MPS 409

MEDIA PRESENTATION SWITCHER

▸ **Five switchers in one enclosure:**
  – **3x1 HDMI switcher**
  – **2x1 DVI switcher**
  – **2x1 VGA / HDTV component video switcher**
  – **2x1 composite video switcher**
  – **9x1 analog stereo audio switcher**

▸ **Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, Lip Sync, and HD lossless audio formats**

▸ **HDCP compliant**

▸ **EDID Minder®**

▸ **Multiple switcher modes**

▸ **Combine Switcher mode routes all DVI and HDMI sources to the HDMI output**

▸ **Audio input gain and attenuation**

▸ **Front-panel MIC and program audio output volume controls**

▸ **RS-232 control**

▸ **Rack-mountable 1U, full rack width metal enclosure**

▸ **Internal universal power supply**

The MPS 409 Media Presentation Switcher combines HDMI, DVI, VGA/HDTV component video, composite video, and analog stereo audio switchers into one, compact enclosure. It features EDID Minder®, an Extron exclusive technology, to ensure that DVI and VGA sources power up properly and maintain their video outputs. The MPS 409 is ideal for single-display applications that require a hybrid switcher for integration of digital and analog source signals.

Extron® Electronics
INTERFACING, SWITCHING AND CONTROL

SERVICE SUPPORT SOLUTIONS 3

DESCRIPTION

The Extron **MPS 409** is a multi-format presentation switcher for digital and analog signals. It combines five independent switchers in a single compact enclosure: 3x1 HDMI with embedded audio, 2x1 DVI, 2x1 VGA / HDTV component video, 2x1 composite video, and 9x1 analog stereo audio.

The MPS 409 offers multiple switching modes that provide flexible signal routing capabilities to address varying system switching requirements. Users can choose among three switcher modes: Combine Switcher, Single Switcher, and Separate Switcher.
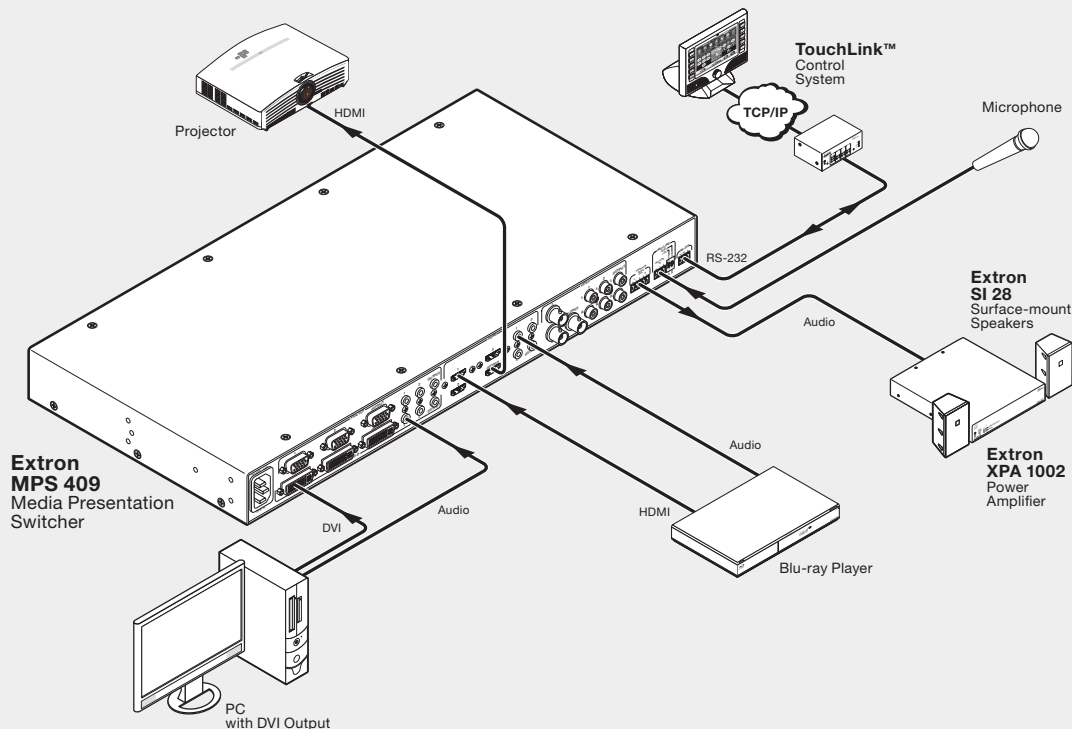
To enhance and simplify integration, the MPS 409 features EDID Minder®, an Extron exclusive technology that automatically manages the EDID information between the display device and the input sources. By maintaining continuous EDID communication, EDID Minder ensures that the DVI and VGA sources power up properly and maintain their video outputs, whether or not they are actively connected to the display device through the switcher's output. EDID Minder is active at all times on the VGA inputs and is a selectable group setting for the DVI inputs. The HDMI group provides pass-through EDID between a selected source and the display.

HDMI and DVI inputs and outputs are HDCP compliant, ensuring the display of content protected media. HDMI ports are HDCP compliant at all times while the DVI ports are selectable as a group for HDCP compliance.

The MPS 409 is ideal for use in single-display applications that require a hybrid switcher for integration of digital and analog video sources and associated audio signals, including conference rooms, classrooms, training facilities, and rental/staging.

Three Types of Switcher Functionality

Projector — HDMI

TouchLink™ Control System

TCP/IP

Microphone

RS-232

Extron SI 28 Surface-mount Speakers

Audio

Extron MPS 409 Media Presentation Switcher

Extron XPA 1002 Power Amplifier

Audio

Audio

DVI

HDMI

Blu-ray Player

PC with DVI Output

Multiple Switcher Modes

- **Combine Switcher mode –** Shown in the diagram above, up to five HDMI and DVI source devices can be routed to a single HDMI-enabled digital display. Audio from the corresponding digital input, connected through the 3.5 mm stereo jack, is routed to the local and program audio outputs. This mode can be used when the switcher is in Separate or Single Switcher mode.

- **Single Switcher mode –** Allows one-touch switching. When one of the nine inputs is selected, video and associated audio input signals are routed to the outputs of its group; the selected audio is also routed to the program audio output. In this mode, outputs of the other groups are muted.

- **Separate Switcher mode –** Allows independent switching of any given group. This effectively segregates switching operations so that the MPS 409 becomes four separate video switchers. While operating in Separate Switcher mode, the program audio can be output from any group, while cueing up for another group, without interruption.

FEATURES

- Five switchers in one enclosure:
  - 3x1 HDMI switcher
  - 2x1 DVI switcher
  - 2x1 VGA / HDTV component video switcher
  - 2x1 composite video switcher
  - 9x1 analog stereo audio switcher

- Supported HDMI specification features include data rates up to 6.75 Gbps, Deep Color up to 12-bit, 3D, Lip Sync, and HD lossless audio formats

- HDCP compliant

- EDID Minder®, available on DVI and VGA inputs, automatically manages EDID communication between connected devices – EDID Minder ensures that all sources power up properly and reliably output content for display.

- Multiple switcher modes – The MPS 409 features three, user-selectable switching modes for optimum flexibility in system design. For simplicity of control, Single Switcher mode routes only the selected input source to its designated output, while muting the other outputs. Separate Switcher mode allows the MPS 409 to operate as four separate and independent video switchers, all under a single point of control. Combine Mode provides for growth and additional digital sources by electronically combining the DVI and HDMI switchers to act as a single, 5x1 digital switcher.

- Combine Switcher mode routes all DVI and HDMI sources to the HDMI output – Allows a combination of up to five HDMI or DVI sources to be switched to the HDMI output, simplifying cabling and reducing the total installation time.

- Automatic input cable equalization – Actively conditions incoming digital signals to compensate for signal loss when using long cables, low quality cables, or source devices with poor HDMI and DVI signal outputs.

- Audio input gain and attenuation – Allows users to set the level of audio gain and attenuation for each input channel so that there are no noticeable volume differences when switching between sources.

- Audio breakaway – Provides the capability to break an audio signal away from its corresponding video signal and route to the program audio output, allowing the audio channels to be operated as a separate switcher.

- Front-panel MIC and program audio output volume controls – To streamline audio setup, the MPS 409 features front-panel MIC and program audio output volume controls, which allow for easy and separate adjustment of MIC and program audio volumes. This eliminates the need for audio preamplifiers in many system designs.

- Talk Over automatically reduces program audio when there is a signal at the microphone input – The talk over feature automatically reduces program audio when it detects a microphone signal, eliminating the need for a separate stand-alone audio ducking processor.

- MIC/line level input – Accommodates either microphone or line level audio signals.

- 48V phantom microphone power – Powers a condenser microphone.

- Provides +5 VDC, 250 mA power on the HDMI and DVI outputs for external peripheral devices

- Front panel security lockout – Prevents unauthorized use in non-secure environments. In lockout mode, a special button combination is required to operate the switcher from the front panel.

- RS-232 control – A rear panel, RS-232 port enables control via a control system. The Extron Simple Instruction Set (SIS™) protocol allows for quick and easy programming.

- Rack-mountable 1U, full rack width metal enclosure

- Internal universal power supply – The 100-240 VAC, 50/60 Hz, international power supply provides worldwide power compatibility.

APPLICATIONS

Classroom

A typical classroom AV system may include a computer with DVI output, a DVD player, and closed circuit TV tuner such as the Extron AVT 100, all connected to a single display. Simple AV control is essential in every classroom, and the Single Switcher mode on the MPS 409 offers uncomplicated, one-touch switching between analog and digital sources.

In Single Switcher Mode, the MPS 409 operates as a single 9x1 switcher, so that when one of the nine inputs is accessed, the signal of the selected input is routed to the output of its group, while the other outputs of the other groups are muted. In this environment, one MPS 409 takes the place of several single-format switchers.
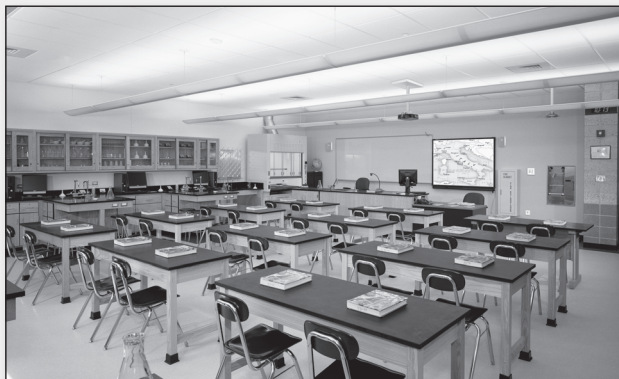
Training Facility

A typical training facility is equipped with a microphone, a PC or laptop with digital output, and DVD and Blu-ray Disc players. In this environment, convenient, centralized switching for multiple digital sources is a chief component of a smooth-running presentation. With the MPS 409 running in Combine Switcher mode, all DVI and HDMI signals are routed to the HDMI output which is connected directly to the display. This significantly cuts down on both cabling and installation time.

Audio from the microphone and digital sources is routed to the local and program audio outputs and adjusted from convenient front panel controls. In a training facility, one MPS 409 replaces multiple single-format switchers and, in many circumstances, can also eliminate the need for an audio preamplifier.

SPECIFICATIONS

VIDEO — VGA

Bandwidth	350 MHz (-3 dB)
Switching speed	<5 ms (max.)

VIDEO — HDMI

Maximum data rate	6.75 Gbps (2.25 Gbps per color)
Maximum pixel clock	225 MHz
Resolution	Up to 1920x1200 or 1080p @ 60 Hz, 12 bit color
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI 1.3, HDCP 1.1

VIDEO — DVI

Maximum data rate	4.95 Gbps (1.65 Gbps per color)
Maximum pixel clock	165 MHz
Resolution	Up to 1920x1200 or 1080p @ 60 Hz
Formats	RGB and YCbCr digital video
Standards	DVI 1.0, HDMI 1.2, HDCP 1.1

VIDEO — COMPOSITE VIDEO

Bandwidth	300 MHz (-3 dB)

VIDEO INPUT

Number/signal type	
VGA inputs	2 VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV component video (Y, R-Y, B-Y)
DVI inputs	2 single link DVI-D (or HDMI)
HDMI inputs	3 HDMI (or single link DVI-D)
Composite video inputs	2 NTSC/PAL/SECAM composite video
Nominal level	
VGA inputs	1.0 Vp-p for Y of component video
	0.7 Vp-p for RGB and for R-Y and B-Y of component video
Composite video inputs	1 Vp-p (including sync)

VIDEO OUTPUT

Number/signal type	
VGA outputs	1 VGA-QXGA RGBHV, RGBS, RGsB, RsGsBs, HDTV component video (Y, R-Y, B-Y)
DVI outputs	1 single link DVI-D (or HDMI)
HDMI outputs	1 HDMI (or single link DVI-D)
Composite video outputs	1 composite video
Peripheral device power	1.25 watts, 5 VDC per output (HDMI and DVI outputs only)

SYNC — VGA AND COMPOSITE VIDEO GROUPS

Input type (VGA group)	RGBHV, RGBS, RGsB, RsGsBs, bi-level and tri-level sync
Standards (composite video)	NTSC 3.58, NTSC 4.43, PAL, SECAM

AUDIO — individual audio groups (VGA, DVI, HDMI, composite video)

Gain	Unbalanced output: 0 dB; balanced output: +6 dB
Frequency response	20 Hz to 20 kHz, ±0.5 dB
THD + Noise	0.01% @ 1 kHz at nominal level

AUDIO INPUT — individual audio groups (VGA, DVI, HDMI, composite video)

|	
Number/signal type	
HDMI inputs	3 stereo, unbalanced
All other inputs	2 stereo, unbalanced, per each (VGA, DVI, composite video) input group
Connectors	
Composite video inputs	2 pairs of female RCA connectors
HDMI inputs	3 female 3.5 mm stereo mini jacks; tip (L), ring (R), sleeve (GND)
All other inputs	2 female 3.5 mm stereo mini jacks per input group; tip (L), ring (R), sleeve (GND)
Input gain adjustment	-24 dB to +18 dB, adjustable per input

AUDIO OUTPUT — individual audio groups (VGA, DVI, HDMI, composite video)

Number/signal type	1 stereo, unbalanced, per each group
Connectors	
Composite video output	1 pair of female RCA connectors
All other outputs	1 female 3.5 mm stereo mini jack per group (VGA, DVI, HDMI); tip (L), ring (R), sleeve (GND)

AUDIO — PROGRAM AUDIO

Gain	
When program volume is at default:	-15 dB for unbalanced output, -9 dB for balanced output
When program volume is at maximum:	0 dB for unbalanced output, +6 dB for balanced output
Program volume range	0 to 100 (-70 dB to +12 dB)

AUDIO OUTPUT — PROGRAM AUDIO

Number/signal type	1 stereo, balanced/unbalanced
Connector	(1) 3.5 mm captive screw connector, 5-pole
Maximum level (Hi-Z)	>16.5 dBu balanced, >8.2 dBV unbalanced at 1% THD+N
Maximum level (600 ohm)	>10.4 dBm balanced, >7.1 dBm unbalanced at 1% THD+N
Talk-over (ducking) response time (typical)	
Attack time	Instant
Release delay	5 seconds
Release time	1 second

MICROPHONE INPUT

Number/signal type	1 mono balanced/unbalanced
Connector	(1) 3.5 mm captive screw connector, 3-pole
Microphone volume range	-66 dB to +12 dB
Microphone DC power	+48 VDC phantom power, can be turned on or off

CONTROL/REMOTE — SWITCHER

Serial control port	1 RS-232, 3.5 mm captive screw connector, 3-pole, rear panel
USB control ports	1 front panel female mini USB B

GENERAL

Power	100 VAC to 240 VAC, 50-60 Hz, 12 watts, internal
Temperature/humidity	Storage -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing
	Operating +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Mounting	
Rack mount	Yes, with included brackets
Enclosure type	Metal
Enclosure dimensions	1.75" H x 17.4" W x 8.5" D (1U high, full rack wide) 4.4 cm H x 43.2 cm W x 21.6 cm D (Depth excludes connectors and knobs. Width excludes brackets.)
Product weight	7.0 lbs (3.2 kg)
Regulatory compliance	
Safety	CE, c-UL, UL
EMI/EMC	CE, C-tick, ICES, FCC Class A, VCCI

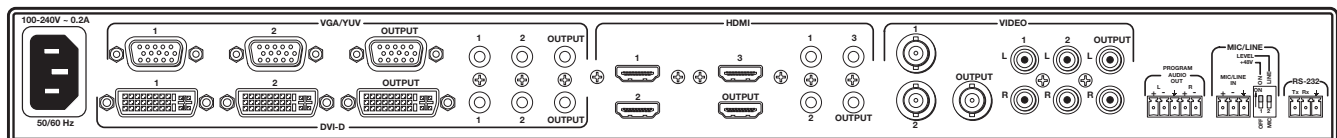| Model	Version Description	Part number
MPS 409	HDMI, DVI, VGA, Video & Audio Switcher	60-1012-01

APPLICATION DIAGRAM
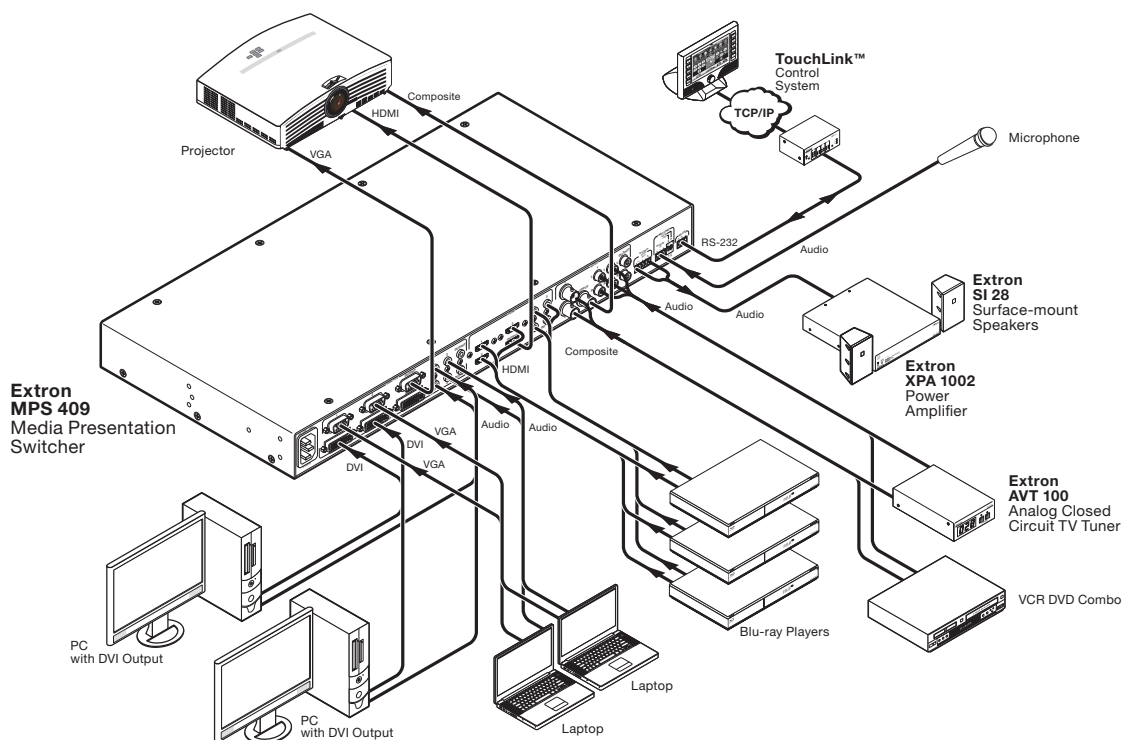
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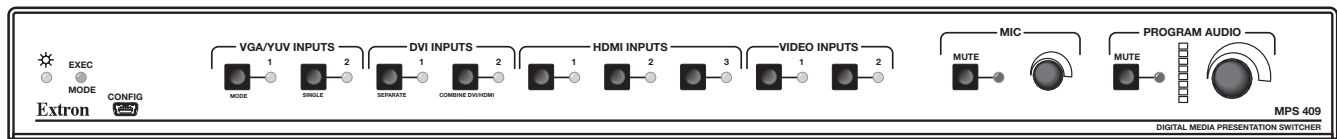
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