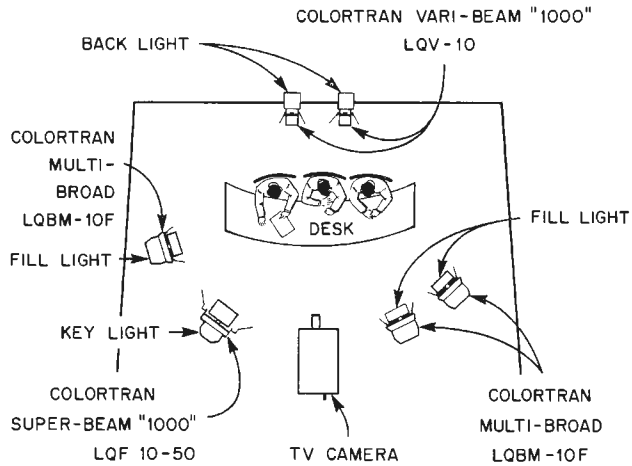


Quantity	Description	ColorTran Code
	Back & Key Light	
2	Vari-Beam "1000"	LQV-10
2	4-leaf Barndoors	B4V-10
2	Spun Glass Frames	DGRE
2	Extended Holders	DEVH-10
3	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
2	Extension Cables, 25 ft.	EC12-1U-25
	Fill/Base Light	
2	Multi-Broad	LQBM-10F
2	Spun Glass Frames	DGBM-10
2	4-leaf Barndoors	B4BM-10/E
3	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
2	Adjustable Stands, extra high with Casters	SSRH
2	Extension Cables, 25 ft.	EC12-1U-25
2	Gaffer Grips with ⅝ in. Stud	GAG
2	Light Outlet & Control Boxes with 2 receptacles, 2 switches and 25 ft. #12/3 cable with parallel blade U-ground input plug	OB1U-2S-1U-25
1	Carrying Case for light heads and accessories	FC-4
1	Carrying Case for stands and cables	FC-7
	Optional Lighting Control	
	Dimmer Control Option	
2	1000W capacity portable electronic dimmers with parallel blade U-ground input & output plugs	CD12-10B

NOTE: Total connected load of kit—34 Amps @ 120V, AC/DC

Portable Lighting Kit for a 10′ x 15′ Area

This portable lighting kit is designed to provide illumination for a multiple interview situation involving as many as three people. It is designed so that one man can do the complete setup and establish a 400 footcandle level of illumination.

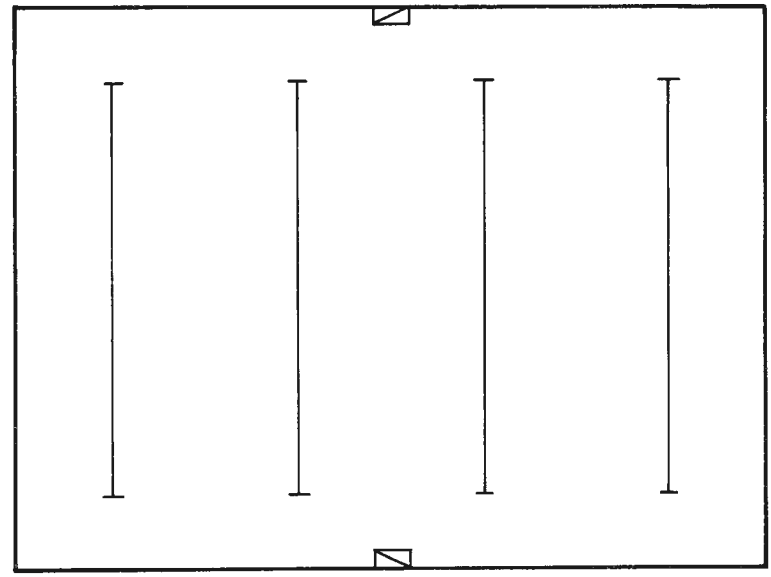


Quantity	Description	ColorTran Code
	Back & Key Light	
2	Vari-Beam "1000"	LQV-10
2	4-leaf Barndoors	B4V-10
2	Spun Glass Frames	DGRE
2	Extended Holders	DEVH-10
3	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
2	Adjustable Stands, extra high with casters	SSRH
2	Extension Cables, 25 ft.	EC12-1U-25
1	Super-Beam "1000"	LQF10-50
1	4-leaf Barndoors	B4QFN
1	Spun Glass Frame	DGRE
2	1000W, 3200°K, 150 hr. "Quartz" Lamps, frosted	BS10-32F/1
1	Adjustable Stand, extra high with casters	SSRH
1	Extension Cable, 25 ft.	EC12-1U-25
	Fill/Base Light	
3	Multi-Broad	LQBM-10F
3	Spun Glass Frames	DGBM-10
2	4-leaf Barndoors	B4BM-10/E
1	Adjustable Stand, low w/casters	SSR-12
2	Adjustable Stands, extra high with casters	SSRH
4	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
3	Extension Cables, 25 ft.	EC12-1U-25
	Distribution Equipment	
3	Light Outlet & Control Boxes with 2 receptacles, 2 switches and 25 ft. #12/3 cable with parallel blade U-ground input plug	OB1U-2S-1U-25
1	Carrying Case for lights and accessories	FC-4
1	Carrying Case for lights and accessories	FC-5
1	Carrying Case for stands and cables	FC-7
	Optional Lighting Control	
	Dimmer Control Option	
3	1000W capacity portable electronic dimmers w/parallel blade U-ground input and output plugs	CD12-10B

NOTE: Total connected load of kit—50 Amps @ 120V, AC/DC

15′ x 20′ Studio

This 15′ x 20′ sized studio will permit the simplest forms of television production to be presented. One set area may be accommodated in this studio. Two control system *options* are provided. The selection of either option will be dependent upon specific customer requirements.



Key: ⊢——⊣ 11′ Connector strip, with (4)-20 Amp grounding pin connector pigtails on (4)-20 Amp circuits. (4 required)

Wall outlet box, with (2)-20 Amp grounding pin connector pigtails on (2)-20 Amp circuits. (2 boxes req'd, mount at +3 0")

Quantity	Description	ColorTran Code
	Fill/Base Light	
4	Multi-Broad	LQBM-10F/TV-2P
4	4-leaf Barndoors	B4BM-10/E
4	Spun Glass Frames	DGBM-10
4	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
2	Adjustable Hangers	HAL
2	Extension Cables, 12 ft.	EC14-2P-12
1	2000W Soft Lite, low profile	LQBS-20/TV-2P
1	Spun Glass Frame	DGQBS 20
2	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
	Back & Key Light	
6	Vari-Beam "1000"	LQV-10/TV-2P
6	4-leaf Barndoors	B4V-10
3	Extended Holders	DEVH-10
3	Spun Glass Frames	DGRE
6	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
3	Adjustable Hangers	HAL
3	Extension Cables, 12 ft.	EC14-2P-12
	Effects & Set Light	
2	Mini-King "10"	LQML-10/TV-2P
2	Extended Holders	DEHE
2	4-leaf Barndoors	B4EME
2	Spun Glass Frames	DFME
2	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32F
	Special Equipment	
1	Roll 4 ft. x 15 ft. Spun Glass diffusion	28-2244
2	Gaffer Grips with ⅝ in. stud	GAG
2	3-way Mounting Bracket	B11856/T

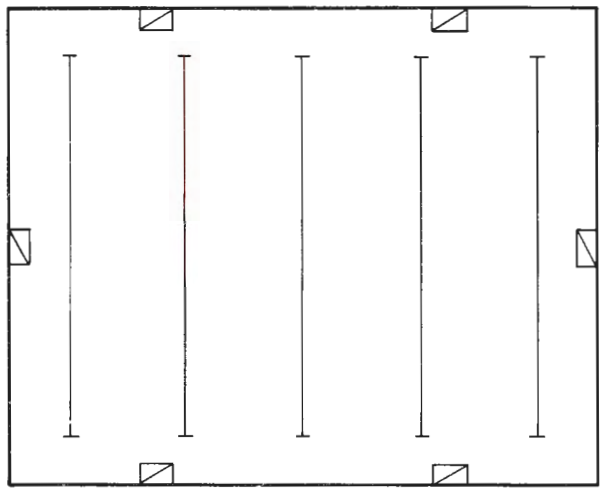
Quantity	Description	ColorTran Code
2	Adjustable Stands, extra high with casters	SSRH
2	Extension Cables, 25 ft.	EC12-2P-25
	Distribution Equipment	
4	*Batten & plugging strip assembly 11 ft. long with 4-20 Amp Pigtails (each fitted for 11 ft. long 1½ in. Schedule 40 pipe supplied by others)	W11-4-2P
4	Ceiling junction boxes for inter-connection between plugging strip terminal box and ceiling feed	JB-4-20
2	Wall Outlet box with 2-20 Amp Pigtails	WB-2-2P
	Control Equipment (Option A)	
1	Circuit Breaker panel with 20-20 Amp circuit breakers for switch control of all studio circuits	CBB-20/20-1
	Control Equipment (Option B) Solid State Dimming System	
1	Dimmer Rack containing 3-3KW (CP12-30B) dimmers, 2-3KW non-dim circuits and 1-40 Amp 3 pole manually operated circuit breaker (assumes 3 phase 4 wire 208/120V input service), including load patching facility with 20-20 Amp hanging load cords and circuit breakers, and 15 jacks (3 per dimmer and 3 per non-dim circuit)	RS3-3P-1
1	Remote Control Panel with 3 linear controllers, 1 master controller and 2 non-dim circuit control switches, 25 ft. remote control cable and connector	RCMD1-3LC/2N

* All Plugging Strips are completely prewired with all internal wiring brought to terminal blocks for field interconnection (BY OTHERS) between plugging strip and ceiling junction box. Plugging Strips are furnished with mounting brackets for support of pipe and Plugging Strip.

NOTE: Total connected load—117 Amps @ 120V, AC/DC.

20′ x 25′ Studio

This 20′ x 25′ sized studio will permit the simplest forms of television production to be presented. Three separate set areas may be accommodated in this studio. Two control system *options* are provided. The selection of either option will be dependent upon specific customer requirements.



Key: ⊢——⊣ 16′ Connector strip, with (6)-20 Amp grounding pin connector pigtails on (6)-20 Amp circuits. (5 required)

Wall outlet box, with (2)-20 Amp grounding pin connector pigtails on (2)-20 Amp circuits. (6 boxes req'd, mount at +30")

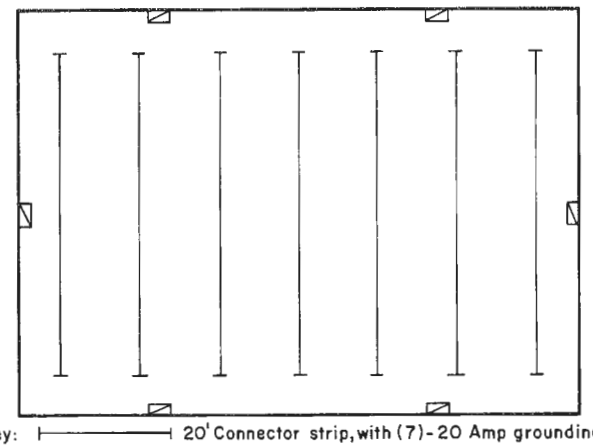
Quantity	Description	ColorTran Code
	Fill/Base Light	
12	Multi-Broad	LQBM-10F/TV-2P
8	4-leaf Barndoors	B4BM-10/E
12	Spun Glass Frames	DGBM-10
12	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
6	Adjustable Hangers	HAL
6	Extension Cables, 12 ft.	EC14-2P-12
	Back & Key Light	
10	Vari-Beam "1000"	LQV-10/TV-2P
10	4-leaf Barndoors	B4V-10
5	Extended Holders	DEVH-10
5	Spun Glass Frames	DGRE
10	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
6	Adjustable Hangers	HAL
6	Extension Cables, 12 ft.	EC14-2P-12
4	Super Beam "1000"	LQF10-50/TV-2P
4	4-leaf Barndoors	B4QFN
4	Spun Glass Frames	DGRE
4	1000W, 3200°K, 150 hr. "Quartz" Lamps, frosted	BS10-32F/1
1	Adjustable Hanger	HAL
1	Extension Cable, 12 ft.	EC14-2P-12
	Effects & Set Light	
4	Mini-King "10"	LQML-10/TV-2P
4	Extended Holders	DEHE
4	4-leaf Barndoors	B4EME
4	Spun Glass Frames	DFME
4	1000W, 3200°K, 500 hr. "Quartz" Lamps, frosted	B5-32F
1	6 in. Pattern Projector	LQEP-6X9/TV-2P
1	Pattern Holder	AEPH-6
1	Pattern Set	AMPQE-6/6
1	Spun Glass Frame	ADF-6
1	750W, 3200°K, 300 hr. "Quartz" Lamp	Q750T12/4CL
	Special Equipment	
1	Roll 4 ft. x 11 ft. Spun Glass Diffusion	28-2244
4	Gaffer Grips with ⅝ in. stud	GAG
4	3-way Mounting Bracket, small	B11856/T
2	Adjustable Stands, extra high with casters	SSRH
2	Extension Cables, 25 ft.	EC12-2P-25
	Distribution Equipment	
5	*Batten/Plugging Strip Assembly 16 ft. long with 6-20 Amp Pigtails (each fitted for 16 ft. long 1½ in. Schedule 40 pipe supplied by others)	W16-6-2P
5	Ceiling junction boxes for inter-connection between plugging strip terminal box and ceiling feed	JB-6-20
6	Wall Outlet box with 2-20 Amp Pigtails	WB-2-2P
2	Transverse 1½ in. I.D. Pipe section 8 ft. long	P-8
4	Double C-clamp Assembly for transverse pipe mounting, 2 required per pipe	CC-2-CC
	Control Equipment (Option A)	
1	Circuit Breaker Panel with 42-20 Amp circuit breakers for switch control of all studio circuits	CBB-42/20-1
	Control Equipment (Option B)	
1	Patch Panel with 42-20 Amp hanging load cords and circuit breakers, and 27 jacks (3 per dimmer and 3 per non-dim circuit)	RLH-42/27-1
1	Circuit Breaker Panel containing 1-90 Amp 3 pole manually operated main breaker (assumes 3 phase 4 wire 208/120V input service) and 9-30 Amp branch circuit breakers. (This circuit element may be replaced later with the dimmer rack and remote control panel shown in Option C without changing load or distribution wiring to provide dimming facility)	CBP-1/90-9/30-1
	Control Equipment (Option C) Solid State Dimming System	
1	Dimmer Rack containing 6-3KW (CP12-30B) dimmers, 3-3KW non-dim circuits and 1-90 Amp 3-pole manually operated circuit breaker (assumes 3 phase 4 wire 208/120V input service)	RS6-3-1
1	Patch Panel with 42-20 Amp hanging load cords and circuit breakers, and 27 jacks (3 per dimmer and 3 per non-dim circuit)	RLH-42/27-1
1	Remote Control Panel with 6 linear controllers, 1 master controller and 3 non-dim circuit control switches, 25 ft. remote control cable and connector	RCMD1-6LC/3N

* All Plugging Strips are completely prewired with all internal wiring brought to terminal blocks for field interconnection (BY OTHERS) between plugging strip and ceiling junction box. Plugging Strips are furnished with mounting brackets for support of pipe and Plugging Strip.

NOTE: Total connected load—255 Amps @ 120V, AC/DC.

25′ x 35′ Studio

This 25′ x 35′ sized studio would be used for more complex television production activities. A major set area might be used with as many as three cameras. A dimming system is provided to permit increased flexibility in lighting intensity control.



Key: ⊢——⊣ 20′ Connector strip, with (7)-20 Amp grounding pin connector pigtails on (7)-20 Amp circuits, (7 required)

Wall outlet box, with (2)-20 Amp grounding pin connector pigtails on (2)-20 Amp circuits. (6 boxes req'd, mount at +30")

Quantity	Description	ColorTran Code
	Fill/Base Light	
5	Variable Scoop "1000"	LQCS-15F/TV-2P
5	Spun Glass Frames	DGR-15
5	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
2	Adjustable Hangers	HAL
2	Extension Cables, 12 ft.	EC14-2P-12
15	Multi-Broad	LQBM-10F/TV-2P
10	4-leaf Barndoors	B4BM-10/E
15	Sun Glass Frames	DGBM-10
15	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
8	Adjustable Hangers	HAL
8	Extension Cable, 12 ft.	EC14-2P-12
	Back & Key Light	
15	Vari-Beam "1000"	LQV-10/TV-2P
15	4-leaf Barndoors	B4V-10
6	Extended Holders	DEVH-10
6	Spun Glass Frames	DGRE
15	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
7	Adjustable Hangers	HAL
7	Extension Cable, 12 ft.	EC14-2P-12
6	Super Beam "1000"	LQF10-50/TV-2P
6	4-leaf Barndoors	B4QFN
6	Spun Glass Frames	DGRE
6	1000W, 3200°K, 150 hr. "Quartz" Lamps, frosted	BS10-32F/1
3	Adjustable Hanger	HAL
3	Extension Cables, 12 ft.	EC14-2P-12

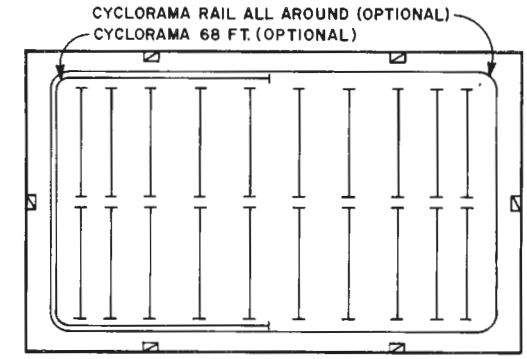
Quantity	Description	ColorTran Code
	Effects & Set Light	
2	6 in. Pattern Projector	LQEP-6X9/TV-2P
2	Pattern Holders	AEPH-6
2	Pattern Sets	AMPQE-6/6
2	Spun Glass Frames	ADF-6
2	750W, 3200°K, 300 hr. "Quartz" Lamps	Q750T12/4CL
1	Follow Spot w/full set of Mattes and Holder	LQFS-1-2P/C
1	Floor Stand, castered heavy duty	SHD
1	Stand Adapter	SA-7/9
1	1000W, 3200°K, 150 hr. "Quartz" Lamps	BPS10-32
	Special Equipment	
1	Roll 4 ft. x 15 ft. Spun Glass Diffusion	28-2244
3	3-way Mounting Bracket	B12426-2/T
3	Adjustable Stand, extra high with casters	SSRH
3	Extension Cables, 25 ft.	EC12-2P-25
	Distribution Equipment	
7	*Batten/Plugging Strip Assembly 20 ft. long with 7-20 Amp Pigtails, (each fitted for 20 ft. long 1½ in. Schedule 40 pipe supplied by others)	W20-7-2P
7	Ceiling Junction Boxes for inter-connection between Plugging Strip terminal box and ceiling feed	JB-7-20
6	Wall Outlet Box w/2-20 Amp Pigtails	WB-2-2P
4	Transverse 1½ in. I.D. pipe section 8 ft. long	P-8
8	Double C-clamp Assembly for transverse pipe mounting, 2 required per pipe	CC-2-CC
	Control Equipment (Option A)	
1	Circuit Breaker Panel with 61-20 Amp circuit breakers for switch control of all studio circuits	CBB-61/20-1
	Control Equipment (Option B)	
1	Patch Panel with 61-20 Amp hanging load cords and breakers and 54 output jacks, 6 per power circuit	RLH-61/54-1
1	Circuit Breaker Panel containing 1-150 Amp 3 pole manually operated main breaker (assumes 3 phase 4 wire 208/120V input service) and 9-50 Amp branch circuit breakers. (This circuit element may be replaced later with the dimmer rack and remote control panel shown in Option C without changing load or distribution wiring to provide dimming facility	CBP-1/150-9/50-1
	Control Equipment (Option C)	
1	Dimmer Rack containing 6-6KW (CP12-60B) dimmers and 3-6KW non-dim circuits equipped with 1-150 Amp 3-pole manually operated main breaker, (assumes 3 phase 4 wire 208/120V input service)	RS6-6-1
1	Patch Panel with 61-20 Amp hanging load cords and breakers and 54 output jacks, 6 per power circuit	RLH-61/54-1
1	6-Channel Remote Control Center with 6 linear controllers, 1 master controller, 3 non-dim circuit control switches, 6 on/off/independent switches, 25 ft. remote control cable	RCMD1-6LC/3N

* All Plugging Strips are completely prewired with all internal wiring brought to terminal blocks for field interconnection (BY OTHERS) between plugging strip and ceiling junction box. Plugging Strips are furnished with mounting brackets for support of pipe and Plugging Strip.

NOTE: Total connected load 357 Amps @ 120V, AC/DC.

30' x 50' Studio

This 30' x 50' sized studio would be used for television productions of moderate complexity. It incorporates the use of a cyclorama (by others) which would cover half the perimeter of the studio area. Tungsten-Halogen "quartz" cyc strip lights are provided to produce the necessary illumination levels on the cyclorama. An advanced dimming system for lighting control is provided along with a remote control center.



Key: 11' Connector strip with (4)-20 Amp and (1)-50 Amp grounding pin connector pigtails, on (4)-20 Amp and (1)-50 Amp circuits. (20 required).

Wall outlet box, with (3)-20 Amp grounding pin connector pigtails on (3)-20 Amp circuits. (6 boxes req'd, mount at +30")

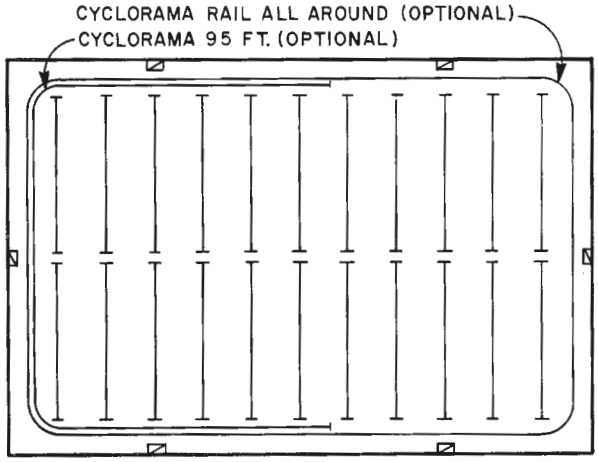
Quantity	Description	ColorTran Code
	Base/Fill Light	
3	2000W Soft Lite, low profile	LQBS-20/TV-2P
3	Spun Glass Frames	DGQBS-20
6	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
15	Variable Scoop "1000"	LQCS-15F/TV-2P
15	Spun Glass Frames	DGR-15
15	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
8	6 ft. Pantographs	HSP-6
8	Extension Cable, 15 ft.	EC14-2P-15
15	Multi-Broad	LQBM-10F/TV-2P
15	Spun Glass Frames	DGBM-10
10	4-leaf Barndoors	B4BM-10/E
15	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
8	6 ft. Pantographs	HSP-6
8	Extension Cable, 15 ft.	EC14-2P-15
	Back & Key Light	
12	Vari-Beam "1000"	LQV-10/TV-2P
12	4-leaf Barndoors	B4V-10
6	Extended Holder	DEVH-10
6	Spun Glass Frames	DGRE
12	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
5	6 ft. Pantographs	HSP-6
5	Extension Cable, 15 ft.	EC14-2P-15
20	Super-Beam "1000"	LQF10-50/TV-2P
20	4-leaf Barndoors	B4QFN
20	Spun Glass Frames	DGRE
20	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32F/1
8	6 ft. Pantographs	HSP-6
8	Extension Cable, 15 ft.	EC14-2P-15
	Effects Light	
2	8 in. Pattern Projector	LQEP-8X9/TV-2P
2	Pattern Holders	AEPH-8
2	Pattern Sets	AMPQ
2	Spun Glass Frames	ADF-8
2	1000W, 3200°K, 250 hr. "Quartz" Lamps	Q1000T12/4CL
1	Follow Spot w/full set of Mattes and Holders	LQFS-1-2P/C
1	Floor Stand, castered heavy duty	SHD
1	Stand Adapter	SA-7/9
1	1000W, 3200°K, 150 hr. "Quartz" Lamps	BPS10-32
	Cyclorama Lighting	
5	10-lite, 2 circuit Cyclorama strips	LQC10-10/2-6P
5	Hanger Assembly for overhead mounting	GHC
50	1000W, 3200°K, 500 hr. "Quartz" Lamps, frosted	B5-32F
4	2-lite, 2 circuit Cyclorama strip	LQC10-2/2-2P
4	Hanger Assembly for overhead mounting	GHC
8	100W, 3200°K, 500 hr. "Quartz" Lamps, frosted	B5-32F
	Special Equipment	
3	Roll 4 ft. x 15 ft. Spun Glass diffusion	28-2244
4	3-way Mounting Bracket	B12426-2/T
4	3-way Mounting Bracket	B12404/T
6	Adjustable Stands, extra high with casters	SSRH
6	Extension Cable, 25 ft.	EC12-2P-25
	Distribution Equipment	
20	*Batten/Plugging Strip Assembly 11 ft. long with 4-20 Amp and 1-50 Amp Pigtails (each fitted for 11 ft. long 1½ in. Schedule 40 pipe supplied by others)	W11-4-2P/1-5P
20	Ceiling Junction Boxes for inter-connection between plugging strip terminal box and ceiling feed	JB-4-20/1-50
6	Wall Outlet Box with 3-20 Amp Pigtails	WB-3-2P
8	Transverse 1½ in. I.D. pipe section 8 ft. long	P-8
16	Double C-clamp Assembly for transverse pipe mounting, 2 required per pipe	CC-2-CC
	Control Equipment (Option A)	
1	Patch Panel with 98-20 Amp and 20-50 Amp retractable load cords and breakers and 156 output jacks, 10 per 12KW dimmer and 6 per 6KW non-dim circuit	RLP-118/156-1
1	Circuit Breaker Panel containing 1-500 Amp 3 pole manually operated breaker (assumes 3 phase 4 wire 208/120V input service) and 12-100 Amp and 6-50 Amp branch circuit breakers. (This circuit element may be replaced later with the dimmer rack and remote control panel shown in Option B without changing load or distribution wiring in order to provide dimming facility)	CBP-1/500-12/100-6/50-1
	Control Equipment (Option B)	
1	Dimmer Rack containing 12-12KW (CP12-120B) dimmers, 6-6KW non-dim circuits, 1-500 Amp 3-pole manually operated main circuit breaker (assumes 3 phase 4 wire, 208/120V input service)	RS12-12-1
1	Patch Panel with 98-20 Amp and 20-50 Amp retractable load cords and breakers and 156 output jacks, 10 per 12KW dimmer and 6 per 6KW non-dim circuit	RLP-118/156-1
1	12-Ch. Remote Control Center with 12 controllers, 12 independent Master A-Master B Switches, 12 on/off switches, 3 black-out switches, 2 Master Controllers, 6 non-dim control switches, 25 ft. Remote Control cable, and connector	RCMD1-12LC/6N

* All Plugging Strips are completely prewired with all internal wiring brought to terminal blocks for field interconnection (BY OTHERS) between plugging strip and ceiling junction box. Plugging Strips are furnished with mounting brackets for support of pipe and Plugging Strip.

NOTE: Total connected load—1070 Amps @ 120V AC/DC.

40' x 60' Sudio

This 40' x 60' sized studio would be used for major television productions. It is equipped with a cyclorama (by others) and an advanced two-scene preset dimming system. As many as three set areas could be set up in this studio for major production work. The equipment selected provides for a maximum range of flexibility.



Key: ⊢——⊣ 16' Connector strip with (5)-20 Amp and (1)-50 Amp grounding pin connector pigtails, on (5)-20 Amp and (1)-50 Amp circuits. (22 req'd).

▨ Wall outlet box, with (3)-20 Amp grounding pin connector pigtails on (3)-20 Amp circuits. (6 boxes req'd, mount at +30")

Quantity	Description	ColorTran Code
	Fill/Base Light	
4	2000W Soft-Lites, low profile	LQBS-20/TV-2P
4	Spun Glass Frames	DGQBS-20
8	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
25	Variable Scoop "2000"	LQCS-18F/TV-2P
25	Spun Glass Frames	DGR-18
25	2000W, 3200°K, 500 hr. "Quartz" Lamps	B20-32/8
10	6 ft. Pantograph	HSP-6
10	Extension Cables, 15 ft.	EC12-2P-15
15	Multi-Broad	LQBM-10F/TV-2P
15	Spun Glass Frames	DGBM-10
10	4-leaf Barndoors	B4BM-10/E
15	1000W, 3200°K, 500 hr. "Quartz" Lamps	B5-32
5	6 ft. Pantograph	HSP-6
5	Extension Cables, 15 ft.	EC14-2P-15
	Back & Key Light	
15	Vari-Beam "1000"	LQV-10-TV-2P
15	4-leaf Barndoors	B4V-10
8	Extended Holders	DEVH-10
8	Spun Glass Frames	DGRE
15	1000W, 3200°K, 150 hr. "Quartz" Lamps	BS10-32/1
5	6 ft. Pantograph	HSP-6
5	Extension Cables, 15 ft.	EC14-2P-15
30	Super Beam "1000"	LQF10-50/TV-2P
30	4-leaf Barndoors	B4QFN
30	Spun Glass Frames	DGRE
30	1000W, 3200°K, 150 hr. "Quartz" Lamps, frosted	BS10-32F/1
8	6 ft. Pantograph	HSP-6
8	Extension Cables, 15 ft.	EC14-2P-15
	Effects Light	
3	8 in. Pattern Projector	LQEP-8X9/TV-2P
3	Pattern Holders	AEPH-8
3	Pattern Sets	AMPQ
3	Spun Glass Frames	ADF-8
3	1000W, 3200°K, 250 hr. "Quartz" Lamps	Q1000T12/4CL
1	Follow Spot w/full set of Mattes and Holder	LQFS-1/2P-C
1	Floor Stand, castered heavy duty	SHD
1	Stand Adapter	SA-7/9
1	1000W, 3200°K, 150 hr. "Quartz" Lamp	BPS10-32
	Cyclorama Lighting	
6	10-lite, 2 circuit, Cyclorama strips	LQC10-10/2-6P
6	Hanger Assembly for overhead mounting	GHC
60	1000W, 3200°K, 500 hr. "Quartz" Lamps, frosted	B5-32F
4	2-lite, 2 circuit, Cyclorama strips	LQC10-2/2-2P
4	Hanger Assembly for overhead mounting	GHC
8	1000W, 3200°K, 500 hr. "Quartz" Lamps, frosted	B5-32F
	Special Equipment	
4	Roll 4 ft. x 15 ft. Spun Glass diffusion	28-2244
4	3-way Mounting Brackets	B12404/T
4	Floor Stands, castered extra high	SSRH
4	Extension Cables, 25 ft.	EC12-2P-25
	Distribution Equipment	
22	*Batten/Plugging Strip Assembly 16 ft. long with 5-20 Amp and 1-50 Amp Pigtails (each fitted for 16 ft. long 1½ in. Schedule 40 pipe supplied by others)	W16-5-2P/1-5P
22	Ceiling Junction Boxes for inter-connection between plugging strip terminal box and ceiling feed	JB-5-20/1-50
6	Wall Outlet Box with 3-20 Amp Pigtails	WB-3-2P
8	Transverse 1½ in. I.D. pipe section 8 ft. long	P-8
16	Double C-clamp Assembly for transverse pipe mounting, 2 required per pipe	CC-2-CC
	Control Equipment (Option A)	
1	Patch Panel w/128-20 Amp and 22-50 Amp retractable load cords and breakers and 10 output jacks per 12KW dimmer and 6 output jacks per 6KW non-dim circuit	RLP-150/156-1
1	Circuit Breaker Panel containing 1-500 Amp 3 pole manually operated breaker (assumes 3 phase 4 wire 208/120V input service) and 12-100 Amp and 6-50 Amp branch circuit breakers. (This circuit element may be replaced later with the dimmer rack and remote control panel shown in Option B without changing load or distribution wiring in order to provide dimming facility)	CBP-1/500-12/100-6/50-1

Quantity	Description	ColorTran Code
	Control Equipment (Option B) Solid State Dimming System	
1	Dimmer Rack containing 12-12KW (CP12-120B) dimmers and 6-6KW non-dim circuits, 1-500 Amp 3-pole manually operated main circuit breaker (assumes 3 phase 4 wire 208/120V input service)	RS12-12-1
1	Patch Panel with 128-20 Amp and 22-50 Amp retractable load cords and breakers and 10 output jacks per 12KW dimmer and 6 output jacks per 6KW non-dim circuit	RLP-150/156-1
1	12 Ch. Remote Control Center with 12 Linear Controllers, 2 Masters, 12 Independent Master A-Master B switches, 12 on/off switches, 1 on/off switch for independent control, 2 on/off switches for master control, 6 non-dim switches, 25 ft. control cable and connector	RCMD1-12LC/6N

Quantity	Description	ColorTran Code
	Control Equipment (Option C)	
1	Dimmer Rack w/24-6KW (CPS12-60G) dimmers, 6-6KW non-dim circuits, 1-500 Amp 3P main motor operated breaker (assumes 3 phase 4 wire 208/120V input service)	RS24-6S-1
1	Patch Panel w/128-20 Amp and 22-50 Amp retractable load cords and breakers, 180 output jacks, 6 per circuit	RLP-150/180-1
1	Control Console with modified 6 scene preset with: 24-2 scene control channels each with pushbutton select for on/off and Fader A, B, C and Ind., 3 paired faders, 1 grand Master, 6-5 pushbutton switches for non-dim control, on/off A, B, Ind., 2 Master switches for non-dim control, A, B	RCS-2/24-1

* All Plugging Strips are completely prewired with all internal wiring brought to terminal blocks for field interconnection (BY OTHERS) between plugging strip and ceiling junction box. Plugging Strips are furnished with mounting brackets for support of pipe and Plugging Strip.

NOTE: Total connected load—1575 Amps @ 120V, AC/DC.

Illustrated above are: MI-36316 Professional series lenses (top row, left to right) 25mm, f/1.5; 102mm, f/2.7; 75mm, f/1.9; 50mm, f/1.5; 12mm, f/1.2. Bottom row left to right MI-48126 Standard series lenses 50, 75, 12.5 and 25mm all f/1.4.

Vidicon Camera Lenses

Two series of fixed focal length vidicon camera lenses are available to meet a wide variety of educational, industrial, medical, military and other closed circuit television applications. These lenses incorporate the latest refinements in optics and combine precision design with sturdy mechanical construction.

The Professional Series of vidicon camera optics includes six lenses of unusually high quality and ranging in focal length from 12mm to 102mm. Careful optical design and coated lens elements provide crisp, high contrast images for maximum picture clarity.

The Standard Series makes high quality camera optics available at modest cost. Four lenses, ranging in focal length from 12.5mm to 75mm, are available in this series. All lenses are furnished in 16mm focusing C-mounts and include adjustable iris rings with click-stops. Both series of lenses are designed to provide optimum optical response over the standard vidicon scanning format of ⅜-inch by ½-inch.

TABLE OF FIELD SIZES FOR 16MM C-MOUNT VIDICON CAMERA LENSES

Distance from Lens to Subject in Feet	12mm (31/64") Lens		13mm (33/64") Lens		25mm (1") Lens		50mm (2") Lens		75mm (3") Lens		102mm (4") Lens	
	Height	Width	Height	Width	Height	Width	Height	Width	Height	Width	Height	Width
2	1'-4"	1'-9"	1'-2"	1'-7"	0'-8"	0'-10"	0'-4"	0'-5"	0'-3"	0'-4"	0'-2"	0'-3"
3	2'-1"	2'-9"	1'-11"	2'-7"	1'-0"	1'-4"	0'-6"	0'-8"	0'-4"	0'-6"	0'-3"	0'-5"
4	2'-11"	3'-10"	2'-8"	3'-6"	1'-4"	1'-10"	0'-8"	0'-11"	0'-6"	0'-8"	0'-4"	0'-6"
5	3'-11"	5'-2"	3'-8"	4'-10"	1'-10"	2'-6"	0'-11"	1'-3"	0'-8"	0'-10"	0-6"	0'-8"
6	4'-8"	6'-3"	4'-4"	5'-9"	2'-2"	3'-0"	1'-1"	1'-6"	0'-9"	1'-0"	0'-7"	0'-9"
7	5'-5"	7'-3"	5'-1"	6'-9"	2'-6"	3'-6"	1'-3"	1'-9"	0'-10"	1'-2"	0'-8"	0'-11"
8	6'-3"	8'-4"	5'-9"	7'-8"	3'-0"	4'-0"	1'-6"	2'-0"	1'-0"	1'-4"	0'-9"	1'-0"
9	7'-0"	9'-4"	6'-6"	8'-8"	3'-4"	4'-6"	1'-8"	2'-3"	1'-1"	1'-6"	0'-10"	1'-2"
10	7'-10"	10'-5"	7'-2"	9'-7"	3'-10"	5'-0"	1'-11"	2'-6"	1'-3"	1'-8"	0'-11"	1'-3"
12	9'-5"	12'-6"	8'-8"	11'-6"	4'-7"	6'-0"	2'-3"	3'-0"	1'-6"	2'-0"	1'-1"	1'-6"
14	10'-11"	14'-7"	10'-2"	13'-6"	5'-4"	7'-0"	2'-8"	3'-6"	1'-9"	2'-4"	1'-4"	1'-9"
16	12'-6"	16'-8"	11'-7"	15'-5"	6'-0"	8'-0"	3'-0"	4'-0"	2'-0"	2'-8"	1'-6"	2'-0"
18	14'-1"	18'-10"	13'-0"	17'-4"	6'-9"	9'-0"	3'-5"	4'-6"	2'-3"	3'-0"	1'-8"	2'-3"
20	15'-8"	20'-10"	14'-5"	19'-3"	7'-6"	10'-0"	3'-9"	5'-0"	2'-6"	3'-4"	1'-10"	2'-6"
25	19'-8"	26'-3"	18'-0"	24'-0"	9'-4"	12'-6"	4'-8"	6'-3"	3'-2"	4'-2"	2'-4"	3'-2"
30	23'-5"	31'-2"	21'-8"	28'-10"	11'-2"	15'-0"	5'-7"	7'-6"	3'-9"	5'-0"	2'-10"	3'-9"
35	27'-4"	36'-5"	25'-3"	33'-8"	13'-1"	17'-6"	6'-6"	8'-9"	4'-5"	5'-10"	3'-3"	4'-5"
40	31'-2"	41'-7"	28'-11"	38'-6"	15'-0"	20'-0"	7'-6"	10'-0"	5'-0"	6'-8"	3'-9"	5'-0"
45	35'-2"	46'-10"	32'-5"	43'-3"	16'-11"	22'-6"	8'-5"	11'-3"	5'-8"	7'-6"	4'-3"	5'-8"
50	39'-0"	52'-0"	36'-0"	48'-0"	18'-8"	25'-0"	9'-4"	12'-6"	6'-3"	8'-4"	4'-9"	6'-3"
60	46'-10"	62'-5"	43'-3"	57'-8"	22'-6"	30'-0"	11'-3"	15'-0"	7'-6"	10'-0"	5'-8"	7'-6"
70	54'-8"	72'-10"	50'-5"	67'-3"	26'-2"	35'-0"	13'-1"	17'-6"	8'-9"	11'-8"	6'-7"	8'-9"
80	62'-5"	83'-2"	57'-8"	76'-11"	30'-0"	40'-0"	15'-0"	20'-0"	10'-0"	13'-4"	7'-6"	10'-0"
90	70'-2"	93'-7"	64'-11"	86'-6"	33'-10"	45'-0"	16'-11"	22'-6"	11'-3"	15'-0"	8'-5"	11'-3"
100	78'-0"	104'-0"	72'-0"	96'-0"	37'-6"	50'-0"	18'-9"	25'-0"	12'-6"	16'-8"	9'-4"	12'-6"

Description	Stock Identification	Focal Length	Focal Range	Aperture Range	Filter Size
PROFESSIONAL SERIES					
Wide Angle Lens	MI-36316-12	12mm	1½ ft. to infinity	f/1.2 to 16	5.5
Normal Lens	MI-36316-25	25mm	2 ft. to inf.	f/1.5 to 16	4.5
Medium Telephoto Lens	MI-36316-50	50mm	2 ft. to inf.	f/1.5 to 22	5.5
Telephoto Lens	MI-36316-75	75mm	3 ft. to inf.	f/1.9 to 22	7
Telephoto Lens	MI-36316-102	102mm	1½ ft. to inf.	f/2.7 to 22	6
STANDARD SERIES					
Wide-Angle Lens	MI-48126-12	12.5mm	10" to inf.	f/1.4 to 22	—
Normal Lens	MI-48126-25	25mm	2 ft. to inf.	f/1.4 to 22	—
Medium Telephoto Lens	MI-48126-50	50mm	3.5 ft. to inf.	f/1.4 to 22	—
Telephoto Lens	MI-48126-75	75mm	4 ft. to inf.	f/1.4 to 22	—

Mark XB

Mark IV-B

Mark VI

Mark XX

Professional Television Zoom Lenses

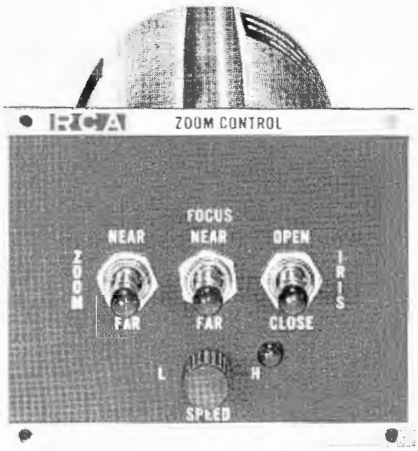
The Mark IV-B, Mark VI, Mark XB and Mark XX series of Professional Television Zoom Lenses have been developed to provide a maximum degree of flexibility in vidicon camera viewing applications with no compromise in picture quality. The 16mm C-mount makes these lenses suitable for use with any of RCA's PK-300 family of vidicon cameras.

The "Mark" series zoom lenses represent the latest advances in the state of the art. Precision ground coated optics are coupled to a highly refined miniature drive system powered by explosionproof and interference-free DC motors. The audible noise of these lenses has been reduced to the point where studio operation of a motorized zoom lens is now a practical reality.

All "Mark" series zoom lenses are electrically identical and may be controlled from a remote position by a remote control panel. The panel may be mounted in a standard 19-inch rack or console along with similar control modules for pan and tilt units, environmental housings, etc. It incorporates individual controls for zoom, focus, and iris, and a speed selector switch to vary the operating speed of all three functions. A power source of 115 Volts, 50/60 Hz is required.

Specifications

	Mark IV	Mark VI	Mark XB	Mark XX
Zoom Range	4:1	6:1	10:1	20:1
Focusing Range	5′ to infinity	8′ to infinity	5′ to infinity	5′ to infinity
Speed and Focal Length Range	f/2, 17mm to 70mm	f/3.5, 25mm to 150mm	f/2.8, 15mm to 150mm	f/6, 15mm to 300mm
With (optional accessory) Extender 1.5x	f/2.8, 30mm to 125mm	f/5.6, 40mm to 240mm	f/4.5 25mm to 250mm	——
With (optional accessory) Extender 2x	f/4, 35mm to 140mm	f/8, 50mm to 300mm	f/5.6, 30mm to 300mm	——
Coverage	⅝″ diagonal	⅝″ diagonal	⅝″ diagonal	⅝″ diagonal
Dimensions (width, height, depth)	3¼″ x 3⅞″ x 4½″ approx. (8.3 cm, 9.6 cm, 11.4 cm)	3¼″ x 3¼″ x 6½″ approx. (8.3 cm, 8.3 cm, 16.5 cm)	4″ x 4⅝″ x 7½″ approx. (10.2 cm, 11.8 cm, 19.1 cm)	5″ dia. x 10″ approx. (12.7 cm, 25.4 cm)
Weight with 25′ Cable	4 lbs. (1.8 kg.)	3½ lbs. (1.6 kg.)	5½ lbs. (2.5 kg.)	9 lbs. (4.1 kg.)
Drive (max. voltage, 3.5 volts)	DC miniature motors	DC miniature motors	DC miniature motors	DC miniature motors
Motor Speed	Variable 7 to 22 seconds	Variable 7 to 22 seconds	Variable 7 to 22 seconds	Variable 5 to 20 seconds
Control Cable	4 leads, shielded, .225″ dia.	4 leads, shielded, .225″ dia.	4 leads, shielded, .225″ dia.	4 leads, shielded, .225″ dia.



Remote Control Panel for Professional Television Zoom Lenses.

Mounting ..... May be mounted in 19-inch rack or console. Occupies ¼ of MI-47792 rack adaptor (required for installation).

Dimension ..... 3½″ high, 4¾″ wide, 6″ deep (8.8 cm, 12.1 cm, 15.2 cm)

Power Input ..... 115 Volts, 50/60 Hz

Close-up Lenses

Mark IV-B ..... Series 8: Nos. 1, 2, 3, retainer ring necessary

Mark VI ..... Series 7: Nos. 1, 2, 3, no retainer ring necessary

Mark XB ..... Series 9: Nos. 1, 2, 3, retainer ring necessary

Mark XX ..... None

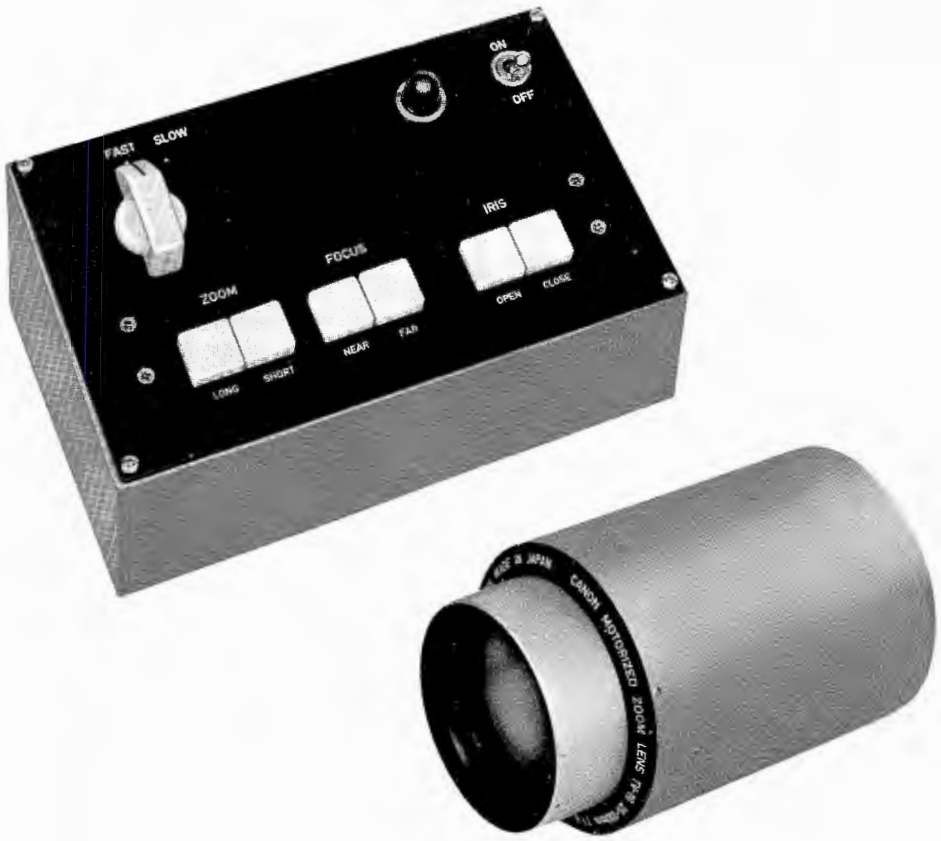
Ordering Information

Mark IV-B Zoom Lens, 17-70mm, f/2.0 ..... MI-36359-A
Mark VI Zoom Lens, 25-150mm, f/3.5 ..... MI-36360
Mark XB Zoom Lens, 15-150mm, f/2.8 ..... MI-48151
Mark XX Zoom Lens, 15-300mm, f/6.0
Range Extender, 1.5x MI-36233
Range Extender, 2.0x
Note: Lenses are supplied with 25′ cable and connector for remote control panel. Remote control panel must be ordered separately.

Remote Control Panel MI-47841

Rack Adaptor (required for installation of remote control panel in rack or console) MI-47792

Additional Control Cable (connectors installed) MI-36366-*
(* = length in feet)



- 4 to 1 zoom range
- Fast f/1.8 lens
- Sharp focus throughout range
- Close-up and range extender adapters available
- For all vidicon C-mount cameras

Motorized Zoom Lens, Type TV-16R

The TV-16R Motorized Zoom Lens is a precision optical device of high resolution designed for use with all RCA Professional TV vidicon C-mount cameras for studio and field operation. Featuring a fast f stop of 1.8 and a zoom ratio of 4 to 1 (25 to 100mm), the high quality, color-corrected lens provides constant brightness and excellent image sharpness throughout the zoom range.

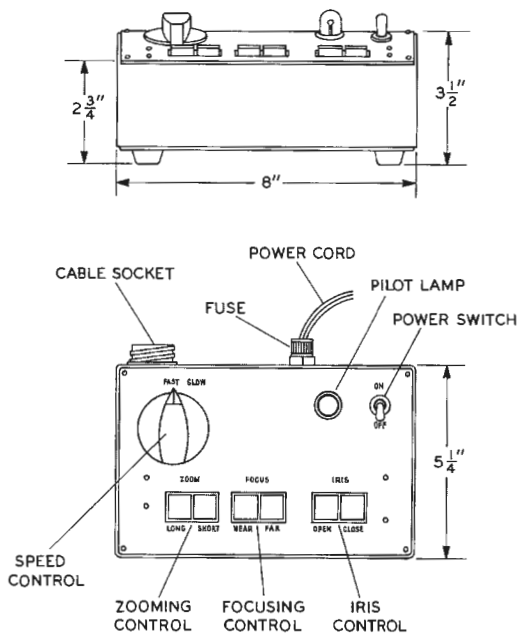
This excellently designed lens consists of 13 elements arranged in 10 groups. The focusing section has three elements in two groups; the zooming section comprises five elements in four groups; and relay section, five elements in four groups. Color correction is provided by a special coating, with amber-magenta colors.

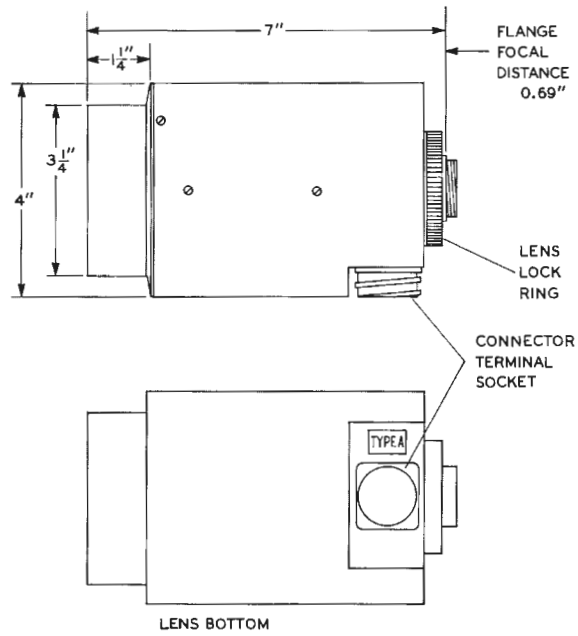
Pushbutton Control Box

Designed for use with the TV-16R lens is the TV-16CU Control Box which may be mounted at the camera location or at any distance from the camera up to several thousand feet. The compact control offers convenient pushbutton operation of lens iris, zoom and focus at either fast or slow speeds. For those who may wish to integrate control of the TV-16R with other zoom or pan and tilt controls, a Type CZ-5 Control Module is available for mounting either in a cabinet or rack mounting panel. (See Remote Control Module Catalog Sheet PTV-1146).

Accessory Lens Adapters

Adapters which mount on the front of the zoom lens are available for close-up focusing and zoom range extension. The "1100" and "2100" Close-up lenses provide for focus distances of 3 to 4.2 feet and 4 to 7.5 feet. The 1.5X and 2.0X zoom extenders convert the 25 to 100mm range to 37.5 to 150mm and 50 to 200mm respectively.





Specifications

Speed.....f/1.8 for entire zoom range

Lens Design.....13 elements in 10 groups:
Focusing Section—3 elements, 2 groups
Zooming Section—5 elements, 4 groups
Relay Section—5 elements, 4 groups

Focusing Range.....6.5 ft. to infinity
With "1100" Close-up Adapter .....3.0 ft. to 4.2 ft.
With "2100" Close-up Adapter .....4.0 ft. to 7.5 ft.

Flange Focal Distance.....0.69"

Image Size.....½" x ⅜"

Zoom Speed.....25-100m, 4.5 sec. at fast setting, 7-10 sec. at slow setting

Focus Speed.....6.5 ft.—infinity, 10-12 sec. at fast setting 16-20 sec. at slow setting

Iris Speed.....f/1.8—f/22, 3.5 sec. at fast setting, 5 sec. at slow setting

Motor Power Requirements .....100-240 volts, with built-in switch for voltage selection, 50/60 Hz

Power Cord.....7 ft.

Control Cable.....8 pole, 33 ft. length; any length made to order

Dimensions; Lens.....80mm front diameter, 6.96" long, 4.02" high, 3.94" wide (17.7 cm, 10.2 cm, 10.0 cm)

Weight; Lens .....3.7 lbs. (1.7 kg.)

Accessories

"1100" Close-up Adapter
"2100" Close-up Adapter
1.5X Range Extender
2X Range Extender
Additional Control Cable.....Specify length required

Ordering Information

25mm-100mm f/1.8 Motorized Zoom Lens (including 30 ft. control cable, less control unit) .....Type TV-16R

Control Unit for remote operation of TV-16R ....Type TV-16CU

Control Module, 3" diameter for remote operation of TV-16R .....Type CZ-5

- High qu[illegible] cos[illegible]
- Smooth fingertip cor[illegible]
- Sharp focus at all foc[illegible] lengths

Manual Zoom Lens, Type L-2[illegible]

The L-20 Manual Zoom Lens is specifically designed for use with vidicon cameras and provides sharp high-resolution pictures under a wide range of lighting conditions. The 16mm C-mount makes this lens suitable for use with any of the PK-300 series of Professional Television Cameras.

The selection of any focal length in the 5:1 zoom range of 23 to 115mm is simply a matter of positioning the zoom handle; smooth, continuous programming is achieved without the annoying "gaps" characteristic of a lens turret. Focus and iris settings are set quickly and easily by adjusting calibrated rings on the barrel of the zoom lens.

Specifications

Minimum Focal Length	23mm
Maximum Focal Length	115mm
Maximum Aperture f and T (remains constant)	f/2.6, T3.5
Normal Area Covered	9 x 12mm
Diagonal Covered	16mm
Distance Range:	
Without close-up lens	6 ft. to infinity
With 2m close-up lens	41″ to 83″
With 1m close-up lens	31″ to 45″
Weight	2¼ lbs. (1.02 kg.)

Accessories

1 Meter Close-Up Adaptor (31″ to 45″)	MI-48153-A
2 Meter Close-Up Adaptor (41″ to 83″)	MI-48153-B

Ordering Information

5:1 Manual Zoom Lens, Type L-20	MI-48152

Lightweight Tripod, Type PT-1 and Dolly, Type PD-1

Description

The PT-1 Tripod provides a convenient, portable, sturdy mount for lightweight television cameras such as the PK-301 and PK-302 series. Legs extend from a telescoped height of 30 inches to an extended height of 72 inches. The PT-1 folds to a small package for storage or transporting.

Rigid, Lightweight Construction

High-strength aluminum alloy construction is utilized to insure reliability and rigidity while maintaining light weight. Ribbed-vinyl covered leg locks and pan-and-tilt handle assure positive lock and control on adjustments by providing good gripping surfaces without sharp edges. Rubber tips give nonslip footing and will not mar the finest surface.

Geared Elevator for Accurate Positioning

The geared elevator makes it possible to position the camera accurately simply by turning a crank. The elevator can be locked at any height by turning the locking knob. This, when used in conjunction with the adjustable three-section legs, provides for a convenient 15-inch change in elevation anywhere within the maximum and minimum height limits. A quick-acting camera screw permits mounting and removing the camera easily, without tools.

PD-1 Dolly

The PD-1 Dolly provides a mobile, yet rigid, base for the PT-1 tripod. All casters swivel, and may be locked and unlocked with the foot. When not in use, the PD-1 folds into a compact package 4½ inches by 5½ inches by 19 inches.

Specifications

Height, Extended	72″
Height, Telescoped	30″
Camera Plate	2⅜″ by 3⅜″, ¼″—20 camera screw
Weight	7½ lbs.
Finish	Black and Aluminum

Ordering Information

PT-1 Tripod	MI-36253
PD-1 Dolly	

Shown above are the PT-2 Medium Duty Tripod and accessories PFH-2 Friction Head and PD-2 Dolly.

Medium Duty Tripod, and Accessories

Where a requirement exists for camera mobility, the PT-2 Medium Duty Tripod, used in conjunction with the PFH-2 Friction Head and PD-2 Dolly, is the answer. Cameras such as the PK-301 and PK-302 can be mounted upon this and be rolled smoothly for those "on-air" dolly-in shots. Also, this combination provides for the most flexible mobility in educational and industrial environments where cameras must be moved some distance from one area to another.

PT-2 Tripod

The PT-2 Medium Duty Tripod provides a rigid structure on which to mount both lightweight and medium-weight television cameras. The two-section legs provide a change in elevation of 24 inches. The crank-up 1¾ inch diameter elevator mechanism provides an additional 18 inch rise in height. Through a worm gear elevator drive, precise positioning in elevation may be achieved, with a positive locking brake assembly which assures that the height will not change and locks against side shake. The tripod folds to a very compact size and the crank folds up for transportation or storage.

PFH-2 Friction Head

The PFH-2 Friction Pan Head attaches to the PT-2 elevator column, and provides for ease and flexibility of operation by permitting the camera to be effortlessly panned through 360 degrees and tilted upward 45 degress and downward 90 degrees. Pan and tilt functions have separate locking controls so that either pan or tilt may be accomplished without affecting adjustment in the other plane. The camera screw is equipped with a large knurled knob for mounting the camera quickly without tools. The offset panning handle easily adjusts to the desired angle and may be removed when not in use.

PD-2 Dolly

The PD-2 Dolly provides a mobile, yet very rigid, base for the PT-2 tripod. All casters swivel, and may be locked and unlocked with the foot. The tripod legs may be extended or retracted without removal from the dolly because of the unique hinge-pin attachment. When not in use, the PD-2 folds into a small compact package 6½ inches by 7½ inches by 21½ inches.

PTX-2 Column Extender

The PTX-2 is a column extender which permits the Friction Head to be extended an additional 18 inches in height. It is readily attached to and removed from the PT-2 elevator column to give added inches of height that are occasionally so vitally needed. The light weight makes it a convenient accessory to carry on field and remote type pick-ups.

Specifications

PT-2

Elevator Column	1¾" diameter 18" rise
Weight	12 lbs.
Finish	Black and aluminum

PHF-2

Pan	360°
Tilt	+45°, −90°
Camera Plate Dimensions	2¼" by 4¼"
Camera Screw	¼"—20
Height	6"
Weight	2 lbs.
Finish	Black and aluminum

PD-2

Height (above floor)	7"
Carrying Capacity	50 lbs.
Size, folded	6½" by 7½" by 21½"
Casters	4" diameter
Weight	8 lbs.
Finish	Black and aluminum

PTX-2 (not shown)

Height	22"
Height added to all PT-2 dimensions in PT-2 Height Chart	18"
Weight	2 lbs.
Finish	Black and aluminum

Mechanical

	PT-2	PT-2 & PFH-2	PT-2, PFH-2 & PD-2
Height:			
Legs extended and spread	76½" max. 58½" min.	81" max. 63" min.	91¾" max. 73¾" min.
Legs telescoped and spread	51¾" max. 33¾" min.	56¼" max. 38¼" min.	61" max. 43" min.
Size, Telescoped and Folded	6½" x 7½" x 44½"		
Two-Section Legs	1½" dia. & 1⅜" dia.		

Ordering Information

Type PT-2 Tripod

Type PD-2 Dolly

Type PFH-2 Friction Head

Type PTX-2 Column Extender

Heavy Duty Tripod, Type PT-3, and Dolly, Type PD-3

The PT-3 Heavy-Duty Tripod is ideal for vidicon studio cameras such as the PK-330. Used in conjunction with the PD-3 Heavy Duty Dolly, smooth operation of the camera is easily achieved in the studio or out on "remotes."

By virtue of its unique "Star-Tracker" lens design and built-in pan mechanism, the PK-330 camera can be mounted directly on the PT-3/PD-3 tripod/dolly combination with only the PTA-3 adaptor.

An accessory friction head, Type PFH-3, is available for use in unusual situations where the normal 80 degree vertical tilt range of the PK-330 camera lens must be extended, or for use with other type cameras. The PFH-3 is spring-counterbalanced for cameras in the 50 pound weight class.

PT-3 Tripod

The PT-3 Tripod consists of an all-metal structure of aluminum castings and heavy wall tubular steel. Sliding in nylon bushings, the two-section legs, full spread, provide a height of from 33 to 55 inches. Precise elevations from ½ to 18 inches above tripod height are achieved through a hand-operated worm gear elevator drive. A positive locking brake assembly assures that the height will not change and locks against side shake. Rubber faced, self leveling foot plates attached to the tripod legs prevent slipping on hard surfaces or sinking into soft ground. The tripod folds to a compact size for transportation or storage.

PTA-3 Tripod Adaptor

The PTA-3 mounts on top of the PT-3 Tripod and provides a ¼"—20 mounting stud for the PK-330 camera.

PD-3 Dolly

The PD-3 Dolly rolls smoothly on 4-inch wheels with heavy duty ball bearing swivel casters and neoprene tires that protect finished surfaces. Casters can be locked for free swivelling, two track, or three track straight line travel. Wheel and swivel are locked simultaneously by a foot operated brake. Tripod legs can be extended or retracted without removal from dolly. The PD-3 Dolly folds into a very compact package.

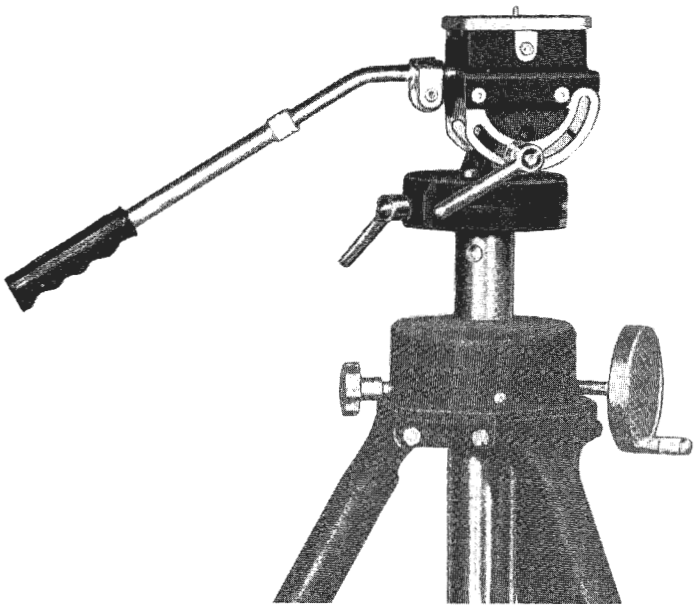
PFH-3 Friction Head

The PFH-3 Friction Head is easily attached to the PT-3 Tripod to provide a strong flat mounting surface for television cameras. Faced with elastic anti-slip material the mounting plate is adjustable to balance the camera on the head. Pan and tilt actions have two separate and independent controls: knob-adjusted drag, and lever operated lock. The control handle is universally adjustable for angle and length, and can be used for right hand or left hand control.

The PFH-3 is spring-counterbalanced for cameras weighing from 40 to 60 pounds. A cradle or friction head is not required for use with the PK-330 studio camera, but the PFH-3 may be used if the 80 degree tilt range of the built-in tilting mechanism must be increased to cover special situations.

Cable Guards

The PD-3 Dolly can be equipped with cable guards on special order. Permanently attached to the casters and clearing the floor by 3/16-inch cable guards are metal shrouds that push cables and wires out of the path of the wheels. Caster brakes must be removed when the guards are installed, but the swivel locks remain effective.



Specifications

PT-3 Tripod

Rated Load with Elevator (2″ dia.)	75 lbs. (34 kg.)
Elevator Rise	½″ to 18″ (1.3 cm to 45 cm)
Maximum Height, legs extended and spread, elevator up	73″ (186 cm)
Minimum Height, legs telescoped and spread, elevator down	33″ (84 cm)
Maximum Spread, legs extended	75″ (190 cm) dia. circle
Maximum Spread, legs telescoped	45″ (114 cm) dia. circle
Telescoped Size	9½″ by 11½″ by 41″ (23 cm, 29 cm, 104 cm)
Weight	19 lbs. (8.6 kg.)
Finish	Aluminum and black

PD-3 Dolly

Rated Load	500 lbs. (230 kg.)
Size of Casters	4″ by 1″ (10 cm, 2.5 cm)
Diameter of Caster Circle	45″ (114 cm)
Height above Floor	7″ (18 cm)
Folded Size	7″ by 13″ by 28″ (18 m, 33 cm, 71 cm)
Weight	15 lbs. (6.8 kg.)
Finish	Aluminum and black

PFH-3 Friction Head

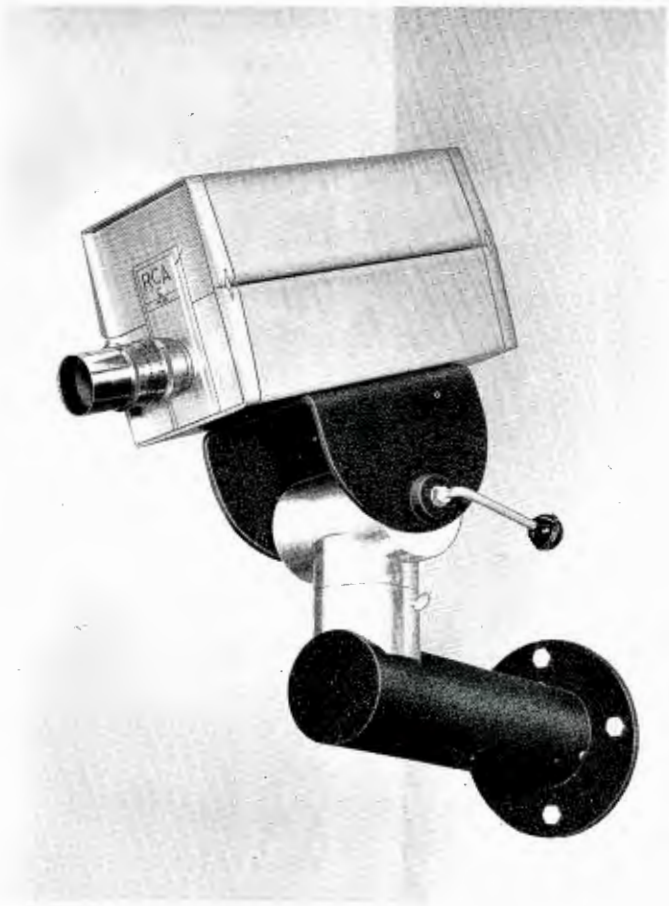
Pan	360°
Tilt	+45°, −90°
Camera Plate Dimensions	4″ by 4″ (10 cm, 10 cm)
Camera Screw	¼″—20
Height	6¾″ (17 cm)
Weight	7 lbs. (3.1 kg.)
Finish	Aluminum and black
Control Handle Size (Adjustable)	¾″/⅝″ dia., 13″ to 23″ long (1.9 cm/1.7 cm dia., 33 cm to 58 cm)

Accessory

Cable Guards for PD-3 Dolly

Ordering Information

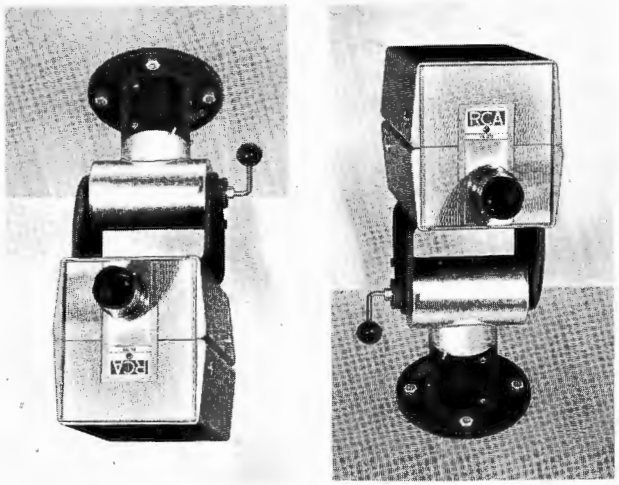
Type PT-3 Tripod	MI-48139
Type PTA-3 Tripod Adaptor for PK-330 Camera	MI-48158
Type PD-3 Dolly	MI-48140
Type PFH-3 Friction Head	



Wall and Ceiling Camera Mounts, Types PWM-1 and PCM-1

The Wall and Ceiling or Camera Mounts, Type PWM-1 and PCM-1, are designed to permit optimum location of a vidicon television camera and maximum maneuverability for precise positioning and complete coverage of indoor areas. These mounts are an ideal accessory for the RCA PK-300 Series Professional Television non-viewfinder cameras. Both mounts provide 360-degree camera rotation and a full 180-degree tilt and can be easily adjusted without requiring the use of tools. The Type PCM-1 Ceiling Mount may also be used as an upright base mount, if desired.

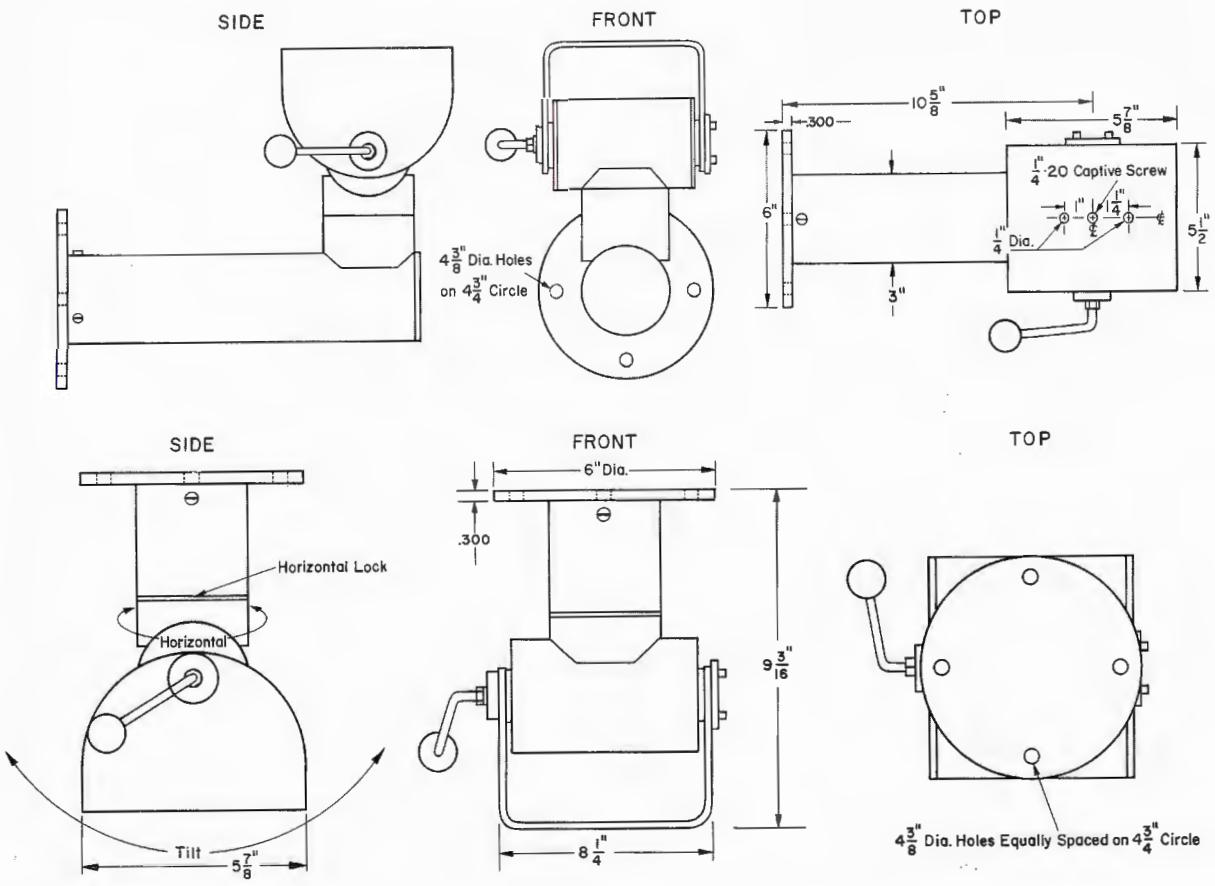
The PWM-1 Wall Mount and the PCM-1 Ceiling Mount both employ a camera cradle and flanged pedestal assembly attractively finished in brushed aluminum and black wrinkle lacquer. The cast aluminum cradle offers a large mounting surface for the camera, and contains two captive ¼—20 screws which hold the camera securely to its face. The sturdy pedestal's 6-inch diameter base flange contains four mounting holes for fastening the entire assembly by means of lag screws or bolts to a firm mounting surface. Dimensions are shown in the outline drawings on the reverse side of this page.



Type PCM-1 Ceiling Mount may also be used as an upright base mount.

(For dimensions, see outline drawings)

Material	Aluminum
Finish	Brushed aluminum trimmed with black wrinkle lacquer
Weight:	
PWM-1 Wall Mount	7½ lbs.
PCM-1 Ceiling Mount	5½ lbs.



Shown above are outline drawings of the PWM-1 Wall Mount and PCM-1 Ceiling Mount.

Ordering Information

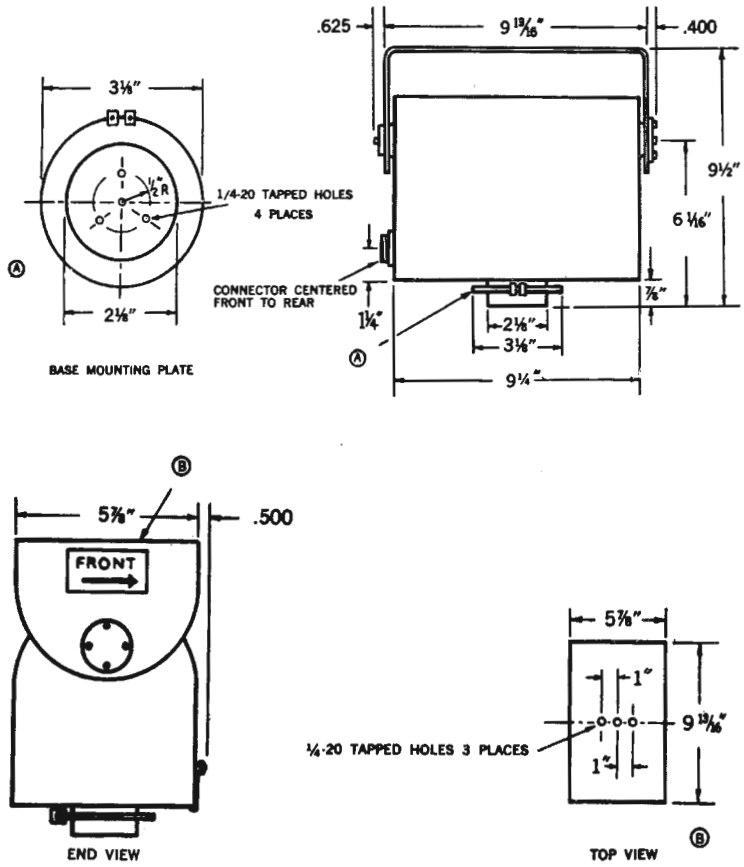
Wall Mount for Vidicon Camera	Type PWM-1
Ceiling Mount for Vidicon Camera	Type PCM-1

Light Duty Remote Control Pan and Tilt,

The PT-155S Light Duty Remote Control Pan and Tilt unit is a precision-made, durable solid aluminum mount designed to provide smooth, quiet camera orientation in indoor TV applications. It permits tilting the camera up or down through an angle of 180 degrees (plus or minus 90 degrees from horizontal), and panning the camera horizontally through 350 degrees. Panning is adjustable to limit movement to smaller angles. A weather tight cover is easily removed without tools.

Fingertip Control

Remote control of the PT-155S is provided by separate control panels which are usually located near the monitoring or control position. The basic control incorporates a smooth-acting "joystick" which permits moving the pan and tilt at a fixed speed with a single lever. Another panel includes controls for varying the speed of the pan and tilt actions. The compact panels may be mounted in a standard 19-inch rack or console with similar control modules for zoom lenses, environmental housings, etc. Cable lengths in excess of 500 feet can be used with consideration for conductor resistance.



Specifications

Pan:
- Horizontal Plane ..... 0 to 350° (external adjustments)
- Speed ..... 9° per sec. ±1° (no load condition)
- Torque ..... 8 ft/pounds (with specified applied voltage)
- Motor ..... Shunt type

Tilt:
- Vertical Plane ..... 180° (±90° from level position)
- Speed ..... 4.5° per sec. ±0.6° (no load condition)
- Torque ..... 16 ft/pounds (with specified voltage)
- Motor ..... Shunt type

Input Voltage ..... 115 Volts, 50/60 Hz, 150 Watts

Connectors ..... GK-12-32S on Pan and Tilt Unit; GK-12-31S on MI-36199-1 Control Unit. Mating cable connector supplied with all units

Cable ..... Requires 6 conductors plus ground; optional "Autoscan" provision requires 2 additional conductors

Dimensions:
- Pan and Tilt (Overall) ..... See Diagrams

Remote Control Panels ..... 3½" high, 4¾" wide, 6" deep (8.8 cm, 12.1 cm, 15.2 cm)

Weight (Pan and Tilt) ..... 20 lbs. (9.1 kg.)

Finish ..... Dark gray

Ordering Information

Pan and Tilt Mechanism ..... Type PT-155S

Remote Control Panel (pan and tilt) MI-47831

Accessory Remote Control Panel (pan and tilt speed) MI-47833

Rack Adaptor (required for installation of remote control panels in rack or console; accommodates four remote control panels) MI-47792

Cable with Connectors ..... "CB" (Specify length desired)

Medium Duty Remote Control Pan and Tilt,

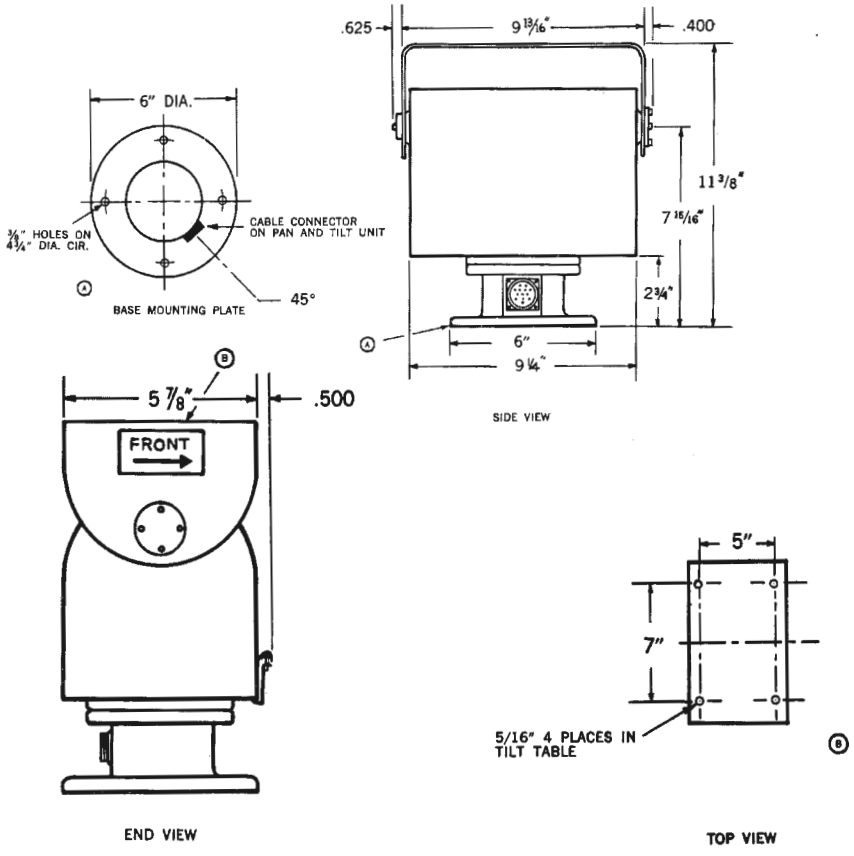
The PT-550M Medium Duty Remote Control Pan and Tilt unit is a well-engineered, ruggedly constructed aluminum mount designed to provide remote orientation of TV cameras used either indoors or outdoors and subjected to weather environment. It will also accommodate PK-301 and PK-302 cameras installed in weatherproof camera housings. The weather tight cover of the PT-550M is easily removed without tools.

Stability, Dynamic Braking

The PT-550M pans the camera horizontally through 350 degrees—with adjustments to limit movement to smaller angles — and tilts the camera up or down through 180 degrees (plus or minus 90 degrees from horizontal). Worm gears provide utmost stability and minimize back lash. In addition, the DC motors for pan and tilt have separately excited armatures which provide a dynamic braking action when voltage is removed. Operation of the PT-550M is smooth, and an appreciable load can be accommodated.

Fingertip Control

Remote control of the PT-550M is provided by separate control panels which are usually located near the monitoring or control position. The basic control incorporates a smooth-acting "joystick" which permits moving the pan and tilt at a fixed speed with a single lever. Another panel includes controls for varying the speed of the pan and tilt actions. The compact panels may be mounted in a standard 19-inch rack or console with similar control modules for zoom lenses, environmental housings, etc. Cable lengths in excess of 500 feet can be used with consideration for conductor resistance.



Pan:
- Horizontal Plane.....0 to 350° (external limit adjustment)
- Speed.....9.5° per sec. ±1° (no load condition)
- Torque.....10 ft/pounds (with specified applied voltage)
- Motor .....Shunt type

Tilt:
- Vertical Plane.....180° (±90° from level position) (internal limit adjustments)
- Speed.....4.5° per sec. ±0.6° (no load condition)
- Torque.....20 ft/pounds (with specified voltage)
- Motor .....Shunt type

Input Voltage .....115 volts, 50/60 Hz, 150 watts (to control unit)

Connectors.....MS3102 R-16S-1 on Pan and Tilt Unit; SK-19-31S on PCU-1 Control Unit; mating body type cable connectors supplied with accessory (other types available on request)

Cable.....Requires 6 conductors plus ground; optional "Autoscan" provision requires 2 additional conductors

Dimensions:
- Pan and Tilt (Overall).....See Diagrams
- Remote Control Panels .....3½" high, 4¾" wide, 6" deep (8.8 cm, 12.1 cm, 15.2 cm)

Weight (Pan and Tilt) .....25 lbs. (11.4 kg.)

Finish .....Dark gray

Ordering Information

Pan and Tilt Mechanism .....Type PT-550M

Remote Control Panel (pan and tilt) MI-47831

Accessory Remote Control Panel (pan and tilt speed) MI-47833

Rack Adaptor (required for installation of remote control panels in rack or console; accommodates four remote control panels) MI-47792

Cable with Connectors ....."CB" (Specify length desired)

Heavy Duty Remote Control Pan & Tilt,

The PT-1000L and PT-1000LX Heavy Duty Remote Control Pan and Tilt units are sturdy, heavy duty mounts designed to provide remote orientation of TV cameras used outdoors in varied weather conditions. The PT-1000L will accommodate all PK-300 Series cameras with environmental housings. A Mil-E-5272C explosion proof version of the PT-1000L, the PT-1000LX is also ideal for use with PK-301 and PK-302 cameras mounted in the MI-36145-AX Explosion Proof Housing.

Maximum Stability, Dynamic Braking

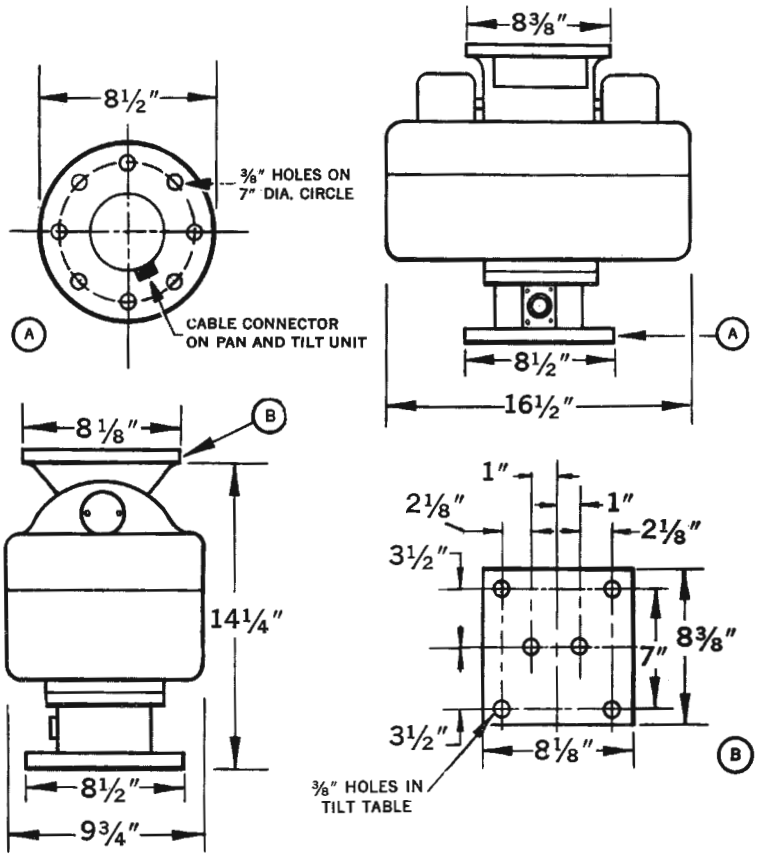
The same basic specifications apply to both pan and tilt units which are also identical in appearance. They both permit camera panning over an azimuth angle of 350 degrees (limits adjustable), and tilting vertically over an angle of plus or minus 45 degrees from the horizontal. They mount on a horizontal plane and can also be suspended from a horizontal plane. Worm gears provide smooth operation, utmost stability and minimum back lash. In addition, the DC motors for pan and tilt have separately excited armatures which provide a dynamic braking action when the motors are stopped or reversed.

Fingertip Control

Operation of the PT-1000L and PT-1000LX units is provided by a control unit which may be located up to several hundred feet from the camera. Two types of controls are available—providing fixed speed or variable speed—and either may be ordered in a self contained cabinet or on a panel designed for standard rack mounting. The cabinet types have a heavy base plate to make the cabinet firm while operating the controls. All controls incorporate a smooth acting "joystick" which allows control of the pan-tilt unit with a single lever. Cable lengths in excess of 500 feet can be used (with consideration for conductor resistance).

Optional "Autoscan"

"Autoscan" capability is built into the PT-1000L and PT-1000LX pan and tilt units. It is available when these units are used with the optional Autoscan version of the Control Unit. With this, the units will scan continuously (horizontal direction only) between the adjustable pan limits.



Specifications

Pan:
- Horizontal Plane.....0° to 350° (external limit adjustments)
- Speed.....9.0° per sec. ±1° (no load condition)
- Torque.....25 ft/pounds (with specified applied voltage)
- Motor .....Shunt type

Tilt:
- Vertical Plane.....90° (±45° from level position)
- Speed.....3.0° per sec. ±0.5° (no load condition)
- Torque.....90 ft/pounds (with specified applied voltage)
- Motor .....Shunt type

Input Voltage .....115 Volts, 50/60 Hz, 200 Watts (to control unit)

Connectors.....MS3102 R 16S 1P on Pan and Tilt Unit; SK 19-31S on PCU-1 Control Unit; mating body type cable connectors supplied with accessory. (Other types available on request)

Cable.....Requires 6 conductors plus ground; optional "Autoscan" provision requires 2 additional conductors

Dimensions:
- Pan and Tilt.....See Diagrams
- Control Unit (Panel Type).....3½" high, 19" wide, 6" deep (8.9 cm, 48.3 cm, 15.2 cm)
- Control Unit (Cabinet Type).....5½" high, 13¾" wide, 9¼" deep (13.9 cm, 34.9 cm, 23.4 cm)

Weight (Pan and Tilt) .....70 lbs. (31.8 kg.)

Finish .....Dark gray

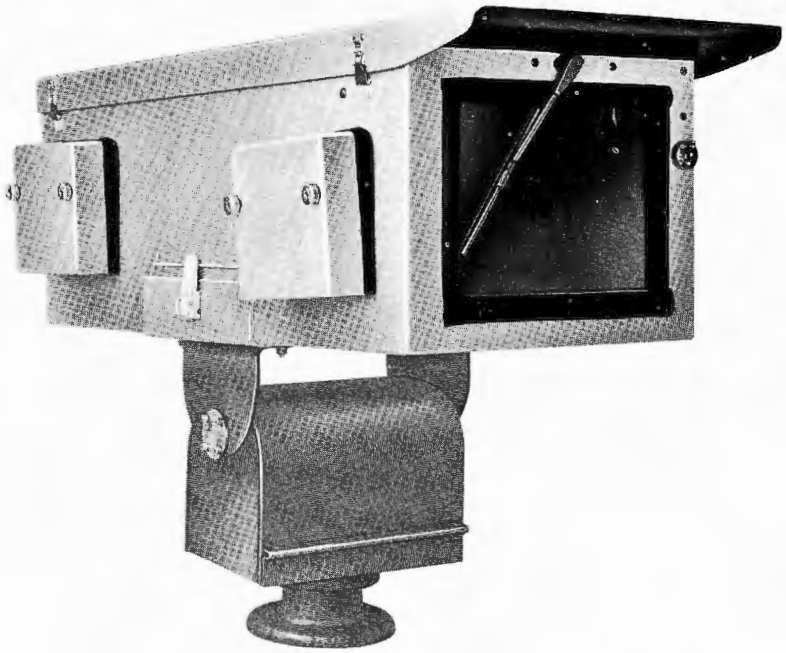
Ordering Information

Pan and Tilt Mechanism .....Type PT-1000L

Pan and Tilt Mechanism (Explosion Proof) ....Type PT-1000LX

Control Unit:
- Fixed Speed in Cabinet MI-36199-1
- Fixed Speed on Rack Mounting Panel .....Type PT-1500P
- Variable Speed in Cabinet .....Type PT-1500CV
- Variable Speed on Rack Mounting Panel ....Type PT-1500PV

Cable with Connectors.....“CB” (Specify length desired)



Weatherproof Housing,

The RCA Professional Television Weatherproof Housing is a sturdy, lightweight enclosure which permits PK-301 and PK-302 Television Cameras to be operated outdoors in any type of weather. It affords protection from snow, ice, rain, moisture, dust, temperature extremes, and other unfavorable operating conditions.

In addition to the camera, the housing accommodates any standard fixed focal length lens (Catalog PTV. 1250) or remote control zoom lens (Catalog PTV.1256 and PTV.1258). A mounting cradle is included for securing the housing to a wall bracket or a remote control pan and tilt unit (Catalog PTV.1142 and PTV.1144).

Rugged Design Assures Reliable Service

Designed for continuous, trouble-free service, the housing incorporates an adjustable mounting platform which assures correct camera alignment and a ¼-inch plate glass window. All openings into the housing are sealed with rubber gaskets to prevent entry of dust, moisture, or other foreign matter. The cover is secured by four snap catches and is especially designed to minimize water runoff in the camera's field of vision. An off-white enamel finish reflects heat.

The cable entrance is located on the bottom and to the rear of the unit and includes a removable cover. The opening is large enough to allow entrance of all camera cables without having to remove the cable connector. A clamp is provided to absorb any strain on the cables.

For convenience in connecting the camera and accessories, a terminal strip is built into the housing.

Built-in Features

The EH-1SP is delivered with many features which extend its usefulness in a wide variety of weather conditions. Included are:

A blower with filtered air intake and outlet and an adjustable thermostat to assure proper temperatures inside the housing.

A thermostatically-controlled internal defroster fan with its own heater which prevents condensation from forming on the window.

An electrically-operated windshield wiper to keep the camera's field of vision clear even in rain or snow.

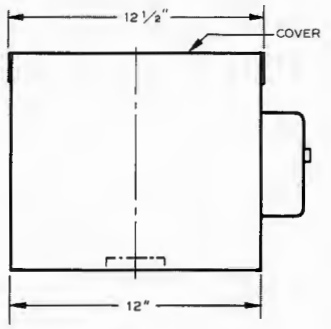
Accessories

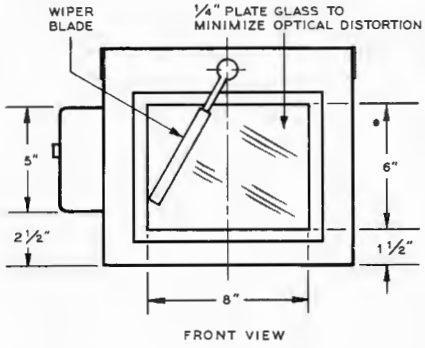
RCA Professional Television PK-301 and PK-302 Cameras meet all operating specifications with conditions of up to 95 percent humidity and temperatures of —4 to +122 degrees F (—20 to +50 degrees C). A heating element with adjustable thermostat is available for colder locations. It is electrically isolated from the housing to protect against ground potential differences.

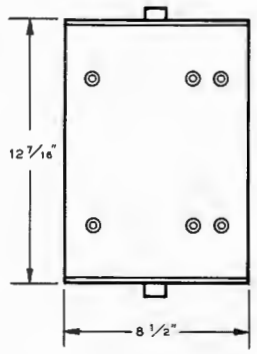
A wrap-around sun shroud provides air space around the housing, thus reducing inside temperatures. It is recommended for use when the housing will be in direct sunlight.

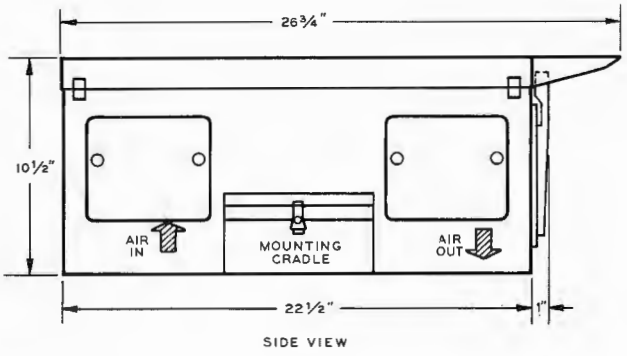
For dusty locations, an electrically-operated windshield washer is available to keep the window clean.

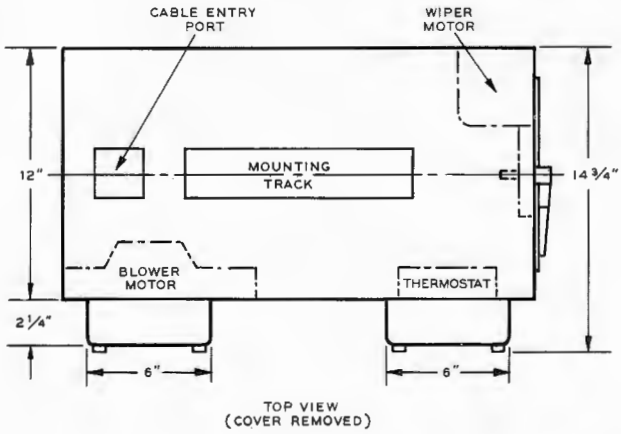
A remote control panel incorporating switches for housing power, camera power, and the window washer and wiper, adds operating convenience. It may be mounted in a standard 19-inch rack or console or placed on a table or desk.











Specifications

Dimensions	See drawings
Weight	17 lbs. (without accessories)
Blower	115 Volts, 15 Watts, 200 CFM, filters replaced externally
Finish	Off-white enamel
Heater	115 Volts, 150 Watts
Defroster	115 Volts, 62 Watts
Windshield Wiper	115 Volts, 47 Watts
Windshield Washer	115 Volts, 200 Watts peak
Terminal Strip	Six 6/32 Screws

Remote Control Panel for EH-1SP Weatherproof Housing.

Ordering Information

Weatherproof Housing with Mounting Cradle, Blower, Window Defroster, and Windshield Wiper	EH-1SP
Heating Element and Thermostat	EH-1H
Windshield Washer	EH-1/WS
Sun Shroud	EH-1/SS
Remote Control Panel	MI-47830
Rack Adaptor for mounting RCP in 19" Rack	MI-47792

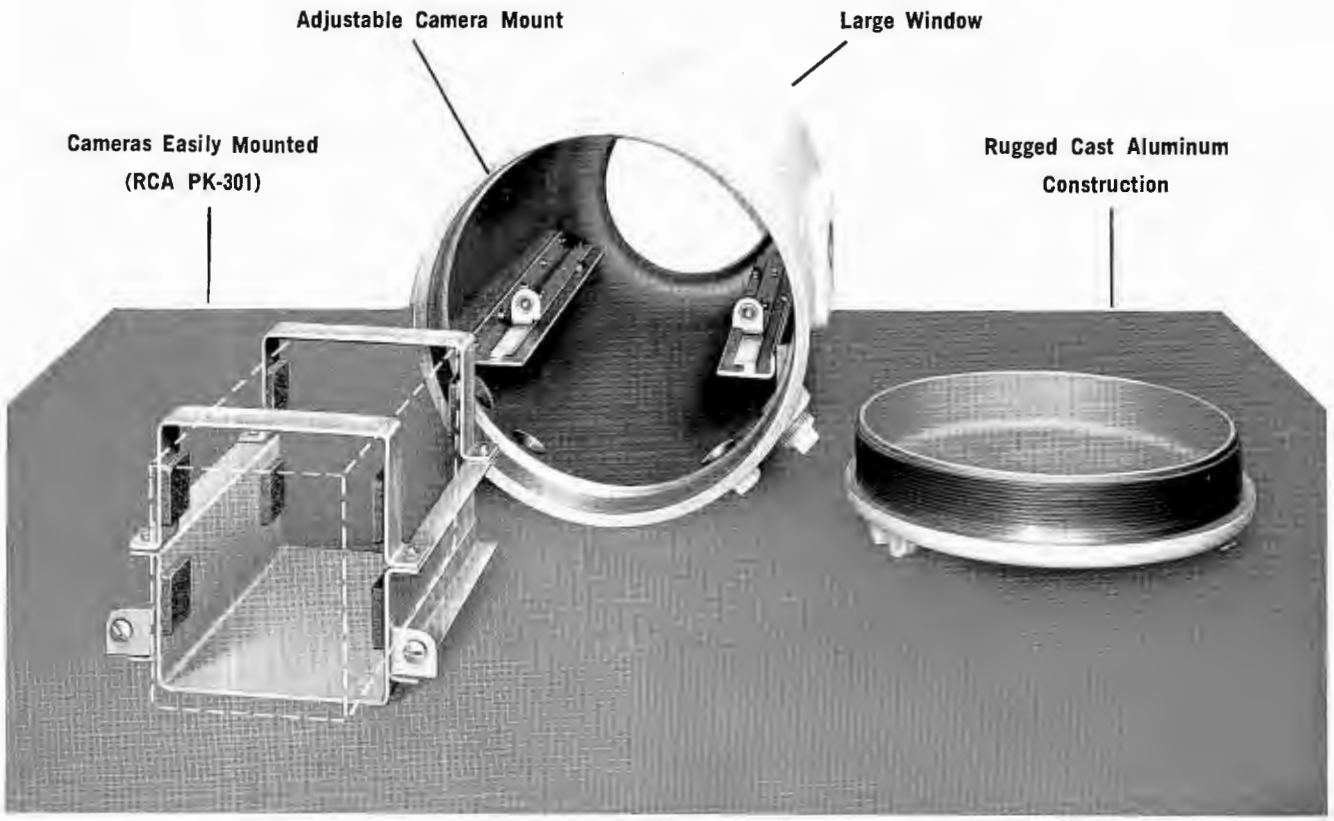
Dust/Explosionproof Camera Housing,

RCA Dust/Explosionproof Camera Housing, MI-36145-AX, permits television camera equipment to be safely operated in dusty areas and other hazardous locations including Class I, Group C or D; Class II, Group E, F or G; and all Class III Underwriters' categories.

Designed for use with RCA PK-301 and PK-302 Professional Television Cameras, the spacious housing accommodates any wide angle, telephoto or zoom type lens as well as lens accessories such as the sun shutter mechanism. The housing is ruggedly constructed and presents a large window area for camera operations. Sectionalized construction facilitates mounting, positioning and maintenance.

Serving also as an acoustical shield, the housing can be used to protect cameras operating in high noise levels. It protects cameras otherwise subjected to severe environmental conditions. Provisions for air cooling permit use of the enclosed camera equipment in high temperature locations.

The housing is cast aluminum construction consisting of a tapered barrel with threaded back cover and glass front window held by a threaded retainer ring. Camera equipment is held in position by an adjustable sponge-rubber lined clamp which rides on two 17¼-inch slide rails. Adjustable stops provide positive positioning of the camera within the housing and rear cam locks secure the equipment on the rails. The housing has a glossy white finish for maximum solar radiation protection.



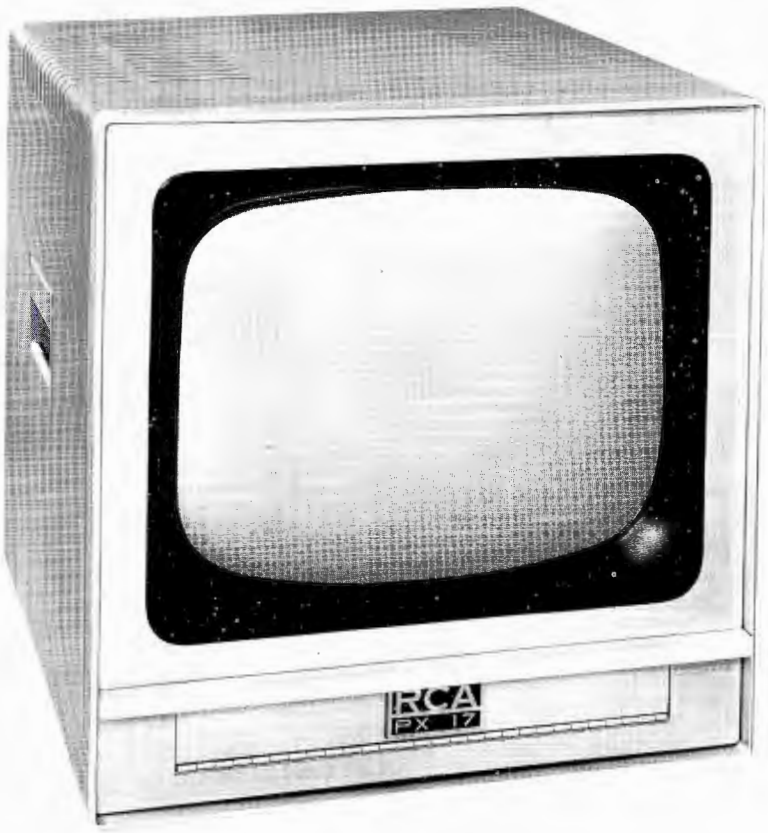
Specifications

Type Camera Mounting	Slide
Window	8″ dia. x ¾″ (20 cm x 1.9 cm)
Window Area	7¼″ dia. (18 cm)
Overall Dimensions:	
Length	26″ (66 cm)
Width	12⅝″ (32 cm)
Height	12⅝″ (32 cm)
Weight (less camera and cables)	68 lbs. (31 kg)
Finish	Special white finish for maximum solar protection

Ordering Information

Dust/Explosionproof Camera Housing, complete with threaded back cover, glass window and threaded retainer ring, adjustable camera clamp MI-36145-AX

Mounting Bracket for PK-301/302
(No charge when ordering with housing) MI-47820



Video Monitors, Type PX-8, 14, 17 and 23

Description

RCA Professional Television video monitors combine economy and professional performance in attractively styled cabinet and rack mounting models with picture tubes ranging in size from 8 inches to 23 inches. Employing the latest technical advances the PX Series monitors provide clear, crisp and bright pictures that enhance TV viewing in any classroom, auditorium, lobby, office, control room or studio.

Broadcast Design

The PX Series monitors incorporate such extras as provisions for "reduced scan" for viewing picture corners, switchable DC restorer selection, feedback stabilization, regulated power supplies and many other desirable features. Either internal or external sync may be selected remotely with an optional sync drop kit. PX-17 and PX-23 models, in addition, employ a differential video input capability to minimize hum and noise pickup due to ground loops and include a separate sync channel with gain control.

In PX Series Monitors, a safety glass is bonded to the face of the tube. This eliminates the problem of dust and dirt accumulations between the kinescope face plate and the safety glass. It also eliminates the usual difficulty in cleaning the face of the picture tube. Light reflections and glare from the safety glass are minimized by the combined effect of the curved surface, and an etched, matte finish. This results in pleasing, disturbance-free picture displays, without requiring the use of a highly absorbent polarized filter in conjunction with the safety glass.

Versatile Mountings

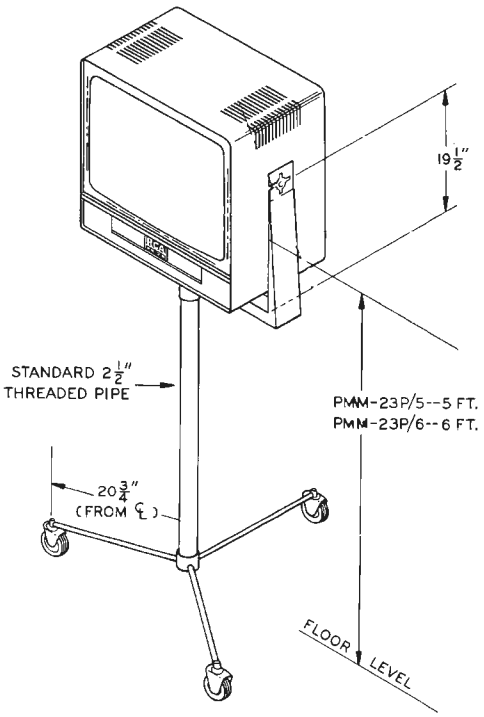
PX-8, PX-14 and PX-17 monitors are available in cabinet or rack mounting models. The PX-23 is available in cabinet model only. Available also are ceiling mounts for cabinet model PX-17 and PX-23 monitors, and a pedestal mount for the PX-23. All cabinets are light blue, textured vinyl finish, and all front panels are silver gray. Ceiling and pedestal mounting hangers are light blue, with the remainder of the mount painted black.

Ceiling and Pedestal Mounts

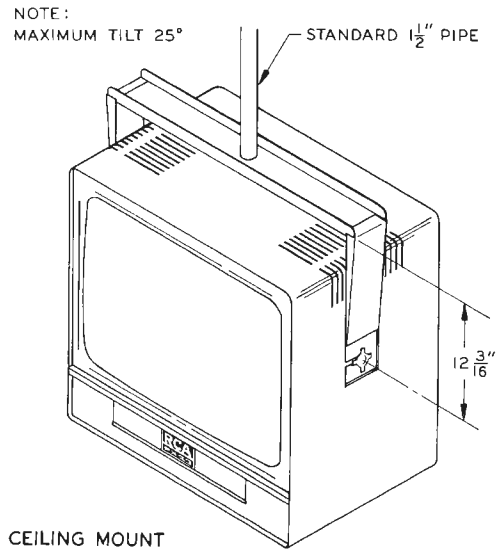
Optional ceiling hangers, Types PMM-17C and PMM-23C, are available for the PX-17 and PX-23 Video Monitors. A type PMM-23P Pedestal Mount complete with three wheel dolly is available for the PX-23 Monitor only.

Both mounts are used in classrooms and auditoriums, or wherever a mobile or overhead mounting is required. Standard 1½-inch threaded pipe, (not supplied), cut to proper length forms the support for the ceiling hanger and standard 2½-inch threaded pipe is used for the pedestal mount. Threaded flange and lag screws (not supplied) should be used to provide a rigid ceiling mounting.

The pedestal mount is available in two standard heights which place the centerline of the monitor viewing area at approximately 5 foot (1.5 meters) and 6 foot (1.8 meters) above the floor. Other heights are available on special order. The hangers easily attach to monitors by use of MI-47810 mounting studs at the handle wells. Hangers are all painted light blue, and the remainder of the pedestal mount is painted black.



WITH PEDESTAL MOUNT



CEILING MOUNT

Mechanical Specifications

See diagrams for dimensions.

Weights:

PMM-17C Ceiling Mount Kit	10 lbs. (4.5 kg.)
PMM-23C Ceiling Mount Kit	10 lbs. (4.5 kg.)
PMM-23P Pedestal Mounts	18 lbs. (8.1 kg.) (plus weight of pipe stand)

Ordering Information

PMM-17C Ceiling Mount Kit*	MI-47808
PMM-23C Ceiling Mount Kit*	MI-47809
PMM-23P/5 Pedestal Mount, 5 ft.**	MI-47818-C
PMM-23P/6 Pedestal Mount, 6 ft.**	MI-47818-E
Mounting Studs	MI-47810
Sync Drop Kit	MI-47811

* Includes MI-47810 Mounting Studs, but does not include 1½" pipe.
** Includes MI-47810 Mounting Studs and Pipe Stand.

Utility Video Monitor,

A popular choice for large-screen viewing, the RCA Professional Television PXU-25C video monitor incorporates advanced features which make it well-suited for use in classrooms, auditoriums, and other locations where big, bright picture displays are required. Attractively-styled and easily-operated, the PXU-25C has a rectangular, 25-inch 110-degree picture tube which provides viewing coverage over a wide area. Reflections and glare are virtually eliminated by use of an etched faceplate bonded to the picture tube.

Continuous, Automatic Operation

To assure trouble-free operation, the PXU-25C incorporates such design features as high and low voltage regulation to eliminate "picture bounce" from line voltage variations, switchable DC restoration, and a selectable 75 Ohm unbalanced or differential input to minimize noise pick-up from long video cables. A separate sync input with an independent gain control permits use of either EIA or industrial sync pulses and assures excellent stability and interlace at any contrast control setting. Video response is flat to 10 megahertz, producing 800-line center resolution. Both horizontal and vertical linearity are within 2 percent of picture height and differential gain is below 5 percent at 50 Volts kinescope drive.

Etched, Bonded Faceplate

To minimize glare and reflections, safety glass with an etched, matte finish is bonded to the curved surface of the picture tube faceplate. The resulting picture is easily viewed, even in high ambient light level areas, eliminating the need for light-absorbing polarized filters. Cleaning is minimized since dust and dirt cannot accumulate between the picture tube faceplate and the safety glass. Operating controls are located on the front panel and are protected by a locking door to prevent tampering or misadjustment by unauthorized persons.

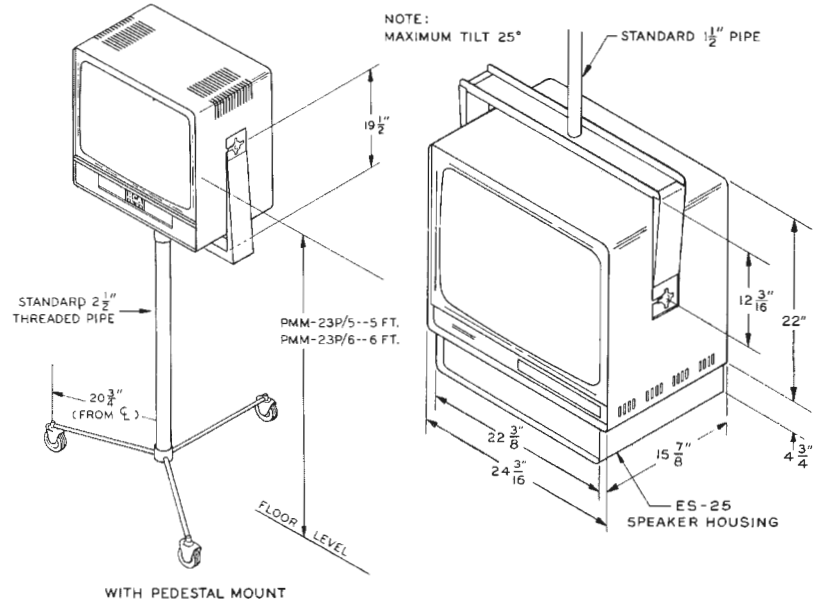
Pedestal and Ceiling Mounts and Accessory Speaker

For applications where the PXU-25C monitor is frequently moved, the PMM-23P pedestal mount with three-wheel dolly is a convenient accessory. It is available in two standard heights which place the center of the picture either 5 feet or 6 feet above the floor. Special heights may also be ordered. For added stability, the wheels and mounting studs may be locked in position.

The monitor may also be placed overhead with the optional PMM-23C ceiling hanger. To install the monitor, standard 1½-inch threaded pipe (not included with ceiling hanger) may be cut to the desired length. One end is attached to the ceiling hanger, and the other to a threaded flange (not included) on the ceiling. Both pedestal and ceiling mounts easily attach to monitors by use of mounting studs at the handle wells.

Sound may be conveniently added to each monitor with the optional ES-25 speaker. It is readily attached to the PXU-25C monitor and is shown in place on the drawing.

Ceiling and Pedestal Mounts and Speaker Enclosures



WITH PEDESTAL MOUNT

Input Power .....115/230 Volts ±10%, 50 Hz (625 line) or 60 Hz (525 line). 3-wire AC cord, 6 feet long

Power Dissipation .....190 Watts

Video Input .....0.25 to 4.0 Volts peak-to-peak composite

Input Impedance .....High impedance bridging input or 75-Ohm internal termination. Parallel UHF connectors for loop-through operation

External Sync Input ....4.0 Volts peak-to-peak, sync negative, high impedance input. Parallel UHF connectors for loop-through operation

Video Response .....10 MHz ±1 dB

Horizontal Resolution .....800 lines center

Linearity .....Within 2% of picture height

Dimensions and Weight

	Height	Width	Depth	Weight
MI-47819A	22 1/16"	25¼"*	15⅞"	104 lbs.
	57.5 cm	61.6 cm	40.3 cm	47.1 kg.

* MI-47819B is 27¼" wide at mounting studs; other dimensions identical.

Controls

Front Panel .....On-off switch, brightness, contrast, focus, vertical hold, horizontal hold, height, vertical linearity (top and bottom), width, horizontal linearity, sync level

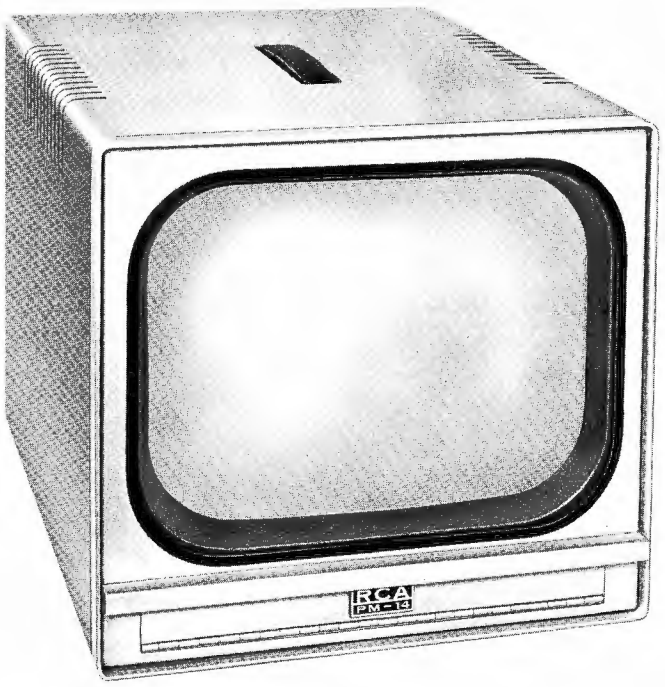
Rear Apron .....Termination switch

Chassis Top .....Sync selector, DC restoration, ultor voltage, B+ voltage, horizontal frequency

Ordering Information

Type PXU-25C (with recessed handles) MI-47819A
Type PXU-25C (with hanger mounting studs) MI-47819B
PMM-23C Ceiling Mount Kit MI-47809*
PMM-23P/5 Pedestal Mount, 5 ft. MI-47818C
PMM-23P/6 Pedestal Mount, 6 ft. MI-47818E
Speaker Enclosure ES-25

* Does not include 1½" pipe.



Video Monitors,

RCA Professional Television solid-state video monitors are designed for broadcast and closed-circuit television applications requiring excellent picture quality and stable operation in a compact, attractively-styled unit. Advanced circuitry and an etched, bonded faceplate provide crisp, bright, glare-free pictures in control rooms, studios, client viewing rooms, and other locations where fine picture detail is desired. Both cabinet and rack-mounting models are designed for continuous, unattended operation.

Completely transistorized with the exception of rectifier, high-voltage regulator, and picture tubes, the PM Series monitors operate with nearly two-thirds less power dissipation and heat than conventional monitors. Component "heat fatigue" is thus reduced, assuring improved stability and longer life.

Broadcast Performance

Unique design features in PM Series Monitors provide excellent picture quality and ease of operation. Horizontal resolution is 800 lines at the center of the picture and 700 lines at the corners. Video response is flat to 10 Megahertz, and linearity, both horizontal and vertical, is within 2 percent of picture height. Raster size may be adjusted by height and width controls on the front panel for convenient viewing of all four sides and corners. Regulation of high and low voltages produces extremely stable pictures that do not "bloom" or change size with normally encountered video level variations. Furthermore, AC line voltage variations up to 10 percent do not affect picture size and brightness. Loop-through operation is provided by parallel receptacles in both the video and external sync input circuits, permitting either high impedance bridging or 75-Ohm terminated operation. Switches are provided for video input termination, DC restoration, and selection of either internal or external sync.

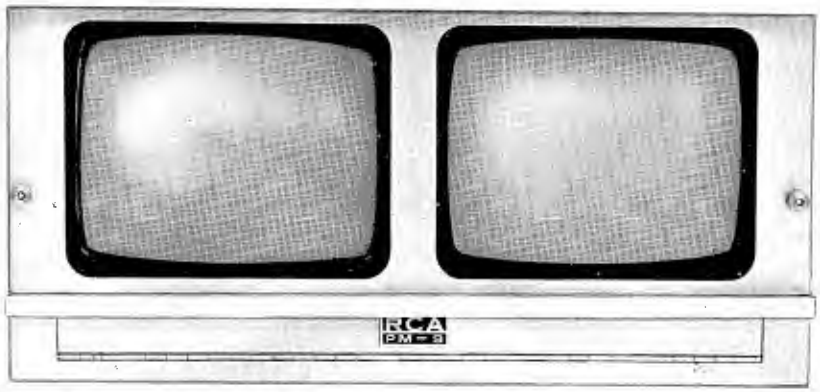
Etched, Bonded Faceplate

All PM Series monitors incorporate a rectangular picture tube with safety glass bonded to the face of the tube. Glare and reflections are virtually eliminated by the combined effect of the curved surface and the etched, matte finish. This results in easy-to-watch picture displays in high ambient light level areas without light-absorbing polarized filters and also eliminates the usual difficulties in cleaning the face of the picture tube.

9-inch Video Monitor,

PM-9C Monitor.

- **Attractive cabinet and rack models**
- **Front-adjustable reduced scan**
- **Rack hangers for side-by-side video and waveform monitors**
- **Recessed carrying handle — hidden controls**



Two rack-mounted PM-9N Monitors.

The PM-9 Series are broadcast-quality monitors designed for continuous operation in high-performance broadcast and closed-circuit TV systems. They are ideal as preview, program, or continuity monitors in offices, studios, control rooms, mobile units, or wherever small size and cool operation are essential. Available in cabinet or rack mountings, the PM-9 monitors provide a 9-inch picture in less space than required by most conventional 8-inch monitors.

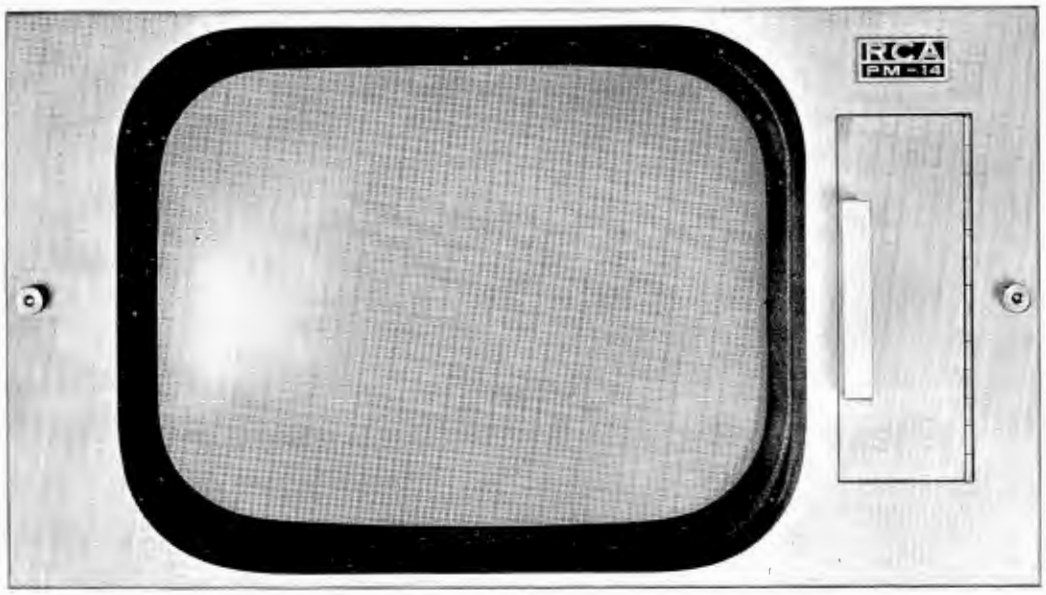
Type PM-9C, the attractively-styled cabinet model, is equipped with a recessed top-mounted carrying handle and is readily portable. For viewing multiple pictures, two or more of these monitors may be placed side-by-side or stacked on a table or shelf.

When mounted in the Type PMM-2 mounting hanger, two PM-9N chassis may be placed side-by-side in a standard 19-inch rack, occupying only 8¾ inches of rack space. In television control rooms, this arrangement allows one unit to serve as a program monitor and the other as a preview monitor. It is also convenient for use in closed-circuit systems for simultaneous viewing of two or more pictures. When the PMM-5 or PMM-6 mounting hangers are used, a PM-9N monitor and a type 529 waveform monitor may be mounted side-by-side in 8¾ inches of rack space. This is a popular combination for control room applications. Operating controls are conveniently located on the front panel behind a hinged cover.

Video response is flat to 10 megahertz ±1.5 dB, with center resolution of 800 lines. For excellent gray scale characteristics, differential gain is below 5 percent at 65 Volts kinescope drive.

14-inch Video Monitor, Type PM-14

- **High reliability, continuous operation**
- **Stable broadcast-quality pictures**
- **70 degree picture tube**



PM-14R
rack-mounted Monitor.

The PM-14 Series offers the popular 14-inch monitor in transistorized models requiring nearly two-thirds less power and generating much less heat than vacuum tube monitors of the same size. Designed for continuous, automatic operation, these monitors provide broadcast quality pictures with 800-line center resolution and 700-line corner resolution. A 70-degree rectangular kinescope assures accurate picture geometry and excellent corner focus. Available in cabinets and rack mountings, the PM-14 Series are ideally suited for convenient viewing as preview, program, or camera control monitors.

The cabinet model, Type PM-14C, is attractively styled to blend with the furnishings in any studio, office or classroom. For continuity control applications or other uses where more than one picture is desired, these monitors may be placed side-by-side or stacked. The all-metal cabinets permit the PM-14C to be used in locations where wood or plastic cases would be ruled out by fire regulations or other considerations.

The PM-14R is a chassis-type unit including a silver gray frame for mounting in a 19-inch rack or console. Operating controls are located behind a hinged, magnetically-latched door to one side instead of beneath the picture tube, reducing the vertical rack space requirement to only 10½ inches.

Advanced engineering techniques assure stable, high-contrast pictures for many hours of continuous operation. High voltages required for the sweep circuits and kinescope are regulated to provide maximum stability under wide changes in AC line voltage and video level. Differential gain is below 5 percent at 70 Volts.

Specifications

Input Power .....117/234 Volts, ±10%, 50 Hz (625 line) or 60 Hz (525 line). 3-wire AC cord, 6 feet long

Power Dissipation .....65 Watts

Video Input .....0.3 to 2.0 Volts peak-to-peak (for 50 Volts at kinescope); sync negative at monitor input. Parallel UHF connectors for loop-through operation

Input Impedance .....High impedance bridging (equivalent to 50K in parallel with 15 mmfd.) can be terminated by an internal 75 Ohm load (±1%) through a switch located on rear apron

External Sync Input .....1.0 to 8.0 Volts, peak-to-peak, sync negative. Parallel UHF connectors. Monitor will operate from either composite video or non-composite video and external sync

Horizontal Resolution .....800 lines at center, 700 lines at corners

Linearity .....Within 2% of picture height

	PM-9	PM-14
Video Response	10 MHz ±1.5 dB	10 MHz ±2.0 dB
Differential Gain	Below 5% at 65 Volts	Below 5% at 70 Volts
Kinescope Type	9388P4 (9SP4 with etched, bonded faceplate)	14385P4 (14BDP4 with etched, bonded faceplate)

Controls

Front Panel .....Off-on, focus, horizontal hold, vertical hold, height, vertical linearity, contrast, brightness, width

Rear Apron .....Looping video input connectors, video termination, external-internal sync, parelleled sync input connectors, AC line fuse; 2-amp AC outlet wired through off-on switch and DC restorer switch (PM-14R only).

Chassis Top .....Horizontal linearity and high-voltage regulator adjustment; DC restoration (PM-9 models and PM-14C); Vertical hold range and vertical linearity (PM-9 models only).

Dimensions and Weight

	Height	Width	Depth	Weight
PM-9C	9½″ 24.1 cm	10″ 25.4 cm	16″ 40.6 cm	34 lbs. 15.5 kg.
PM-9N	8 3/16″ 20.8 cm	8½″ 21.6 cm	15″ 38.1 cm	18 lbs. 8.2 kg.
PMM-2, PMM-5 and PMM-6 Rack Hangers	8¾″ 22.2 cm	19″ 48.3 cm	15⅜″* 39.1 cm	10 lbs. 4.5 kg.
PM-14C	12 5/16″† 31.2 cm	14¼″ 36.2 cm	18 17/32″ 47.1 cm	76 lbs. 34.5 kg.
PM-14R	10½″ 26.6 cm	19″ 48.2 cm	17 11/16″* 44.9 cm	51 lbs. 23.2 kg.

* Measured from face of front of panel; subtract 5/16″ for dimension from rear of rack mounting ears.

† Excluding mounting feet.

Ordering Information

Type PM-9C 9″ Monitor in Light Blue Cabinet MI-47812

Type PM-9N 9″ Monitor Chassis MI-47813

Type PMM-2 Silver Gray Rack Mounting Hanger for mounting two PM-9N Monitor Chassis side by side MI-47822

Type PMM-5 Silver Gray Rack Mounting Hanger for mounting PM-9N Monitor Chassis on right side, type 529 Waveform Monitor on left side MI-47825

Type PMM-6 Silver Gray Rack Mounting Hanger for mounting PM-9N Monitor Chassis on left side, type 529 Waveform Monitor on right side MI-47826

Type PM-14C 14″ Monitor in Light Blue Cabinet MI-47814

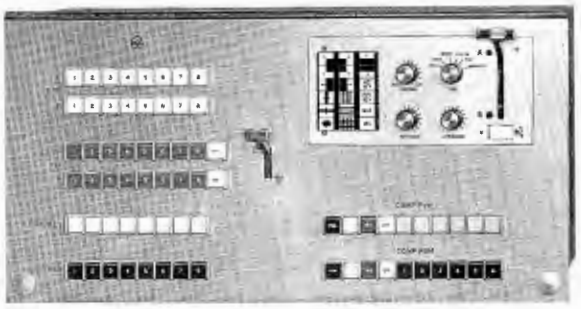
Type PM-14R 14″ Monitor in Silver Gray Rack Hanger MI-47815

NOTE: All monitors shipped with low-glare, etched bonded safety glass kinescope installed.

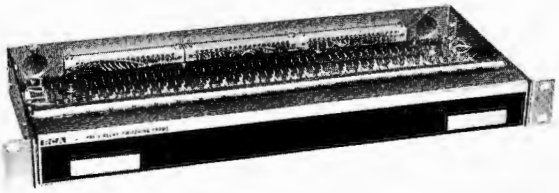
PTS-31A Video Switching Module

PTS-51 Video Switching Module

PDA-2A Video Distribution Amplifier



Typical PTS-1 Control Panel



PRF-1 Relay Switching Frame

Video Switching System Components,

Versatile, Reliable

The PTS-1 Video Switching System is a "control center" of advanced design and performance. Well suited for program switching or video distribution of color or monochrome, the PTS-1 can switch composite and non-composite signals, accomplish video selection with audio follow, and introduce lap dissolves and special effects with matching auxiliary modules.

Switchers with between 3 and 23 inputs and more than 100 outputs can be factory-ordered or assembled "on-site", using the modular components. Fast acting reed relays are programmed for overlap switching, a method that introduces a minimum of signal disturbances and which is recognized for its functional simplicity. The PTS-1 is totally new, from superior performance to modular packaging.

Building Block Components

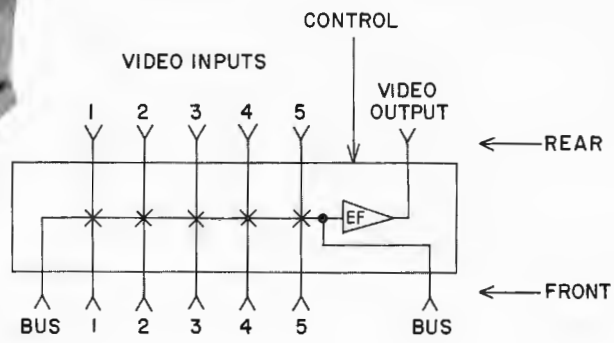
Modular format is an outstanding feature of the PTS-1, making the oft-promised but seldom attained "block building" construction of custom switching systems a reality. The unique PTS-1 system consists of compact modules which are almost identical in appearance and can be used together in many configurations to handle a myriad of system requirements. These modules, all completely transistorized and with self-contained regulated power supplies include: PTS-51 Video Switching Module, PTS-31A Video Switching Module (with output amplifier), PLA-2A Lap-Dissolve Amplifier, and PDA-2A Video Distribution Amplifier. Other basic components consist of a PRA-2 Rack Mounting Shelf (mounts three modules), a Standard or Custom Control Panel, and a PRF-1 Relay Frame if momentary contact push-buttons are used.

"Design-it-Yourself" System

The flexibility of the PTS-1 system modules and the ease of combining them to produce different systems make it convenient for relatively inexperienced technical staffs to design and assemble video switching systems. Components are available as separate items with complete instructions. PTS-1 systems can be changed or expanded to meet changing requirements, simply by adding or electrically relocating modules within the system by recabling—*without obsolescence of the initial units.*

Several basic PTS-1 configurations are illustrated in this catalog as a guide to planning. These and many other configurations may be assembled from the modular components or the system may be factory-ordered to meet specific requirements for present or planned installations.

PTS – 51 BLOCK DIAGRAM



Basic Switching Modules

Two remote controlled video switching modules form the "nerve center" of PTS-1 video switching systems. The PTS-51 is a 5-input/1-output switching module and the PTS-31A is a 3-input / 1-output switching module which contains an output amplifier with sync adding capability.

Identical in Size

Both PTS-51 and PTS-31A modules may be interconnected with molded and BNC coaxial patch cords for additional inputs and outputs. Inputs are multiplied by horizontal "strapping"; outputs by vertical strapping. For example, two vertically stacked PTS-51 modules provide 5 inputs and *two* independent outputs; horizontally strapped, they provide 10 inputs and one output bus. Video signals may be looped through as many as six module inputs. Three modules mount side-by-side in one 19-inch wide by 1¾-inch high rack mounting PRA-2 Rack Adaptor.

PTS-51 Video Switching Module

The PTS-51 Video Switching Module is one of the basic "building blocks" of a PTS-1 switching system. This module is a compact transistorized device which switches by remote control any of five video inputs to one output bus.

The five input signals are brought into the PTS-51 module via BNC coaxial connectors on the rear of this unit—adequate space is available to permit the use of UHF to BNC adaptors if existing coaxial cables are fitted with UHF type connectors.

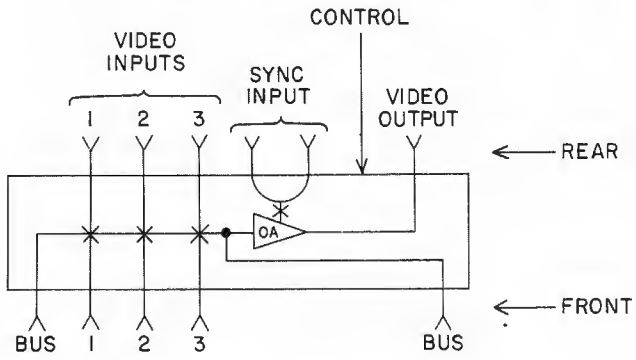
Bridging input is provided for each video signal by using an emitter follower isolation amplifier stage to maintain a high input impedance. This feature makes it possible to loop each video input through as many as six switching modules, thus providing a capability for a switcher with six output busses with no additional input amplifiers required. When more than 6 switching busses are to be fed from the same video source, a PDA-2A Video Distribution Amplifier should be used with a separate output feeding each set of six switching busses.

The video inputs at the rear of the PTS-51 switching module also appear at pin jacks on the front of this unit. By means of molded coaxial patch cords, each video signal can be looped from the front of one module to another; this is the start of the "building block" operation.

A second "building block" configuration permits the PTS-51 modules to be arrayed horizontally. The 5 x 1 switching capability of a single module is easily and quickly increased to 10 x 1 or 15 x 1 by jumpering the PTS-51 bus connections with molded patch cords, thereby extending the video switching bus to two or three PTS-51 modules in a row. A longer patch cord may be used where it is desired to patch the switching bus across the space between two adjacent racks.

The PTS-51 switching module provides a smooth bounce-free video switching action through the use of encapsulated reed relays as video crosspoints. The reed relay is ener-

PTS-31 BLOCK DIAGRAM



gized from an internal 24 Volt supply that is programmed to the proper relay coil by the pushbuttons on the switcher control panel. Overlap switching is accomplished by a make-before-break contact on the pushbuttons, thus assuring smooth switching of composite or non-composite signals.

The video output from the PTS-51 module is delivered to the rear output connector through an emitter follower which converts the bus impedance to the 75 Ohm output impedance. As a result of this impedance conversion, the video output level of the PTS-51 module is 6 dB less than the input level; in most switching systems, this loss in level will be restored by using a PTS-31A module or a PDA-2A video distribution amplifier as the last device on any output bus of the switcher.

The PTS-51 module requires only an external power source of 115/230 Volts ±10 percent, 50/60 Hz, which is normally provided through the plug-in connector on the PRA-2 Mounting Shelf.

Horizontal and Vertical Stacking

The combination of both horizontal and vertical stacking of PTS-51 switching modules (and also PTS-31A modules) provides the key to the remarkable flexibility of this switching equipment. Literally hundreds of different switching configurations are possible—the user of a PTS-1 system buys only the switching capability that he needs, and always has the option of expanding or rearranging the system to meet future requirements.

PTS-31A Video Switching Module

The PTS-31A Video Switching Module is the second basic "building block" of a PTS-1 switching system. This module is identical in size to the PTS-51 and similar in function. Any of three video inputs to a PTS-31A module may be switched by remote control to one output bus. The PTS-31A differs from the PTS-51 module in two other respects:

1. An output amplifier with adjustable gain is included in the 3 x 1 module. When used as the last module in a horizontal row, the PTS-31A restores the loss in signal level which would otherwise result from converting the switching bus impedance to 75 Ohms. In effect, the PTS-31A module provides for a unity gain switching system.
2. The PTS-31 module also includes a sync adding facility with sync-drop relay which can be controlled by sync logic wired into the switcher control panel or provided by auxiliary pilot relays. Parallel BNC connectors provide a loop-through bridging input which requires a nominal level of 4 Volts peak-to-peak sync signal.

The PTS-31A module is unique in that it combines switching, output amplifier, and sync adding functions (plus sync-drop relay) in one small module. The years-ahead design of this and other components in the PTS-1 switching system provide maximum utility at a nominal investment.

Input connections, output connections and "patching" of PTS-31A modules are handled in the same manner as for the PTS-51 module.

PDA-2A Video Distribution Amplifier

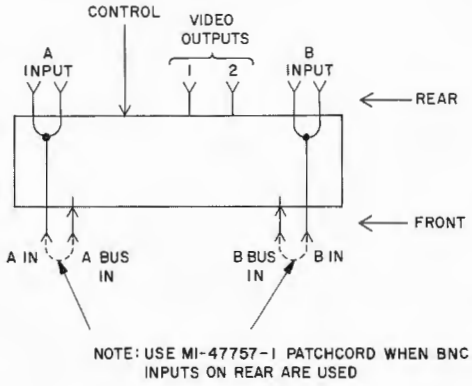
The PDA-2A Video Distribution Amplifier is a 1-input/3-output amplifier with sync adder and sync drop relay, packaged in the standard module size and format. Incorporating a built in power supply, this compact unit may be used on a desk top or mounted in a PRA-2 Rack Shelf.

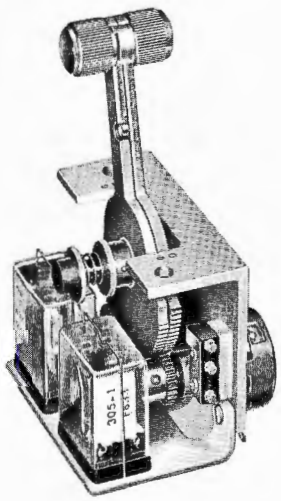
Amplifier gain is adjustable from —2 dB to +8 dB, and the three well isolated outputs prevent disturbances on one line from affecting program quality on the other two lines. All video and sync connections are made via BNC connectors. Parallel connectors provide for bridging video and sync inputs. (See catalog PTV.1402 for complete specifications.)

Lap-Dissolve Amplifier

Matching other PTS-1 basic modules in size and appearance, the PLA-2A Lap-Dissolve Amplifier accepts video inputs from two switching busses and mixes them in variable gain amplifiers to produce lap dissolves, "supers" or fades to black.

Amplitude linearity is held within 5 percent, making it possible to lap between composite as well as non-composite synchronous signals without noticeable change in sync pulse level. Two isolated outputs are provided. One is normally used as a program output, while the other is available for monitoring or for re-entry into a special effects bus. High impedance, looping video inputs permit either terminating the inputs or feeding the same video signals to other units such as special effects equipment. The front of the module features two jacks for each input. One, the A or B bus input jack, connects to the looping video inputs on the rear apron, and the other is a high impedance video bus input. The bus input is jumpered either to the PLA-2A input jack or to the bus on other PTS-1 modules. This configuration provides convenience and flexibility in switcher assembly. PLA-2A front panel controls include: (1) Output Video Level; (2) A & B Bus Balance; (3) High Frequency Peaking. Refer to catalog PTV.1406 for additional information on this unit.





Lap Dissolve Lever Assembly

The Lap Dissolve Lever Assembly used with the PLA-2A Amplifier is normally operated in the locked-lever mode. Split-lever operation, available in the "on" direction only, increases the gain of one of the dissolve amplifiers for superimpositions. Fading to black is accomplished by selecting a video input with no signal, as the levers cannot be split in the "off" or black direction. Gain of the PLA-2A Amplifier is controlled by direct current, assuring smooth transitions. Refer to catalog PTV.1406 for additional information on this unit.

PBM-1 Blank Module

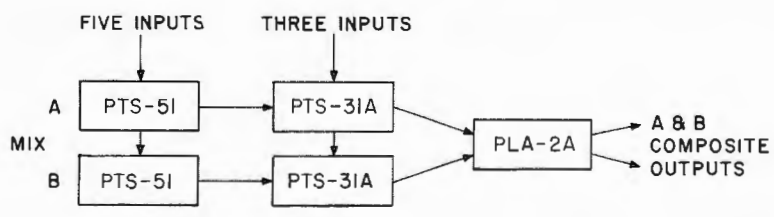
Module spaces which are set aside for future expansion or are not immediately needed for other system components may be filled with a PBM-1 Blank Module. Matched in appearance with other PTS-1 modules, the PBM-1 may be used to eliminate gaps in the rack or to accommodate field-installed custom components.

Pushbutton Switches

Two types of pushbutton switches are standard: *mechanically-interlocked switches* are available in rows of from 2 to 18, and *momentary contact switches* are available for mounting as individual switches. Both types have rear illuminated white rectangular caps on ¾-inch centers for ample finger room. The caps may be custom engraved to identify signal sources. The mechanically interlocked push-buttons actuate key or lever type stacks with contacts for control of video logic, audio switching, camera tally, control panel tally and sync logic. Momentary contact switches utilize the PRF-1 Relay Frame and are used where: (1) multiple control panels are required; (2) "audio follow" switching is not convenient or desirable through a mechanical switch; and (3) when the size and complexity of the system precludes mechanical switching.

PRF-1 Relay Frames

The PRF-1 relay frames are used for PTS-1 switching systems that are controlled by momentary contact



pushbutton switches (MI-47848N and MI-47849N). This configuration is desirable in almost all "audio follow" switchers, and necessary in larger program switchers where proper switching logic is not practical when using mechanically interlocked push-buttons.

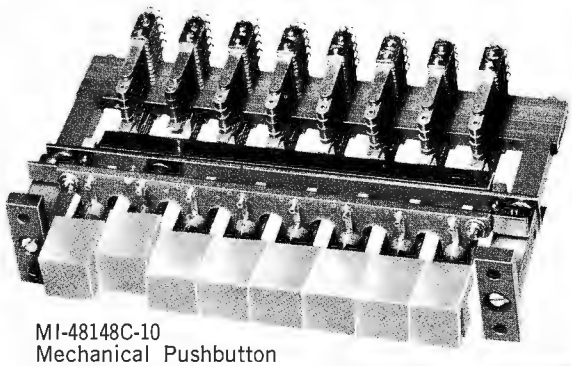
The PRF-1 is a rack mounting assembly (1¾ inches high) which accommodates up to 20 plug-in relays. Two types of relays frames are available:

The PRF-1V relay frame (MI-47763-B) is prewired for program switching applications where "audio follow" is not a requirement. Relay contacts are brought out to taper pin terminals on the rear of the unit, and provide for control of video logic, camera tally, control panel tally and sync-drop logic.

The PRF-1AV relay frame (MI-47763) is similar to the PRF-1V except that it includes wiring for "audio follow" switching.

Both relay frames utilize the MI-47764 plug-in relay which incorporates 6 "C" contacts. Up to 20 relays can be plugged into a frame, providing switching and control functions for up to four PTS-51 5 x 1 switching modules. The relay frames may be jumpered so that the plug-in relays constitute one 20-crosspoint switching bus or two 10-crosspoint busses. Video and sync logic are "overlap", while tally and audio contacts are "gap" switching.

All input and output connections to the PRF-1 relay frames are made through banks of taper pins on the rear of each unit.



MI-48148C-10
Mechanical Pushbutton Assembly.

PRF-1 Relay Switching Frame.

MI-47849N

MI-47848N

Momentary Pushbuttons.

Electrical

Typical PTS-1 Video Switching System

Frequency Response ..... ±1.0 dB to 8 MHz
Low Frequency Tilt ..... Less than 1% for a 60 Hz 50% square wave
Differential Gain ..... Less than 1%, 10% to 90% APL
Differential Phase ..... Less than 1° 10% to 90% APL
Crosstalk ..... Isolation between output busses at least 55 dB at 100 kHz and 45 dB at 3.58 MHz

	PTS-51	PTS-31A	PLA-2A
Video Inputs	5	3	A & B
Video Outputs	1	1	2
Input Video Level			
Composite, peak-to-peak	1.0 Volt	1.0 Volt	1.0 Volt (A & B)
Non-Composite, peak-to-peak	0.7	0.7	0.7 (A & B)
Sync Input Level, peak-to-peak	—	4.0 Volts	—
Output Video Level			
Composite, peak-to-peak	0.5	1.0	1.0
Non-Composite, peak-to-peak	0.35	0.7	0.7
Input Impedance (nom. at 3.58 MHz)	7,000 Ohms	7,000 Ohms	7,000 Ohms
Output Impedance	75 Ohms (source term.)	75 Ohms (source term.)	75 Ohms (source term.)

Power Input ..... 115/230 Volts ±10%, 50/60 Hz, 6 Watts

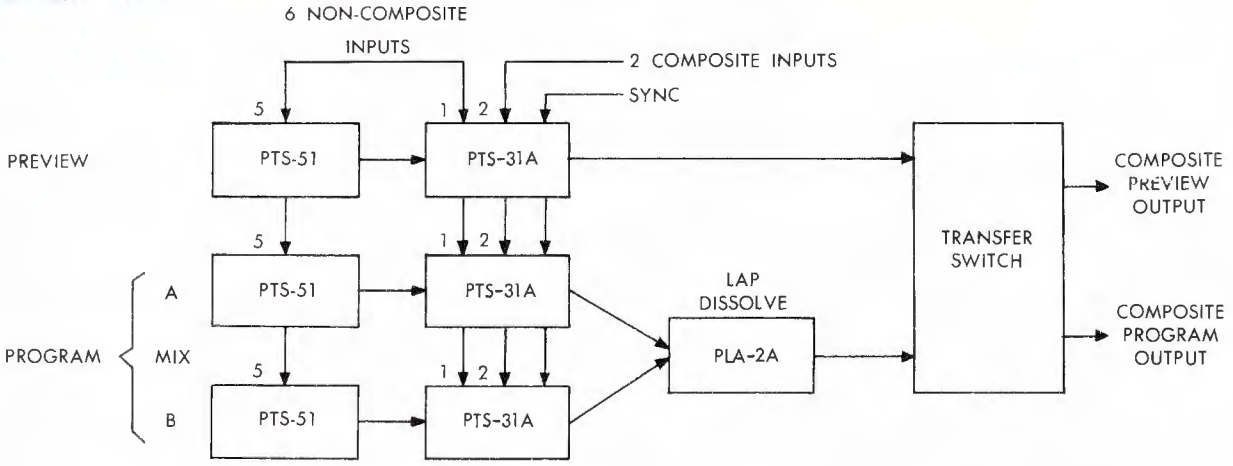
Mechanical

	PTS-51, PTS-31A, PDA-2A, PLA-2A	PRF-1
Height	1⅝"*	1¾"
Width	5¾"	19"
Depth	6½"	7½"
Weight	4 lbs.	9 lbs.

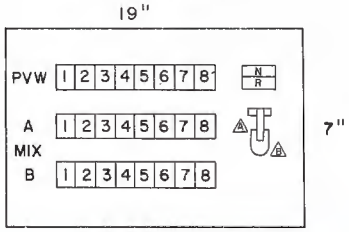
* 1¾" in PRA-2 Rack Adaptor.

Typical Switching Systems

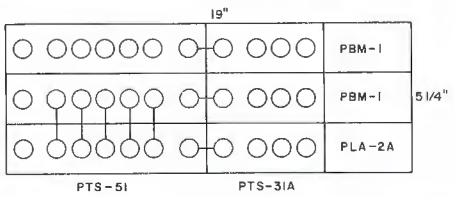
SYSTEM 8B



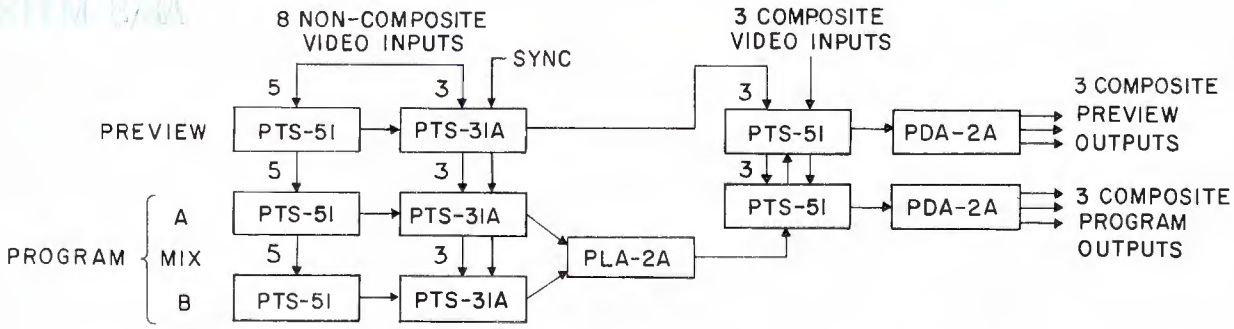
CONTROL PANEL



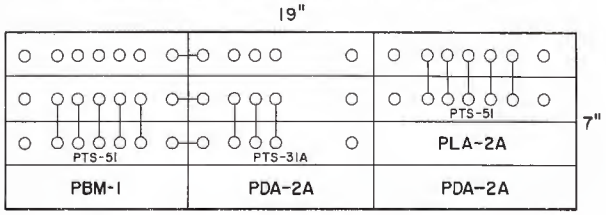
RACK OR CONSOLE MOUNTED EQUIPMENT •



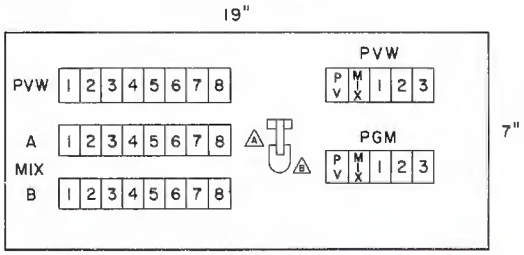
SYSTEM 8AA



RACK OR CONSOLE MOUNTED EQUIPMENT



CONTROL PANEL



PTS-1 System 8B

This switching system provides for feeding any one of 6 non-composite and 2 composite video inputs to three switching busses. The first bus is for preview; the second and third busses terminate in a PLA-2A amplifier which permits mixing of any two synchronous signals (those locked and phased to a common timing reference). Sync is added to all non-composite signals in the output stage of the PTS-31A modules. The sync adding function on any bus is inhibited when one of the composite inputs is selected on that bus. The system is shipped assembled, wired and tested in a short 19-inch rack frame. Equipment includes the rack-mounting modules and frames, control panel and one set of 50 foot interconnecting cables.

PTS-1 System 8/3A

System 8/3A is a two section switcher. Any of 8 non-composite video inputs may be switched to any one of three non-composite switching busses, and any of three composite video sources may be fed to the two composite switching busses. Sync is added in the PTS-31A switching modules to the outputs of the non-composite switching busses. The outputs of the non-composite section appear as inputs to the composite switching section. This cross-feeding of preview and program channels offers added flexibility and assures program continuity in the event of a switching malfunction. It also serves for previewing a lap-dissolve, and makes it possible to rehearse with the mix busses on the preview channel while the outgoing signal is routed through the non-composite preview bus.

Switching Control Panels

Several standard control panels are available for PTS-1 systems, and many other configurations may be customized to individual requirements, providing both functional reliability and a pleasing appearance. Control panels for smaller systems can be mounted in a 19-inch rack or control console; the larger systems will require custom console or table-top mounting for the control panel. The control panel is mounted in a dust-tight pan enclosing the switches, lap-dissolve lever assemblies, and mounting connectors on the rear apron.

Seven of the standard PTS-1 Switching Systems include built-in special effects, permitting a wide variety of wipes, video inserts, and other professional programming techniques. Special effects systems may also be ordered separately for use in custom-built switchers. Two systems are available; Mk VI-AR-102 and Mk VII-D-202.

Mk VI-AR-102 Special Effects

The Mk VI-AR-102 Special Effects System provides three wipes, external keying, and matting between monochrome, non-composite signals. Control panels for standard PTS-1 Switching Systems include a space for mounting either special effects control panel, facilitating conversion to the Mk VII-D-202 system.

Mk VII-D-202 Special Effects

The Mk VII-D-202 Special Effects System provides eleven wipes, internal and external keying, and matting. It accommodates both non-composite and composite signals in either monochrome or color. Optional plug-in modules provide three additional wipes, non-additive mixing, and color matting. These capabilities may be added at any time without changing the control panel.

Both systems require horizontal drive, vertical drive, and blanking, and the Mk VII-D-202 also requires sync. The color matting module, which permits using a monochrome camera to key color titles into color background pictures, requires a color subcarrier pulse. Fifty-foot control cables with plug-in connectors are supplied with each system to connect the control panel and rack-mounted equipment.

STANDARD PTS-1 VIDEO SWITCHING SYSTEMS

PTS-1 Type	PTV Catalog Sheet	Video Inputs N/C	Video Inputs Comp.	No. Of Busses	Special Effects	Single Re-entry	Pushbuttons	19" Panel Mtg.	Pushbutton Color
8A	1560	6	2	2	None	No	Mechanical Interlock	Yes	White
8B	1562	6	2	3	None	No	Mechanical Interlock	Yes	White
8/3A	1564	8	3	5	None	No	Mechanical Interlock	Yes	White
8/4A	1568	8	4	6	Mk VI-AR-102	No	Mechanical Interlock	Yes	Color Coded (a)
8/4C	1569	8	4	6 (b)	Mk VI-AR-102	Yes	Mechanical Interlock	No	Color Coded (a)
8/4D	1569	8	4	6 (b)	Mk VII-D-202	Yes	Mechanical Interlock	No	Color Coded (a)
8/4F	1568	8	4	6	Mk VII-D-202	No	Mechanical Interlock	Yes	Color Coded (a)
8/6C	1565	8	6	8	Mk VII-D-202	Yes	Mechanical Interlock	No	Color Coded (a)
8/6D	1565	8	6	8	Mk VII-D-202	Yes	Momentary Interlock	No	Color Coded (a)
13/9A	1566	13	9	6	Mk VII-D-202	No	Mechanical Interlock	No	Color Coded (a)

(a) Color coded by bus function:
Mix (or Mix/Effects) ..... Green
Effects ..... White
Preview ..... Yellow
Program ..... Red

(b) Plus two auxiliary busses to select one of three inputs to lap dissolve amplifier:
1. "A" & "B" busses
2. Non-composite program bus
3. Effects (re-entry)

Specification

Video Inputs ..... A
B
External Key

Input Impedance ..... High impedance bridging, looping

Video Outputs ..... 2 Isolated Outputs

Output Video Level
Composite, peak-to-peak ..... 1.0 Volt
Non-composite, peak-to-peak ..... 0.7 Volt

Output Impedance ..... 75 Ohms source terminated

Pulse Inputs (4.0 Volts peak-to-peak) ..... Horizontal Drive
Vertical Drive
Blanking
Sync (Mk VII-D-202 only)
Subcarrier (for color matting only)

Connectors ..... BNC

Power Input ..... 117 Volts AC, ±10%, 50/60 Hz, 30 Watts
Note: Available for 230 Volt 50/60 Hz operation on special order.

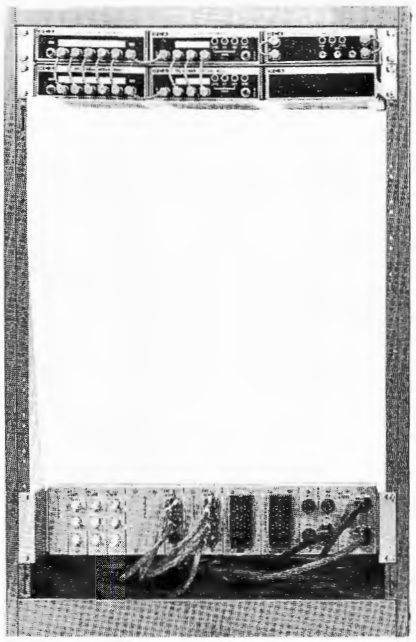
Control Panels:
Finish ..... Aluminum Epoxy

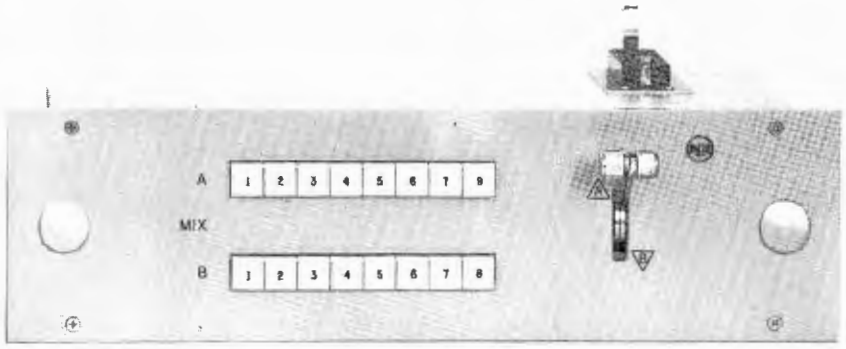
Dimensions:
Mk VI-AR-102 ..... 5¼" high, 7½" wide, 3½" deep (11.8 cm, 16.9 cm, 7.9 cm)
Mk VII-D-202 ..... 5¼" high, 11" wide, 3¼" deep (11.8 cm, 24.7 cm, 7.3 cm)

Ordering Information

Type PTS-51 Video Switching Module MI-47753
Type PTS-31A Video Switching Module MI-47759-A
Type PLA-2A Lap Dissolve Amplifier MI-47760-B
Lap Dissolve Lever Assembly MI-47845
Lap Dissolve Lever Assembly with Plug-in Relays MI-47846
Type PDA-2A Video Distribution Amplifier MI-47751-C
Type PRF-1AV Relay Frame MI-47763
Type PRF-1V Relay Frame MI-47763-B
Plug-in Relay (6 "C" contacts) MI-47764
Type PRA-2 Rack Adaptor MI-47752-A
Type PBM-1 Blank Module MI-47769
Mechanically Interlocked Pushbutton MI-48148-C**
Tool Kit for crimping and inserting Taper Pins in PRF-1 Relay Frame MS-9201
Audio Bridging Transformer for PRF-1 (one required for each audio output bus) MI-47790
Momentary Contact Pushbuttons:
Single barrier (less cap) (for all except last button in row) MI-47849N
Double barrier (for last button in row, only) MI-47848N
Pushbutton Cap ..... MI-47874-* (* A thru L, depending upon color)
Molded Patch Cord (1¾" long) MI-47757-1
Molded Patch Cord (3½" long) MI-47752-2
Molded Patch Cord (5¼" long) MI-47757-3
Molded Patch Cord (7" long) MI-47757-4
Molded Patch Cord (for patching between adjacent modules in adjacent racks) MI-47757-9
Short Coaxial Jumper (for rear jumpering PTS Modules) MI-47758-A
75 Ohm Molded Plug (for front termination) MI-47756
75 Ohm BNC Plug (for rear termination) MI-47761-3
Mk VI-AR-102 Special Effects MI-47970
Mk VII-D-202 Special Effects (Includes MI-47972-A, B, C, G & H) MI-47971
Mk 107-7 Sync Add Card MI-47972-A
Mk 207-7 Pattern Card #1, 3 wipes MI-47972-B
Mk 208-7 Pattern Card #2, 8 wipes MI-47972-C
Mk 209-7 Pattern Card #3, 3 wipes MI-47972-D
Mk 210-7 Pattern Card #4, non-additive mix MI-47972-E
Mk 211-7 Color Synthesizer Card (for color matting) MI-47972-F
Card Extender MI-47972-G
Blank Filler Card MI-47972-H
19" Rack Mounting Adaptor for MI-47970 Mk VI-AR-102 Control Panel MI-47973-A
19" Rack Mounting Adaptor for MI-47971 Mk VII-D-202 Control Panel MI-47973-B

** Number of pushbuttons per row, maximum of 18.





PTS-1 Video Switching System

The PTS-1 Video Switching System 8A is a professional "control center" especially suited to broadcast or closed circuit TV systems in education, industry and the military. The switcher is ideal for use with all types of picture sources: studio cameras, film, TV tape, incoming network programs and remotes.

Designed to complement the highest quality TV programming, System 8A demonstrates bounce-free pictures and a choice of program transitions such as direct switching, fades and dissolves. Pictures are "glitch-free" because there is no gap or break in the signal when switching from one picture source to another. The 8A is remotely actuated like the more expensive switchers. This simplifies layout by eliminating multiple video cable run to the control panel. Composite and non-composite inputs assure programming versatility.

Error-Free Picture Control

System 8A is an 8 input switcher that permits selection of any input on either of two "mix" busses. The 8A offers a choice of program control techniques, such as, (a) instantaneous selection of any picture source, (b) fading a picture to and from black, and (c) dissolving between pictures at any desired speed. Two program outputs are provided. One is commonly used for program feed; the other is available for monitoring.

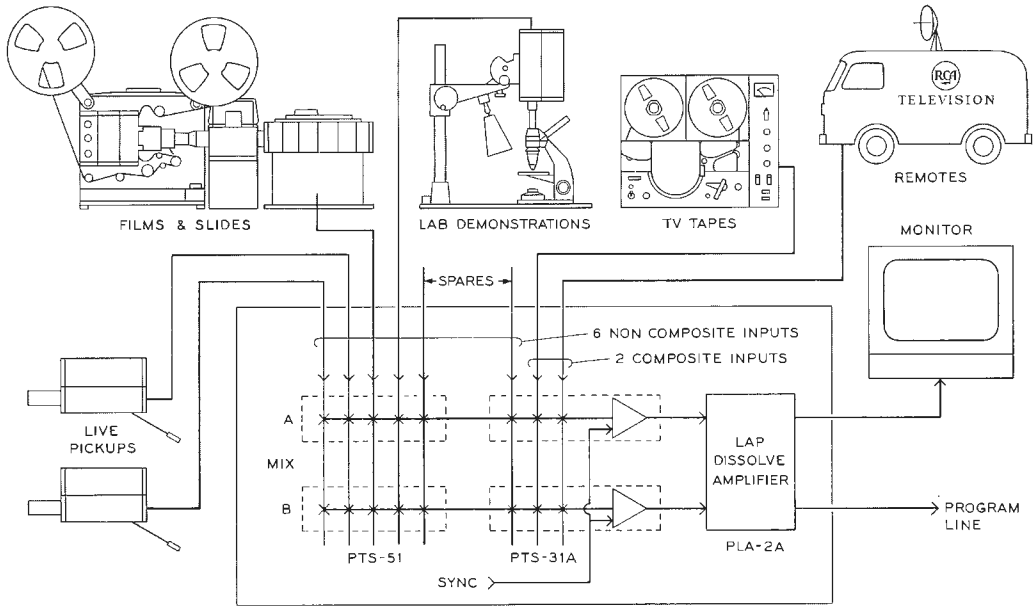
Mechanically interlocked, illuminated push buttons actuate reed relays in the switching modules for switching the picture. Simultaneously the pushbuttons energize tally lights on cameras and control panel. The switched video signals overlap for several milliseconds, offering a smooth transfer of pictures and avoiding loss of sync when switching composite signals. Fading to black is accomplished by selecting an unused video input and then fading to it. The control panel can be mounted in a 19-inch rack or control console and occupies only 5¼ inches of rack space.

Compact, Modular System

At the heart of the 8A are two compact, transistorized building blocks—the PTS-51 (5 inputs, 1 output) and PTS-31A (3 inputs, 1 output) switching modules. Side by side, these modules provide the 8 inputs with a single output. Stacked above them is a duplicate module array that provides the second output. Both feed into the PLA-2A lap dissolve amplifier module that mixes the signals for the fades, laps and dissolves.

These modules have high impedance inputs permitting video signals to be looped through both busses. Two of the 8 inputs of the 8A accept composite (with sync) video signals such as from remotes or video tape recorders, and six accept non-composite video signals. All video inputs and outputs are plug-in, using standard connectors. The PTS-1 System 8A is shipped assembled, wired and tested. No soldering or wiring is necessary at installation.

TYPICAL APPLICATION OF PTS-1 SWITCHING SYSTEM 8A



Specifications

Switching Action ..... Reed relay overlap switching

Switching Busses ..... Mix A, Mix B

Video Inputs ..... 6 non-composite at nominal 0.7 Volt p-p; 2 composite, nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination

Pulse Input ..... Nominal 4.0 Volts p-p EIA or CCIR sync

Outputs ..... 2 isolated composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled

Video Gain ..... Unity (adjustable)

Pushbuttons ..... Mechanically interlocked, illuminated, on ¾" centers

Video and Pulse Connectors ..... Type BNC

Camera Tally ..... Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)

Power Input ..... AC: 115/230 Volts ±10%, 50/60 Hz, 30 Watts; DC: 24 Volts ±10%, 80 mA (control panel tally lamps)

	Performance Specifications	Typical Production System
Frequency Response	60 Hz to 8MHz ±1.0 dB	60 Hz to 10 MHz less than ±1.0 dB
Tilt: (for a 60Hz, 50% square wave)	less than 1%	less than 0.8%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.4%
Differential Phase: (10% to 90% APL)	less than 1°	less than 0.5°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	55 dB at 100kHz 46 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	50 dB
Path Delay Uniformity: (Input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:

	Width	Height	Depth
Control Panel	19" (48.2 cm)	5¼" (13.3 cm)	6" (15.2 cm)
Rack Equipment	19" (48.2 cm)	7" (17.8 cm)	16" (40.6 cm)

Weight:

Control Panel ..... Approx. 10 lb. (4.5 kg)

Rack Equipment ..... Approx. 20 lb. (9.0 kg)

Finish:

Control Panel ..... Aluminum epoxy

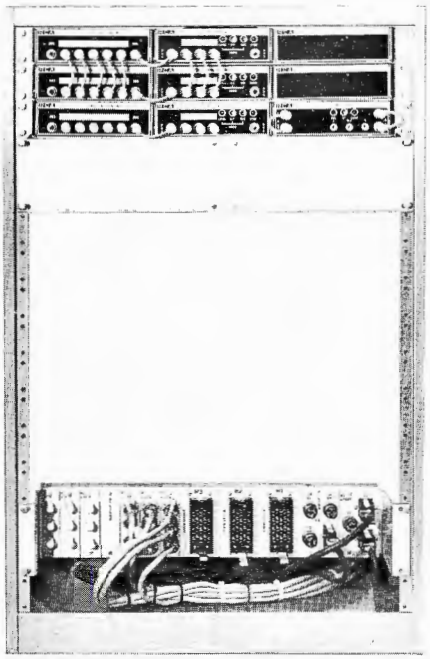
Rack Mounted Modules ..... Black and silver front panels

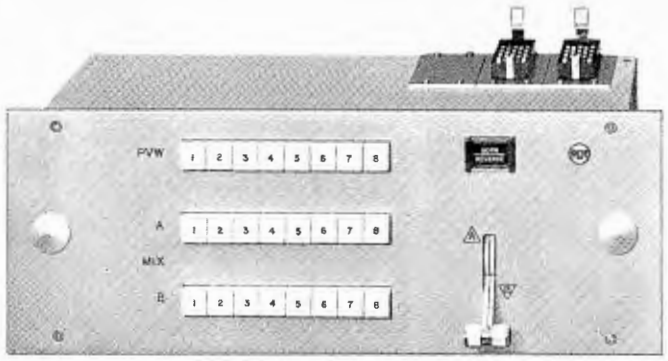
Accessories

PS-24 Regulated 24 Volt DC Power Supply for camera and control panel tally lights MI-3537

Ordering Information

PTS-1 Video Switching System 8A including:
Control Panel in Mounting Pan.
Rack-Mounted Equipment in Stub Rack.
50' Control cable.





PTS-1 Video Switching System

The PTS-1 Video Switching System 8B is a professional "control center" with exceptional versatility. System 8B offers a choice of program transitions such as switching, fades and dissolves in color or monochrome. In addition, the 8B switcher is designed with separate preview and program busses and a line transfer switch which reverses preview and program line connections. The two isolated outputs provide extensive previewing and programming capabilities. Two of the 8 inputs of the 8B accept composite (with sync) video signals such as from TV tape, remotes or incoming network programs and six accept non-composite signals from sources like studio and film cameras.

Extensive Programming Capabilities

System 8B offers a choice of program control techniques, such as, (a) instantaneous selection of any picture source, (b) fading a picture to and from black, and (c) dissolving between pictures at any desired speed. Dissolves may be made between non-composite and properly-timed composite synchronous video signals. Fading to black is accomplished by selecting and fading to an unused video input.

A highlight of 8B's versatility is the separate preview bus. This is ordinarily used to observe a picture source before it is switched to the program line. But the preview bus might be used as a second output—allowing two independent programs to pass through one control panel.

Another feature of the 8B is the "Normal-Reverse" switch which simultaneously transfers the preview signal to the program line and the program signal to the preview line. This makes it possible to feed the program line with a picture from the preview bus while using the "A" and "B" mix busses for rehearsals. Pressing the alternate action switch restores normal connections.

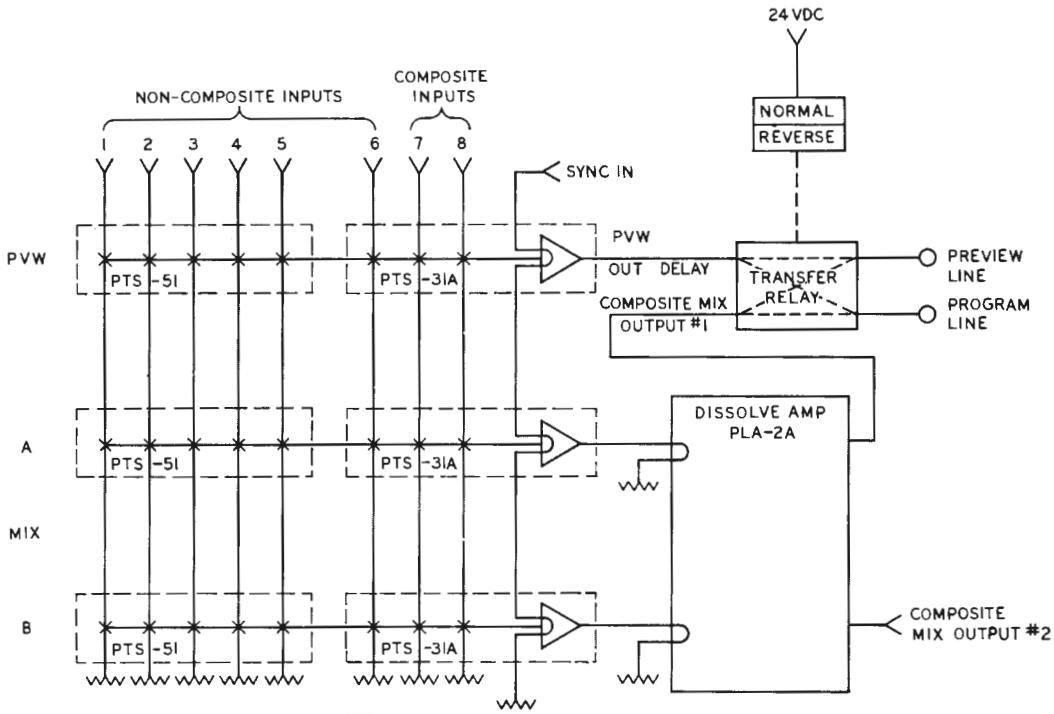
Versatile Control Panel

Mechanically interlocked, illuminated pushbuttons actuate reed relays in the switching modules for smooth bounce-free switching. Simultaneously the pushbuttons energize tally lights on cameras and control panel. Switched signals overlap for several milliseconds, offering a smooth transfer of pictures and avoiding picture "roll-over" when switching composite signals. Remote switching simplifies layout by eliminating multiple video cable runs to the control panel. No video is sent to the control panel. All video, control, tally and power circuits plug into a prewired rack mounted connector panel.

Compact, Modular System

The nerve center of the 8B consists of three identical sets of compact, solid-state building blocks—the PTS-51 (5 inputs, 1 output) and PTS-31A (3 inputs, 1 output) switching modules. Two sets of these modules make the 8 inputs available on mix busses A and B. The third set makes the signals available on a preview bus. Mix A and B outputs feed into the PLA-2A lap dissolve amplifier.

The PTS-51 and PTS-31A switching modules are rack mounted together with a connector panel, relay frame and blank modules in a short 19-inch rack frame. For detailed characteristics of the modules, refer to Catalog PTV.1550. The PTS-1 System 8B is shipped assembled, wired and tested. No soldering or wiring is necessary at installation.



PTS-1 System 8B Cross-point diagram.

Switching Action ..... Reed relay overlap switching
Switching Busses ..... Preview. Mix A. Mix B.
Video Inputs ..... 6 non-composite, nominal 0.7 Volt p-p; 2 composite, nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination
Pulse Input ..... Nominal 4.0 Volts p-p EIA or CCIR sync
Outputs (preview, program) ..... Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled; program and preview outputs reversible by transfer switch on control panel
Video Gain ..... Unity (adjustable)
Pushbuttons ..... Mechanically interlocked, illuminated, on ¾" centers
Video and Pulse Connectors ..... Type BNC
Camera Tally ..... Contacts on pushbutton wired to single, multipin connector for use with external DC source (not supplied)
Power Input ..... AC: 115/230 Volts ±10%, 50/60 Hz, 40 Watts; DC: 24 Volts ±10%, 1.1 Amps for control panel tally lamps and transfer relay

	Performance Specifications	Typical Production System
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 10 MHz ± less than 1.0 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.8%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.4%
Differential Phase: (10% to 90% APL	less than 1°	less than 0.5°
Off-Channel Rejection: (dB below 1 Volt p-p)	at least 50dB at 100 kHz, 40 dB at 3.58 MHz	55 dB at 100 kHz 46 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	50 dB
Path Delay Uniformity: (Input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:

	Width	Height	Depth
Control Panel	19" (48.2 cm)	7" (17.8 cm)	6" (15.2 cm)
Rack Equipment	19" (48.2 cm)	12¼" (31.1 cm)	16" (40.6 cm)

Weight:

Control Panel ..... Approx. 11 lb. (5.0 kg)
Rack Equipment ..... Approx. 70 lb. (31.8 kg)

Finish:

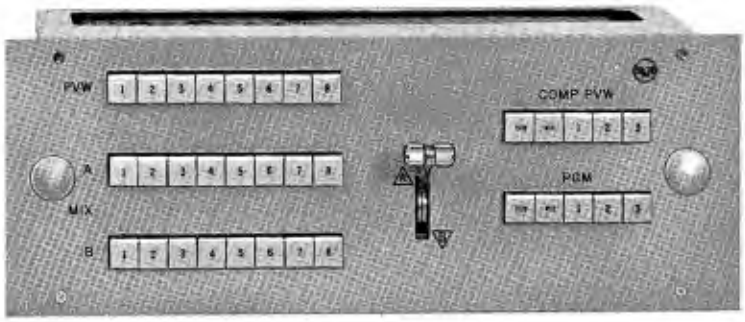
Control Panel ..... Aluminum epoxy
Rack Mounted Modules ..... Black and silver front panels

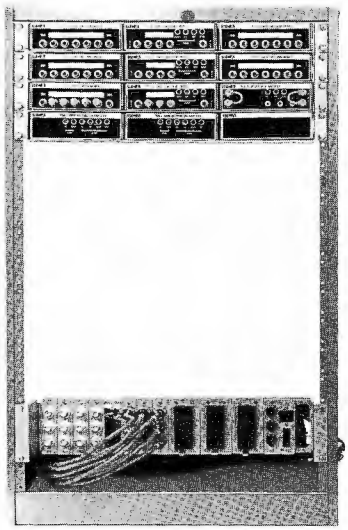
Accessories

PS-24 Regulated 24 Volt DC Power Supply for camera and control panel tally lights MI-3537

Ordering Information

PTS-1 Video Switching System 8B including:
Control Panel in Mounting Pan.
Rack-Mounted Equipment in Stub Rack.
(2) 50' Control Cables.





PTS-1 Video Switching System

The PTS-1 Video Switching System 8/3A is a professional and extremely versatile "control center" for color or monochrome broadcast and closed circuit TV systems in education, industry and the military. Separate preview and program busses provide unusual programming possibilities as well as direct switching, fades, dissolves and supers. In addition, three preview and three program outputs permit multiple monitor and program line feeds.

Programming can be selected from up to eight non-composite and three composite picture sources such as live cameras, film and slide chains, TV tape, remotes, and off-the-air TV tuners.

Expanded Programming Facilities

Beside the normal program transitions such as (a) instantaneous selection of picture source, (b) fading to and from black, and (c) dissolving from one picture to another, the 8/3A permits displaying two pictures as a "super." Supers and dissolves are both achieved from synchronous non-composite video signals. Sync is added in the PDA-2A output distribution amplifiers. These amplifiers provide the multiple outputs — all matched and isolated to prevent disturbances on one line from affecting the quality of the others.

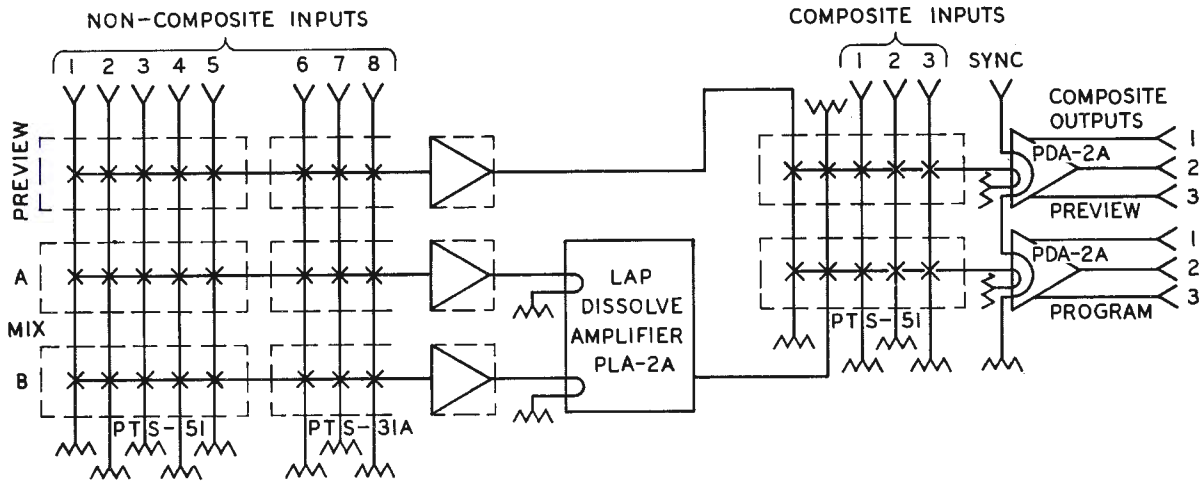
Highlighting the 8/3A's versatility, preview video can be switched to the program line as an emergency stop-gap, assuring program continuity in the event of component failure. By the same token, preview video can be used as program material while the A and B mix busses are serving other means such as rehearsals, taping or development of programs.

Versatile Remote Switching

Mechanically interlocked, illuminated pushbuttons actuate reed relays in the switching modules for smooth, bounce-free switching. Simultaneously the pushbuttons energize tally lights on cameras and control panel. Switched video signals overlap for several milliseconds, offering a smooth, glitch-free transfer of pictures and avoiding picture "rollover" when switching composite signals. Remote switching simplifies layout by eliminating multiple video cable runs. No video is sent to the control panel. The control panel is mounted in a dust tight pan enclosure and can be installed in either a 19-inch rack or control console. All video, control, tally and power circuits plug into a wired, rack mounted connector frame.

Compact, Modular System

The 8/3A consists of a combination of compact, solid state building block modules—the PTS-51 switcher, the PTS-31A switcher, the PLA-2A dissolve amplifier and the PDA-2A distribution amplifier. These are all space saving, rack mounted units equipped with plug-in video inputs and outputs using standard BNC connectors, and interconnected as shown in the diagram. The PTS-51 is a 5 input switcher, and the PTS-31A is a 3 input switcher. For details of the modules, see Catalog PTV.1550. Mounted also in the 19-inch rack is a connector frame which permits plug-in connections between the control panel and rack. The PTS-1 System 8/3A is shipped assembled, wired and tested. No soldering or wiring is necessary at installation.



PTS-1 System 8/3A Crosspoint Diagram

Switching Action .....Reed relay overlap switching
Switching Busses .....Mix A; Mix B; Preview (non-composite); Preview (composite); Program (composite)
Pushbuttons .....Mechanically interlocked, illuminated, on ¾" centers
Video Inputs .....8 non-composite, nominal 0.7 Volt p-p; 3 composite, nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination
Pulse Input .....Nominal 4.0 Volts p-p EIA or CCIR sync
Outputs (isolated)
3 Preview, 3 Program .....Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled
Video Gain .....Unity (adjustable)
Camera Tally .....Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)
Video and Pulse Connectors .....Type BNC
Power Input .....AC: 115/230 Volts ±10%, 50/60 Hz, 65 Watts; DC: 24 Volts ±10%, 0.2 Amps (control panel tally lamps)

	Performance Specifications	Typical Production System
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 8 MHz ± less than 1.0 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.8%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.4%
Differential Phase: (10% to 90% APL)	less than 1.0°	less than 0.1°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	55 dB at 100 kHz 46 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	52 dB
Path Delay Uniformity: (Input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:

	Width	Height	Depth
Control Panel	19" (48.2 cm)	7" (17.8 cm)	6" (15.2 cm)
Rack Equipment	19" (48.2 cm)	14" (35.6 cm)	16" (40.6 cm)

Weight:

Control Panel .....Approx. 13 lb. (5.9 kg)
Rack Equipment .....Approx. 70 lb. (31.8 kg)

Finish:

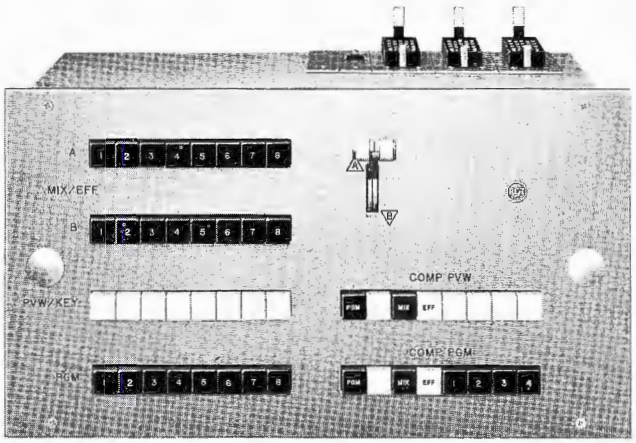
Control Panel .....Aluminum epoxy
Rack Mounted Modules .....Black and silver front panels

Accessories

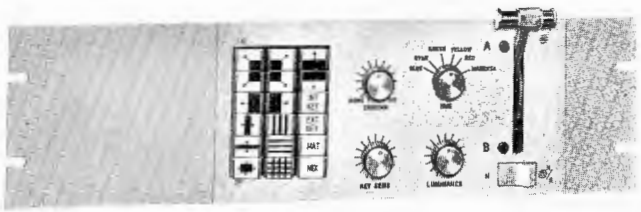
PS-24 Regulated 24 Volt DC Power Supply for Camera and Control Panel Tally Lights MI-3537

Ordering Information

PTS-1 Video Switching System 8/3A including:
Control Panel in Mounting Pan.
Rack-Mounted Equipment in Stub Rack.
(2) 50' Control Cables.



Control panel, Systems 8/4A and 8/4F.



Special effects control panel, System 8/4F.

Special effects control panel, System 8/4A.

PTS-1 Video Switching Systems

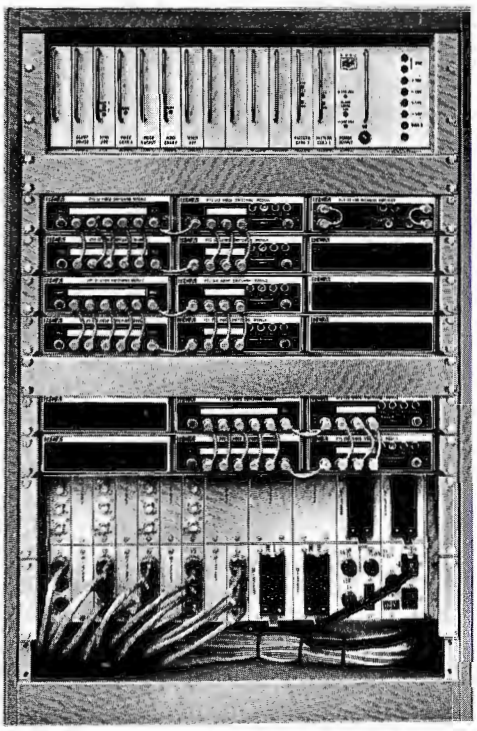
PTS-1 Video Switching Systems 8/4A and 8/4F are professional programming centers designed to offer the utmost flexibility for small broadcast or closed circuit TV systems in education, industry and the military. These systems are compact switchers that provide fades, lap dissolves, keyed inserts, and a variety of special effects for up to eight non-composite picture sources. Four composite picture sources are also provided. PTS-1 System 8/4F is distinguished from the 8/4A by a special effects system that demonstrates excellent capabilities in color as well as monochrome.

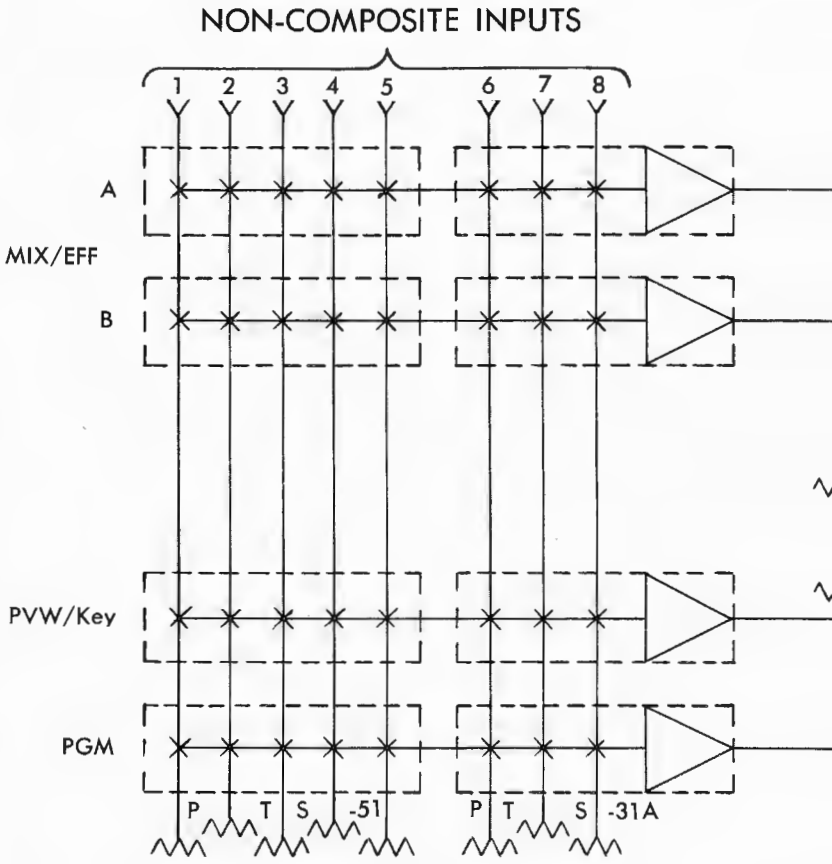
Design Versatility

Through unique design the 8/4A and 8/4F switchers offer the user many facilities of more sophisticated systems. For example, both "mixing" and "effects" techniques are provided for the non-composite picture sources with a single set of switching busses.

The lap dissolve amplifier makes possible fades to and from black (by employing an unused non-composite video input) and dissolves between synchronous non-composite video sources.

The special effects unit generates horizontal, vertical and corner wipes, split screens, inserts, and matting between any of the non-composite sources. In the "mat" mode, video level of keyed-in titles is continuously variable between black and white and can be controlled from the effects panel. The non-composite preview bus provides external key input to the special effects generator in addition to its normal preview function, permitting selection of external keying sources. The special effects control panel is mounted in a separate 5¼ inch by





PTS-1 VIDEO SWITCHING

19 inch panel which may be installed in a rack or control console.

Programming Flexibility

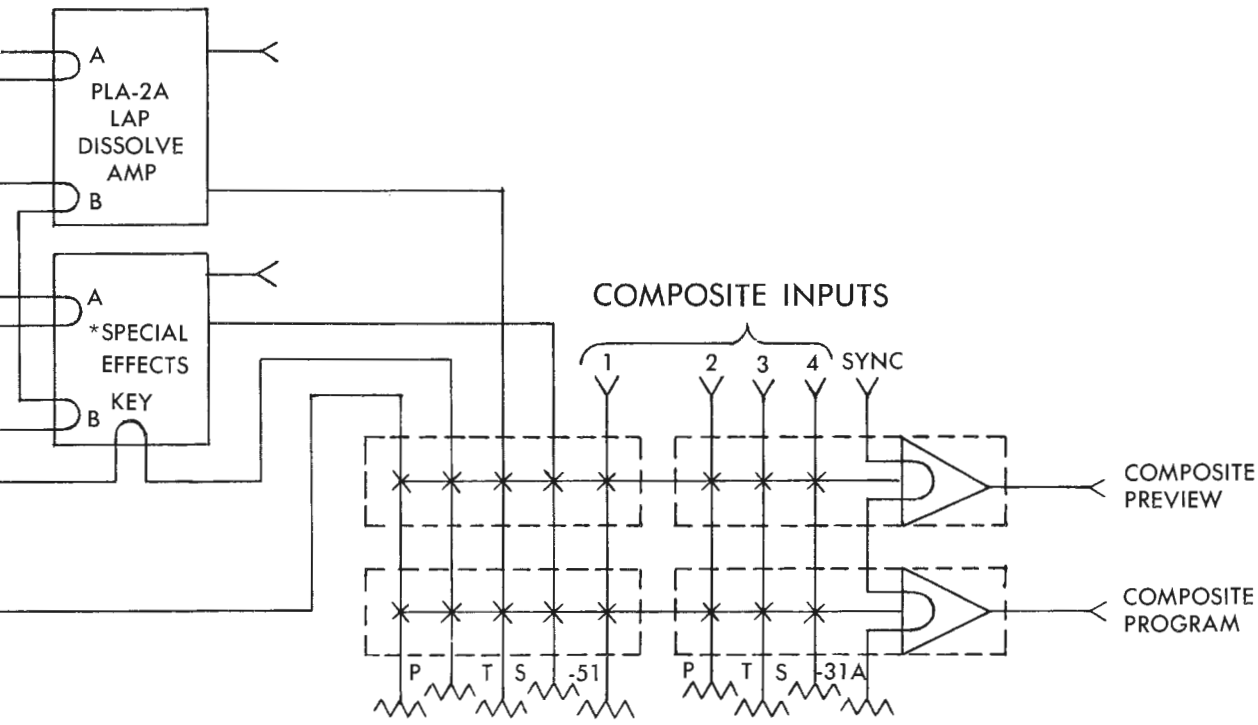
Built-in video "crossfeeding," a design highlight of the 8/4A and 8/4F systems, permits the output of the *non-composite* preview and program busses to be selected on the *composite* preview and program busses. Programs can be rehearsed or taped through the preview output while the program line continues uninterrupted. Crossfeeding also assures program continuity in the event of failure of a system component.

Smooth Switching and Effects

Mechanically interlocked, illuminated pushbuttons actuate reed relays in the solid-state switching modules to switch the picture signals. Simultaneously the pushbuttons energize tally lights on cameras and control panels. Switched signals overlap for 2 to 3 milliseconds, offering a smooth transfer of pictures and avoiding picture "roll-over" when switching composite signals. When any of the four non-composite inputs to the composite switching busses are selected, sync is added in the PTS-31A switching modules at the output of the composite switching busses. Remote switching simplifies layout by eliminating multiple video cable runs. No video is sent to the control panels. All video, con-

*NOTE: SYSTEM 8/4A-MARK VI-AR-102
SPECIAL EFFECTS

SYSTEM 8/4F-MARK VII-D-202
SPECIAL EFFECTS



SYSTEMS 8/4A, 8/4F CROSSPOINT DIAGRAM

trol, tally and power circuits plug into two rack-mounted connector frames. Pushbuttons are properly spaced and color-coded for error-free operation. Mix/effects busses are green, preview busses are yellow, and program busses are red.

Modular, Solid State System

The 8/4A and 8/4F systems consist of a combination of compact, solid state building block modules—the PTS-51 (5 inputs, 1 output) switcher, the PTS-31A (3 inputs, 1 output) switcher, the PLA-2A lap dissolve amplifier, and either the Mark VI-AR-102 (in the 8/4A) or the Mark VII-D-202 (in the 8/4F) special effects generators. These are all space saving, rack mounted units equipped with plug-in video inputs and outputs using standard BNC connectors, and interconnected as shown in the diagram. The Mark VI-AR-102 is designed only for monochrome. The Mark VII-D-202 handles both color and monochrome. The two switching systems are otherwise identical and both are timed to equalize the delays through all switching paths. For details of the switching and lap dissolve modules, see Catalog PTV.1550. Mounted also in the 19-inch rack are connector frames for plug-in system interconnections. The 3/4A and 8/4F systems are shipped assembled, wired and tested. No soldering or wiring is necessary for installation.

Switching Action ..... Reed relay overlap switching

Switching Busses

Non-Composite ..... Mix/Effects A
Mix/Effects B
Preview/Key
Program

Composite ..... Preview
Program

Pushbuttons ..... Mechanically interlocked, color-coded, illuminated, on ¾" centers

Video Inputs ..... 8 non-composite nominal 0.7 Volt p-p; 4 composite nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination

Pulse Input ..... Nominal 4.0 Volts p-p EIA or CCIR sync

Outputs (Preview, Program) ..... Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled

Video Gain ..... Unity (adjustable)

Camera Tally ..... Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)

Video and Pulse Connectors ..... Type BNC

Power Input ..... AC: 115 Volts ±10%, 60 Hz, 85 Watts; DC: 24 Volts ±10%, 385 mA (control panel tally lamps and sync drop relays)

Note: PTS-1 Systems 8/4A and 8/4F available for 230 Volt, 50/60 Hz operation on special order.

	Performance Specifications	Typical Production Systems
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 10 MHz ± less than 1.0 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.7%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.3%
Differential Phase: (10% to 90% APL)	less than 1.0°	less than 0.4°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	59 dB at 100 kHz 48 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	51 dB
Path Delay: (Input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:	Width	Height	Depth
Switcher Control Panels	19" (48.2 cm)	10½" (26.6 cm)	6" (15.2 cm)
Effects Control Panels	19" (48.2 cm)	5¼" (13.3 cm)	6" (15.2 cm)
Rack Equipment	19" (48.2 cm)	14" (35.6 cm)	16" (40.6 cm)

Weight:

Control Panels ..... Approx. 15 lb. (6.8 kg)
Rack Equipment ..... Approx. 75 lb. (34 kg)

Finish:

Control Panels ..... Aluminum epoxy
Rack Mounted Modules ..... Black and silver front panels

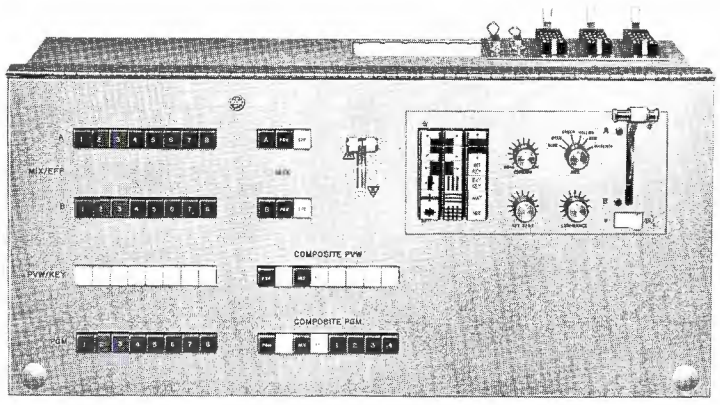
Accessories

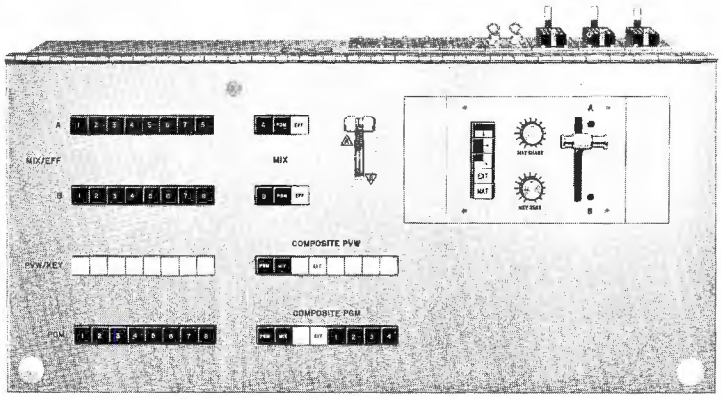
PS-24 Regulated 24 Volt DC Power Supply for Camera and Control Panel Tally Lights and Sync Drop Relays MI-3537
Mark VII Pattern Card #3 (3 additional wipes) MI-47972-D
Mark VII Pattern Card #4 (non-additive mix) MI-47972-E
Mark VII Color Synthesizer Card MI-47972-F

Ordering Information

PTS-1 Video Switching System 8/4A including:
Switcher Control Panel
Special Effects Control Panel
Rack-mounted equipment in short rack
Mark VI-AR-102 Special Effects
(5) 50' control cables

PTS-1 Video Switching System 8/4F including:
Switcher Control Panel
Special Effects Control Panel
Rack-mounted equipment in short rack
Mark VII-D-202 Special Effects
(5) 50' control cables





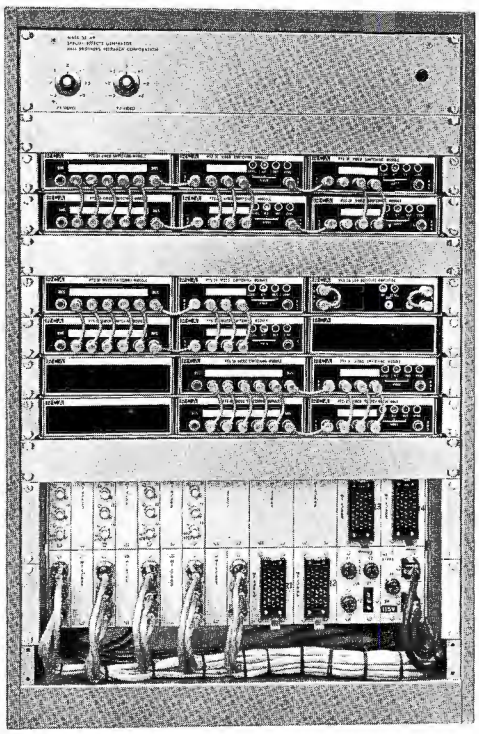
PTS-1 Video Switching Systems

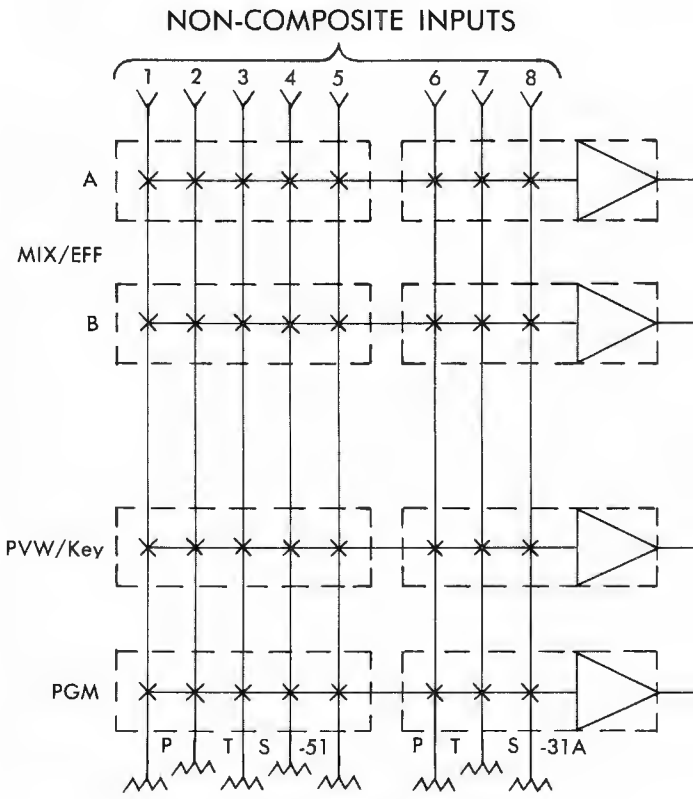
PTS-1 Video Switching Systems 8/4C and 8/4D are professional programming centers with unsurpassed flexibility for small broadcast or closed circuit TV systems in education, industry and the military. With mixing and special effects combinations, these systems easily achieve switching transitions that were once possible only on the most sophisticated switchers. PTS-1 System 8/4D is distinguished from the 8/4C by a special effects system that demonstrates excellent capabilities in color in addition to outstanding monochrome performance. These otherwise identical systems accommodate eight non-composite and four composite picture sources.

Programming Creativity

These systems offer numerous opportunities for creative programming. Through two auxiliary switching modules, the 8/4C and 8/4D create a variety of video transitions by combining special effects and lap dissolve facilities. Systems 8/4C and D are designed to achieve these program subtleties with only four non-composite switching busses —Program, Preview/Key and A and B Mix-Effects busses. A highlight of the design is the ability to select non-composite program or special effects video on either input of the lap dissolve amplifier. Thus, dissolves between program video and special effects sources become additional choices on this extremely flexible switcher.

With signals from the A and B busses, the special effects unit generates horizontal, vertical and corner wipes, split screens, inserts, and matting between any of the non-composite sources. The non-composite preview bus is also looped through the External Keying input of the special effects generator. This makes it possible to select the special effects external keying input signal for "third camera keying" to produce wipes and patterns that are impossible to generate electronically. The "Mat" capability permits insertion of B bus titles into A bus





PTS-1 VIDEO

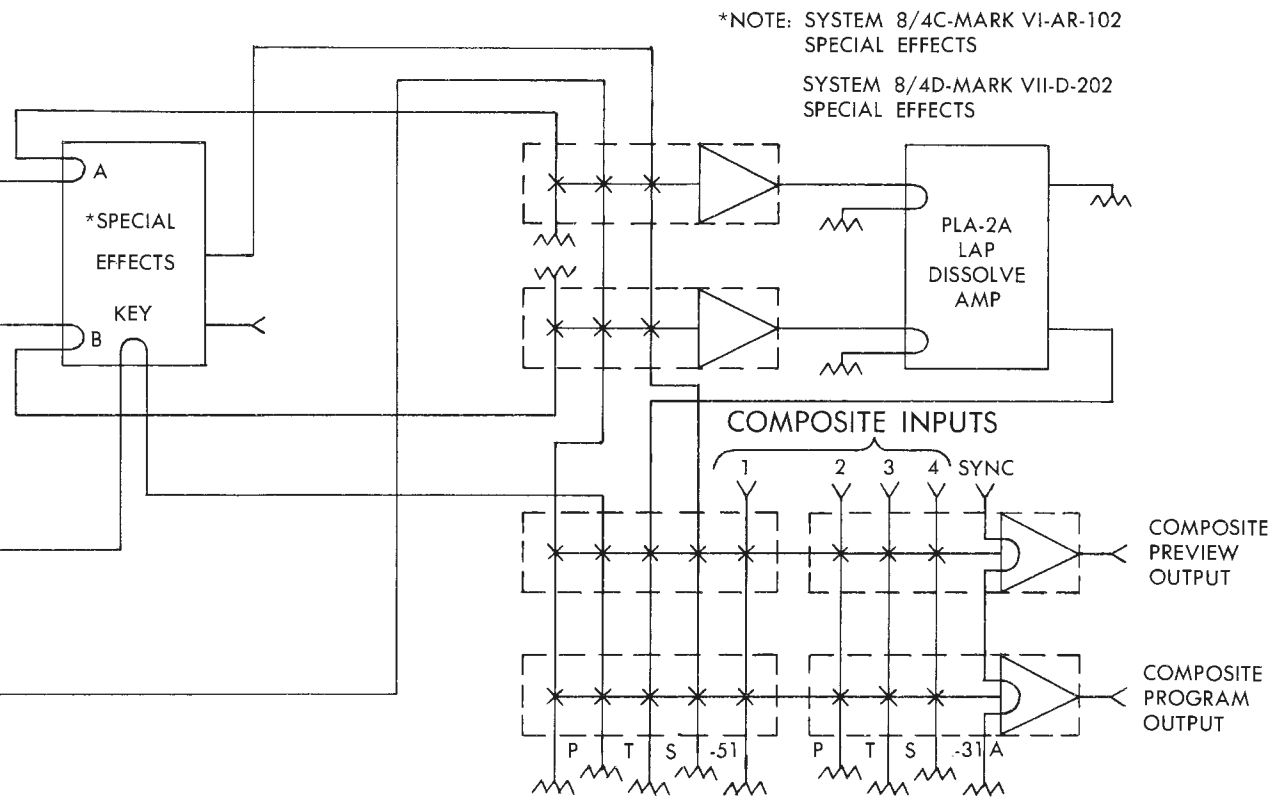
video. Mat video level is continuously variable between black and white and can be controlled from the effects panel allowing adjustment of title video level.

The lap dissolve amplifier makes possible fading to and from black (with an unused video input), and dissolving between synchronous non-composite sources.

"Crossfeeding" of the *non-composite* program and preview video into the *composite* preview and program busses offers opportunity for other program material to be rehearsed or taped through the preview output while the program line continues uninterrupted. Crossfeeding also assures program continuity in the event of failure of a picture source or system component.

Smooth Remote Switching

Mechanically interlocked, illuminated pushbuttons actuate reed relays in the solid-state switching modules to switch the video signals. Simultaneously the pushbuttons energize control panel tally lights on camera tally circuits. Switched signals overlap for 2 to 3 milliseconds, offering a smooth transfer of pictures and avoiding picture "roll-over" when switching synchronous composite signals. When any of the non-composite inputs are selected for programming, sync is added in the PTS-31A switching modules at the output of the composite switching busses eliminating switching disturbances in the sync signal. Remote switching simplifies layout by



WITCHING SYSTEMS 8/4C, 8/4D CROSSPOINT DIAGRAM

eliminating multiple video cable runs. No video is sent to the control panel. All video, control, tally and power circuits plug into two rack-mounted connector frames. Push-buttons are adequately spaced and color-coded for error-free operation. The Mix/Effects bus is green, Effects is white, Preview is yellow, and Program is red.

Modular, Solid State System

The 8/4C and 8/4D systems consist of a combination of compact solid state building block modules—the PTS-51 switcher (5 inputs, 1 output), the PTS-31A switcher (3 inputs, 1 output), the PLA-2A lap dissolve amplifier, and either the Mark VI-AR-102 (in the 8/4C) or the Mark VII-D-202 (in the 8/4D) special effects generators. These are all space saving, rack mounted units equipped with plug-in video inputs and outputs using standard BNC connectors, and interconnected as shown in the diagram. The Mark VI-AR-102 is designed for monochrome, the Mark VII-D-202 handles both color and monochrome.

The two switching systems are otherwise identical and both are timed to equalize the delays through all switching paths. For details of the switching and lap dissolve modules, see Catalogs PTV.1550 and PTV.1406. Mounted also in the 19-inch rack are connector frames for plug-in system inter-connection. The 8/4C and 8/4D systems are shipped assembled, wired and tested. No soldering or wiring is necessary for installation.

Switching Action .....Reed relay overlap switching

Switching Busses

Non-Composite .....Mix/Effects A
Mix/Effects B
Preview/Key
Program
2 Aux. Mix Busses

Composite .....Preview
Program

Pushbuttons .....Mechanically interlocked, color-coded, illuminated, on ¾" centers

Video Inputs .....8 non-composite, nominal 0.7 Volt p-p; 4 composite, nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination

Pulse Input .....Nominal 4.0 Volts p-p EIA or CCIR sync

Outputs (Preview, Program) .....Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled

Video Gain .....Unity (adjustable)

Camera Tally .....Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)

Video and Pulse Connectors .....Type BNC

Power Input .....AC: 115 Volts ±10%, 60 Hz, 120 Watts; DC: 24 Volts ±10%, 465 mA (control panel tally lamps and sync drop relays)

Note: PTS-1 Systems 8/4C and 8/4D available for 230 Volts, 50/60 Hz operation on special order.

	Performance Specifications	Typical Production Systems
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 10 MHz ± less than 1.0 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.7%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.5%
Differential Phase: (10% to 90% APL)	less than 1.0°	less than 0.3°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	57 dB at 100 kHz 48 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	50 dB
Path Delay: (input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:

	Width	Height	Depth
Control Panel	30" (76.2 cm)	14" (35.6 cm)	6" (15.2 cm)
Rack Equipment:			
PTS-1 System 8/4C	19" (48.2 cm)	26¼" (66.6 cm)	16" (40.6 cm)
PTS-1 System 8/4D	19" (48.2 cm)	28" (71.1 cm)	16" (40.6 cm)

Weight:

Control Panel .....Approx. 20 lb. (9.1 kg)
Rack Equipment .....Approx. 80 lb. (36.3 kg)

Finish:

Control Panel .....Aluminum epoxy
Rack Mounted Modules .....Black and silver front panels

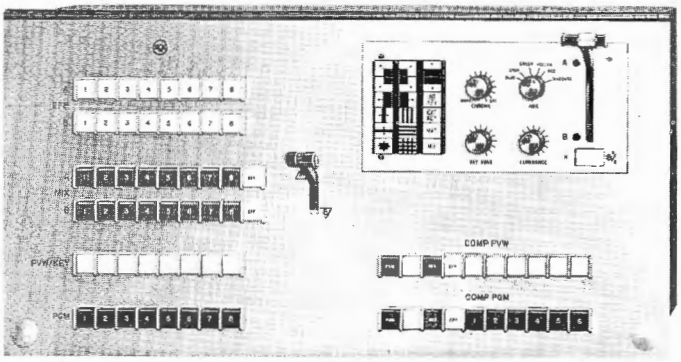
Accessories

PS-24 Regulated 24 Volt DC Power Supply for Camera and Control Panel Tally Lights and Sync Drop Relays MI-3537
Mark VII Pattern Card #3 (3 additional wipes) MI-47972-D
Mark VII Pattern Card #4 (non-additive mix) MI-47972-E
Mark VII Color Synthesizer Card MI-47972-F

Ordering Information

PTS-1 Video Switching System 8/4C including:
Switcher Control Panel
Special Effects Control Panel
Rack-mounted equipment in short rack
Mark VI-AR-102 Special Effects
(5) 50′ Control Cables

PTS-1 Video Switching System 8/4D including:
Switcher Control Panel
Special Effects Control Panel
Rack-mounted equipment in short rack
Mark VII-D-202 Special Effects
(5) 50′ Control Cables



PTS-1 Video Switching Systems

PTS-1 Video Switching Systems 8/6C and 8/6D are professional programming centers with exceptional flexibility for color and monochrome studio installations, especially where sophisticated mixing and special effects are required. These compact, modular systems provide the versatility of a single re-entry switching path at a fraction of the cost of other re-entry switching systems. In addition, a wide range of established programming transitions such as lap dissolves, fades, inserts, wipes, mats and keying are available at the touch of a button.

System 8/6D is distinguished from the 8/6C by feather-touch, momentary contact pushbutton switches. The 8/6C is operated by smoothlacting, mechanical interlock pushbuttons. Both systems have full preview capabilities. And both accommodate complex programming and preview functions from as many as eight non-composite and six composite sources. Three isolated outputs are provided on both the composite preview and program outputs.

Re-entry Extends Programming

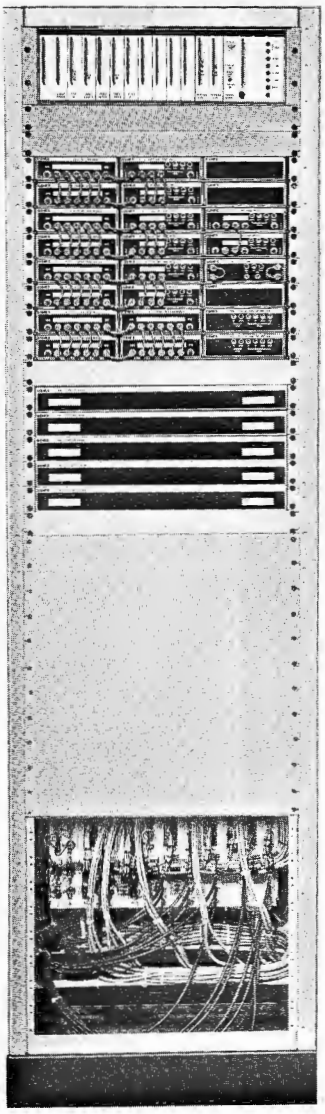
A single economical re-entry design(effects into mix) in Systems 8/6C and 8/6D offer many opportunities for creative programming. Combining special effects with mixing facilities makes possible a wide variety of video transitions, such as fading into or out of an effect. Operational flexibility is achieved with six non-composite switching busses —i.e. the program, the preview/key, two mixing, and two effects busses. The single re-entry design adds programming versatility by providing one of the special effects outputs as an input to the lap dissolve amplifier.

Switching Flexibility

A design highlight of this system is the ability to select the output of any of the non-composite switching busses (effects, mix, preview or program) on either of the composite busses (preview and program). Also, each non-composite or composite video source may be previewed without affecting the program output. This built-in design flexibility provides a popular additional feature—a non-composite program source can be selected on the composite program bus while a dissolve into an effect can be previewed using the mix, effects, and composite preview busses. The composite preview bus can also be used to feed a television tape recorder or second program line while the composite program bus is in use. Program and preview crossfeeding also assures program continuity in the event of component failure.

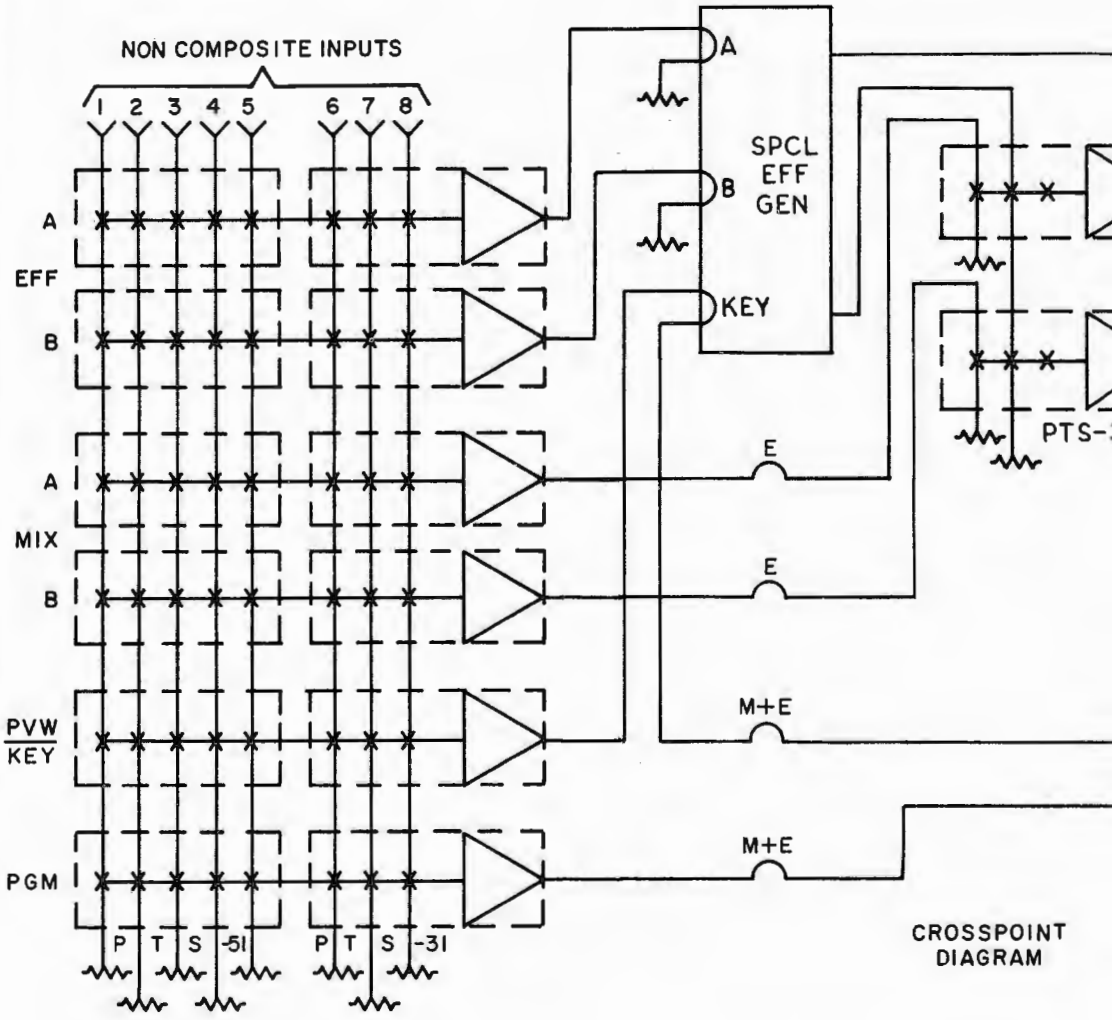
Distinctive Mixing and Effects

The special effects unit generates horizontal, vertical and corner wipes, split screens, inserts, and matting between any of the non-composite sources. The non-composite preview bus is also looped through the external keying input of the special effects generator. This permits se-



NON-COMPOSITE INPUTS
Eight non-composite inputs accept live camera pickups, films, slides, lab demo close-ups.

SINGLE RE-ENTRY
Imaginative mixing and effects combinations are possible by a single re-entry line from effects into mix.

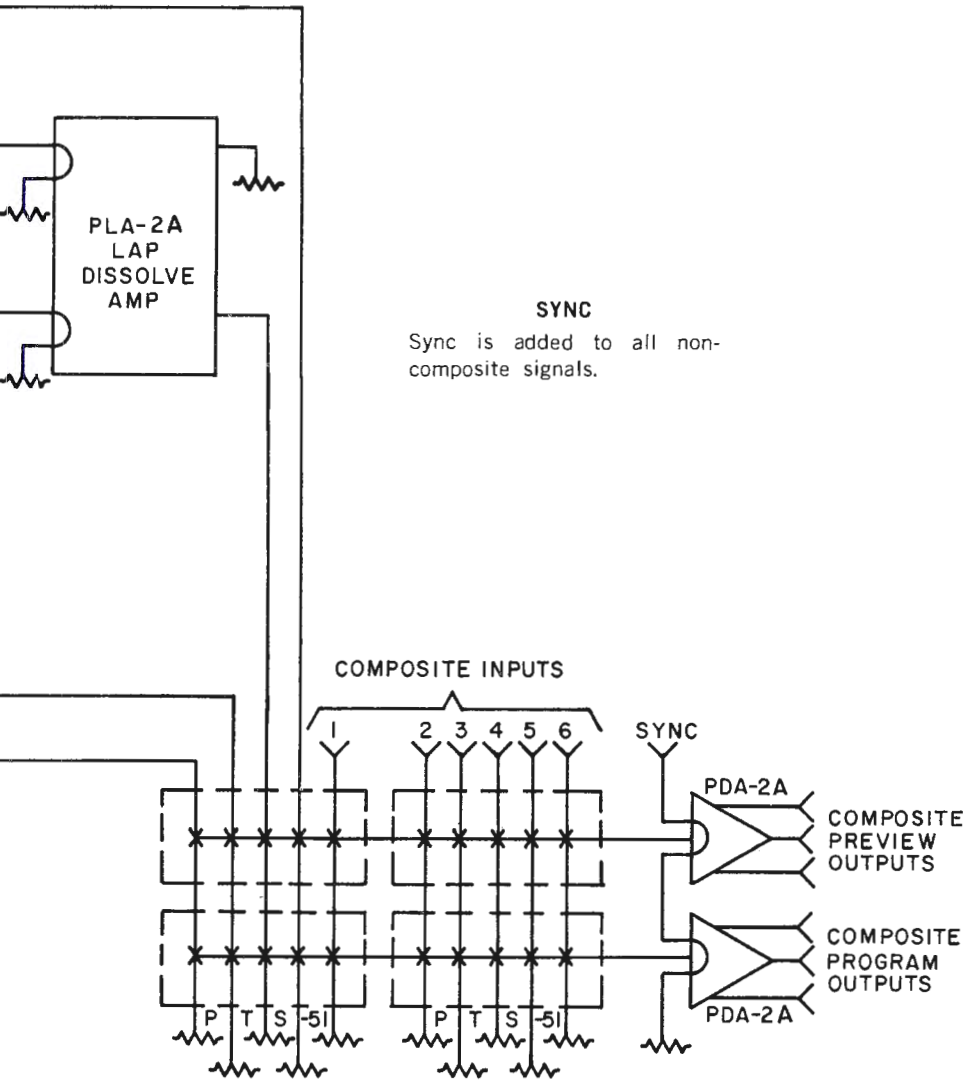


OUTPUTS
Separate preview and program channels permit all program sources to be previewed.

KEYING & SPECIAL EFFECTS
Effects Generator creates wipes, split screens, inserts, mats. Preview keying loop permits selection of "third camera" external keying source.

PTS-1 Video Switching Systems 8/6C and 8/6

LAP DISSOLVE
Mixing flexibility includes fades and dissolves on program and effects sources.



rosspoint Diagram

lection of external "third camera keying" and makes possible wipes and patterns that are impossible to generate electronically. Titles can be keyed into the "A' bus video by using the "Mat" feature. Video level of the "mat" signal (E.G.—Titles) is continuously variable between black and white and is controlled from the effects control panel.

The lap dissolve amplifier makes possible fading to and from black (with an unused video input) and dissolving between synchronous non-composite sources.

Modern Control Center

The switching and effects panel of the 8/6C and 8/6D is a modern attractive control center designed for easy, error-free operation. The control panel, which contains the effects panel, can be installed in a mounting base or table designed to accommodate a 24-inch wide panel. Illuminated and color-coded push-buttons provide a lighted "road-map" to the program, preview, mix, and effects busses. Pushbuttons are spaced for ample finger room.

System 8/6C is equipped with smooth-acting, mechanically interlocked pushbuttons that provide simultaneous video switching logic, sync logic, camera tally, and control panel tally circuits. System 8/6D employs momentary contact push-button switches for maximum operator convenience in heavy-load programming situations. Pushbuttons instantly energize rack-mounted relays which control switching logic, camera tally, and control panel tally. The two systems are otherwise identical.

Smooth Remote Switching

Control panel pushbuttons actuate reed relays in the solid-state switching modules to switch the video signals. Switched signals overlap for several milliseconds, offering a smooth transfer of pictures and avoiding picture "roll over" when switching synchronous composite signals. When any of the non-composite inputs are selected for programming, sync is added in the PDA-2A distribution amplifiers at the outputs of the program and preview switching busses. Remote switching simplifies layout by elimi-

nating multiple video cable runs. No video is sent to the control panel. All video, control tally and power circuits plug into two rack-mounted connector frames.

Modular, Solid State System

The 8/6C and 8/6D systems consist of a combination of compact solid state building block modules—the PTS-51 switcher (5 inputs, 1 output), the PTS-31A switcher (3 inputs, 1 output), the PLA-2A lap dissolve amplifier, and the PDA-2A distribution amplifier — plus the Mark VIII-D-202 special effects generator and the PRF-IV relay frame (in the 8/6D only). These are all space saving, rack-mounted units equipped with plug-in video inputs and outputs, standard BNC connectors, and interconnected as shown in the diagram. The Mark VII-D-202 unit handles both color and monochrome signals with no degradation, and the entire switching system is "timed" to equalize path delays. For details of the switching and lap dissolve modules, see Catalog PTV. 1550. Mounted also in the 19-inch rack are connector frames and blank modules. System 8/6C is shipped in a short 19″ rack frame whereas the 8/6D is packaged in the standard 77″ equipment rack. The 8/6C and 8/6D systems are shipped assembled, wired and tested. No soldering or wiring is necessary at installation.

Specifications

Switching Action ..... Reed relay overlap switching

Switching Busses
- Non-composite ..... Effects A, Effects B, Mix A, Mix B, Preview/Key, Program, Aux Mix Busses
- Composite ..... Preview, Program

Pushbuttons
- 8/6C ..... Mechanically interlocked, color-coded illuminated, on ¾″ centers
- 8/6D ..... Momentary contact, color-coded, illuminated, on ⅞″ centers

Inputs ..... 8 non-composite video at nominal 0.7 Volt p-p; 6 composite video at nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination

Pulse Input ..... Nominal 4.0 Volts p-p EIA or CCIR sync

Outputs, Isolated (3 preview, 3 program) ..... Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled

Video Gain ..... Unity (adjustable)

Camera Tally ..... Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)

Video and Pulse Connectors ..... Type BNC

Power Input ..... AC: 115 Volts ±10%, 60 Hz, 200 Watts DC: 24 Volts ±10%, 465 mA (control panel tally lamps and sync drop logic control)

Note: PTS-1 Systems 8/6C & 8/6D available for 230 Volt, 50/60 Hz operation on special order.

	Performance Specifications	Typical Production Systems
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 8 MHz ± less than 0.8 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.8%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.4%
Differential Phase: (10% to 90% APL)	less than 1.0°	less than 0.5°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	54 dB at 100 kHz 46 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	49 dB
Path Delay: (input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:	Width	Height	Depth
8/6C Control Panel	24″ (60.9 cm)	16″ (40.6 cm)	6″ (15.2 cm)
8/6C Rack Equipment	19″ (48.2 cm)	28″ (71.1 cm)	16″ (40.6 cm)
8/6D Control Panel	28″ (71.1 cm)	14″ (35.5 cm)	6″ (15.2 cm)
8/6D Rack Equipment	19″ (48.2 cm)	38½″ (97.8 cm)	16″ (40.6 cm)

Weight (Approx.):	8/6C	8/6D
Control Panel	25 lb. (11.4 kg)	20 lb. (9.1 kg)
Rack Equipment	95 lb. (43.2 kg)	200 lb. (91.0 kg)

Finish:

Control Panel ..... Aluminum epoxy

Rack Mounted Modules ..... Black and silver front panels

Accessories

PS-24 Regulated 24 Volt DC Power Supply for control panel tally lights and sync drop control MI-3537

Pattern Card #3 for Mk VII Special Effects (3 additional wipes) MI-47972-D

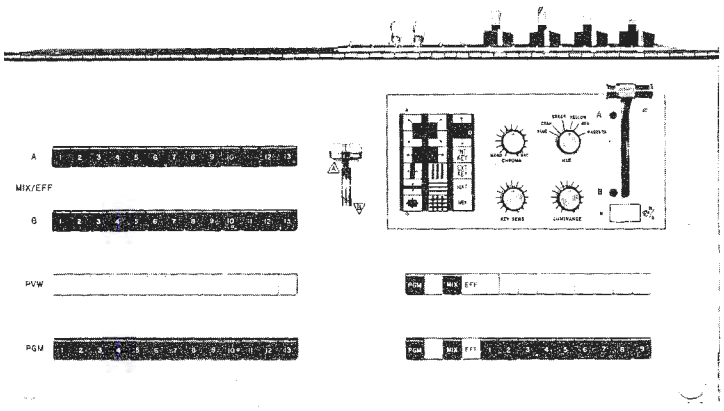
Pattern Card #4 for Mk VII Special Effects (non-additive mix) MI-47972-E

Color Synthesizer Card for Mk VII Special Effects MI-47972-F

Ordering Information

PTS-1 Video Switching System 8/6C including:
- Control Panel with Mechanical Interlock Pushbuttons
- Rack-Mounted Equipment
- 50′ Control Cables

PTS-1 Video Switching System 8/6D including:
- Control Panel with Momentary Contact Pushbutton Switches
- Rack-Mounted Equipment
- 50′ Control Cables



PTS-1 Video Switching System

Description

PTS-1 Video Switching System 13/9A is a professional programming center offering ideal control capabilities for studio installations employing a large number of picture sources. Broadcast-oriented design provides the flexibility of larger, more expensive switchers in a compact package at moderate cost. The 13/9A permits direct switching of nine composite inputs and 13 additional non-composite picture sources and provides for fades, lap dissolves, keyed inserts and a variety of special effects—all with full preview capability. The system demonstrates excellence in both color and monochrome performance.

Functional Design

Contributing to the economy of the 13/9A design is the use of common switching busses for both mixing and special effects. Thus, all 13 non-composite inputs are available for mixing and effects. Further, a "crossfeeding" feature permits the output of the non-composite switching busses to be selected on the composite preview and program busses. This interchange offers opportunity for program material to be separately rehearsed or taped through the preview output while the program continues uninterrupted. Crossfeeding also assures program continuity in the event of failure of a system component.

Program Flexibility

The PLA-2A lap dissolve amplifier makes possible fading to and from black (with an unused video input), and dissolving between synchronous non-composite video sources. The special effects unit generates horizontal, vertical and corner wipes, split screens, inserts, and matting between any of the non-composite sources. From the non-composite preview bus, the special effects generator accepts an external keying signal. The preview bus thus provides two functions and permits a choice of inputs for external keying. The special effects control panel is mounted within the switching control panel which can be installed in a console base or custom switching enclosure.

Modern Control Center

The switching and effects panel of the 13/9A is a modern and attractive control center for easy, error-free operation. Illuminated and color coded pushbuttons provide a lighted "roadmap" to mix/effects, preview and program busses. The smooth acting, mechanical pushbuttons are generously spaced for ample finger room.

Smooth Remote Switching

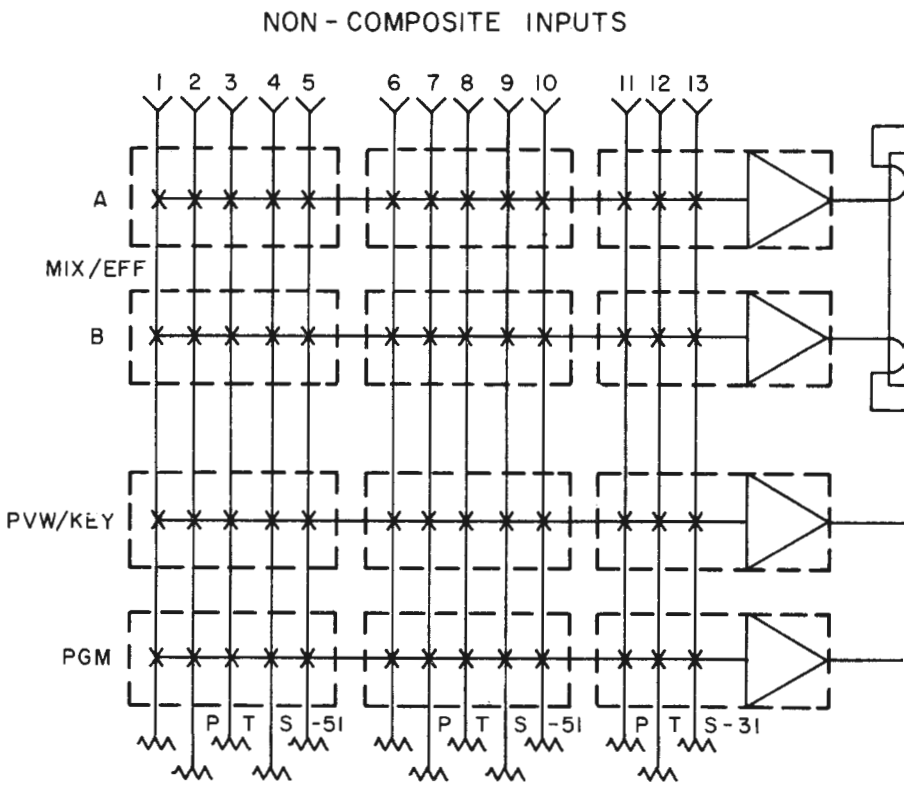
Control panel pushbuttons actuate reed relays in the solid-state switching modules to switch the video signals. Simultaneously, the pushbuttons energize tally lights on cameras and control panel. Switched signals overlap for 2-3 milliseconds, offering a smooth transfer of pictures and avoiding picture "roll over" when switching composite signals. When any of the non-composite inputs are selected for programming, sync is added in the PTS-31A switching modules at the output of the composite switching busses.

Remote switching simplifies layout by eliminating multiple video cable runs. No video is sent to the control panel. All video, control, tally and power circuits plug into two rack-mounted connector frames.

Modular, Solid State System

The 13/9A system consists of a combination of compact, solid state building block modules—the PTS-51 switcher (5 inputs, 1 output), the PTS-31A switcher (3 inputs, 1 output), the PLA-2A lap dissolve amplifier—plus the Mark VII-D-202 special effects generator which handles color or monochrome signals with no degradation. These are all space saving, rack mounted units equipped with plug-in video inputs and outputs, using standard BNC connectors, and interconnected as shown in the diagram. The system is "timed" to equalize the delays through all switching paths. For details of the switching and lap dissolve modules, see Catalog PTV.-1550. Mounted also in the 19-inch rack are connector frames which permit plug-in connections between the rack and control panel. The 13/9A system is shipped assembled, wired and tested. No soldering or wiring is necessary for installation.

NON-COMPOSITE INPUTS
Thirteen non-composite inputs accept live camera pickups, films, slides, lab demo closeups.

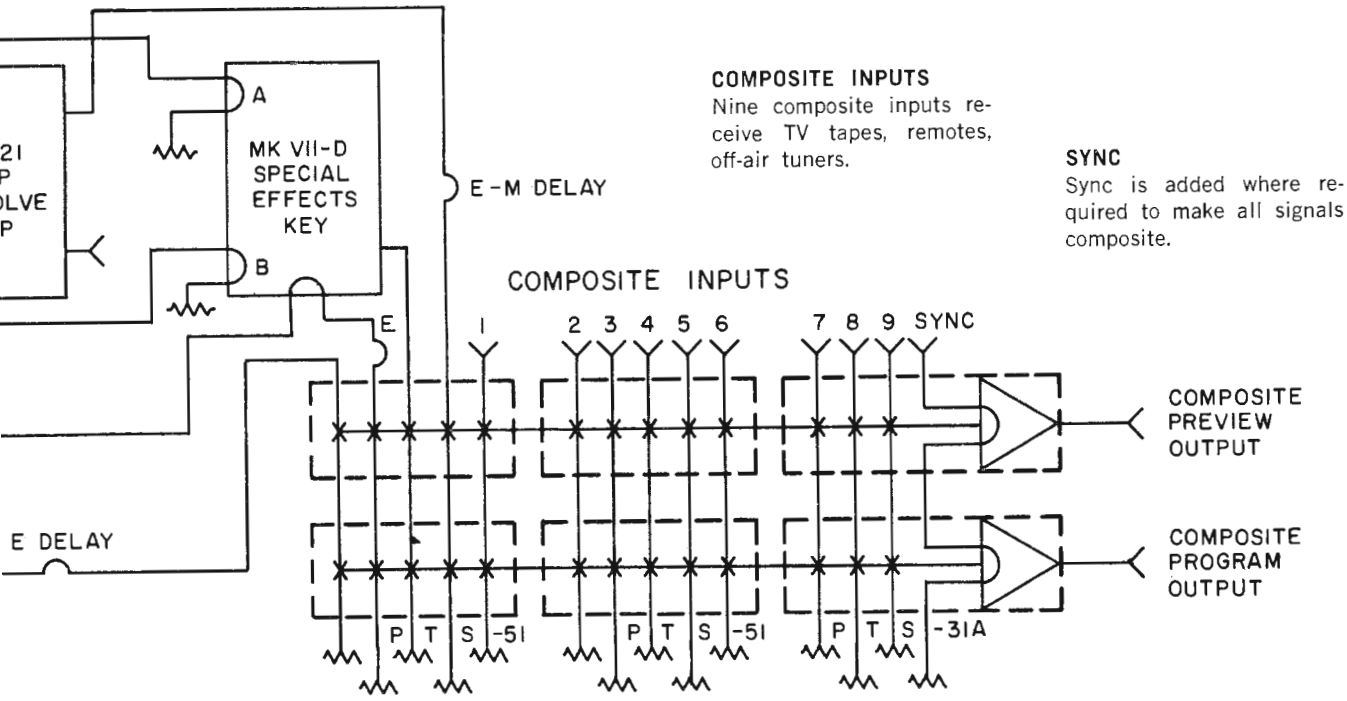


DIRECT-TAKE PROGRAM LINE
Direct line frees parts o system for rehearsals, pro gram editing, taping.

PTS-1 Vide

AP DISSOLVE
lixing techniques include ades and dissolves.

KEYING AND SPECIAL EFFECTS
Effects generator creates wipes, split screens, inserts, mats. Preview keying loop permits selection of input signal for external keying.



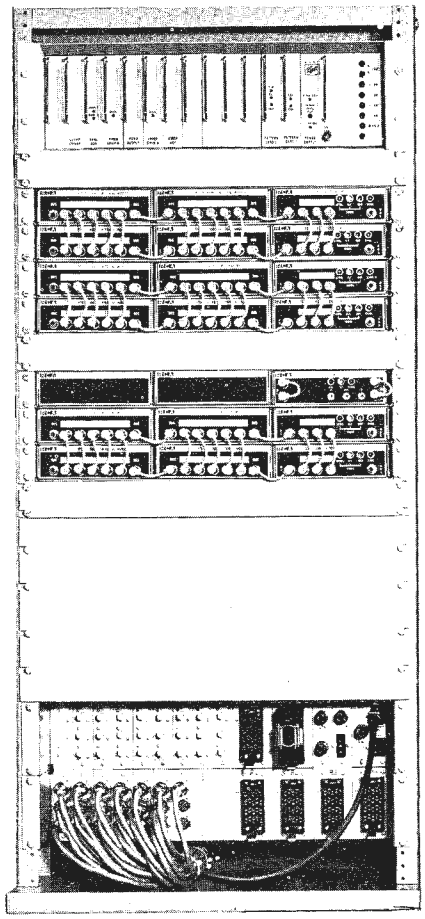
COMPOSITE INPUTS
Nine composite inputs receive TV tapes, remotes, off-air tuners.

SYNC
Sync is added where required to make all signals composite.

CROSSFEEDING
Video "Crossfeeding" assures program continuity, increases system flexibility.

OUTPUTS
Separate preview and program channels permit all sources to be previewed.

vitching System 13/9A Crosspoint Diagram



Switching Action ..... Reed relay overlap switching

Switching Busses

Non-composite ..... Mix/Effects A; Mix/Effects B; Preview/Key; Program

Composite ..... Preview; Program

Pushbuttons ..... Mechanically interlocked, color-coded, illuminated, on ¾" centers

Video Inputs ..... 13 Non-composite nominal 0.7 Volt p-p; 9 composite, nominal 1.0 Volt p-p; high impedance, looping inputs, 75 Ohm termination

Pulse Input ..... Nominal 4.0 Volts p-p EIA or CCIR sync

Outputs (preview, program) ..... Composite video, nominal 1.0 Volt p-p, 75 Ohms source terminated, AC coupled

Video Gain ..... Unity (adjustable)

Camera Tally ..... Contacts on pushbuttons wired to single, multipin connector for use with external DC source (not supplied)

Video and Pulse Connectors ..... Type BNC

Power Input ..... AC: 115 Volts ±10%, 50/60 Hz, 150 Watts DC: 24 Volts ±10%, 345 mA (control panel tally lamps and sync drop relays)

Note: PTS-1 System 13/9A available for 230 Volt 50/60 Hz operation on special order.

	Performance Specifications	Typical Production Systems
Frequency Response	60 Hz to 8 MHz ±1.0 dB	60 Hz to 10 MHz ± less than 1.0 dB
Tilt: (for a 60 Hz, 50% square wave)	less than 1%	less than 0.8%
Differential Gain: (10% to 90% APL)	less than 1%	less than 0.4%
Differential Phase: (10% to 90% APL)	less than 1.0°	less than 0.5°
Off-channel Rejection: (dB below 1 Volt p-p)	at least 50 dB at 100 kHz, 40 dB at 3.58 MHz	58 dB at 100 kHz 47 dB at 3.58 MHz
Spurious Hum & Noise: (dB below 1 Volt p-p)	45 dB	49 dB
Path Delay; (Input to output at 3.58 MHz)	3° or less	less than 1°

Dimensions:

	Width	Height	Depth
Control Panel	29" (73.6 cm)	14" (35.6 cm)	6" (15.2 cm)
Rack Equipment ..	19" (48.2 cm)	26.25" (66.6 cm)	16" (40.6 cm)

Weight:

Control Panel ..... Approx. 20 lb. (9.1 kg)

Rack Equipment ..... Approx. 80 lb. (36.3 kg)

Finish:

Control Panel ..... Aluminum epoxy

Rack Mounted Modules ..... Black and silver front panels

Accessories

PS-24 Regulated 24 Volt DC Power Supply for Camera and Control Panel Tally Lights MI-3537

Mark VII Pattern Card #3 (3 additional wipes) MI-47972-D

Mark VII Pattern Card #4 (non-additive mix) MI-47972-E

Mark VII Color Synthesizer Card MI-47972-F

Ordering Information

PTS-1 Video Switching System 13/9A including:

Control Panel.

Rack-mounted equipment in short rack.

50′ control cables.

Mark VII-D-202 Special Effects MI-47971

Video Distribution Amplifier,

The PDA-2A Video Distribution Amplifier is a compact, all solid state unit designed to accept a single monochrome or color input signal and provide three highly isolated video outputs to feed monitors, test positions or outgoing lines. The PDA-2A handles both composite and non-composite signals, and can be used to add sync to its three video output signals. A remotely operated sync-drop relay inhibits, on command, the addition of sync when not required. Sync gain, video gain and HF peaking controls are all located on the front panel of a module only 1¾ inches high, and 5¾ inches wide. Thus, the non-composite output of a video switcher can be looped through the PDA-2A to provide multiple outlets either with or without sync. Nominal cost, small size and reliable operation combine to make the PDA-2A a useful component in virtually any television system. Three PDA-2A modules offering three inputs and nine outputs mount side by side in an accessory PRA-2 frame that takes only 1¾ inches of space in a standard 19-inch rack.

High Performance Amplifier

Amplifier gain is continuously adjustable from −2 dB to +8 dB, permitting precise correction of a wide range of sub-standard signal levels. Frequency response is uniform within one dB to 10 MHz and higher, and excellent differential gain and phase performance in the PDA-2A make this advanced unit especially appropriate for use in both monochrome and color systems.

The video distribution amplifier employs standard semiconductors, and all performance specifications are achieved without need for selecting or matching transistors. Both video and sync inputs employ BNC type connectors; mating connectors are supplied with each unit. Inputs are high impedance and bridging to allow multiple loop-through operation. AC coupled outputs eliminate DC on the output lines.

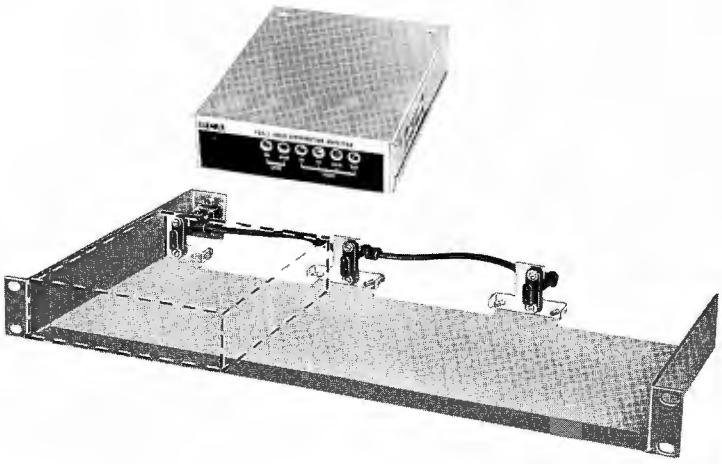
Printed Circuit, Modular Design

Components of the PDA-2A are mounted on a heavy duty glass epoxy printed circuit board and are enclosed in an attractive, dust-tight silver gray wrap-around cover with black and silver finish front panel. All screw-driver adjustment controls and test points for sync and video are available on the front panel.

The PDA-2A contains its own regulated power supply, and requires only 6 Watts of power from a 115/230 Volt, 50/60 Hz source. Power is fed to the unit through mating sections of a plug-in power connector on the rear apron of the module and on the PRA-2 rack mounting shelf. There are three of these connectors mounted at the rear of the PRA-2 Shelf for plugging in three PDA-2A modules. A plug-in power cord is included for use where shelf or rack mounting is not desired. Compact design and low power dissipation permit vertical stacking of frame-mounted amplifiers in minimum rack space.

Professional TV Equipment

Like the other components of RCA's Professional Television Equipment line, the PDA-2A may be employed in any high quality television system such as an instructional TV installation or other video distribution systems.



Specifications

Electrical

Video Input Level ..... 0.5-1.0 Volt peak-to-peak

Input Impedance ..... Nominal 7,000 Ohms bridging input; parallel BNC type connectors for loop-through operation

Gain ..... Adjustable, −2 db to +8 db

Outputs ..... Three isolated outputs, 1.0 Volt peak-to-peak composite; 0.7 Volt peak-to-peak non-composite

Sync Input ..... Nominal 4 Volts negative sync signal to bridging input. Output sync level adjustable from 0 to 0.4 Volt peak-to-peak. Parallel connectors for loop-through operation.

Sync-Drop Relay ..... Control connector on rear apron for remote control of sync function

Control Adjustments ..... Video gain; sync gain; high frequency peaking

Video and Pulse Connectors ..... Type BNC

Power Input ..... AC: 115/230 Volts ±10%, 50/60 Hz, 6 Watts; DC: 24 Volts ±10%, 12 mA

Test Points ..... Video In; Sync In; Video Out

Temperature Range ..... 4°F to 122°F (−20°C to 50°C)

Performance

	Guaranteed	Typical Production Unit
Isolation between Outputs @ 3.58 MHz	45 db	50 db
Frequency Response uniform to	10 MHz ±1 dB	10 MHz ±0.6 dB
Low Frequency Tilt less than	1.0% 60 Hz sq. wv.	0.8% 60 Hz sq. wv.
Differential Gain less than	1.0% 10-90% APL	0.5% 10-90% APL
Differential Phase less than	1.0° 10-90% APL	0.6° 10-90% APL
Internal Hum and Noise	50 dB below 1 V p/p	56 dB below 1 V p/p

Mechanical

Dimensions ..... 1⅝" high, 5¾" wide, 7⅝" deep (4.1 cm, 14.6 cm, 19.4 cm)

Weight ..... 2.25 lbs. (1.0 kg.)

Mounting ..... Table top with rubber feet installed, or up to three PDA-2A amplifiers in one PRA-2 rack-mounting frame 19" wide, 1¾" high, 10" deep

Power Cord, Detachable ..... 6 ft.

Finish ..... Silver gray sides and cover, black and silver panel

Ordering Information

Type PDA-2A Video Distribution Amplifier MI-47751-C

Type PRA-2 Rack Mounting Frame MI-47752-A

75-Ohm Termination Plug MI-47761-3

Pulse Distribution Amplifier,

The PDA-10 Pulse Distribution Amplifier is a compact, solid state device designed for use in high performance monochrome or color TV systems. Featuring economy of space and low power consumption, the PDA-10 accepts standard TV sync, drive, blanking or burst flag signals; re-shapes the input signal to provide clean pulses with fast rise and decay times; and provides five 75-Ohm source-terminated outputs for simultaneous distribution of pulses to cameras, tape machines, film or other TV units. High isolation of 40 dB is provided between output signals. Performance is stabilized against line voltage and temperature changes.

Constant Output Level

The PDA-10 drives five 75-Ohm output coaxial lines at a peak-to-peak pulse amplitude of 4.0 Volts. All outputs are source-terminated to minimize signal reflections due to coaxial cable impedance non-uniformities. When properly terminated, all outputs exhibit less than 2 percent overshoots. A front panel control is used to set the 4-Volt peak-to-peak output level. An AC coupled output eliminates any need for DC balancing adjustments and provides DC isolation from the output line.

Pulse Shaping

Pulse shaping circuitry is incorporated in the PDA-10 to restore the waveshape of pulses degraded by passing through delay lines or long cable runs. A reference level on the leading and trailing edges of the input pulse, selected by the Clip Level Control, actuates a transistor switch which remains *on* as long as the input pulse remains above the reference level. Exclusive circuitry in the PDA-10 assures rapid transitions from *off* to *on* and vice versa, thus eliminating the pulse widening effect normally found in amplifiers using pulse clipping techniques only.

Output pulse rise time is independent of the rise and decay times of the input pulse and never exceeds 0.15 microsecond. In addition, pulse width is restored to its original state as long as the input pulse rise and decay times remain less than 0.4 microsecond. While input rise and decay times as high as 1.0 and 4.0 microseconds respectively may be accepted by the PDA-10, the output pulse will be wider than the input pulse. Minor adjustment of the output pulse width is provided by the Clip Level Control.

Bridging Input

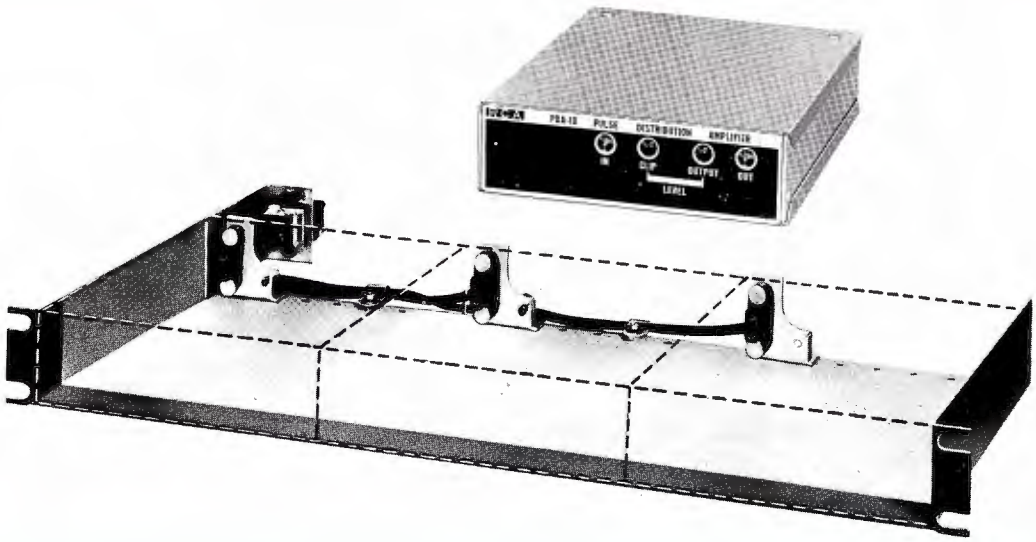
The PDA-10 input circuit is designed for the nominal 4 Volt signal and is bridged to permit looped-through connections via BNC connectors to multiple amplifiers. Input impedance is greater than 10,000 Ohms. The amplifier input is protected against accidental input surges of DC levels up to ±200 Volts.

Modular Design

Three PDA-10 modules providing 15 isolated outputs can be mounted side-by-side in a single 1¾-inch high PRA-2 rack mounting frame. Components of the PDA-10, including built-in power supply, are mounted on glass epoxy printed circuit boards and completely enclosed in an attractive wrap-around chassis finished in aluminum and black. Signal input and output connections are through BNC type connectors on the rear apron of the module. Input and output signal levels are easily checked using test points on the front panel.

Universal Power Supply

A built-in solid state power supply utilizes transistor series regulators, a precise zener diode voltage reference and a universal power transformer. The primary power source may be 48 to 62 Hz at either 100 to 130 Volts or 200 to 260 Volts with a power consumption of only six Watts.



Specifications

Input Characteristics:

- Signal Level: 1.5 Volts to 8.0 Volts peak-to-peak (4.0 Volts nominal input level)
- Impedance: Greater than 10,000 Ohms, power on or off
- Type of Input: Bridging, loop through connections
- Input Signal Rise Time (to maintain correct output pulse width): 0.4 microsecond, max.
- Input Signal Decay Time (to maintain correct output pulse width): 0.4 microsecond, max.
- Input Protection: Application of voltages up to ±200 Volts DC without damage to amplifier

Output Characteristics:

- Number of Outputs: 5
- Output Impedance: 75 Ohms, source-terminated, AC coupled
- Isolation, Output to Output: 40 dB min.
- Isolation, Output to Input: 60 dB min.
- Output Signal Level: 4.0 Volts peak-to-peak, adjustable ±10% into 75 Ohm load; overshoots less than 2%
- Rise and Decay Time: 150 nanoseconds, max., 10% to 90% APL
- Signal Delay: 200 ±50 nanoseconds
- Low Frequency Tilt: Less than 1% one vertical blanking pulse
- Noise Level: 60 dB below nominal 4.0 Volt peak-to-peak output
- DC on Output: Less than 2 millivolts
- Power Requirements: 115/230 Volts ±10%, 48 to 62 Hz, 6 Watts
- Input/Output Connectors: BNC connectors for looping input and five outputs; mating BNC connectors supplied
- Operating Temperature: 0°C to 50°C
- Dimensions: 1.6″ high, 5.7″ wide, 7.5″ deep (4.0 cm, 14.2 cm, 18.7 cm)
- Weight: 2.5 lbs. (1.1 kg.)
- Mounting: Table top with rubber feet installed, or up to 3 PDA-10 amplifiers in one PRA-2 rack mounting frame 19″ wide, 1¾″ high, 10″ deep (47.5 cm, 4.3 cm, 25.4 cm)
- Finish: Silver gray sides and cover, black and silver front panel

Accessories

- Power Cord (for table top mounting): MI-47768
- Rack Adaptor (mounts 3 PDA-10 units): MI-47752-A
- BNC Connector (solder type for RG-59B/U): MI-47861
- BNC Type 75-Ohm Termination: MI-47761-3

Ordering Information

- PDA-10 Pulse Distribution Amplifier: MI-47765

Lap Dissolve Amplifier, Type PL

Description

Bounce-Free Lap Dissolves

The PLA-2A Lap Dissolve Amplifier is a compact, all solid-state module designed to accept any two video signals from sources such as TV cameras, tape or film systems and combine them to produce smooth, bounce-free lap dissolves, fades and super-impositions.

Both color and monochrome signals are readily accommodated in the PLA-2A. Moreover, excellent dissolve linearity makes it possible to lap synchronous composite signals at any speed without the risk of losing proper sync level and causing receiver roll-over.

Table Top or Rack Mounting

Components of the PLA-2A are assembled on printed circuit boards and packaged in attractive wrap-around chassis with black and silver front panel for either table top or rack mounting. The unit includes a self contained regulated power supply and, rack mounted, utilizes one-third of the available space in a PRA-2 Rack Adaptor from which it obtains primary 115/230 Volt AC power. Any combination of three PLA-2A, PTS-31A, PTS-51 or PDA-2A modules can be mounted in a single PRA-2. For table top mounting, removable rubber feet are supplied with the PLA-2A unit. For use in this manner, an optional MI-47768 power cord is required.

Expands Versatile Switching Center

Control of the additive type PLA-2A mixing amplifier is provided by hand operated fader levers. Usually mounted on the switching control panel, the fader lever assembly provides remote DC control of the PLA-2A lap dissolve unit which, when combined with the PTS-31A or PTS-51 switching modules, offers a completely versatile, centralized video switching and control center. The fader levers control potentiometers operating in low level DC control circuits and can be located at any reasonable distance from the PLA-2A module.

An exclusive feature of the PLA-2A is that the video output never exceeds 100 percent of the input level regardless of relative fader lever positions, eliminating the possibility of overloads which appear as blooming, clipping, or streaking of the picture. A fade to black is achieved by a locked-lever fade to an unused input, since the fader levers can be split only in the "on" direction.

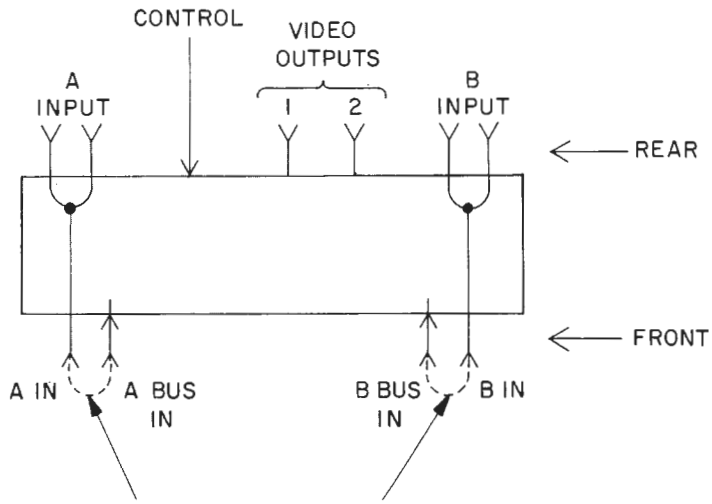
The MI-47845 Lap Dissolve Lever Assembly includes two SPST microswitches, one of which is actuated at each end of the lever travel. Each switch may be used to operate a single tally or sync drop logic circuit. When multiple limit-switch circuit control is required, the

MI-47846 Lever Assembly is used. MI-47846 includes MI-47845 plus a relay assembly (MI-47847), complete with plug-in relays, each of which incorporates 4 sets of "C" contacts to accommodate requirements for switching multiple circuits such as camera tallys, sync drop relays, etc.

Bridging inputs permit looping signals through the PLA-2A to other units such as video effects equipment, or terminating by attaching BNC 75 Ohm terminations (MI-47761-3). Mounted on the front panel are two jacks for each video input (see block diagram). One connects to the looping inputs on the rear, and the other is a high impedance bus input that can be jumpered by a molded patch cord either to the PLA-2A rear panel input jacks or to bus connections on other modules such as the PTS-31A or PTS-51. These connector arrangements provide the utmost flexibility in switcher assembly. Two well isolated 75 Ohm video outputs are provided through BNC connectors on the rear of the PLA-2A. One of these is normally used as a program output, while the other is available for monitoring or for possible re-entry into a special effects bus.

The PLA-2A is compatible with any video switching system using synchronous signals: that is, signals timed by a common sync generator. Mixing of "Genlocked" remote and local video signals can be accomplished by use of the PLA-2A, when either both signals are composite or both are non-composite. Linearity of the dissolve circuit of the PLA-2A is such that the peak-to-peak output video amplitude will not vary more than 5 percent when dissolving between two identical inputs.

Front panel controls include an output video level adjustment to maintain unity gain through the amplifier and a high-frequency peaking control.



NOTE: USE MI-47757-1 PATCHCORD WHEN BNC INPUTS ON REAR ARE USED

Specifications

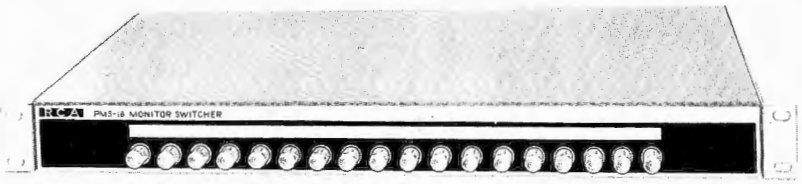
Input Signals:
A Input ..... Nominal 0.7 (or 0.35) Volt non-composite; 1.0 (or 0.5) Volt composite; bridging
B Input ..... Nominal 0.7 (or 0.35) Volt non-composite; 1.0 (or 0.5) Volt composite; bridging
Output Signal ..... Nominal 0.7 (or 0.35) Volt non-composite; 1.0 (or 0.5) Volt composite; 75 Ohms source terminated
Number of Outputs 2
Frequency Response ..... ±0.1 dB to 4.3 MHz, ±0.5 dB to 8 MHz
Low Frequency Tilt ..... Less than 1% for 60 Hz 50% square wave
Differential Gain ..... Less than 1.0% at 3.58 MHz 10% to 90% APL
Differential Phase ..... Less than 1.0°, 10% to 90% APL
Input to Output Isolation ..... 60 dB at 100 kHz; 40 dB at 8 MHz
RMS Noise ..... −60 dB max. Referenced to 1.0 Volt p/p video signal
Type of Mixing Action ..... Additive signals combine algebraically in response to position of control levers
Power Requirements ..... 115/230 Volts, ±10%, 50/60 Hz, 8 Watts
Fuse ..... F1, ⅛ Amp, Type 3 AGSB
Dimensions ..... 1⅝" high, 5⅝" wide, 7⅝" deep (4.1 cm, 14.3 cm, 19.4 cm)
Weight ..... 1.75 lbs. (0.8 kg.)
Finish ..... Silver gray sides and cover, black and silver panel

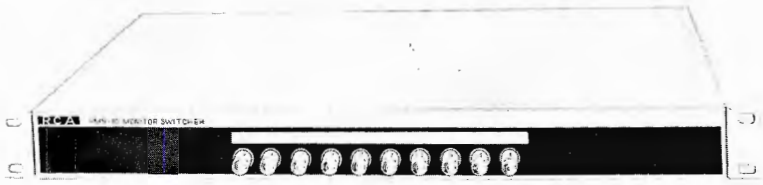
Accessories

PRA-2 Rack Adaptor (mounts three units in 1¾" height) MI-47752-A
BNC Connector for RG-59B/U (solder type) MI-47861
BNC Type 75-Ohm Termination MI-47761-3
Patch Cords (Front Panel) MI-47757-1
(1 pair supplied with PLA-2A)
Power Cord (Not required if PRA-2 Rack Adaptor is used) MI-47768

Ordering Information

Type PLA-2A Lap Dissolve Amplifier MI-47760-B
Lap Dissolve Lever Assembly MI-47845
Lap Dissolve Lever Assembly with Plug-in Relays MI-47846





Monitor Switchers,

The Professional Monitor Switchers, Types PMS-5, PMS-10 and PMS-18, are economical pushbutton assemblies designed to perform auxiliary switching functions in closed circuit or broadcast TV systems. The PMS-5 is a 5-input/one-output switcher; the PMS-10 is a 10-input/one-output switcher; and the PMS-18 is an 18-input/one-output switcher. Pushbuttons are interlocking. Depressing one button releases the previously depressed button to prevent two inputs from being on the output line at the same time. The PMS-10 and PMS-18 include multiple contacts for simultaneous switching of audio and video. All three switchers can be used for monochrome and color TV, or for any low level 75-Ohm video or RF signal.

Typical applications include:

1. *A surveillance system* — using one of two video monitors and PMS-5, PMS-10 or PMS-18 switchers to select between several cameras or other picture sources to be observed.

2. *In camera setup and maintenance*—using a picture and waveform monitor and PMS switcher to select successive camera signals for setup, display and observation.

3. *For house monitoring system*—using PMS switcher for selection and distribution of up to 18 video or off-air TV sources to house monitor.

4. *In master control systems*—using PMS switcher to select from several signals on incoming program line for checking signal levels or observing picture quality.

5. *For remote switching*—a PMS switcher in mobile applications to select from various remote signals for taping or relaying to studio.

6. *As a preview switcher*—to select signals ahead of program line for observation on "standardized" picture monitor for evaluation of quality.

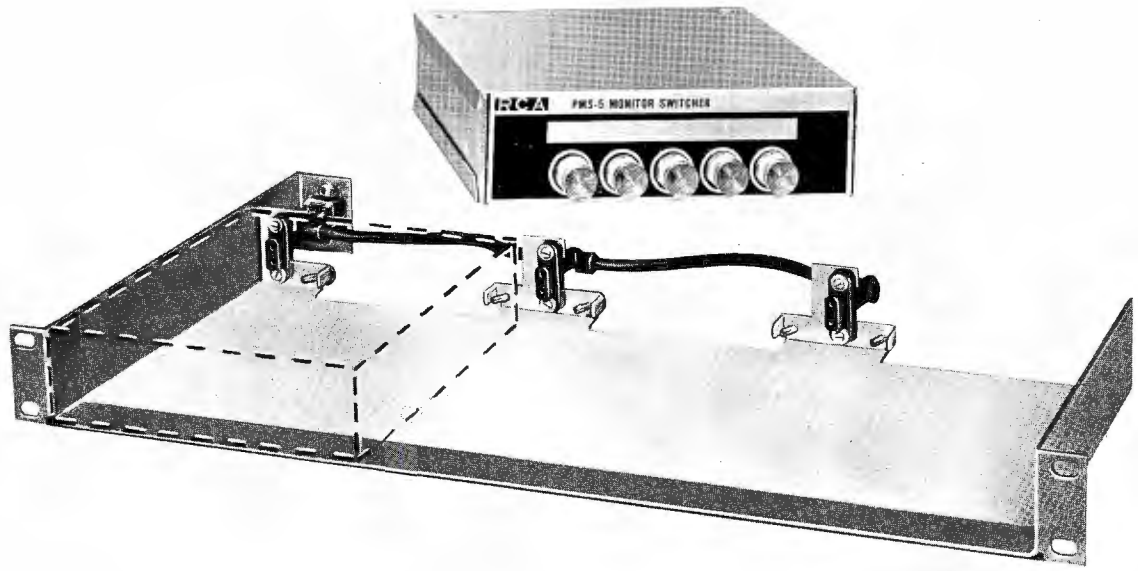
Each PMS switcher is a completely self contained unit requiring no external equipment for operation. PMS-10 and PMS-18 Switchers have self-illuminated round pushbuttons. Video signals enter the switcher via BNC coaxial connectors on the rear apron. Audio pairs and power are brought in through a multi-pin miniature connector. A power source of 115/230 Volts is required for the pushbutton lighting transformer.

Switch inputs are terminated in 75 Ohms. When an input is selected, the termination for that input is automatically removed so that the normal 75 Ohm impedance of the load prevails. Similarly, audio inputs are fed into a 600-Ohm termination which is also removed when the switcher transfers the audio signal to the output line.

PMS-10 and PMS-18 switchers can be mounted in a standard 19-inch cabinet rack and occupy only a single increment (1¾ inches) of rack height.

PMS-5 Switcher

The PMS-5 is a compact, self-contained unit which mounts in one module increment on a PRA-2 Rack Mounting Frame. The PMS-5 and other Professional Television modules—such as the PDA-2A, PTS-31A, PTS-51 — can be mounted in any combination of 3 units to fill a PRA-2 Mounting Frame. One PMS-5 and five PDA-2A Video Distribution Amplifiers can all be mounted on two PRA-2 Frames, taking up only 3½ inches of rack space. One video output of each PDA-2A can feed the PMS-5 for monitoring purposes, and the other two video outputs from each PDA-2A can be used to fill other system requirements. If desired, the PMS-5 can also be table-top mounted, using rubber feet supplied with the unit.



Specifications

Power Requirements .....115/230 Volts, 50/60 Hz, 5 Watts

Input Circuits, Video:

PMS-5 .....5 circuits, 75 Ohms; 1.0 Volt peak-to-peak nominal input level

PMS-10 .....10 circuits; 75 Ohms; 1.0 Volt peak-to-peak nominal input level

PMS-18 .....18 circuits, 75 Ohms; 1.0 Volt peak-to-peak nominal input level

Input Circuits, Audio:

PMS-10.....10 circuits interlocked with video circuits, 600 Ohms, balanced; 0 dBm nominal input level

PMS-18.....18 circuits interlocked with video circuits, 600 Ohms, balanced; 0 dBm nominal input level

Input Circuits, Auxiliary PMS-5 .....Single "A" contact on each button

Output Circuits, Video: .....1 circuit, 75 Ohms; no loss in video level

Output Circuits, Audio:

PMS-10 .....1 circuit, 600 Ohms balanced; no loss in video level

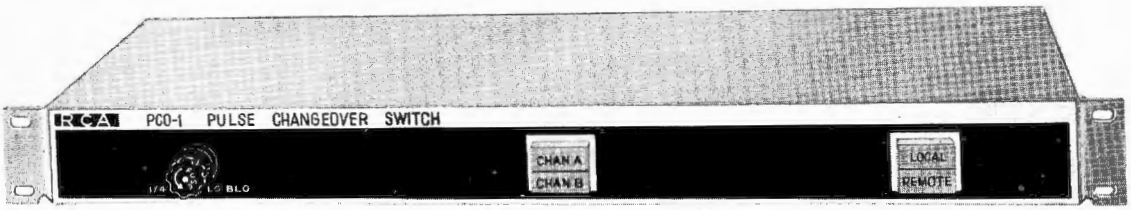
PMS-18 .....1 circuit, 600 Ohms balanced; no loss in video level

	PMS-5	PMS-10	PMS-18
Width	5¾" (14.6 cm)	19" (48.2 cm)	19" (48.2 cm)
Height	1¾" (4.4 cm)	1¾" (4.4 cm)	1¾" (4.4 cm)
Depth	7" (17.7 cm)	6½" (16.5 cm)	6½" (16.5 cm)
Weight	4½ lbs. (2.0 kg.)	5 lbs. (2.2 kg.)	7 lbs. (3.1 kg.)

Finish (front panel).....Black with silver trim

Ordering Information

Type PMS-5 Monitor Switcher (Video) MI-47780
Type PMS-10 Monitor Switcher (Audio & Video) MI-47781
Type PMS-18 Monitor Switcher (Audio & Video) MI-47782
Type PRA-2 Rack Mounting Frame MI-47752-A



Pulse Changeover Switch,

The Type PCO-1 Pulse Changeover Switch is a compact unit offering an efficient and dependable means for local or remote transfer between television system pulse sources (such as sync generators). This assures reliability through redundancy, and provides the capability to switch between a locally controlled and a Genlocked sync generator.

A High Reliability Sync Source

Use of the PCO-1 Pulse Changeover Switch and two sync generators as main and standby units will protect TV equipment against loss of pulse signals and reduce off-air time resulting from any troubles that may develop in the main sync generator. Combining two PCO-1 units with three sync generators will provide a still higher order of failure protection. Almost any number of PCO-1 units and sync generators can be grouped to provide the ultimate in sync signal source reliability.

Handles Six Sets of Pulses

Operating from two sources the PCO-1 will simultaneously transfer six sets of pulses. Four are normally required for monochrome television systems: sync, blanking, vertical and horizontal drive pulses. The two remaining channels might be used in color systems for color subcarrier and burst flag signals. The unused set of pulses is terminated in 75 Ohms. Should loss of power occur at the PCO-1, pulses being supplied to the "Channel A" will appear at the output circuit. Return of power will then revert the PCO-1 switch to its original mode.

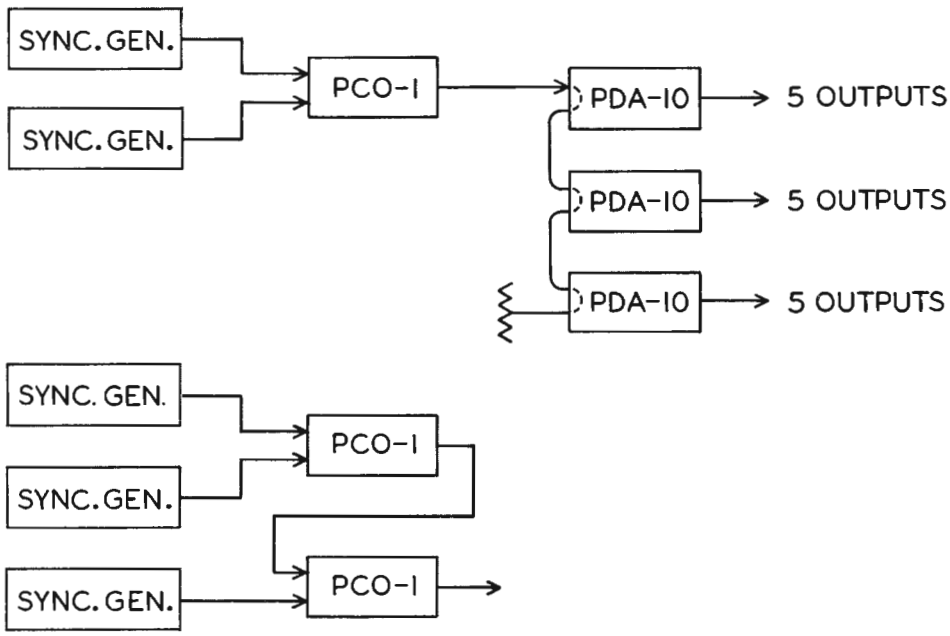
Illuminated Pushbutton Control

Transfer action is by high speed relays energized by an internal low voltage DC power supply. Relays are operated by the "Channel A/Channel B" pushbutton as delegated by a "Local-Remote" pushbutton on the front panel. Channel selection pushbuttons are illuminated momentary contact types that provide alternate switching action through contacts on a stepper relay which hold-in the switching relays and also energize the indicator lamps. An additional illuminated alternate action switch may be mounted in a console to permit remote selection of either channel. Local control is available in both local and remote control modes.

Compact Unit

Components of the PCO-1 are contained in an aluminum wrap-around chassis and panel assembly of standard 19-inch rack width and only 1¾ inch height. Input and output pulses are carried by BNC rear apron connectors. Other connectors provide for AC power and remote control connections.

COMBINATIONS OF PCO-1 & SYNC. GEN. MODULES
FOR HIGH PULSE SOURCE RELIABILITY



Type PCO-1 Pulse Changeover Switch.

Specifications

Signals Accommodated.....6 separate pulse signals from each of two sources, BNC connectors

Output Signals.....6 pulse signals selectable from either of two input sources, BNC connectors

External Connections .....Remote control, AC power for relays and tally lamps

Power Required .....115/230 Volts ±10% AC, 50/60 Hz, 6 Watts

Dimensions.....19" wide, 1¾" high, 8" deep

Weight .....6½ lbs.

Finish.....Aluminum and black

Ordering Information

Type PCO-1 Pulse Changeover Switch.....MI-47767

Pulse Variable Delay,

The PVD-1 Pulse Variable Delay is a compact module designed to insert at the touch of a switch, any delay that may be required in television pulse lines.

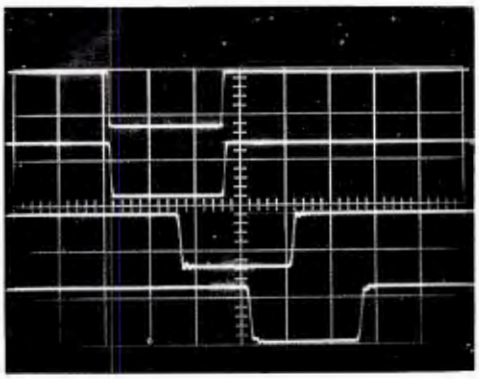
Indispensable in virtually all monochrome or color TV systems, the PVD-1 serves: (1) in the "timing" of multiple camera systems; (2) in establishing the proper time relationship when adding sync to non-composite video signals from a switcher or other equipment; and (3) in compensating for different cable lengths between sync generator and cameras. The PVD-1 may also be used when a TV system layout is changed and requires "re-timing." With the PVD-1, this is simply a matter of throwing a few switches.

Finger Tip Delay Selection

The PVD-1 is unique in that the amount of pulse delay can be varied from 0.05 to 6.10 microseconds by simply manipulating seven front panel switches. No time-consuming cut-and-try or soldering operations are involved. Should system configuration be changed, re-timing is achieved simply by selecting the new pulse delay required. If delays of more than 6.10 microseconds are desired, two or more units may be cascaded. Three PVD-1 modules may be mounted in a standard 19-inch-wide PRA-2 rack adapter.

Pulse Waveform Maintained

Unlike most delay lines, the PVD-1 introduces virtually no degradation of the input pulse waveform. As shown in the oscilloscope display, rise and decay times of the PVD-1 output pulses are exceptionally short. Reforming or regeneration of the output pulse by a pulse distribution amplifier is not required.



1. PVD-1 Input Pulse.
2. PVD-1 Output Pulse with no delay.
3. PVD-1 Output Pulse with 3 microseconds delay.
4. PVD-1 Output Pulse with 6 microseconds delay.

Connectors, Input and Output	BNC
Selectable Delay Increments	0.05, 0.1, 0.2, 0.4, 0.8, 1.5, and 3.0 microseconds
Delay with All Delay Line Sections switched out	0.05 microseconds
Delay with All Delay Line Sections switched in	6.10 microseconds
Finish	Black and silver front panel, silver gray sides and cover
Dimensions	1⅝" high, 5⅝" wide, 7⅝" deep (4.1 cm, 14.3 cm, 19.4 cm)
Weight	4 lbs. (1.8 kg)

Accessory:

PRA-2 Rack Mounting Adaptor (Holds 3 PVD-1 units)	MI-47752-A

Type PVD-1 Variable Delay Line	MI-47766

Pulse Generator,

The PPG-1 Pulse Generator simplifies pulse distribution in monochrome television facilities. In a typical installation, one PPG-1 is placed in each studio or camera location. EIA or CCIR sync is the only input pulse required for the PPG-1, and it generates five output pulses: advanced sync, delayed sync, blanking, horizontal drive, and vertical drive.

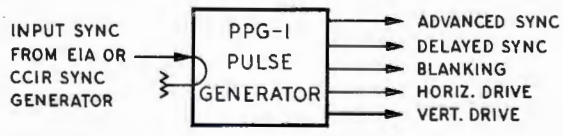
Advanced sync may be used to drive "sync only" cameras such as the RCA Professional Television PK-300 series. Other types of cameras should be connected to *delayed sync*. Correct phase relationships of the video outputs are maintained by delaying *advanced sync* approximately 1.5 microseconds and *delayed sync* 5.4 to 6.6 microseconds from the input sync signal. Blanking, horizontal drive, and vertical drive are all properly timed in relation to delayed sync.

All Signals Locked Together

Because the studio sync generator is the master timing source, video signals from all cameras are locked together. By using a delay line such as the RCA Professional Television PVD-1 in each outgoing sync circuit, the system may be timed so that all video signals will arrive at a central location such as master control with the same phase relationship.

Protection Against Failure

All five outputs supply a signal of 4.0 Volts ±10 percent peak-to-peak and are 75-Ohms source terminated with a rise time of less than 0.15 microseconds. The only input required is a nominal 4.0 Volt EIA/CCIR sync signal. Should the incoming sync signal fail, the PPG-1 will continue to provide drive and blanking pulses at a frequency slightly lower than normal.



Specifications

Input Power	115/230 Volts AC ±10%, 50/60 Hz
Input Signal	EIA/CCIR sync, 4.0 Volts peak-to-peak ±5%
Output Signals	Advanced sync, delayed sync, blanking, horizontal drive, vertical drive
Output Signal Level	4.0 Volts peak-to-peak ±10%
Dimensions	1⅝" high, 5⅝" wide, 7⅝" deep (4.1 cm, 14.3 cm, 19.4 cm)
Weight	2½ lbs. (1.1 kg.)
Finish	Black and silver front panel, silver gray sides and cover

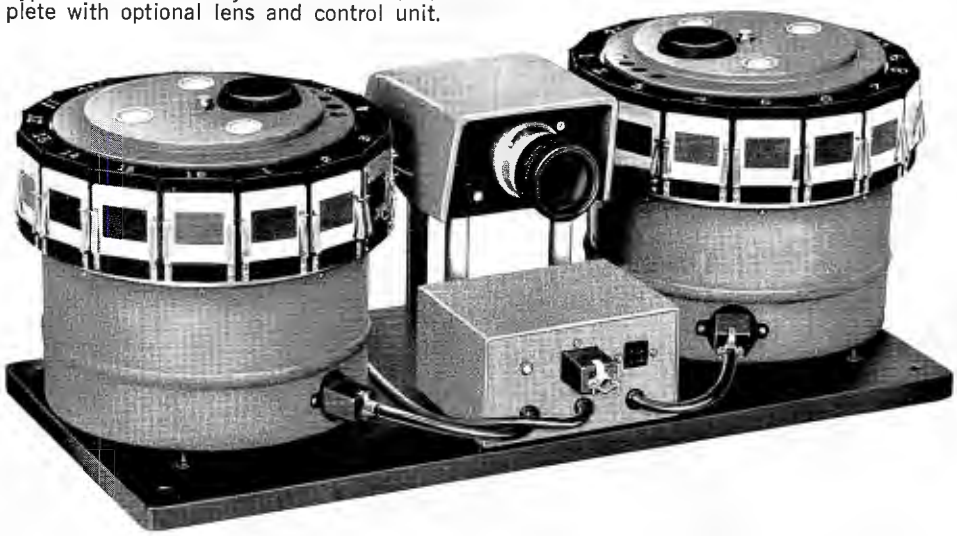
Accessory

PRA-2 Rack Mounting Adaptor (holds 3 PPG-1 units) MI-47752-A

Ordering Information

Type PPG-1 Pulse Generator MI-47860

Type 332 Slide Projector shown complete with optional lens and control unit.



TV Slide Projectors,

The Type 322 Single Drum and Type 332 Dual Drum Television Slide Projectors are designed specifically for projecting standard 2 x 2-inch slide transparencies into a vidicon film camera such as the PK-310. The projectors feature an aspheric condensing system which assures even illumination across the entire field of the projected image. Slide mechanisms are free from vibration. Finger slots are provided for quick insertion and removal of slides, and each slide position is clearly numbered for easy reference. Up to 15 slides may be visually checked on each drum for previewing purposes.

Interchangeable, Accurately Aligned Slide Turrets

The 322 Projector holds 16 slides in its turret. Slide turrets are interchangeable and are keyed for accurate alignment. Four registering pins for each slide insure perfect focusing. The turret can be connected to a terminal board inside the lower part of the housing for remote operation from the control panel. For quick checking and resetting of slides, the turret can also be rotated by hand in one direction. A turbine blower permits prolonged showing of slides.

Equipped with 7-Inch Lens

The 322 projector is normally provided with a 7-inch lens in a special TV focusing mount for use with the TP-11D Prism Multiplexer. The projection light source is normally a 150-Watt lamp but a lamp capacity of 50 to 300 Watts can be used in the projector. The turret mounts on a sturdy 11-inch diameter metal drum, which in turn is supported by an aluminum base 11½ inches wide by 12 inches long. The overall height of the equipment is 10½ inches.

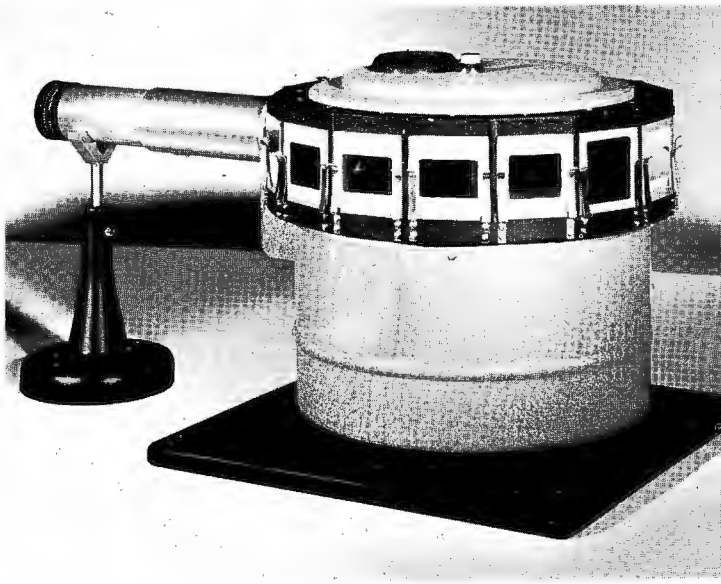
Continuous Slide Programming

The Type 332 Dual Drum Slide Projector provides continuous slide programming by means of smooth, yet rapid, optical lap dissolve between the two drums. Only one projection lens is used with this dual drum model. Lenses from 7 to 11 inches are available for different projector-to-multiplexer, or projector-to-camera, distance requirements. A 9-inch lens is normally provided for use with the TP-11D Multiplexer and PK-310 camera.

Remote or Local Operation

The central prism unit contains two prisms and one beam splitter cube prism. Each projector can be operated independently of the other by remote control or locally by means of a pushbutton located on each drum. The 332 is supplied with a relay control unit, however, that controls the alternate action of the two drums by means of a single pushbutton.

Type 332 Slide Projector mounted on TP-11D Multiplexer in Vidicon Film Chain Application.



Type 322 Slide Projector shown complete with lens and lens supporting stand.

Specifications

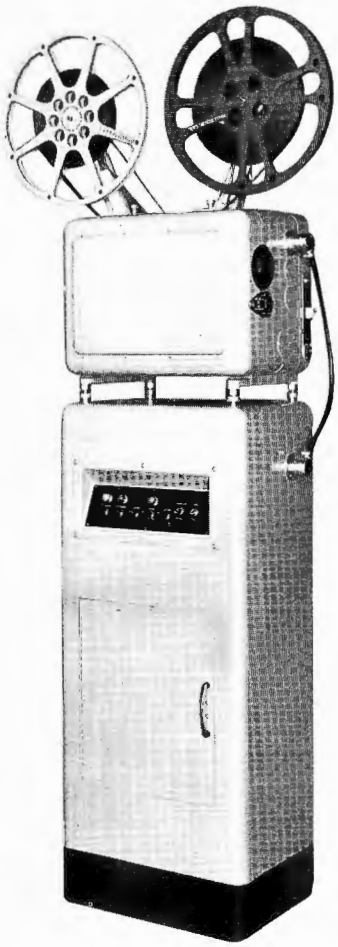
Slide Size	2″ x 2″
Lamp Size	150 Watts (50 to 300 Watts available)
Usable Picture Area	844 by 1.25 min. (SMPTE Standard)
Lenses	Normally 7″ for Type 322, 9″ for Type 332
Slide Capacity	16 slides per drum
Control Circuit (Built-in)	24 Volts, DC
Power Requirements	115 Volts, AC, single phase, 60 Hz
Overall Dimensions:	
Single Drum	10½″ H., 11½″ W., 12″ D. (26.6 cm, 29.2 cm, 30.5 cm)
Dual Drum	10½″ H., 12½″ W., 27″ D. (26.6 cm, 31.8 cm, 68.5 cm)
Finish	Midnight blue enamel, black turrets
Weights:	
Single Drum	16 lbs. (7.6 kg.)
Dual Drum	59 lbs. (26.75 kg.)

Accessory

Spare 16-Slide Turret for 322 or 332	Model 240

Ordering Information

Single Drum TV Slide Projector with preview feature, blower, and 7″ lens (#208)	Type 322
Same as above for 50 Hertz operation	Type 322/50
Dual Drum TV Slide Projector with preview feature, blowers, relay control unit and 9″ lens (#263)	Type 332
Same as above, for 50 Hertz operation	Type 332/50



16mm Television Film Projector, Type 614EVMS

The Type 614EVMS is a full function 16mm TV Film Projector which offers excellent picture and sound quality and long, dependable operation at moderate cost. Both optical and magnetic sound playback are standard equipment, as is the reverse operation feature. Pushbutton loop restorer, easy threading procedure, theatrical framing and built-in cueing speaker are further conveniences which enhance the operation of this versatile film projector. Reel capacity is 2000 feet.

Unique Shutter Design

The unique shutter design eliminates the usual problems associated with the different frame rates used in direct projection and television projection applications. No longer does the necessity exist for synchronization of film pull-down with the television sync generator field rate. The pull-down cycle for each film frame is completely masked by the shutter, so that no travel ghost is evident in the projected picture. The shutter provides five light pulses of 2770 μsec duration for each film frame, four per television frame, or two per television field. The application time for each television field is 5540 μsec, or more than 30 percent.

The shutter is of the barrel type and rotates at 3600 rpm. Light output of the projector is 50 lumens using a 300 Watt, 25-hour lamp. Allowing for loss in the multiplexing system, ample light is available to properly illuminate the vidicon faceplates for both monochrome and color systems.

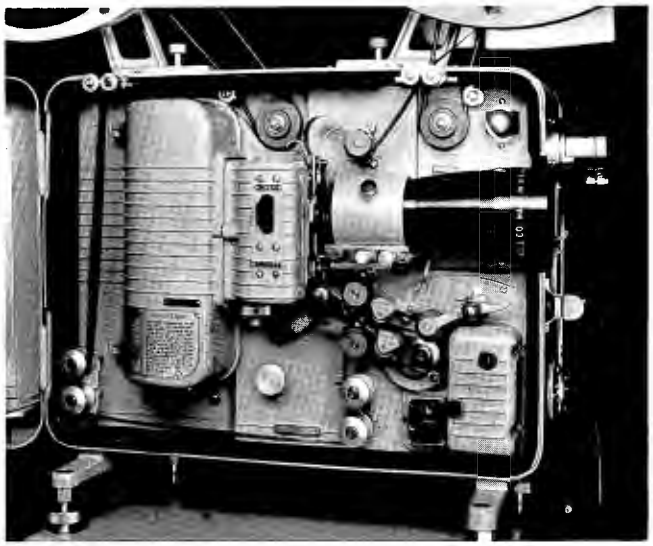
Pushbutton Selection of Magnetic or Optical Sound

Magnetic playback facilities in a television projector gives an added program tool. Magnetic striping of 16mm film is now practical for newsreels, on the spot movies, commercials, etc. A pushbutton switch is provided for the rapid selection of either magnetic or optical sound playback.

Remote Control Capability

Remote control of the 614EVMS Film Projector is easily accomplished, since the projector has its own changeover system for both picture and sound changeover. Control of the changeover is terminated at a four-pin receptacle on the front of the projector, and can easily be extended to the camera-control position for remote operation. The projector is reversible and this function can also be made a remote operation.

Local control panel of the 614EVMS Film Projector.



Cover door opened to reveal film path and design features.

Performance

Film Size 16mm
Reel Capacity ..... 2000 ft.
Speed ..... 24 fps for 60 Hz systems; 25 fps for 50 Hz
Sound Reproduction ..... Optical and magnetic
Film Direction ..... Forward and reverse
Leveling ..... Screw type
Loop Setter ..... Pushbutton
Film Protection ..... Air-cooled aperture, sapphire inserts, undercut sprockets and rollers, 3-tooth tungsten carbide shuttle.
Lubrication ..... 1,000 hours, single-point sealed system
Ventilation ..... Motor-driven 3" dia., twenty-four blade rotor
Elapsed-time Meter ..... 5-digit hour meter
Light Output ..... 50 lumens with 300-Watt, 25-hour lamp
Shutter Frequency ..... 120 Hz
Light Application Time ..... Equal to or greater than 30% for that of single television field
Picture Steadiness ..... Vertical jump is less than 0.2% picture width; Horizontal weave less than 0.2% picture width
Film Framing ..... Fixed axis type. No aperture displacement during framing
Projection Lens ..... Will accommodate up to 4.5" lens
Optical Elements ..... All air-to-glass surfaces of lens and condenser elements chemically coated to reduce reflection losses and increase light transmission.

Electrical

Amplifier Power Output ..... +6 dBm—600 Ohms, or 6 Watts—16 Ohms
Amplifier Harmonic Content ..... Less than 2% total from 100 to 7000 Hz
Amplifier Frequency Response ..... 80 to 8000 Hz within ±1½ dB
Amplifier Signal-to-Noise Ratio:
Optical ..... 60 dB below amplifier rated output
Magnetic ..... 40 dB below amplifier rated output
Wow and Flutter ..... Less than 0.25%
Tube Complement ..... 3—12AX7, 3—6AQ5, 2—6X4
Motors (2) ..... Universal (blower) and Synchronous (drive)
Exciter Lamp ..... Prefocused, 6-Volt, 1 Ampere
Photo-cell ..... Germanium Diode
Power Requirements ..... 105-129 Volts, AC, single phase, 60 Hz, also available for 50 Hz operation
Power Consumption ..... 500 Watts

Mechanical

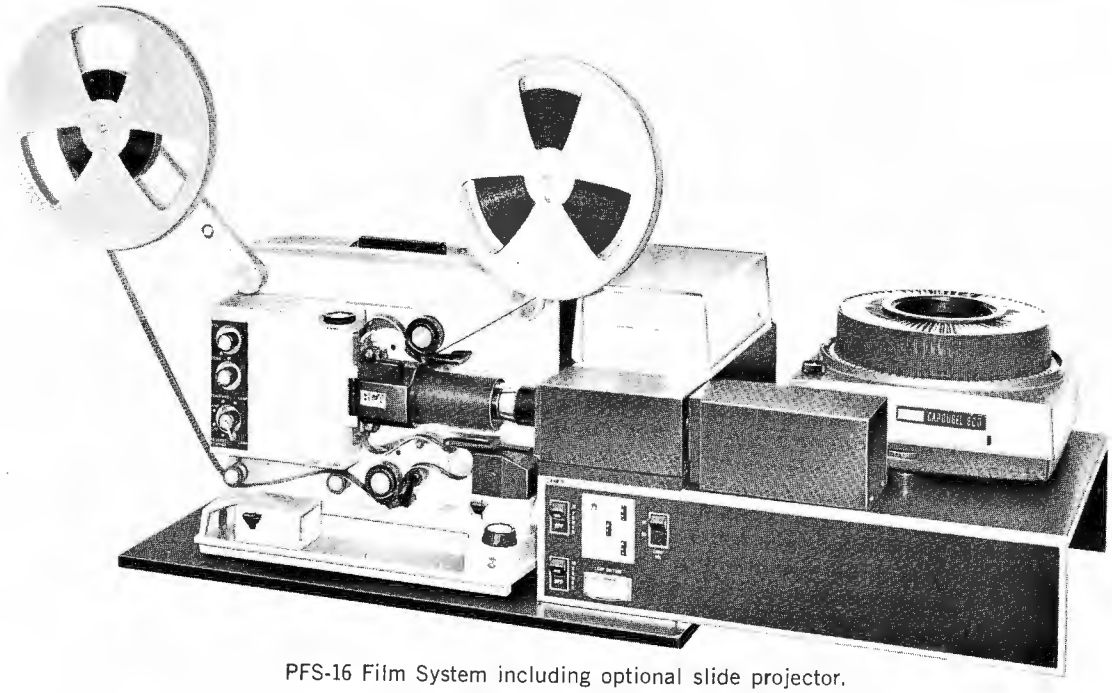
Finish: ..... Light gray enamel

Dimensions:	Height	Width	Depth
Overall	52⅜" (133 cm)	12⅛" (30.8 cm)	16¼" (41.3 cm)
Projector Only	13¾" (34.9 cm)	12⅛" (30.8 cm)	16¼" (41.3 cm)
Pedestal Only	38" (96.5 cm)	12⅛" (30.8 cm)	16¼" (41.3 cm)

Weight (overall) ..... 74 lbs. (33.6 kg.)

Ordering Information

16mm TV Film Projector for 60 hertz operation complete with 3" lens and pedestal for use with TP-11D Multiplexer ..... Type 614EVMS
Same as above, but for 50 hertz operation ..... Type 614EVMF



PFS-16 Film System including optional slide projector.

TV Film System,

RCA Professional Film Systems provide superior reproduction of motion picture film and slides for broadcast and instructional television installations. Three systems are offered to meet varying needs, and each assures the utmost in picture clarity, operating ease, and long-term reliability.

PFS-16 Film System

The PFS-16 is a complete television film system, offering facilities for showing 16mm motion picture film, 35mm and 2" x 2" slides in a single, compact unit. Illustrated above, it includes a PK-310 Film Camera, a sturdy, tabletop multiplexer with sealed optical system, and a PFP-1600 projector. The projector is RCA's popular 1600 model 16mm Projector specially modified for use in a television film system. An accessory base plate accommodates a Kodak "Carousel" slide projector. It may be ordered with the PFS-16 Film System or readily added at any time.

Compact Control Panel

Major operating controls for the PK-310 Camera and both projectors are conveniently located on the front panel of the PFS-16. Camera controls include gamma, electrical focus, sensitivity, and brightness (pedestal).

Also included are rocker switches which control motion picture projector lamp and drive, slide projector lamp and blower, and selection of either projector for "on air" showing. A built-in voltmeter provides continuous monitoring of projector lamp currents. The PFS-16 automatically maintains uniform picture brightness (video level) despite changes in average film or slide density.

For additional information on the RCA PK-310 Film Camera, see Catalog PTV.-1004.

PFS-16/614 ETVS Film System

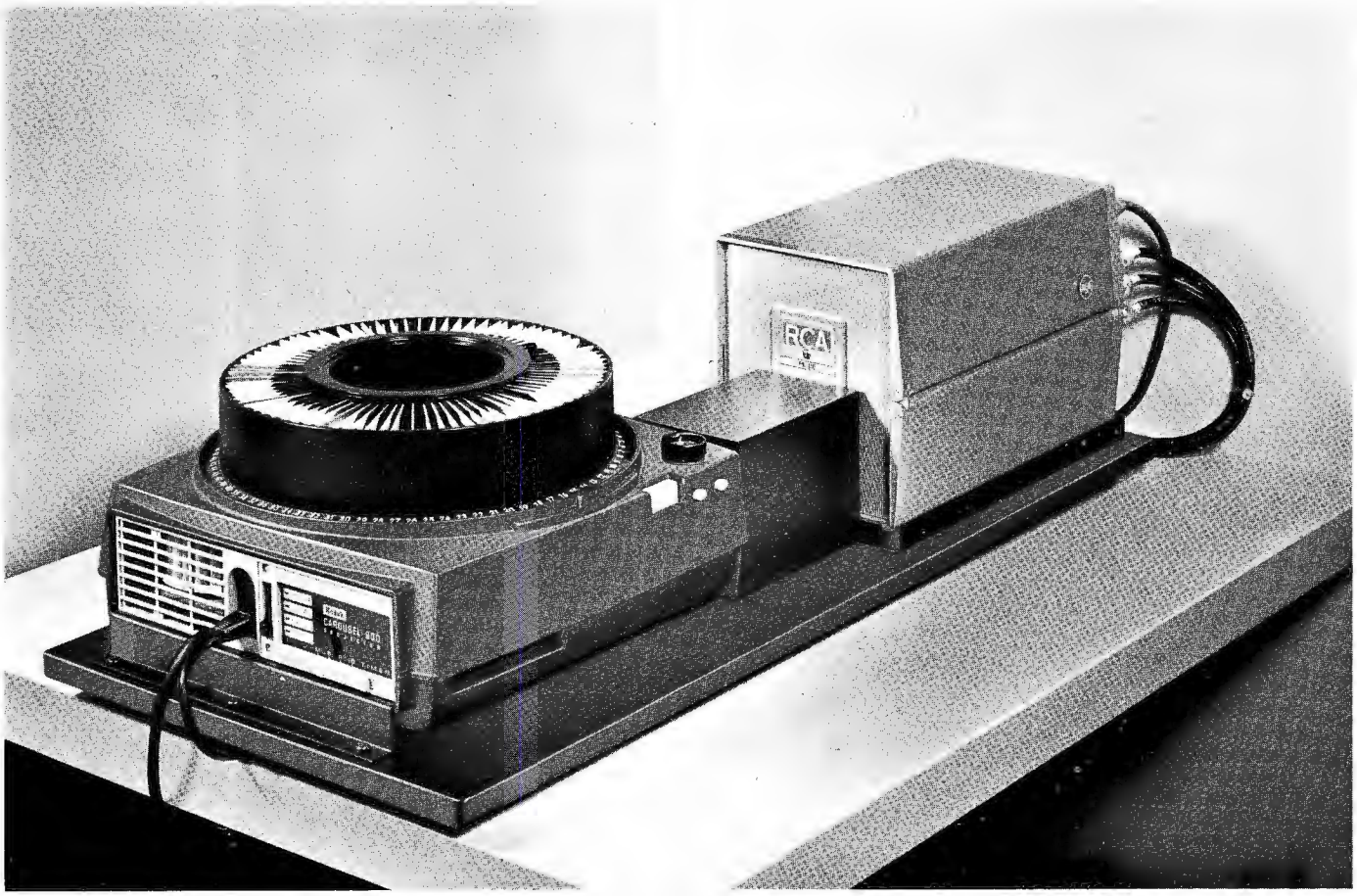
For installations requiring a JAN projector, RCA offers a kit which mounts a Type 614 ETVS motion picture projector on the PFS-16 multiplexer. Operating controls and multiplexer configuration are the same as the PFS-16.

Professional Television Slide Uniplex System

Specifically designed for studios requiring high-performance equipment for showing slides in a compact and economical system, the RCA Professional Television Slide Uniplex System is a rugged mounting base with sealed optics which accommodates a PK-301 Vidicon Camera and Kodak "Carousel" slide projector.

An iris in the optical system provides set-up adjustment of picture brightness.

For additional information on the RCA PK-301 Vidicon Camera, see Catalog PTV.1000.



Professional Television Slide Uniplex System including optional PK-301 Camera and Kodak "Carousel" Projector.

Specifications

Dimensions

PFS-16 without slide projector base .....25" wide, 16⅜" deep, 20½" high (63.5 cm, 41.5 cm, 62.0 cm)

PFS-16 with slide projector base .....39¾" wide, 16⅜" deep, 20½" high (100.9 cm, 41.5 cm, 52.0 cm)

PFS-16/614 ETVS without slide projector base .....25" wide, 16⅜" deep, 23½" high (63.5 cm, 41.5 cm, 59.6 cm)

PFS-16/614 ETVS with slide projector base .....39¾" wide, 16⅜" deep, 23½" high (100.9 cm, 41.5 cm, 59.6 cm)

Slide Uniplex System .....27½" wide, 12½" deep, 8½" high (69.8 cm, 31.7 cm, 21.5 cm)

Accessory

Kodak "Carousel" Mounting Base for PFS-16 TV Film System

Ordering Information

Type PFS-16 Television Film System, including:

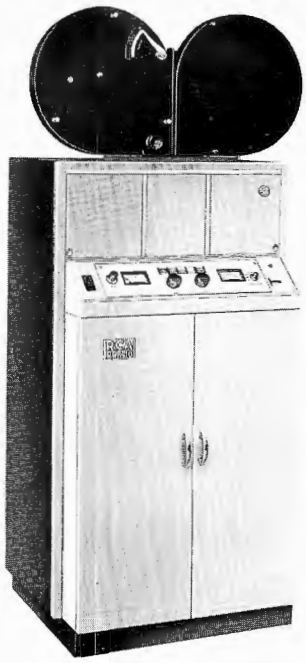
- PFP-1600 TV Film Projector
- PFP-310 Film Camera (specify Positive Interlace, EIA Sync Drive, or EIA Sync & Blanking Drive)
- Mounting Base and Control Panel

PFS-16/614 ETVS Television Film System, including:

- Type 614 ETVS TV Film Projector
- PK-310 Film Camera (specify Positive Interlace, EIA Sync Drive, or EIA Sync & Blanking Drive)
- Mounting Base and Control Panel

Professional Television Slide Uniplex System, including:

- Mounting Base and Optics MI-47995



Television Film Recorder,

The Professional Television Film Recorder, Type PFR-10, is a compact self-contained unit for recording a standard television picture display on 16mm film. The image display tube in the PFR-10 is normally supplied with a P4 phosphor which permits a variety of panchromatic film types to be used with this recorder. For the semi-skilled operator, the adaptability and exposure latitude which are characteristic of panchromatic film virtually guarantee a good "take" from start to finish. Other stock, such as type 7374 "blue sensitive" television recording film, may also be used with the PFR-10 Recorder. An image display tube with P11 "blue" phosphor is available as an option for applications in which type 7374 film will be used on a day-to-day basis.

Wide Range of Applications

The PFR-10 film recorder lends itself to many television recording applications including CCIR standards. The universal availability of 16mm film projectors make this equipment a logical choice where multiple copies or repeated playbacks of a single copy of a television recording are required.

Simple, Reliable Operation

A minimum of operator skill or training is required to set up and operate the PFR-10 with professional results. The proven design of the 16mm recording camera frees the operator from "shutter bar" worries, and the operating parameters of the video display monitor are easily and accurately set by means of the built-in "calibrate" circuit. No external test equipment or waveform monitor is required to calibrate or operate the PFR-10.

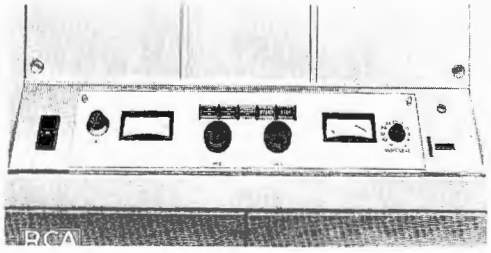
The PFR-10 system includes an easy to operate 16mm recording camera specifically designed for film recording. This camera has a virtually vibrationless mechanism, and a fixed registration pin for precise frame registration. The pulldown principle employed uses only one reciprocating component. Pull-down is accomplished without the use of claws. The principles employed are of proven design with several years of actual field operation. The optical shutter is based upon a "lap dissolve" action which effectively eliminates shutter bar effects.

A mechanical film footage counter with front panel readout is provided.

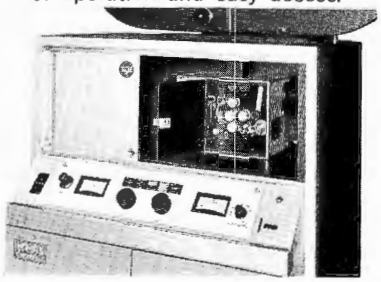
Built-in Calibrate Circuit

An important element of the PFR-10 system is the calibration circuit and meter which provides repetitive accurate setup of the recording channel. By means of this facility the operator is able to adjust pedestal or black level (bias) to provide a predetermined brightness level and

Minimum controls and automatic functions permit unskilled personnel to produce excellent results with the PFR-10.



PFR-10 camera features simplicity of operation and easy access.



to adjust video level (gain) to provide a predetermined contrast range. Both adjustments are quickly and easily made by "zeroing in" a front panel meter. There is continuous monitoring by meter of the video level so that the operator can achieve a standard operating condition.

The display monitor, recording camera and all associated circuitry for the PFR-10 recorder are housed in one compact cabinet which requires less than 6 square feet of floor space. The unit is supplied complete with 2400 foot film cassettes for a full hour of recording time, and includes provision for audio signal input to an optional optical or magnetic sound recording channel.

The display monitor utilizes a 10-inch tube. It has fully regulated B+ and anode power supplies. Aperture compensation is variable in amplitude from 0-10 dB at a peak frequency of 7 MHz.

"Line Erase" Provides Superior Picture Quality

A switch on the control panel of the PFR-10 provides the option of "line erase" which effectively eliminates the pattern of scan lines which is normally seen on television film recordings. The enhancement of picture quality due to "line erase" results in a recording quality comparable to still photographs.

The PFR-10 recorder is housed in a rugged welded steel cabinet mounted on casters. Ample space (standard 19-inch rack width) is provided inside the cabinet for the optional sound recording amplifiers and power supplies. Complete accessibility to the recording camera and video chassis is provided by sliding access doors and removable side covers.

ACCESSORIES

1200-ft. Film Magazine.....MI-10770-E

2400-ft. Film Cassette
(two required for complete magazine).....MI-29734

Single System Variable Area Optical Sound
Recording Channel (Bach-Auricon).....MI-47851

Single System Variable Area Optical Sound
Recording Channel (Maurer).....MI-47854

Single System Magnetic Sound
Recording Channel.....MI-47855

Image Display Tube with "blue" P11 Phosphor.....MI-29820

MacBeth Model TD-100 Densitometer
(Requires Model 20-13-060 Voltage Regulator)

Eastman Model 30 Viscomat Processor
(Requires Model 1M Water Temperature Control Unit)

Electrical

Input Signals:
Video
Composite Video Signal....In accordance with EIA and FCC specified color/monochrome signal standards
Composite Video Signal Level.....0.5 to 1.4 Volts peak-to-peak
Audio (optional).....−10 to +8 VU into 600 Ohm balanced line matching input
Power.....117 Volts ±10%, 60 Hz, AC single phase, 300 Watts; 230 Volts ±10%, 50 Hz, AC single phase, 300 Watts

Performance

General:
Recording Medium.....16mm double or single perforated film
Film Speed.....24 frames per second
Picture-Sound Separation.....26 frames, sound leading
Recording Time, 2400 ft. cassettes.....66 minutes
Starting Time.....3 seconds maximum

Camera

Fast-film pull-down mechanism, buckle trip interlock, film capacity: 2400 ft., fixed registration pin, separate torque motor for magazine drive.

Image Display Tube

Diameter.....10" (25.4 cm)
Raster Size.....5⅛" x 6⅝" (12.8 cm, 16.5 cm)
Deflection.....Electro-magnetic
Focus.....Electro-static
Phosphor (standard).....P4
Phosphor (optional).....P11
Resolution.....700 lines minimum

General

Deflection System.....Linearity deviation 2% max.
Control System:
Brightness Reference.....Meter
Contrast Reference.....Meter
Video Amplifier Bandwidth.....±1 dB to 10 MHz
Aperture Correction.....Maximum boost at 7 MHz
Boost.....Adjustable to 10 dB

Mechanical

Height....60" (1.5 m), 76" (1.9 m) with film cassettes mounted
Width.....32" (81 cm)
Depth.....24" (61 cm)
Finish.....Two tone blue textured vinyl
Weight.....325 lbs. (148 kg)

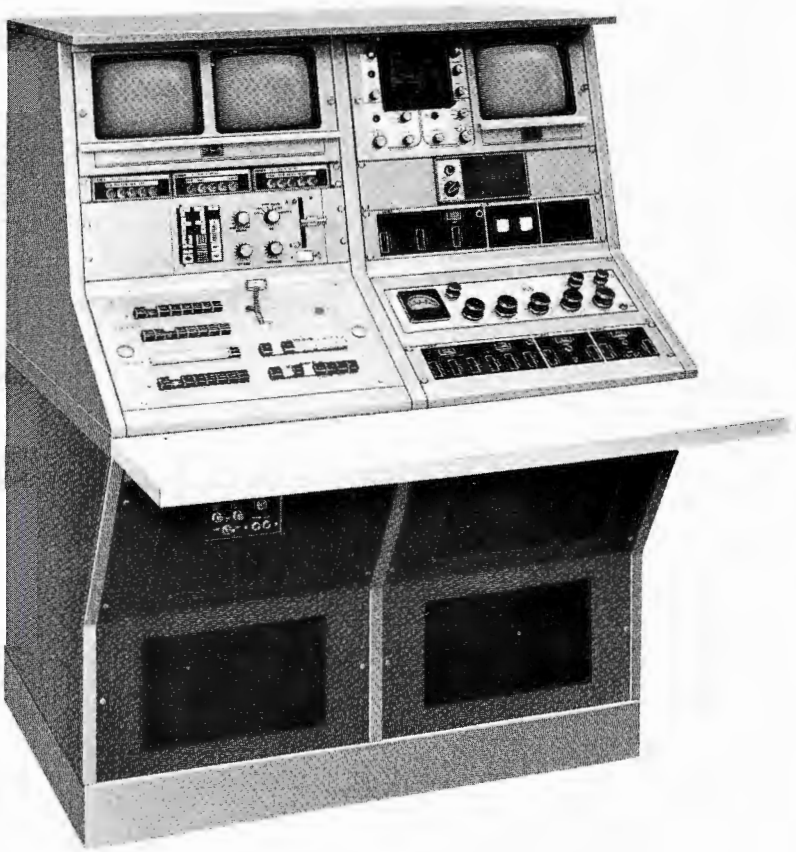
Ordering Information

Type PFR-10 16mm Television Film Recorder.....MS-9801
525 lines, 60 fields, including:

1	MI-47850	Console Assembly
1	MI-29732-C	Recording Camera
2	MI-29734	2400-ft. Film Cassettes

Type PFR-10 16mm Television Film Recorder.....MS-9802
625 lines, 50 fields (CCIR) including:

1	MI-47850-A	Console Assembly
1	MI-29732-C	Recording Camera
1	MI-29797	CCIR Kit
2	MI-29734	2400-ft. Film Cassettes



TV Consoles,

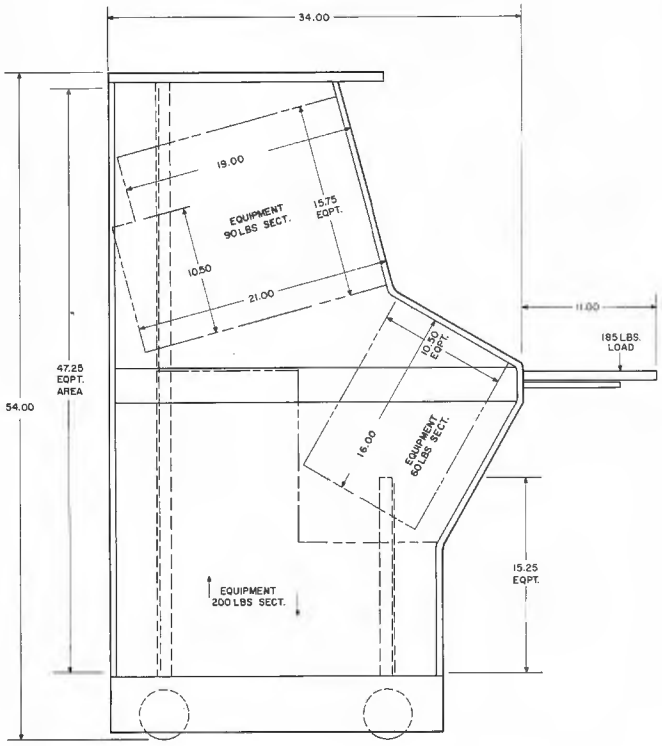
RCA Professional Television Consoles offer new standards of appearance and versatility for instructional, broadcast, and military installations. Single-unit construction assures durability and trouble-free life, and the console may be moved from room to room on accessory concealed casters.

Available in single, double, and triple-width models, the console accommodates control panels, monitors, and other equipment on standard 19-inch rack mounting rails. The control and monitoring area on the front of the single-width console totals 26¼ inches in height. Auxiliary equipment such as switching modules, sync generators, and distribution amplifiers may be mounted in the lower portion and the rear of the console. Up to 63 inches of rack height is availablle in the areas depending on the depth and mounting configurations of the equipment.

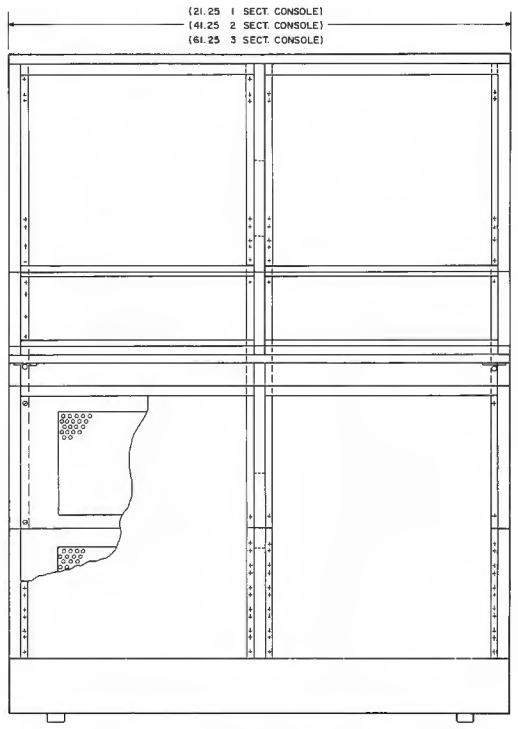
All control, monitoring, and auxiliary equipment for a typical two camera instructional television program can normally be accommodated in a single-width console. Installations having more equipment usually require a double or triple-width console. For example, the following equipment (not included with console) is installed in the double-width unit pictured above: PTS-1 System 8/4F Video Switcher with special effects, monitors, monitor switchers, remote control panels for 4 cameras, and an audio system.

The front operating desk is covered with durable, burn-resistant Formica and may be readily removed to facilitate moving the console to another location. A built-in light shield protects monitors from overhead light reflections. Equipment areas are covered with ventilated panels having quick-release fasteners to assure adequate air circulation and easy access.

The distinctive appearance of the console is enhanced by shadow blue and midnight blue finishes with silver grey trim.



Outline drawing side view with dimensions



Outline drawing front view with dimensions

Dimensions ..... See drawings
Weight (approx.):
PTC-1 ..... 155 lbs. (70.3 kg)
PTC-2 ..... 245 lbs. (111.1 kg)
PTC-3 ..... 345 lbs. (156.5 kg)
Finish:
Top ..... Shadow Blue
Bottom ..... Midnight Blue
Trim ..... Silver Grey
Desk ..... Formica

Equipment Capacity:
Upper Control Area ..... 15¾" (40.0 cm)
90 lbs. (40.7 kg)
Lower Control Area ..... 10½" (26.6 cm)
60 lbs. (27.1 kg)
Lower Front Equipment Area ..... 15¾" (40.0 cm)
Rear Equipment Area ..... 47¼" (1.20 cm)
200 lbs. (90.6 kg)

Accessories

Caster set for PTC-1 and PTC-2 ..... MI-47987
Caster set (6) for PTC-3 ..... MI-47987-A

Ordering Information

PTC-1 Console (single-width less casters) MI-47984
PTC-2 Console (double-width less casters) MI-47985
PTC-3 Console (triple-width less casters) MI-47986

Regulated Power Supply,

Description

The Type PS-24 Power Supply is a compact, efficient source of precisely regulated 24 Volts DC at 4 Amperes. Featuring the reliability of solid state design and dual overload protection, the PS-24 is ideal for relay switching systems, tally lights, solenoids, and for any transistorized audio or video units requiring a stable 24 Volt DC source.

Effective transistor regulating and hum-bucking feedback circuits reduce ripple content to a very low value making the PS-24 particularly suited to audio systems with low noise outputs. DC output terminals are "floating," and may be grounded, if desired, to meet a variety of requirements.

Bridge Rectifier Circuit

A bridge rectifier circuit employs four silicon diodes which feed the output through a high capacity smoothing filter and the transistor series regulator circuit. Regulator components are mounted on a printed circuit board and comprise a zener reference source and four silicon transistors. Changes in voltage at the output terminals of the power supply due to variations in load or in power line voltage are confined to less than 3 percent. A transistor feedback circuit amplifies a portion of the output signal and feeds it to the regulators so as to oppose AC variations, reducing hum to a very small value.

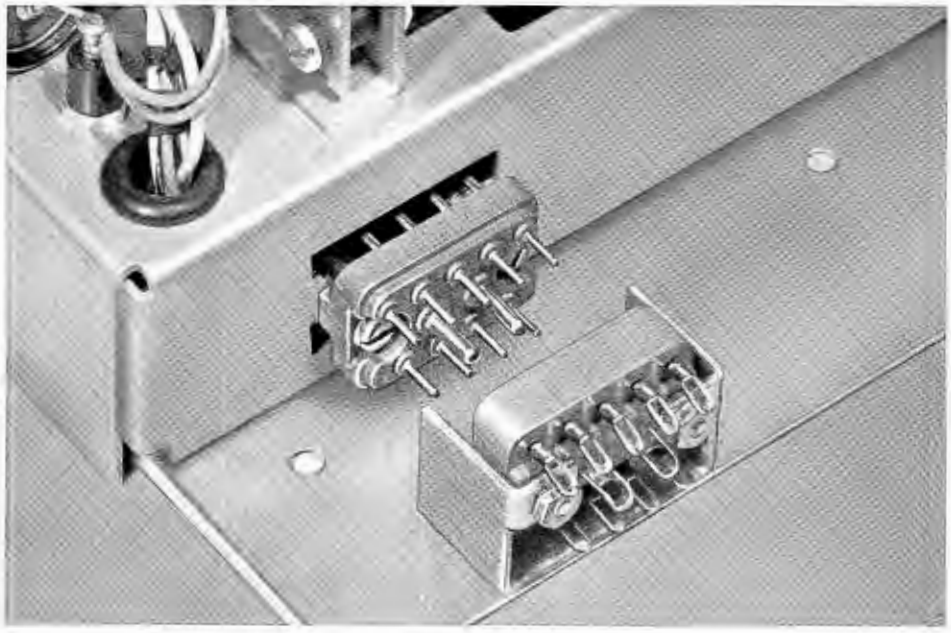
Overload Protection

Diodes protect the transistors for short term overloads. Thus, direct short circuiting of the output can occur for limited durations without damage to the transistors and without disabling the power source by blowing a fuse in the DC circuits. Long term shorts will blow the DC fuse. Another fuse in the primary of the power transformer protects the power supply from damage due to internal shorts.

Further hum reduction is effected by a special power transformer that is electrically and magnetically shielded against hum pickup. Primary taps on this transformer permit operating the PS-24 on either domestic or international AC power sources ranging from 105 to 250 Volts, 50/60 Hz.

Chassis Mounted Components

All components of the PS-24 are mounted on a small chassis. Transistors are heat sinked, and space and layout provides for efficient convection cooling eliminating any need for a blower. The unit occupies one-half of the space provided by a 5¼-inch high BR-22C Rack Mounting Shelf.



Connections to PS-24 are through mating connector on guide plate furnished with power supply.

Output Voltage	24 Volts DC
Output Current	4.0 Amperes, max.
Regulation	Output voltage stable within ±3% over specified voltage input range and from no load to full load
Ripple	Less than 15 millivolts at full load, 60 Hz
Power Requirements	115/230 Volts, ±10%, 50/60 Hz; 200 Watts
Fuses	2.0 Amp, Type 3 AG; 0.2 Amp, Type 8 AG
Ambient Temperatures	to 50°C (122°F)

Mechanical

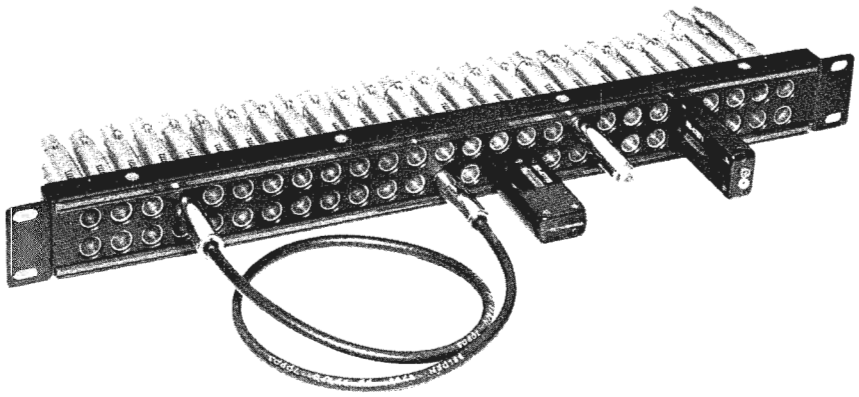
Dimensions	8½" wide, 5" high, 13" deep (21.59 cm, 12.7 cm, 33.02 cm)
Weight	18 lbs. (8.2 kg.)
Mounting	Occupies one-half of BR-22C Shelf. PS-24 includes guide plate and mating power connector
Finish (front panel)	Aluminum epoxy

Accessory

Type BR-22C Rack Mounting Shelf (5¼" high) (Mounts two PS-24 Power Supplies)	MI-11597-A

Ordering Information

Type PS-24 Regulated Power Supply	MI-3537



Video Patch Panel Equipment

RCA Professional Television's Video Patch Panel Equipment provides a convenient and economical means of patching video and synchronizing signals in broadcast and educational television studios. Normally, all signals from cameras, film chains, television tape recorders, and incoming remote and network lines are connected to the patch panel, as are feeds to monitors and outgoing lines. Use of the equipment adds versatility to studio operation and helps to minimize program interruptions due to technical difficulties.

A wide range of components are available, permitting maximum utilization of the equipment. Included are a patch panel which accommodates 26 jack pairs, or 52 individual jacks in just 1¾ inches of rack space, three types of plugs and jacks, two lengths of patch cords, and a cap for unused spaces. The equipment is compatible with Western Electric Patch Panel hardware.

Patch Panel

The patch panel is made of sturdy, non-conductive BAKELITE offering maximum capacity in a small space. Identification strips are supplied for convenient labeling of each circuit. The panel configuration permits jack and plug pairs to be inserted horizontally or vertically (except for the MI-47872 self-normalling jack pair, which must be oriented vertically).

Coaxial Jacks

Coaxial jacks are inserted in the rear of the patch panel and held in place with a single screw. Each accommodates a coaxial cable fitted with a BNC connector for ease in connecting and disconnecting circuits for initial installation or video patch panel layout revision.

Coaxial Jack (MI-47771)

A basic component of all video patch panel assemblies is the single coaxial jack. Coaxial cables carrying video or pulse signals are connected to the rear of each jack using BNC connectors. Likewise, outgoing video or pulse cables are connected to coaxial jacks on the patch panel. Signal circuits which end on the coaxial jacks are connected through the use of video patch plugs or video patch cords.

Self-Terminating Jack (MI-47873)

To reduce the possibility of crosstalk and present the proper load to amplifier outputs, all coaxial cables should be terminated at the jack panel in their characteristic impedance. The self-terminating jack terminates the cable circuit in a 75-Ohm resistive load. When a patch cord or plug is inserted in the jack, the termination is automatically lifted, and is restored when the cord or plug is removed.

Self-Normalling Jack Pair (MI-47872)

This jack connects vertically adjacent coaxial cable pairs, providing a "normal through" coaxial connection without a patch plug or cord. When a plug or patch cord is inserted in either side of the pair, the "normal" connection is automatically opened and continuity is restored when the plug or patch cord is removed.

Video Patch Plug (MI-47775)

The video patch plug is a basic component which connects adjacent horizontal or vertical jacks, thereby connecting a video source (camera,

etc.) to a load (video monitor, etc.). In cases where a line is to be fed by either of two video sources, the panel can be laid out so that either of the desired sources may be connected to the line by inserting the video patch plug horizontally for one source and vertically for the other.

Video Patch Plug With Test Point (MI-47871)

This component performs the same function as the standard patch plug, but includes a test point to permit observation of the video waveform on an oscilloscope without interruption of the video feed.

Termination Plug With Test Point (MI-47774)

When plugged into a coaxial jack, this component terminates the cable circuit in a 75-Ohm resistive load. The test point permits the use of an oscilloscope for examination of the signal on the cable under terminated conditions at the video patch panel.

Video Patch Cords (MI-47772, MI-47773)

Coaxial cable using high quality coaxial plugs on each end make up the video patch cords which are used to connect any pair of jacks on the panel. Patch cords are available in 2-foot and 3-foot lengths.

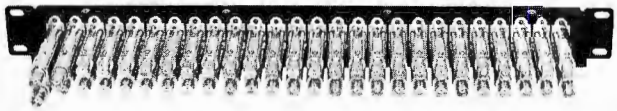
Blank Cap (MI-47776)

The blank cap provides a convenient means of blocking unused spaces in the patch panel. It may be easily removed when the space is needed for expansion or re-arrangement of the panel.

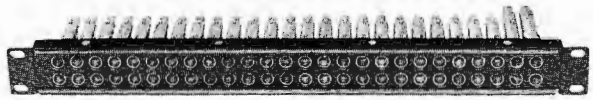
Panel Dimensions	19" wide, 1¾" high, ¾" deep (48.3 cm, 4.4 cm, 1.9 cm)
Finish	Black

*Note: Longest coaxial jack assembly extends 3-3/16" (8.1 cm) behind the video patch panel.

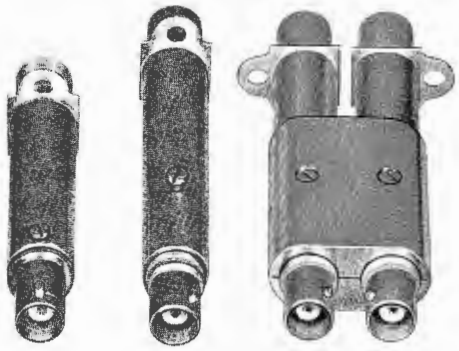
All jacks incorporate a BNC connector for ease in connecting and disconnecting circuits.

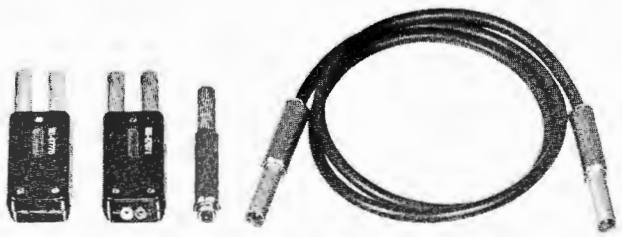


The patch panel requires only 1¾ inches of rack space. Identification strips are provided for convenient labeling of each circuit.



Coaxial Jacks. Shown left to right are coaxial jack MI-47771, self-terminating jack MI-47873, and self-normalling jack pair MI-47872.

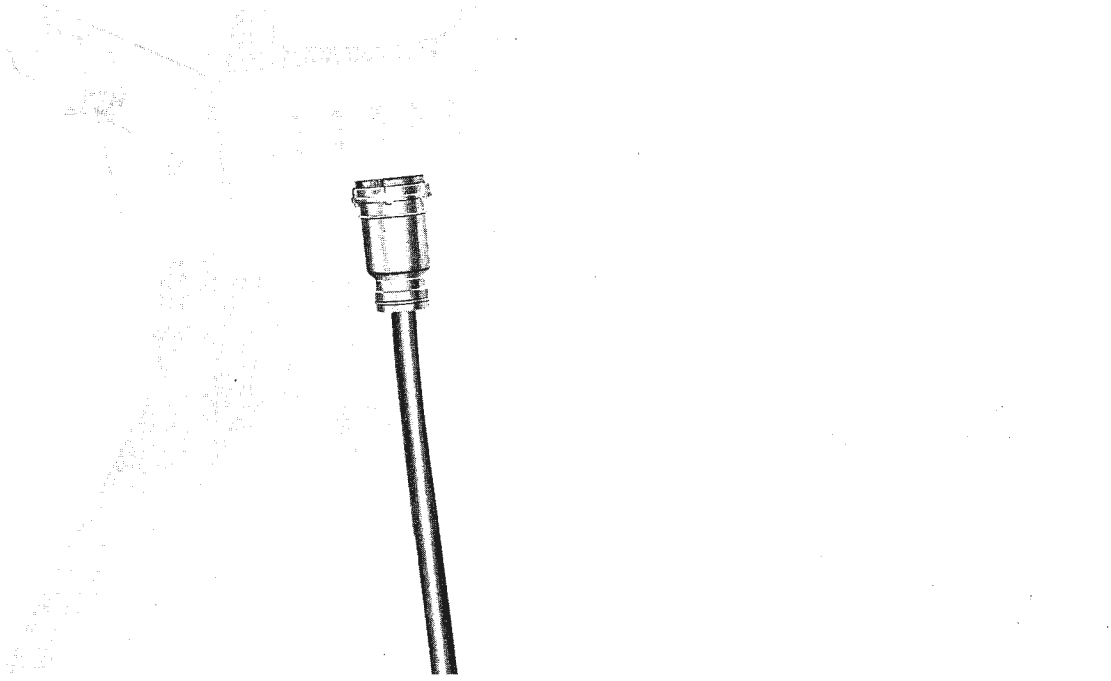




Plugs and Cords — Shown left to right are video patch plug, MI-47775, video patch plug with test point MI-47871, termination plugs with test point MI-47774, and video patch cord MI-47772.

Ordering Information

Video Patch Panel (less jacks)	MI-47770
Coaxial Jack	MI-47771
Self-Terminating Jack	MI-47873
Self-Normalling Jack Pair	MI-47872
Video Patch Plug	MI-47775
Video Patch Plug with Test Point	MI-47871
Video Patch Cord (2' long)	MI-47772
Video Patch Cord (3' long)	MI-47773
Termination Plug with Test Point	MI-47774
Blank Caps (Bag of 10)	MI-47776



TV Cables, Plugs, Connectors

RCA television cables, plugs and connectors are made available for interconnecting the various components of television equipment.

The cables are generally designed for their particular application. The internal insulations and wire sizes are in many cases of special construction for specific purposes. The outer jackets of the cables will provide maximum durability and flexibility for the applications to which they are subjected.

Camera Cables with Connectors

Ordering Information	Description	Length
MI-26725-E9	PK-330 Camera Cable with 90° male connector & straight female connector	50 feet
MI-26725-E5	PK-330 Camera Cable with straight connectors	50 feet
MI-26725-E6	Same as above except length	100 feet
MI-26725-E7	Same as above except length	200 feet
MI-36207-25	TK-202 Camera Cable with straight male & female connectors	25 feet
MI-36207-50	Same as above except length	50 feet
MI-26307-100	Same as above except length	100 feet
MI-36207-200	Same as above except length	200 feet
MI-36207-500	Same as above except length	500 feet
MI-36207-*	Same as above except length	Custom
MI-36208-25	TK-202 Camera Cable with 90° female connector & straight male connector	25 feet
MI-36208-50	Same as above except length	50 feet
MI-36208-100	Same as above except length	100 feet
MI-36208-200	Same as above except length	200 feet
MI-36208-500	Same as above except length	500 feet
MI-36208-*	Same as above except length	Custom

*Insert desired length

Ordering Information	Description	Length
MI-48125-25	PK-302 Camera Cable with straight male & female connectors	25 feet
MI-48125-50	Same as above except length	50 feet
MI-48125-100	Same as above except length	100 feet
MI-48125-200	Same as above except length	200 feet
MI-48125-500	Same as above except length	500 feet
MI-48125-*	Same as above except length	Custom

Control Cables with Connectors

Ordering Information	Description	Length
MI-36229-25	Wollensak Zoom Lens Remote Control Cable with connectors	25 feet
MI-36229-50	Same as above except length	50 feet
MI-36229-100	Same as above except length	100 feet
MI-36229-150	Same as above except length	150 feet
MI-36229-200	Same as above except length	200 feet
MI-36229-500	Same as above except length	500 feet
MI-36229-*	Same as above except length	Custom

*Insert desired length

Ordering Information	Description	Length
MI-36366-25	Zoomar Zoom Lens Remote Control Cable with connectors	25 feet
MI-36366-50	Same as above except length	50 feet
MI-36366-100	Same as above except length	100 feet
MI-36366-200	Same as above except length	200 feet
MI-36366-500	Same as above except length	500 feet
MI-36366-*	Same as above except length	Custom
MI-47888-25	PTS-1 Switcher Control Cable with two straight male connectors	25 feet
MI-47888-50	Same as above except length	50 feet
MI-47888-100	Same as above except length	100 feet
MI-47888-200	Same as above except length	200 feet
MI-47888-500	Same as above except length	500 feet
MI-47888-*	Same as above except length	Custom
MI-48132-	Canon Zoom Lens Remote Control Cable with connectors (CB)	Custom
MI-48146-25	PK-301/302/310/315 Remote Control Cable with extender kit	25 feet
MI-48146-50	Same as above except length	50 feet
MI-48146-100	Same as above except length	100 feet
MI-48146-200	Same as above except length	200 feet
MI-48146-500	Same as above except length	500 feet
MI-48146-*	Same as above except length	Custom
MI-48188-25	PK-330 Remote Control Cable with straight male & female connectors	25 feet
MI-48188-50	Same as above except length	50 feet
MI-48188-100	Same as above except length	100 feet
MI-48188-200	Same as above except length	200 feet
MI-48188-500	Same as above except length	500 feet
MI-48188-*	Same as above except length	Custom
	Pan & Tilt Remote Control Cable with connectors (CB)	Custom

Coax Cable with Connectors

Ordering Information	Description	Length
MI-47783-25	RG-11A/U Coax Cable with UHF Solder Connectors (use for long runs only)	25 feet
MI-47783-50	Same as above except length	50 feet
MI-47783-100	Same as above except length	100 feet
MI-47783-150	Same as above except length	150 feet
MI-47783-200	Same as above except length	200 feet
MI-47783-500	Same as above except length	500 feet
MI-47783-*	Same as above except length	Custom
MI-47784-25	RG-59B/U Coax Cable with UHF Crimp Connectors	25 feet
MI-47784-50	Same as above except length	50 feet
MI-47784-100	Same as above except length	100 feet
MI-47784-150	Same as above except length	150 feet
MI-47784-200	Same as above except length	200 feet
MI-47784-500	Same as above except length	500 feet
MI-47784-*	Same as above except length	Custom

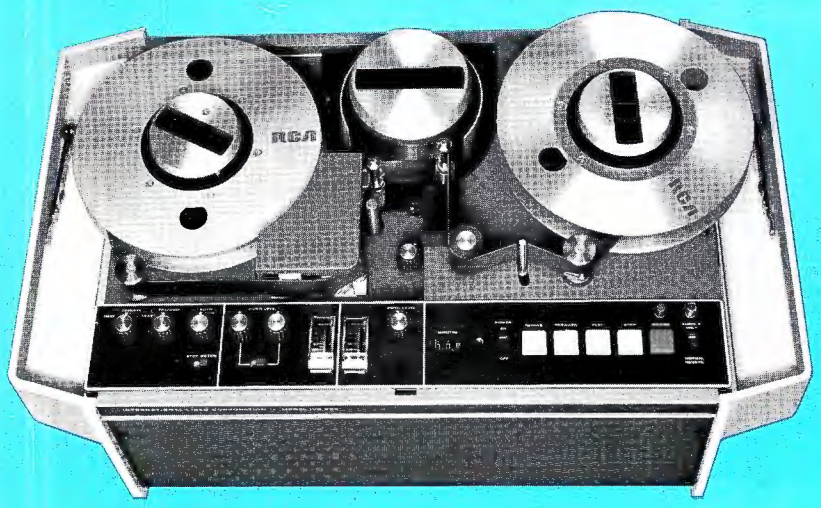
*Insert desired length

Ordering Information	Description	Length
MI-47785-25	RG-59B/U Coax Cable with BNC Crimp Connectors	25 feet
MI-47785-50	Same as above except length	50 feet
MI-47785-100	Same as above except length	100 feet
MI-47785-150	Same as above except length	150 feet
MI-47785-200	Same as above except length	200 feet
MI-47785-500	Same as above except length	500 feet
MI-47785-*	Same as above except length	Custom

Bulk Cable and Accessories

Ordering Information	Description	Length
MI-75B	RG-59B/U Coax Cable	
MI-83-A	RG-11A/U Coax Cable	
MI-94N	PK-330 Camera Cable	
MI-13339	PK-302/TK-202 Camera Cable	
MI-48130	PK-301/302/310/315 Camera Cable (12#22)	
MI-48131	Wollensak Zoom Lens Cable (7#18)	
MI-48131	Zoomar Zoom Lens Cable (7#18)	
MI-48132	EH-1 Weatherproof Housing Cable (15#18)	
MI-47891	PTS-1 Control Cable (46#25)	
MI-48177	PK-330 Remote Control Cable (20#22)	
	Pan/Tilt Cable (CB)	
MI-26759-A22	PK-330 Cable Connector, straight female	
MI-26759-24	PK-330 Cable Connector, right angle male	
MI-36126	Wollensak Zoom Lens Cable Connector	
MI-36130	TK-202 Cable Connector, straight male	
MI-36130-A	TK-202 Cable Connector, straight female	
MI-36130-C	TK-202 Cable Connector, right angle female	
MI-36367	Zoomar Zoom Lens Cable Connector	
MI-47861	BNC Solder Connector for Field Installation of RG-59B/U	
MI-47761-1	BNC Crimp Connector for RG-59B/U	
MI-47786	UHF Crimp Connector for RG-59B/U	
MI-47787	UHF Solder Connector for RG-11A/U	
MI-47890	PTS-1 Control Cable Connector	
MI-48124	Extender Kit for PK-301/302/310/315	
MI-48129-1	PK-302 Cable Connector, straight male	
MI-48129-2	PK-302 Cable Connector, straight female	
	Canon Zoom Lens Cable Connector (CB)	

*Insert desired length



- Simple operation—push button controls
- Machine-to-machine compatibility guaranteed
- Full remote control capability
- Choice of portable and rack mount operation
- Small size, light weight
- One-hour recording on only 2150′ of tape
- Stop motion standard
- Color, slow-motion and electronic editing options available

RCA TV Tape Recorder, 800 Series

Description

With the 800 series, high quality video tape recording in monochrome and color is now within the reach of everyone involved in instruction and training. It is a high resolution (400-lines), easy-to-operate unit that can be used as a compact portable recorder or rack-mounted for permanent installation. One hour of continuous recording can be made on an 8-inch NAB reel, using 1-inch tape.

The 800 series is the first helical scan video recorder designed specifically for color operation. Conversion to color is readily accomplished at modest cost, through the addition of a color module. Operation of the recorder is extremely simple. Once tape is threaded through the fixed-guide tape path, interlocked electrical controls safeguard against misdirected button pushing.

Electrical push button control of transport (with interlocked logic circuits) permits all tape motion functions to be remotely controlled, a particularly desirable feature in dial access systems and other applications. Since the tape is automatically relaxed when stopped, unnecessary wear is eliminated.

Audio and video record levels may be set by meter, and tape location is readily determined by means of a built-in timer which is accurately calibrated in minutes and tenths. Two audio channels are provided, one of which may be erased and re-recorded without erasing video information. "Alpha" wrap is another innovation incorporated in these recorders. (Drawing, reverse side.) With alpha wrap, tape is wound 360 degrees around the video scanning station. Head-to-tape contact approaches 100%, resulting in the recording of total picture information. Smooth tape movement around the drum is achieved through positive air bearing support generated by the scanning assembly. The video head is guaranteed for 500 hours of operation (or 6 months) and can be removed and replaced in less than a minute. (See photo, reverse side.)

Internal construction features include:

- **4-motor, servo-controlled design assures fast lock-up and stabilization, and provides fast forward and rewind of a full tape in less than 90 seconds.**
- **Completely solid state electronic circuitry, with pulse interval modulation, results in improved frequency response and signal-to-noise.**
- **Modular circuitry for easy maintenance and parts replacement if required.**
- **Dynamic braking eliminates the possibility of tape damage. An end of tape sensor activates a stop circuit, minimizing tape spillage.**

All tapes recorded on any 800 series can be played back on any recorder using the 1-inch IVC format. This machine - to - machine compatibility is achieved by means of the wide guard bands (spaces) that this recording format allows between slant-scan 6.0-mil wide video tracks. The guard bands on the 800 series are wider than in any other helical scan format. This results in excellent tape interchangeability.

11SPTV

Specifications

525 line, 60 Hz, NTSC color or monochrome version

Tape Speed ..... 6.91 ips

Tape and Reel ..... 1" wide, "A" wrap tape on NAB hub 8" maximum size reel

Dimensions and Weight:

Case Mounted ..... 24" x 11½" x 13½", 78 pounds

Rack Mounted (standard EIA rack) ..... 19" x 12¼" x 9⅝" deep (including cable clearance), 59 pounds

Controls:

Pushbuttons ..... Play, record, rewind, fast forward, stop

Knobs ..... On/off, tracking, tension, color lock, video, cue and audio record levels

Power ..... 110 to 130 VAC, 60 Hz; 350 Watts maximum

Video

Monochrome Bandwidth ..... 30 Hz to 4.2 MHz +1 dB, −4 dB

Signal-to-Noise ..... 43 dB peak-to-peak signal to rms noise

Input Level ..... 0.5 to 2.0 V peak-to-peak (composite input)

Input Signal ..... Any standard 60 field, monochrome or NTSC color signal; 75 Ohm termination in recorder

Outputs ..... Two outputs, one for monochrome and one for color both are adjusted for 1V composite, video into 75 Ohm line

Audio

Bandwidth ..... Channel 1: 75 Hz to 10 kHz ±4 dB
Channel 2: 250 Hz to 7.5 kHz, ±4 dB

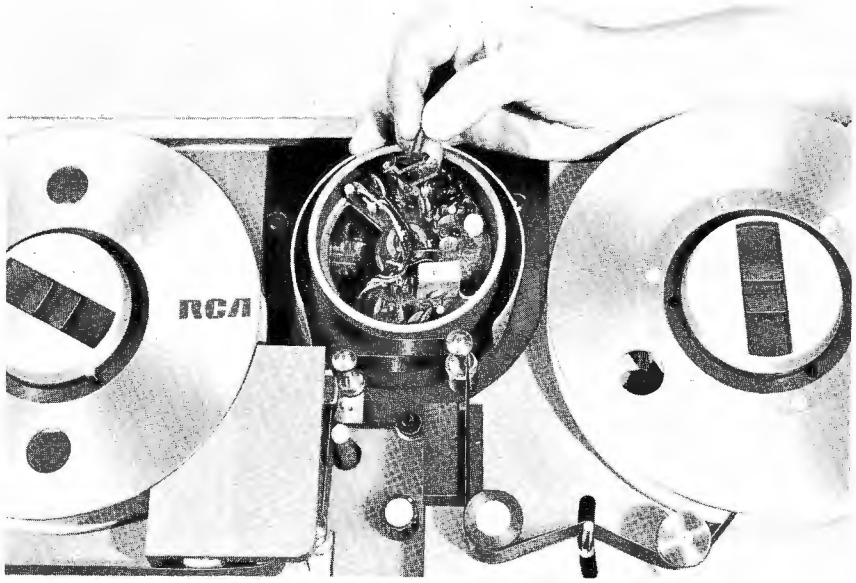
Signal-to-Noise (both channels) ..... 40 dB, relative to 3% distortion at 400 Hz

Interchannel Crosstalk ..... −40 dB minimum

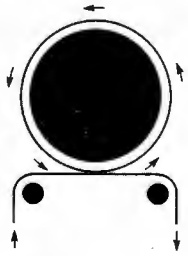
Flutter and Wow ..... Less than 0.25% rms

Inputs (both channels) ..... Microphone input, 200 Ohms nominal; line input, −20 dBm to +16 dBm (+4 dBm nominal), 600 Ohms balanced or unbalanced

Outputs (both channels) ..... Adjusted for +4 dBm output into 600 Ohm terminated line



ALPHA WRAP



Ordering Information

Description	525/60 Hz MI No.
Monochrome recorder/reproducer in a portable case	591180
Monochrome recorder/reproducer for rack mounting	591181
Color recorder/reproducer in a portable case	591182
Color recorder/reproducer for rack mounting	591183
Color processor module for recorder/reproducer	591184

Description	525/60 Hz MI No.
Monochrome recorder/reproducer in a portable case including factory installed slow motion	591185
Monochrome recorder/reproducer for rack mounting, including factory installed slow motion	591186
Color recorder/reproducer, including factory installed slow motion	591187
Color recorder/reproducer for rack mounting, including factory installed slow motion	591188
Service manual	591189

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