

4x2 4K60 4:4:4 HDR Presentation System



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The [HD-PS402](#) provides a 4K60 4:4:4 AV presentation system with enhanced HDMI® video switching and audio presentation capabilities for areas such as conference rooms and classrooms. The HD-PS402 includes four HDMI® inputs and two HDMI outputs with mirrored DM® Essentials outputs.

4K60 4:4:4 and HDR Support

The HDMI ports support video resolutions up to 4K60 with 4:4:4 color sampling. HDR10, HDR10+, and Dolby Vision® video formats are also supported.¹

The DM Essentials ports support a maximum resolution of 4K60 4:4:4 up to 130 ft (40 m) and 1080p60 4:4:4 up to 230 ft (70 m).²

Out-of-the-Box Functionality

Features such as automatic switching of inputs, automatic display control, and direct integration with occupancy sensors enable simple setup for many applications without the need for control system programming.

Enterprise-Grade Security

The HD-PS402 includes advanced security features and protocols. Using 802.1X authentication, Active Directory® credential management, PKI authentication, TLS, SSH, and HTTPS, the HD-PS402 provides a true enterprise-grade AV switcher.

Automatic Switching of Inputs

Automatic switching among the HDMI inputs can occur based on the last connected input or on the routing priority assigned to each input. Switching behavior is configurable using the web interface and is also programmable using a Crestron control system. In addition, input and output selection push buttons on the front panel of the HD-PS402 enable the desired inputs and outputs to be selected manually.

HDBaseT® Certification of DM Essentials Outputs

The DM Essentials outputs are designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified devices. The DM Essentials outputs can be connected directly to HDBaseT devices.

4K60 4:4:4 Video Scaler

Each mirrored HDMI and DM Essentials output shares a single 4K60 4:4:4 video scaler. By default, input resolutions are automatically scaled to match the native resolution of the display device, resulting in optimal image quality. For each mirrored output, the video scaler can be enabled or disabled using the web interface or a control system.

Text Overlay, Image Overlay, and Background Image

When the video scaler is enabled, text overlay, image overlay, and a background image can be displayed on-screen if desired. Text overlay can be used to display dynamic or fixed text for purposes such as labeling the video source or displaying special instructions, schedules, announcements, alerts, or other messaging. An image such as a logo or photo can be uploaded and then used for image overlay on top of active video content. An image can also be uploaded and then used as a background image whenever active video content is not being displayed.

EDID Management

The HD-PS402 provides comprehensive management of EDID (Extended Display Identification Data) to ensure that every source is displayed at the optimal resolution and format. For applications requiring a custom configuration, the HD-PS402 enables assessment of the format and resolution capabilities of any device that is connected to an HDMI output of the HD-PS402. The HD-PS402 provides the ability to configure signals appropriately for the most desirable and predictable behavior.

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Audio Mixing with Audio Embedding and De-embedding

The HD-PS402 provides four independent audio mixers for four outputs. For each of the two mirrored HDMI and DM Essentials outputs, the HD-PS402 provides a 5-channel audio mixer. Embedded HDMI LPCM stereo audio can be extracted from the selected HDMI input and combined with the four mono analog audio inputs (**MIC/LINE CH 1-2** and **LINE INPUT CH 3-4**). Gain and mute sound adjustments can be made to each of the five inputs being mixed.

For each of the two **AUX** outputs, the HD-PS402 provides a 6-channel audio mixer. Embedded HDMI LPCM stereo audio can be extracted from the selected HDMI input for each of the two mirrored HDMI and DM Essentials outputs and combined with the four mono analog audio inputs (**MIC/LINE CH 1-2** and **LINE INPUT CH 3-4**). Gain and mute sound adjustments can be made to each of the 6 inputs being mixed.

Volume and mute control are configurable for each mirrored HDMI and DM Essentials output and **AUX** audio output independently.

USB Power Port

A USB power port is included on the HD-PS402 to power USB powered devices (500mA maximum).

NOTE: No USB data is passed through the USB power port. The port cannot be used to extend USB data, video, or audio signals.

Device Control via CEC, IR, or RS-232

CEC (Consumer Electronics Control) over the HDMI outputs can enable display devices to be turned on or off automatically without the use of a control system. Under the management of a control system, CEC over the HDMI inputs can control source devices.

When connected to compatible DM Essentials receivers, the DM Essentials output ports can control display devices without the use of a control system.⁵ The DM Essentials output ports can output CEC display control when connected to HD-RX-4KZ-101 or HD-RX-4KZ-101-1G receivers. When connected to HD-RXC-4KZ-101 or HD-RXC-4KZ-101-1G receivers, the DM Essentials output ports can output CEC, IR, or RS-232 display control. Under the management of a control system, the DM Essentials output ports can output CEC and RS-232 control to HDBaseT devices.

The HD-PS402 also includes support for Crestron Certified Drivers. CEC and IP drivers can be used for the HDMI and DM Essentials output ports to provide automatic display control without the use of a control system.

Built-In Web Interface

Configuration of the HD-PS402 can be accomplished by using the built-in web interface. The configuration of a single device can be downloaded to a computer or mobile device and then uploaded to multiple HD-PS402 units to simplify system installation.

1 RU Rack-Mountable Design

The HD-PS402 can be mounted into a 19 in. EIA equipment rack using the included rack mount brackets. The device occupies 1 RU of rack space.

Specifications

Video

Switcher	4x2 auto-switching or manual, audio-follows-video, Crestron Auto-Locking® and QuickSwitch HD™ technologies
Scaler (mirrored HDMI and DM Essentials outputs)	4K60 4:4:4 video scaler with motion-adaptive deinterlacing, intelligent frame rate conversion; Deep Color support; HDR10, HDR10+, and Dolby Vision support; Content-adaptive noise reduction; 3:2/2:2 pull-down detection and recovery
Input Signal Types	HDMI with HDR10, HDR10+, and Dolby Vision support, Deep Color support, and 4K60 4:4:4 support (DVI and Dual-Mode DisplayPort™ interface compatible ³)
Output Signal Types	HDMI, DM Essentials, and HDBaseT with HDR10, HDR10+, and Dolby Vision pass-through support, Deep Color support, and 4K60 4:4:4 support (DVI compatible ⁴)
Copy Protection	HDCP 2.3
Maximum Resolutions	Maximum resolutions are listed in the following table

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K and 3840x2160 4K UHD	24 Hz	4:4:4	36 bit
		30 Hz	4:4:4	36 bit
		60 Hz	4:2:2	36 bit
		60 Hz	4:4:4	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD 1080p	60 Hz	4:4:4	36 bit
Interlaced (Input Only)	1920x1080 HD 1080i	30 Hz	4:4:4	36 bit

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Scaler Output Resolutions, HDMI and DM Essentials

Auto-HDMI
 Auto-DM Lite
 1280x720p@50Hz (720p50)
 1280x720p@60Hz (720p60)
 1920x1080p@24Hz (1080p24)
 1920x1080p@25Hz (1080p25)
 1920x1080p@30Hz (1080p30)
 1920x1080p@50Hz (1080p50)
 1920x1080p@60Hz (1080p60)
 3840x2160p@24Hz
 3840x2160p@25Hz
 3840x2160p@30Hz
 3840x2160p@50Hz
 3840x2160p@60Hz
 4096x2160p@24Hz
 4096x2160p@25Hz
 4096x2160p@30Hz
 4096x2160p@50Hz
 4096x2160p@60Hz

Audio, General

Audio Inputs (2) mono, balanced analog MIC/LINE inputs;
 (2) mono, balanced analog LINE inputs;
 (1) stereo, digital LPCM audio extracted from the selected HDMI input source

Audio Outputs (1) mirrored **HDMI 1** and **DM 1** audio output;
 (1) mirrored **HDMI 2** and **DM 2** audio output;
 (2) stereo, balanced analog AUX outputs

Analog-to-Digital Conversion 24-bit, 48 kHz

Digital-to-Analog Conversion 24-bit, 48 kHz

Audio, Digital Inputs (HDMI 1-4)

Input Signal Types HDMI (Dual-Mode DisplayPort interface compatible³)

Formats Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, Dolby Atmos®, DTS®, DTS-ES, DTS 96/24, DTS HD® High Res, DTS-HD Master Audio, DTS:X®, LPCM up to 8 channels

Audio, Microphone/Line Inputs (CH 1-2)

Input Signal Types Mono analog, microphone-level or balanced line-level audio

Gain Range -10 dB to +10 dB in 1 dB increments

Phantom Power +48VDC, 12mA, enabled or disabled per channel

Mute Enabled or disabled per channel

Audio, Line Inputs (CH 3-4)

Input Signal Types Mono analog, balanced or unbalanced line-level audio

Gain Range -10 dB to +10 dB in 1 dB increments

Balanced Line Input Level 4Vrms

Unbalanced Line Input Level 2Vrms

Line Input Impedance >10 kΩ

Mute Enabled or disabled per channel

Audio, Digital Output

Output Signal Type HDMI

Formats Dolby Digital, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, Dolby Atmos, DTS, DTS-ES, DTS 96/24, DTS HD High Res, DTSHD Master Audio, DTS:X, LPCM up to 8 channels

Source Gain -80 dB to +20 dB adjustment range, plus mute

Volume Control -80 dB to +20 dB adjustment range, plus mute

Delay 0 to 150 ms adjustment range

Audio, Analog Line Outputs (AUX 1-2)

Output Signal Type Stereo analog, balanced or unbalanced, line-level audio

Frequency Response 20 Hz to 20 kHz ±0.5 dB

THD+N <0.005%, 1 kHz, 4Vrms

S/N Ratio >95 dB, 4Vrms, 20 Hz to 20 kHz, A-weighted

Crosstalk >90 dB, 1 kHz

Stereo Separation >80 dB, 20 Hz to 20 kHz

Volume Control -80 dB to +20 dB adjustment range, plus mute, mono sum, or stereo output

Communications

Ethernet 100/1000 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP, Web browser setup and control, Crestron control system integration, IEEE 802.1X, Secure CIP, Authentication, SSH/SSL, TLS

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USB	For firmware loading and configuration management and to power a USB-powered device
HDMI	HDCP 2.3, EDID, CEC
HDBaseT	HDCP 2.3

Connectors

MIC/LINE CH 1-2	(2) 3-pin 3.5 mm detachable terminal blocks; Balanced mono microphone-level or line-level analog audio inputs
LINE INPUT CH 3-4	(2) 3-pin 3.5 mm detachable terminal blocks; Balanced mono line-level analog audio inputs
AUX OUT 1-2	(2) 5-pin 3.5 mm detachable terminal blocks; Balanced stereo line-level audio outputs; Output Impedance: <200 Ω; Maximum Output Level: 4Vrms balanced
HDMI INPUTS 1-4	(4) HDMI Type A connectors, female; HDMI digital video/audio input (DVI and Dual-Mode DisplayPort interface compatible ³)
DM 1	(1) 8-pin RJ-45 blue connector, female, shielded; DM Essentials output port (HDBaseT standard compliant) for connection to a DM Essentials receiver, DMPS Essentials switcher, or HDBaseT device ⁵ ; Mirrored with HDMI OUTPUT 1
HDMI OUTPUT 1	(1) HDMI Type A connector, female; HDMI digital video/audio output(DVI compatible ⁴); Mirrored with DM 1
DM 2	(1) 8-pin RJ-45 blue connector, female, shielded; DM Essentials output port (HDBaseT standard compliant) for connection to a DM Essentials receiver, DMPS Essentials switcher, or HDBaseT device ⁵ ; Mirrored with HDMI OUTPUT 2
HDMI OUTPUT 2	(1) HDMI Type A connector, female; HDMI digital video/audio output(DVI compatible ⁴); Mirrored with DM 2
LAN	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port

100-240VAC
1.1-0.4A
50/60 Hz

(1) IEC 60320 C14 mains power inlet; Removable power cord included

NOTE: This power connection powers both the HD-PS402 and the connected DM Essentials receivers. When connected to the HD-PS402, the DM Essentials receivers must not be connected to power⁶.

G SERVICE

(1) 6-32 screw, chassis ground lug
(1) USB 2.0 Type A connector, female; For firmware loading and configuration management; Can also provide up to 5V, 500mA power to a USB-powered device

Controls and Indicators

PWR	(1) Bicolor amber/green LED; Amber indicates that the device is booting; Green indicates that the device is operational
AUTO	(1) Push button to enable or disable automatic switching and (1) green LED to indicate that automatic switching is enabled
SETUP	(1) Push button and (1) red LED for display or IP address on connected HDMI and DM Essentials outputs
INPUT 1-4	(4) Push buttons for manual input selection and (4) bicolor amber/green LEDs; Amber indicates that a source is detected at the corresponding input but is not routed to an output; Green indicates that the corresponding input is routed to an output
OUTPUT 1-2	(2) Push buttons for manual output selection and (2) bicolor amber/green LEDs; Amber indicates that a display or other destination device is detected but no video source is routed to the output; Green indicates that the corresponding output is transmitting video to a detected display or other destination device
FOLLOW	(1) Push button to enable or disable Follow Output mode and (1) green LED; LED indicates that Follow Output mode is enabled, which causes a selected HDMI input to be routed to HDMI and DM Essentials outputs 1 and 2 simultaneously

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Ethernet	(2) LEDs on RJ-45 LAN connector; Link status LED: Green indicates that a 100BASE-TX link is established, amber indicates that a 1000BASE-T link is established; Ethernet activity LED: Flashing amber indicates Ethernet activity
DM Essentials	(2) LEDs on RJ-45 DM Essentials connectors; Green indicates that a DM Essentials link is established; Flashing amber indicates non-HDCP video and solid amber indicates HDCP video

Power

Main Power 100-240VAC, 1.1-0.4A, 50/60 Hz

NOTE: The AC main power connection powers both the HD-PS402 and connected DM Essentials receivers. When connected to the HD-PS402, the DM Essentials receivers must not be connected to power⁶.

Power Consumption 52 W typical

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 95% RH (noncondensing)
Heat Dissipation	123 BTU/hr typical
Acoustic Noise	32 dBA typical

Construction

Chassis	Metal, black finish, vented sides
Mounting	1 RU 19 in. rack-mountable (rack ears included)

Dimensions

Height	1.72 in. (44 mm)
Width	17.33 in. (441 mm) without rack ears; 19.00 in. (483 mm) with rack ears (included)
Depth	10.82 in. (275 mm)

Weight

8.2 lb (3.71 kg)

Compliance

Regulatory Model: M202004002

Bureau Veritas Listed for US & Canada, IC, CE, FCC Part 15 Class B digital device

Model

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Available Accessories

For a list of available accessories, visit the [HD-PS402](#) product page.

Notes:

- 4K60 4:4:4 performance and HDR support require the use of HDMI cables and couplers with a minimum TMDS bandwidth of 18 Gbps. If 4K60 4:2:0 or 4K30 4:4:4 performance is acceptable, cables and couplers with a minimum bandwidth of 10.2 Gbps may be used. Bandwidth loss is cumulative; therefore, performance may be reduced when inserting multiple cables and couplers inline.
- For DM Essentials connections, use Crestron DM CBL 8G, Crestron DM CBL ULTRA, or third-party CAT5e or higher cable. To safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p, shielded cable and connectors are recommended for all applications and are required when bundling multiple cables in a wire run. Wire and cables are sold separately.
- An HDMI input requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HDI-DVI interface cables are sold separately.
- An HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HDI-DVI interface cables are available separately.
- Supported DM Essentials receivers are the HD-RX-4KZ-101, HD-RXC-4KZ-101, and HD-RXC-4KZ-101-1G. Support of the DMPS Essentials switchers (HD-RX-4K-210-C-E and HD-RX-4K-510-C-E) is provided for the extension of audio and video signals only. The HD-PS402 web interface does not support configuration of connected DMPS Essentials switchers. Those devices require a separate LAN connection and must be configured using the web interface of each device.
- The HD-PS402 does not provide power to DMPS Essentials switchers or HDBaseT devices.

This product may be purchased from select authorized Crestron dealers and distributors. To find a dealer or distributor, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/How-To-Buy/Find-a-Representative or contact us for additional information by visiting www.crestron.com/contact/our-locations for your local contact.

The original language version of this document is U.S. English. All other languages are a translation of the original document.

The product warranty can be found at www.crestron.com/warranty.

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HDMI

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