HD-PS401

4x1 4K60 4:4:4 HDR Presentation System

- *4K60 4:4:4 digital AV presentation system*
- *HDR10, HDR10+, and Dolby Vision® video formats*
- *Four HDMI® inputs with automatic switching*
- *One mirrored HDMI and DM Lite® output*
- *HDBaseT® certification of DM Lite output*
- *4K60 4:4:4 video scaler for mirrored output*
- *Out-of-the-box functionality*
- *Enterprise-grade security*
- *Text overlay, image overlay, and background image for on-screen display*
- *EDID management*
- *HDCP 2.3 compliance*
- *Audio mixing with audio embedding and de-embedding*
- *100BASE-TX/1000BASE-T Ethernet connectivity*
- *USB power port*
- *Device control via CEC, IR, or RS-232 when used with compatible DM Lite receiver*
- *Built-in web interface*
- *Compatibility with Crestron® 3-Series® or later control systems*
- *.AV Framework™ technology support*
- *XiO Cloud® service support*
- *API (application programming interface)*
- *Surface-mountable design*

The HD-PS401 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-PS401 includes four HDMI® inputs and one mirrored HDMI and DM Lite® output.

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 Lite port supports 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-PS401 includes advanced security features and protocols. Using 802.1X authentication, Active Directory® credential management, PKI authentication, TLS, SSH, and HTTPS, the HD-PS401 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 selection push buttons on the front panel of the HD-PS401 enable the desired inputs to be selected manually.

HDBaseT® Certification of DM Lite Output

The DM Lite output is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified devices. The DM Lite output can be connected directly to an HDBaseT device.

4K60 4:4:4 Video Scaler

The mirrored HDMI and DM Lite 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. 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-PS401 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-PS401 enables assessment of the format and resolution capabilities of any device that is connected to the HDMI output of the HD-PS401. The HD-PS401 provides the ability to configure signals appropriately for the most desirable and predictable behavior.

Audio Mixing with Audio Embedding and De-embedding

The HD-PS401 provides four independent audio mixers for four outputs. For the mirrored HDMI and DM Lite output, the HD-PS401 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 CH1-CH2 and LINE INPUT CH3-CH4). 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-PS401 provides a 5-channel audio mixer. Embedded HDMI LPCM stereo audio can be extracted from the selected HDMI input for the mirrored HDMI and DM Lite output and combined with the four mono analog audio inputs (MIC/LINE CH1-CH2 and LINE INPUT CH3-CH4). Gain and mute sound adjustments can be made to each of the 5 inputs being mixed.

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

USB Power Port

A USB power port is included on the HD-PS401 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 output can enable a 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 a compatible DM Lite receiver (HD-RX-101-C-E, HD-RX-101-C-1G-E, HD-RXC-101-C-E, and HD-RXC-101-C-1G-E), the DM Lite output port can control a display device without the use of a control system. The DM Lite output port can output CEC display control when connected to an HD-RX-101-C-E or HD-RX-101-C-1G-E receiver. When connected to an HD-RXC-101-C-E or HD-RXC-101-C-1G-E receiver, the DM Lite output port can output CEC, IR, or RS-232 display control. Under the management of a control system, the DM Lite output port can output CEC and RS-232 control to an HDBaseT device.

The HD-PS401 also includes support for Crestron Certified Drivers. CEC and IP drivers can be used for the HDMI and DM Lite output ports to provide automatic display control without the use of a control system.

Built-In Web Interface

Configuration of the HD-PS401 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-PS401 units to simplify system installation.

Surface-Mountable Design

The HD-PS401 can be installed using the included mounting hardware. The device can be mounted onto a wall or other flat surface.

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Specifications

Video

Switcher	4x1 auto-switching or manual, audio-follows-video, Crestron Auto-Locking® and QuickSwitch HD™ technologies
Scaler (mirrored HDMI and DM Lite output)	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; and 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 Lite, 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	Common 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

Scaler Output Resolutions, HDMI and DM Lite

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	Two mono 1-channel MIC/LINE inputs Two mono 1-channel LINE inputs One stereo 2-channel LPCM audio extracted from the selected HDMI input source
Audio Outputs	One mirrored HDMI and DM Lite audio output One AUX 1 output, stereo 2-channel One AUX 2 output, stereo 2-channel
Analog-to-Digital Conversion	24-bit 48 kHz
Digital-to-Analog Conversion	24-bit 48 kHz

Audio - Source Inputs
Four HDMI inputs (HDMI 1-4)

Input Signal Types	HDMI (Dual-Mode DisplayPort interface compatible[3])
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

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Audio - Microphone/Line Inputs

Two balanced 1-channel microphone/line inputs (CH1-CH2)

Input Signal Type	Mono analog
Gain Range	-10 dB to +10 dB in 1 dB increments
Phantom Power	+48 VDC, 12 mA, enable or disable per channel
Mute	Enable or disable per channel

Audio - Line Inputs

Two balanced 1-channel line inputs (CH3-CH4)

Input Signal Type	Mono analog
Gain Range	-10 dB to +10 dB in 1 dB increments
Balanced Line Input Level	4 Vrms
Unbalanced Line Input Level	2 Vrms
Line Input Impedance	>10k ohms

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 Output

Output Signal Type/Format	Stereo 2-channel
Frequency Response	±0.5 dB, 20 Hz to 20 kHz
THD+N	<0.005%, 1 kHz, 4 Vrms
S/N Ratio	>95 dB, 4 Vrms, 20 Hz to 20 KHz, A-weighted
Crosstalk	>90 dB, 1 KHz, for multiple inputs only
Stereo Separation	>80 dB, 20 Hz to 20 kHz

Volume Control	-80 dB to +20 dB adjustment range, plus Mute, Mono, and Stereo

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
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 CH1-CH2	(2) 3-pin 3.5 mm detachable terminal blocks; Balanced mono microphone/line audio inputs
LINE INPUT CH3-CH4	(2) 3-pin 3.5 mm detachable terminal blocks; Balanced mono line-level audio inputs
AUX OUT 1-2	(2) 5-pin 3.5 mm detachable terminal blocks; Balanced stereo line-level audio outputs; Output Impedance: <200 Ohms; Maximum Output Level: 4 Vrms balanced
HDMI INPUTS 1-4	(4) 19-pin Type A connector, female; HDMI digital video/audio input (DVI and Dual-Mode DisplayPort interface compatible[3])
DM LITE OUTPUT	(1) 8-pin RJ-45 orange connector, female, shielded; DM Lite output port (HDBaseT standard compliant) for connection to a DM Lite receiver, DMPS Lite™ switcher, or HDBaseT device[5]; Mirrored with HDMI OUTPUT
HDMI OUTPUT	(1) 19-pin Type A connector, female; HDMI digital video/audio output (DVI compatible[4]); Mirrored with DM LITE OUTPUT
LAN	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port
100-240VAC 0.7-0.25A 50/60 Hz	(1) IEC 60320 C14 mains power inlet; Mates with removable power cord, included

NOTE: This power connection powers both the HD-PS401 and the connected DM Lite receivers. When connected to the HD-PS401, the DM Lite receivers must not be connected to power[6].

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

Controls and Indicators

PWR	(1) 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) Red LED and (1) push button for display of IP address on connected HDMI and DM Lite outputs
INPUT 1-4	(4) Push buttons for manual input selection and (4) LEDs. Green indicates that the corresponding input is routed to an output. Amber indicates that a source is detected at the corresponding input but is not routed to an output.
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 Lite	(2) LEDs on RJ-45 DM Lite connectors. Green indicates that a DM Lite link is established. Flashing amber indicates non-HDCP video and solid amber indicates HDCP video.

Power

Mains Power	100-240VAC 0.7-0.25A 50/60 Hz

NOTE: The AC mains power connection powers both the HD-PS401 and connected DM Lite receivers. When connected to the HD-PS401, the DM Lite receivers must not be connected to power[6].

Power Consumption	29.2 W typical

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	99.6 BTU/hr typical
Acoustic Noise	30 dBA typical

Construction

Chassis	Metal, black finish, vented sides
Mounting	Surface-mountable

Dimensions

Height	1.72 in. (44 mm)
Width	8.66 in. (361 mm)
Depth	10.82 in. (275 mm)

Weight

4.72 lb (2.14 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-PS401 product page.

Notes:

1. 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.

2. For DM Lite 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.

3. 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.

4. An HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HDI-DVI interface cables are available separately.

5. Supported DM Lite receivers are the HD-RX-101-C-E, HD-RXC-101-C-E, HD-RX-101-C-1G-E, and HD-RXC-101-C-1G-E. Support of the HD-RX-201-C-E DM Lite receiver and the DMPS Lite switchers (HD-RX-4K-210-C-E, HD-RX-4K-210-C-E-POE, HD-RX-4K-410-C-E, HD-RX-4K-410-C-E-SW4, HD-RX-4K-510-C-E, and HD-RX-4K-510-C-E-SW4) is provided for the extension of audio and video signals only. The HD-PS401 web interface does not support configuration of connected HD-RX-201-C-E receivers or DMPS Lite switchers. Those devices require a separate LAN connection and must be configured using the web interface of each device.

6. The HD-PS401 does not provide power to DMPS Lite 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.

This product is covered under the Crestron standard limited warranty. Refer to www.crestron.com/warranty for full details.

The specific patents that cover Crestron products are listed online at patents.crestron.com.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

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HDMI

Specifications are subject to change without notice.

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Rev 10/11/21

10.82 in.
(275 mm)

10.50 in.
(267 mm)

8.66 in.
(361 mm)

1.72 in.
(44 mm)

PWR – AUTO – – SETUP – INPUT

HDMI
HDBT
SERVICE

HD-PS401

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MIC/LINE LINE IN
CH1   CH3   AUX OUT 1

G

+ – G + – G L + – G + – R

CH2   CH4   AUX OUT 2

INPUT   OUTPUT

HDMI 1 HDMI 2 HDMI 3 HDMI 4   DM LITE HDMI   LAN

SERIAL #

MAC ID
LABEL

100-240VAC 0.7-0.25A 50/60HZ