



Video Routing

Versatile Routing Switchers for Small Systems

Model Dyna Mite Series



The Dyna Mite series of switchers is the perfect solution for small system video and audio routing needs. It is a suitable choice for NTSC, PAL, and SECAM signals. With its 40 MHz bandwidth, Dyna Mite can also handle HDTV, data, or graphics signals. The Dyna Mite modular design provides many of the expansion capabilities of large routers, but at a much lower price.

The versatile Dyna Mite routing switcher packs many outstanding features into its compact two-rack-unit frame. Its features include the X-Y keypad master control, an optional RS-232 computer control port and the ability to switch 10, 20, or 30 inputs to 10 outputs.

Dyna Mite is available in seven basic configurations:

Video	10 x 10	20 x 10	30 x 10
Audio	10 x 10	20 x 10	30 x 10
Video/Audio	10 x 10		

These seven switchers are configured by plugging appropriate switch and output modules into three frame configurations: 30 x 10 video, 30 x 10 audio, and 10 x 10 video/audio.

The 30 x 10 frames have slots for three switch modules and one output module. You can start with a 10 x 10 matrix, and add a second or third 10 x 10 switch module as your requirements grow. The 30 x 10 frames can also be stacked to switch video/stereo-audio, RGB, or other component video signals.

VIDEO SWITCHING

Video switch modules utilize hybrid components to provide superior performance and high reliability. The input amplifiers provide a high degree of buffering to the crosspoints. Crosspoints require extremely low power in the "off" state, significantly reducing heat and enhancing system reliability. Current switches isolate unselected crosspoints from the output bus to control crosstalk and maintain constant frequency response.

APPLICATIONS

- NTSC, PAL & SECAM video
- RGB & computer graphics
- HDTV video
- Broadcast television
- DS3
- Time code
- Intercom Systems

FEATURES

- 10, 20 or 30 inputs and 10 outputs
- Video, Audio or Video/Audio configurations
- Local, remote or computer controlled
- HDTV quality 40 MHz bandwidth video
- Maintains DC output level for composite, non-composite or scrambled video
- Vertical interval switching
- No active components mounted on frame
- Alphanumeric or numeric control

BENEFITS

- Easily reconfigured for growth
- Route analog video, stereo audio & RGB signals
- Optional remote control capability
- High quality, lowest cost

Switch modules receive input address information from the motherboard, making all switch modules directly interchangeable.

Video output modules use compact hybrid amplifiers to provide ten independent destination buses. Each bus provides a 75 ohm, source-terminated output.

The video system is organized in groups of ten destinations, with one to three video switch modules and one video output module per frame. Inputs are terminated with precision 75 ohm resistors to assure high return loss and uniform frequency response over the system's wide bandwidth. Switch modules are connected to the output module through a motherboard bus. Switching occurs during the vertical interval, referenced to external composite sync or video. Random switching is provided in the absence of such reference.

DC reference is maintained on composite, non-composite or scrambled signals regardless of scanning rate or average picture level through the use of unique signal-tip-restoration circuitry. Data information is also stabilized by this STR circuitry.

Video input and output connectors are BNC.

AUDIO SWITCHING

The audio switcher architecture is similar to that employed in the video switcher. Audio switch modules utilize integrated circuit input amplifiers and crosspoints to provide high performance and reliability. The input amplifiers provide high impedance bridging of the input signal, and are carefully balanced to provide high common mode rejection over the full bandwidth of the system. As with video switching, all switch modules are directly interchangeable.

Audio output modules provide ten 600 ohm balanced destination buses. The amplifiers can produce a sine wave output of +24 dBm, and will withstand an indefinite short in the output circuit at this level.

The audio system is organized in groups of ten destinations, with one to three audio switch modules and one audio output module per frame. Inputs and outputs are connected to the matrices through screw terminal connectors. Each input and output consists of a balanced audio pair and separate, isolated, signal ground. System expansion follows the same functional pattern as that of the video system.

SMPTE/EBU TIME CODE

Standard speed time code may be switched using standard audio switch and output modules.

High shuttle speed time code can be switched with standard audio switch modules and wideband timecode output modules.

VIDEO/AUDIO SWITCHERS

The 10 x 10 V/A switcher combines video and audio switching within one unit. It includes a 10 x 10 switch module and a 10-channel output module for video and for audio. The video and audio sections may be operated in audio-follow-video mode, with audio breakaway, or in split audio-video mode.

A 20 x 10 or 30 x 10 V/A system can be assembled by "stacking" a video switcher and an audio switcher, with a control bus cable between the two units. The video switcher is normally controlled and the audio switcher may be operated in the AFV mode, with breakaway capability, or in the split mode.

Stacking may also be used for stereo audio, RGB or other component switching. However, if you are planning a switching system beyond two Dyna Mite frames, it may be more cost effective and space efficient to choose our larger Series 36 or System 2000 switch.

CONTROL SYSTEM

Dyna Mite uses many microprocessor-based elements to provide a highly flexible and cost effective control system. Control system features include optional alphanumeric or standard numeric control of two system levels such as video and audio, power fail memory protection, status display, programmable memories and control system self-check and diagnostics.

The Dyna Mite can be operated from any computer, or from a VDT using the serial control option.

The system controller is the central switchboard for the system; it receives switch commands from and sends status information to the control panels.

The system controller for the Dyna Mite is normally combined with the master X-Y control panel as an integral part of the front panel, and provides local matrix control and status. As an alternate, if it is desired to separate the switcher frame and the control functions, an external MiniStar control panel, with system controller firmware, can be used as the master X-Y control.

In either case, the alphanumeric option supports full alphanumeric source and destination selection. Three, four, and five character mnemonic combinations provide a large number of source/destination labels for clear operator understanding. Fifty of the most commonly used labels are included. These labels affix to the control keys to enable tailoring of the panel to the user's environment. Switching to numerics for maintenance is fast and simple.

The slave controller module in the Dyna Mite frame is driven by serial data from the master control panel and system controller through the comm line. It generates parallel data which is fed through a control bus to the

switch modules, and can drive additional frames for stacked systems.

The master control panel has a special administrative function for setting system operating parameters such as the number of inputs and outputs, and the number of levels and characteristics of remote control panels. A user-changeable passcode protects the administrative mode.

The control system allows switcher operation from up to 29 additional remote panels. MiniStar controls are available for X-Y or single bus operation in several convenient sizes and mounting configurations. Two levels of control permit audio-follow-video, audio-breakaway or split audio-video operation of the routing switcher. Installation of remote control panels is easy, since all remote panels are connected together by standard video coax cable.

REMOTE CONTROL

The microprocessor-based MiniStar offers compact, versatile control for the Dyna Mite switcher. It can be programmed for single destination, or full X-Y control.

The MiniStar 4.1 and 3.1, when used as remote control panels will perform all of the operating features described in this brochure with the exception of programmable memories. This feature, which provides single keystroke switching of up to ten complex events, is available in MiniStar 7.1 and 6.1. These panels mount in racks as a single unit or in pairs, or fit comfortably on a desk or in a console. Power is provided by a wall-mounted power supply. When the alphanumeric option is used, all MiniStar controls in the system will operate in the alphanumeric mode.

Specifications

VIDEO	
Inputs	1.0 V p-p, composite video (0.714 V, 0.286S) 75 ohm, Terminating
Input Return Loss	Greater than 35dB @ 5 MHz
Outputs	Single, 75 ohm source terminated
Output Return Loss	Greater than 40 dB @ 5 MHz
Output DC Reference	Adjustable -0.2 to + 0.2 V maintained ± 0.02 V 10 to 90% APL, composite or non-composite video
Connectors, In-Out	BNC
Sync Input (for vertical interval switching)	Composite 1 V p-p video or 1 to 4 V p-p neg. sync, 75 ohms, BNC connector
Gain	Adjustable to unity, any input to any output ± 0.5 dB
Crosstalk Isolation	Greater than 60 dB to 5 MHz. Worst case.
Differential Delay	1° @ 5 MHz
Switching Time	Less than 5 μ s
Frequency Response	100 KHz - 5 MHz ± 0.1 dB; 10 MHz ± 0.2 dB; 20 MHz ± 0.3 dB (1 MHz reference)
Bandwidth	(-3 dB) 40 MHz (1 MHz reference)
Group Delay	Less than 5 ns, 100 KHz - 5 MHz
Differential Gain	0.05% 10 to 90 APL, 5 MHz
Differential Phase	0.05° 10 to 90 APL, 5 MHz
Slew Rate	50 Volts/microsecond
Transient Response	0.5% 2T pulse, 1.0% T pulse
Tilt	Less than 1% line or field
Hum and Noise	80 dB RMS below 1 V p-p, 10 MHz bandwidth

AUDIO	
Inputs	Balanced high impedance bridging +24 dBm Max.
Common Mode Rejection	Greater than 60 dB, 50 - 120 Hz; 50 dB, 30 Hz - 15 KHz
Outputs	Balanced low impedance, indefinite short-circuit protection +24 dBm max. with 600 ohm load
Output Level Variation	± 0.2 dB max. between inputs
Connector, In-Out	Screw Terminals
Gain	Adjustable to unity
Crosstalk Isolation	Greater than 80 dB below +24 dBm output to 15 KHz. Worst case, all inputs/outputs active
Frequency Response	30 Hz - 20 KHz $\leq \pm 0.2$ dB
Harmonic Distortion	0.1% to 15 KHz + 8 dBm in/out; 0.25% to 15 KHz max. in/out
Hum and Noise	-75 dBm max.

GENERAL SPECIFICATIONS	
Comm Line	75 ohm coax., 2000 ft (610 mtrs) max., 9600 bps serial data, BNC connector
Optional Computer Control	RS-232, 300 to 19,200 bps full duplex, 9 pin D subminiature connector
Frame Size	3.5"H (2 RU) x 14.25"D x 19" rack mounting (89H x 483W x 362D mm)
Primary Power	115/230 VAC $\pm 10\%$ 50 to 60 Hz, 100 watts
Temperature Range	0 to 40° C
MiniStar Controls	
Comm Line	Single coax, RG-59 type, 2000 ft. (610 m) maximum, serial data, 9600 bps, BNC connector
Size	3.5"H (2 RU) x 8.5"W x 1.5"D (88 x 214 x 38 mm)
Rack Mount	3.5"H x 19"W x 1.5"D (88 x 483 x 38 mm)
Temperature Range	0 to 50° C
Primary Power	PCA-810A: Wall-mount transformer 115 VAC, $\pm 10\%$, 60 Hz PCA-811A: Wall-mount transformer 230 VAC, $\pm 10\%$, 50 Hz

Dyna Mite equipment has been tested to show compliance with FCC rules, Part 15, Subpart J, for Class A computing device.

Specifications subject to change without notice.