MPS-300

Multimedia Presentation System 300

The MPS-300 is a complete presentation control and signal routing solution for boardrooms and classrooms. Integrating the control system, multimedia matrix switcher, mic mixer, audio processor, amplifier, and QuickMedia distribution center all into a single 2-space rackmount package, the MPS-300 affords considerable signal routing versatility and high-performance signal processing without the need for separate components.

System Switcher

Right out of the box, the MPS-300 provides high-performance switching of 2 video and 3 RGB computer sources to a single projector or plasma display. Composite, S-Video, component and RGBHV signals can be routed to the appropriate inputs on the display device, with control of the display provided via Ethernet, RS-232 or IR. Input signal sensing is provided on every video and RGB input to enable auto-switching functionality and provide device power status information to the control system. Selectable sync impedance on the RGB inputs helps accommodate cable runs of varying lengths.

Versatile matrix switching inside the MPS-300 actually affords some additional hidden signal routing flexibility, providing discrete switchable outputs for RGB, composite, S-Video, and component signals. For instance, Outputs 1 and 2 can function as separate composite and S-Video outputs, or as a single component output; Output 3 can be a single component, S-Video, or composite output; and Output 4 can be used for either RGB or component. Each output is fed by a separate matrix crosspoint, so they all can be active simultaneously and assigned any relevant input source.

QuickMedia™ Matrix

In addition to its conventional type video inputs and outputs, the MPS-300 accommodates additional sources and display devices via Crestron's exclusive QuickMedia (QM) transport. Three QM inputs accept connections from QM Wall Plates, FlipTop Boxes, and Distribution Centers, providing an abundance of additional inputs for AV, computer, and microphone sources. Three QM outputs are also provided, each independently controllable to feed multiple displays and other devices.

QuickMedia provides a very streamlined, low-cost, long-distance wiring solution. The QuickMedia transport transmits high-resolution RGB, HD video, stereo program and microphone audio signals up to 450 feet over a single inexpensive CAT5e type cable*. Just one **CresCAT-QM** cable and a QM receiver are all that is required for complete signal routing and device control, eliminating all the bulky, expensive cabling that would otherwise be needed. A full range of QM transmitters, receivers, and other products is offered by Crestron to suit any application.

Touchpanel Output

Any of the QM outputs may be utilized to feed a preview signal to the system touchpanel. Additionally, one Crestron Home® (CH) CAT5 Balanced Video output is included, its signal corresponding with the first QM output, providing for simplified wiring to a complete range of Crestron touchpanels. Each QM output supports high-resolution RGB and HDTV plus audio, while the CH output is limited to standard video and HDTV only (dependent upon the capabilities of the touchpanel).

Two gated microphone/line inputs are included on the MPS-300 complete



with software-switchable 48V phantom power and independently adjustable compression and limiting. Up to 6 additional microphone signals can be brought in through the 3 QM inputs, with 4-band speech-optimized equalization provided on all 8 mic channels. Sophisticated matrix mixing allows for six completely different mixes of all 8 microphones—three mixes feeding discrete "local" outputs, and three additional mixes feeding the 3 QM outputs.

Professional Audio Features

Five stereo audio inputs on the rear panel accept balanced or unbalanced line-level signals from computers and other program audio sources. Additional audio sources can be brought in through the 3 QM inputs. To accommodate a wide range of signals, adjustable input compensation is employed to help maintain consistent volume levels when switching between sources. Versatile matrix mixing allows the selected program signal and the 8 microphone signals to be separated or mixed in any combination to feed 3 "local" outputs, each with its own unique mix.

Three discrete balanced line level outputs are provided, each with independent adjustments for volume, bass, treble, and mute. The stereo PROGRAM and mono SPEECH outputs are normally intended for driving external amplification, with relay muting on each output to prevent "thumping" on power up. The RECORD output allows for a completely separate stereo mix to feed a codec, recording device, or assistive listening system. Ten-band graphic equalization plus 2-band parametric equalization on each output eliminates the need for expensive outboard audio processors, and up to 40mS delay adjustment is available on the SPEECH output for proper loudspeaker alignment.

The 3 QM outputs are controlled separately from the other audio outputs, allowing 3 different program sources and 3 different microphone mixes to be monitored on touchpanels and output to additional audio equipment by way of an appropriate QM receiver or other QuickMedia device(s).

Built-in Amplifier

A 40-watt amplifier is built into the MPS-300, with three models available offering the choice of 8-ohm stereo, 70V mono, or 100V mono outputs. For large rooms requiring more power, the MPS-300 supports plug-and-play compatibility with Crestron's QM-Series 3-channel amplifiers, providing a complete solution for driving a professional loudspeaker system with discrete program and speech channels.

Front Panel Control

Out of the box, the MPS-300 front panel supports easy pushbutton



indicators are also provided for separate control of system power and projector power. In addition, five preset buttons are included for custom functions such as lowering a projection screen, closing blinds, or selecting a lighting preset.

The front panel label strips are easily customized using Crestron Engraver software or standard 3/8" tape labels, allowing for the clear designation of each input, output, and preset button. When selected, these functions will also appear on the LCD display as generic names (Input 1, 2...), or as custom names (DVD, Podium PC, Screen Up, etc.).

Easy setup of the MPS-300 is facilitated through the LCD display without necessitating a computer. Together with 4 softkey buttons, 4 menu navigation buttons and the volume knob, the LCD enables configuration of IP network, audio, and other system settings. For security, the front panel controls can be password protected or locked out.

2-Series Control System

Integrated into the MPS-300 is a Crestron 2-Series Ethernet control system complete with **e-Control®2** Web server and a host of RS-232, IR, digital input and relay control ports for integration with third-party equipment. Anything from a basic AV presentation room with a single projector, screen, and keypad controller, to a fully custom touchpanel based system with multiple controlled sources and display devices, can be programmed easily using Crestron **SystemBuilder™** software. And, the MPS-300 works with Crestron's **RoomView®** Help Desk software, the industry's most comprehensive facility-wide asset management solution.

Room Control Options

Without requiring any programming, the MPS-300 can be controlled simply using Crestron's **APAD** LCD Controller or a selection of keypads. With custom programming, Crestron's complete line of Isys® touchpanels and MediaManager FlipTops is supported. Equipped with an optional **CNXRMIRD** IR receiver, the MPS-300 allows any Crestron IR wireless touchpanel or handheld remote to be used for a low-cost wireless control solution. Or, adding an RF wireless gateway or Wi-Fi access point enables use of a wide range of 1-way and 2-way RF wireless handheld remotes and touchpanels.

> System switcher, audio processor, and control system

- > Out-of-the-box switching and audio control
- > 2 video/HDTV and 3 RGB/computer inputs
- > 3 QuickMedia inputs with delay skew compensation
- > Built-in input signal sensing | auto-switching capable
- > Discrete composite, S-Video, component, and RGB outputs
- > 3 QuickMedia and 1 Crestron Home CAT5 AV outputs
- > 5 balanced stereo audio inputs
- > 2 gated mic inputs with compressor & limiter
- > 8-channel mic mixing w/4-band EQ per channel
- > Discrete program, speech, and record outputs
- > Graphic and parametric equalization | 40mS audio delay

- > Built-in 40 watt amplifier stereo, 70V, or 100V models
- > 2-Series control engine | e-Control 2 Web server
- > 10/100 Ethernet | RoomView and SNMP support
- > 2 RS-232, 4 IR, 4 digital in, & 4 relay control ports
- > Front panel setup and control | Backlit LCD display
- > Keypad, touchpanel, and wireless control options
- > Internal power supply | 2-space rack-mountable

SPECIFICATIONS

Processor

CPU: 32-bit Freescale ColdFire® Microprocessor

Memory

SDRAM: 32 MB NVRAM: 256 KB Flash: 16 MB

Operating System

Real-time, preemptive, multitasking kernel, multi-threaded; FAT32 file system with long names; supports SIMPL™Windows®nd SIMPL+®

Ethernet

10/100BaseT, static IP or DHCP/DNS, SSL, auto-negotiating, full duplex TCP/ IP, UDP/IP, CIP, SMTP, SNMP, built-in Web server and e-mail client; supports Crestron **e-Control®2 XPanel** and **RoomView®** applications

<u>Video</u>

Switcher: 8x7 crosspoint matrix including 3x3 QM signal routing, local QM delay skew compensation
Signal Types: RGB and composite, S-Video, or component video (does not transcode)
Video/HDTV Formats: NTSC or PAL, HDTV up to 1080i/1080p
RGB Formats: RGBHV or RGBS
Maximum Resolution: QXGA 2048 X 1536 @ 60Hz (WUXGA 1920 X 1200 @ 60Hz via QM)
Blanking Time: < 0.1 second
Sync Rise/Fall Time: 3.5 ns maximum
Sync Latency: < 30 ns
Gain: 0dB (75 ohms terminated)
QM Cable Compensation: 10-bit digitally controlled PEAK (bandwidth) and B00ST (frequency); 4-bit digitally controlled SKEW delay, 0 to 22 ns (independent for R, G, and B)

<u>Audio</u>

Switcher/Preamp: 8x4 stereo crosspoint matrix including 3x3 QM signal routing, 2-channel gated mic preamp with compressor & limiter, 8-channels mic EQ, 10X5 mic/program matrix mixer, 8x2 mic matrix mixer per each of 3 QM outputs, stereo volume/tone control and EQ per each of PROGRAM and RECORD outputs, mono volume/tone control and EQ/delay on SPEECH output, integrated power amplifier, QM auto-compensation with self-peaking A-D/D-A Conversion: 24-bit, 48 kHz Output Volume Range: -80dB to +20dB, 0.1dB steps Mixer Volume Range: -80dB to 0dB, 0.1dB steps Mute: -100dB (electronic), -120dB (relay) Input Compensation: ±10dB, 0.1dB steps Mic Input Gain: 0 to 100 % (40dB range) plus mute Gate Level (Threshold): 0 to 100 % Gate Attack: 0 to 100 mS



Gate Decay (Release): 0 to 5000 mS Gate Depth: -80dB (mute) to 0dB, 0.1dB steps Comp Threshold: -80dB to +20dB, 0.1dB steps Comp Attack: 0.1 to 300 mS Comp Release: 1 to 500 mS Comp Ratio: 1.0:1 to 10.0:1 Comp Curve: Selectable hard or soft knee Limit Threshold: 0dB to 20dB, 0.1dB steps Limit Attack: 0.1 to 300 mS Limit Release: 1 to 500 mS Limit Curve: Selectable hard or soft knee Mic EQ Filter Gain: ±12dB, 0.1 dB steps Mic EQ Filter Center Frequencies: 160, 500, 1.2k, 3k Hz Bass Gain Range: ±12dB @ 100Hz, 0.5 dB steps Treble Gain Range: ±12dB @ 10kHz, 0.5 dB steps Output Equalization: 10-band graphic + 2-band parametric PEQ Filter Gain: ±12dB, 0.1 dB steps PEQ Filter Bandwidth: 0.1 to 3.0 octaves, 0.1 octave steps PEQ Filter Center Frequency: 25Hz to 20kHz, 0.5Hz steps PEQ Filter Types: Low Pass, High Pass, Peaking Eq, Notch, Treble Shelf, Bass Shelf GEQ Filter Gain: ±12dB, 0.1dB steps GEQ Filter Center Frequencies: 31, 63, 125, 250, 500, 1k, 2k, 4k, 8k, 16k Hz Speech Output Delay: 0 to 40 mS, 1mS steps Frequency Response: 20Hz to 20kHz ±0.5dB (PROG/REC OUT); 50Hz to 20kHz ±0.5dB (SPEECH OUT); 20Hz to 20kHz ±0.5dB (SPEAKER @ 8 ohms); 100Hz to 20kHz ±1.5dB (SPEAKER @ 70V or 100V) S/N Ratio: 95dB (PROG/REC OUT @ 10dBV, 20Hz to 20kHz A-weighted); 95dB (SPEECH OUT @ 10dBV, 50Hz to 20kHz A-weighted); 90dB (SPEAKER @ 8 ohms, full output, 20Hz to 20kHz A-weighted); 90dB (SPEAKER @ 70V or 100V, full output, 20Hz to 20kHz A-weighted) THD+N: 0.02% (PROG/REC OUT @ 10dBV, 20Hz to 20kHz); 0.02% (SPEECH OUT @ 10dBV, 50Hz to 20kHz); 0.7% (SPEAKER @ 8 ohms, full output, 20Hz to 20kHz); 0.7% (SPEAKER @ 70V or 100V, full output, 100Hz to 20kHz A-weighted) Stereo Separation: -80dB (PROG/REC OUT @ 10dBV, 20Hz to 20kHz); -60dB (SPEAKER @ 8 ohms, full output, 20Hz to 20kHz) Channel Crosstalk: -80dB (AUD IN @ 10dBV, 20Hz to 20kHz)

Connectors - Audio

MC/LN 1 - 2: (2) 5-pin 3.5mm detachable terminal blocks; Comprises (2) balanced microphone/line inputs; Balanced Mic Input Level: -52 to -12 dBV, 240 mVrms maximum; Balanced Line Input Level: -28 to +11 dBV, 3.7 Vrms maximum; Unbalanced Line Input Level: -34 to +5 dBV, 1.85 Vrms maximum; Mic Input Impedance: 3.9k ohms, accepts 60 to 600 ohm source; Line Input Impedance: 19k ohms balanced, 9.5k ohms unbalanced; Phantom Power: 10 mA (total) @ 48 Volts DC, software enabled to both mic inputs PROG OUT: (1) 5-pin 3.5mm detachable terminal block; Balanced/unbalanced stereo line-level output: Output Impedance: 200 ohms balanced, 100 ohms unbalanced: Maximum Output Level: 4 Vrms balanced. 2 Vrms unbalanced **REC OUT:** (1) 5-pin 3.5mm detachable terminal block; Balanced/unbalanced stereo line-level output; Output Impedance: 200 ohms balanced, 100 ohms unbalanced;

Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced; Note: Does not include relay mute

SPEECH OUT: (1) 3-pin 3.5mm detachable terminal block; Balanced/unbalanced mono line-level output;

Output Impedance: 200 ohms balanced, 100 ohms unbalanced; Maximum Output Level: 4 Vrms balanced, 2 Vrms unbalanced **AUD IN 1 - 5 :** (5) 5-pin 3.5mm detachable terminal blocks: Balanced/unbalanced stereo line-level inputs; Input Impedance: 24k ohms balanced/unbalanced; Balanced Input Level: -20 to +12 dBV; 4 Vrms maximum; Unbalanced Input Level: -20 to +6 dBV; 2 Vrms maximum **SPEAKER:** (1 or 2) 2-pin 5mm detachable terminal blocks; Speaker-level audio outputs; Wire Size: Connector accepts 12 AWG maximum; Output Power (MPS-300): 20W RMS per channel stereo into 8 ohms, 4 ohms tolerant; Output Power (MPS-300-70V): 40W RMS mono at 70 Volts; Output Power (MPS-300-100V): 40W RMS mono at 100 Volts

Connectors - Video

COMP/Pb, Y/Y, C/Pr 1 - 2: (2) sets of (3) BNC female video inputs, each set configurable as:

- (1) Component/HDTV (YPbPr) video input, or
- (1) S-Video (Y/C) input, or
- (1) Composite input

Input Level: 1 Vp-p nominal;

Input Impedance: 75 ohms nominal;

DC Offset: Insensitive to DC offset (AC coupled);

Video signal sensing on COMP/Pb or Y/Y **RGBHV 3 - 5 :** (3) DB15HD female, RGBHV or Component/HDTV inputs;

Format: RGBHV, RGBS, RGsB, or YPbPr;

RGB Input Level: 1 Vp-p nominal;

RGB Input Impedance: 75 ohms nominal;

Sync Input Level: 2 to 5 Vp-p;

Sync Input Impedance: 75, 500, or 1k ohms individually selectable for H and V via bottom panel DIP switch;

Video signal sensing on H, Gs, and Y;

Defeatable DDC pull-up resistors

QM INPUTS 6 - 8: (3) 8-wire RJ45 female,QuickMedia input ports; Signal Types: Dynamically configurable for RGBHV, component (YPbPr), S-Video (Y/C), or composite video with stereo program and 2-channels microphone audio;

RGB Format: RGBHV, RGBS, RGsB;

RGB Input Resolution, Non-interlaced: 1920 x 1200 maximum (60 Hz limit at 1600 x 1200 or higher);

Video/HDTV Formats: NTSC or PAL, HDTV up to 1080i/1080p;

Delay Skew Compensation: 0 to 22 nS;

Connect to QM output ports of any QuickMedia devices via **CRESCAT-QM** or **CRESCAT-IM** cable*;

Maximum Cable Length: 450 ft (aggregate distance from QM origination) **COMP/Pb OUTPUT 1:** (1) BNC female,composite video output, or Pb of secondary component/HDTV video output;

Output Level: 1.0 to 1.1 Vp-p (terminated, with 1 Vp-p input); Output Impedance: 75 ohms nominal

Y/Y, C/Pr OUTPUT 2: (2) BNC female,S-Video (Y/C) video output, or Y and Pr of secondary component/HDTV video output;

Output Level: 1.0 to 1.1 Vp-p (terminated, with 1 Vp-p input); Output Impedance: 75 ohms nominal

COMP/Pb, Y/Y, C/Pr OUTPUT 3: (3) BNC female, configurable as:

- (1) Component/HDTV (YPbPr) video output, or
- (1) S-Video (Y/C) output, or
- (1) Composite output;

Output Level: 1.0 to 1.1 Vp-p (terminated, with 1 Vp-p input);

Output Impedance: 75 ohms nominal

RGBHV OUTPUT 4: (1) DB15HD female, RGBHV or Component/HDTV output; Format: RGBHV, RGBS, RGsB, or YPbPr;



RGB Output Level: 0.7 to 0.75 Vp-p (terminated, with 0.7 Vp-p input, unity gain); RGB Output Impedance: 75 ohms nominal;

Sync Output Level: 4 to 5 Vp-p;

Sync Output Impedance: 55 ohms;

Sync Polarity: Follows input

TOUCHPANEL CH 5: (1) 8-wire RJ45 female,CAT5 balanced video output port; Signal Types: Dynamically configurable for component (YPbPr), S-Video (Y/C), or composite video;

Video/HDTV Formats: NTSC or PAL, HDTV up to 1080i;

Output Impedance: 100 ohms balanced;

Connects to CH CAT5 balanced video input port of a compatible touchpanel or other device via **CRESCAT** cable

TOUCHPANEL QM 5 : (1) 8-wire RJ45 female,QuickMedia output port;

Signal Types: Dynamically configurable for RGBHV, component (YPbPr), S-Video (Y/C), or composite video with stereo program and 2-channels microphone audio; RGB Format: RGBHV, RGBS, RGsB;

RGB Output Resolution, Non-interlaced: 1920 x 1200 maximum (60 Hz limit at 1600 x 1200 or higher);

Video/HDTV Formats: NTSC or PAL, HDTV up to 1080i/1080p;

Connects to QM input port of a compatible touchpanel or other QuickMedia device via **CRESCAT-QM** or **CRESCAT-IM** cable*

QM OUTPUTS 6 - 7: (2) 8-wire RJ45 female,QuickMedia output ports; Signal Types: Dynamically configurable for RGBHV, component (YPbPr), S-Video (Y/C), or composite video with stereo program and 2-channels microphone audio; RGB Format: RGBHV, RGBS, RGsB;

RGB Output Resolution, Non-interlaced: 1920 x 1200 maximum (60 Hz limit at 1600 x 1200 or higher);

Video/HDTV Formats: NTSC or PAL, HDTV up to 1080i/1080p; Connects to QM input port of any QuickMedia device via **CRESCAT-QM** or **CRESCAT-IM** cable*

Connectors - Control & Power

IR/SERIAL OUT A - D: (4) 2-pin 3.5mm detachable terminal blocks; IR/Serial output ports; IR output up to 1.2 MHz; 1-way serial TTL/RS-232 (0-5 Volts) up to 9600 baud IR IN: (1) 3-pin 3.5mm detachable terminal block For connection of the **CNXRMIRD** IR Receiver (sold separately); Allows control from IR wireless remotes using RC-5 command set **INPUT 1 - 4:** (1) 5-pin 3.5mm detachable terminal block; Comprises (4) digital/contact closure inputs; Rated for 0-24 Volts DC, referenced to GND; Input Impedance: 2.2k ohms pulled up to 5 Volts DC; Logic Threshold: 2.5 Volts DC nominal with 1 Volt hysteresis band RELAY 1 - 4: (1) 8-pin 3.5mm detachable terminal block; Comprises (4) normally open, isolated relays; Rated 1 Amp, 30 Volts AC/DC; MOV arc suppression across contacts COM A - B: (2) DB9 male, bidirectional RS-232 ports; Up to 115.2k baud, hardware and software handshaking support LAN: (1) 8-wire RJ45 with 2 LED indicators: 10/100BaseT Ethernet port: Green LED indicates link status: Yellow LED indicates Ethernet activity NET: (4) 4-pin 3.5mm detachable terminal blocks; Cresnet Master ports, paralleled; Available Cresnet Power: 30 Watts G: (1) 6-32 screw, chassis ground lug 100-240V~2.5A: (1) IEC Socket, main power input; Mates with removable power cord, included **COMPUTER (front):** (1) USB Type B female; USB 1.1 computer console port (cable included)

LCD Display

Green LCD alphanumeric, adjustable backlight; 2 lines x 20 characters per line; Displays input/outputs by name, volume level bargraph, setup menus, time/ date, and other system information

Controls and Indicators

NET: (1) yellow LED, indicates Cresnet bus activity **MSG:** (1) yellow LED, indicates control system has generated an error message

HW-R: (1) recessed miniature pushbutton for hardware reset, reboots the control system

SW-R: (1) recessed miniature pushbutton for software reset, restarts the SIMPL program

SYS PWR: (1) pushbutton and green LED, controls system power **PROJ PWR:** (1) pushbutton and green LED, controls display device power **SOFTKEYS:** (4) pushbuttons for activation of LCD driven functions and passcode entry

MENU: (1) pushbutton, steps menu back one level

 ${\bf Lambda,\,V:}$ (2) pushbuttons, scroll up or down through menu and adjust menu parameters

ENTER: (1) pushbutton, executes highlighted menu or value **VOLUME:** (1) continuous turn rotary encoder, adjusts menu parameters, defaults to program audio volume

FUNCTION 1 - 5: (5) pushbuttons and red LEDs, programmable for any control system function

IN 1 - 8: (8) pushbuttons and red LEDs, select input to be routed **OUT 1 - 7**: (7) pushbuttons and red LEDs, select output destination

Power Requirements

Main Power: 2.5 Amps @ 100-240 Volts AC, 50/60 Hz Available Cresnet Power: 30 Watts

Environmental

Temperature: 41° to 104°F (5° to 40°C) **Humidity:** 10% to 90% RH (non-condensing)

Enclosure

Chassis: Steel, black matte powder coat finish, convection-cooled, vented top and sides
 Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
 Mounting: Freestanding or 2U 19-inch rack-mountable (adhesive feet and rack ears included)

Dimensions

Height: 3.56 in (9.03 cm); 3.47 in (8.81 cm) without feet Width: 17.03 in (43.24 cm); 19.0 in (48.26 cm) with ears Depth: 12.58 in (31.95 cm)

<u>Weight</u>

MPS-300: 10.1 lb (4.6 kg) MPS-300-70V/100V: 11.9 lb (5.4 kg)

AVAILABLE MODELS

MPS-300: Multimedia Presentation System w/Stereo Amplifier MPS-300-70V : Multimedia Presentation System w/70 Volt Amplifier MPS-300-100V : Multimedia Presentation System w/100 Volt Amplifier



AVAILABLE ACCESSORIES

APAD: Wall Mount LCD Controller C2N-DB12: 12-Button Decorator Keypad CNX-B12: 12-Button Designer Keypad C2N-FTB: FlipTop Control Center CNXRMIRD: IR Receiver QM-AMP3X80MM: 3-Channel Multimedia Amplifier QM-AMP3X80SR: 3-Channel Sound Reinforcement Amplifier CNSP-XX: Custom Serial Interface Cable IRP2: IR Probe C2N-MNETGW: infiNET Gateway CLW-DIM1RF: infiNET Dimmer CLW-SW1RF: infiNET Switch CLS-C6(M): iLux Integrated Lighting System







