

4K 2x1 DM® Essentials Scaling Auto-Switcher and Extender over CATx Cable

- 4K60 video with 4:2:0 color sampling
- Transmitter and receiver with 2x1 AV switching, scaling, and signal extension functionality
- One HDMI® input on the transmitter
- One HDMI input and one 4K HDMI scaling output on the receiver
- Automatic input switching
- Video, audio, and power extension over a CATx cable - up to 230 ft (70 m) for resolutions up to 2K or up to 130 ft (40 m) for higher resolutions up to 4K
- EDID and HDCP 2.2 management
- Consumer Electronics Control (CEC) capability
- Stereo audio de-embedding via analog audio output
- IR, RS-232, relay, and I/O control ports
- USB power port
- Built-in web interface for easy configuration and monitoring
- Compatible with Crestron® 3-Series® control systems or later
- .AV Framework™ technology support
- XiO Cloud® service support
- Native integration with Cisco® Webex® and Touch 10 devices
- Low-profile installation
- 100-240VAC power pack included

The [DM-EXT-1021 KIT](#) provides a cost-effective multimedia presentation solution for classrooms and meeting spaces. Consisting of a transmitter ([HD-TXC-4KZ-101](#)) and receiver ([HD-RX-4K-210-C-E](#)), the kit extends an HDMI® signal over a CATx (CAT5e or higher) twisted pair cable. For resolutions up to 2K, the maximum transmission distance is 230 ft (70 m). For higher resolutions up to 4K, the maximum transmission distance is 130 ft (40 m).¹

NOTE: Power is transmitted over the CATx cable that connects the transmitter to the receiver. The transmitter provides one HDMI input. The receiver provides an additional HDMI input that can be connected to a local AV source or to an optional Crestron media presentation wall plate ([MP-WP152](#), sold separately).

Automatic Input Switching

Automatic switching between the DM input and HDMI input on the receiver occurs based on the last connected input or on an assigned routing priority. Switching behavior is configurable using the web interface or programmable using a

Crestron control system. In addition to automatic switching, input selection push buttons on the receiver enable the desired input to be selected manually.

HDMI Output with 4K Scaler

A single HDMI output with a built-in scaler connects the receiver to a display or other device with an HDMI input. Input resolutions are automatically scaled to match the native resolution of the display device, resulting in optimal image quality. For applications requiring comprehensive EDID management, the web interface is used to ensure that every input is displayed at its optimal resolution and format. Input resolutions up to 4K60 4:2:0 are supported.

Audio De-embedding

The analog audio output on the receiver extracts the stereo audio signal from digital sources to feed a sound bar, amplified speakers, or a separate sound system. The analog audio output is active only when the input is receiving a two-channel stereo signal.

Device Control

Equipped with onboard control ports, the receiver can control various devices in a room. The COM (RS-232) port and CEC over the HDMI output enable the display device to be turned on or off automatically without the use of a control system. With the use of a control system, the IR port can also control the display device. Two relay ports are provided for controlling a projection screen and other low-voltage contact closure activated equipment. Two Versiport I/O ports enable the integration of devices such as power sensors and motion detectors. An Ethernet port connection to a LAN also provides control by enabling use of the built-in web interface as well as connection to a control system.

NOTE: The COM, IR, and Ethernet ports cannot be used to extend signals over the CATx cable connection between the receiver and the transmitter.

USB Power Port

A USB power port is included on the transmitter to power USB 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.

.AV Framework™ Technology Support

In addition to a built-in web interface and control system programming, the built-in .AV Framework technology of the [MPC3-201](#) and [MPC3-302](#) control systems will control the [HD-RX-4K-210-C-E](#) as a switcher. (For information about .AV Framework technology, visit www.crestron.com/avframework.)

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XiO Cloud® Service Support

The DM-EXT-1021 is compatible with the XiO Cloud service, which is an Internet of Things (IoT) platform for remotely provisioning, monitoring, and managing Crestron devices across an enterprise or an entire client base. Built on the Microsoft® Azure® software platform and using industry-leading Azure IoT Hub technology, the XiO Cloud service enables installers and IT managers to easily deploy and manage thousands of devices. Unlike other virtual machine based cloud solutions, Azure services provide unlimited scalability to suit the ever growing needs of an enterprise. For more information, visit www.crestron.com/xiocloud.

Native Integration with Cisco® Webex® and Touch 10 Devices

Native integration of the Cisco API enables source inputs of the HD-RX-4K-210-C-E receiver to be added to a compatible Cisco Webex video conference system that is controlled by a Cisco Touch 10 control unit. Eliminating the need for control system programming, integration with Cisco® devices is accomplished by using the Crestron Configuration tool, which is hosted on the Crestron website at configuration.crestron.com.

Low Profile Installation

The transmitter and receiver can be placed on or attached to a flat surface. The transmitter can fit discreetly inside a presentation lectern or be attached to the underside of a table. The receiver can be mounted onto a wall behind a display or onto a ceiling above a projector. The devices are also rack rail mountable.

Specifications

Video

Switcher	2x1 (1 input at transmitter plus 1 input at receiver x 1 output at receiver) auto-switching or manual, audio-follows-video, Crestron Auto-Locking® and QuickSwitch HD™ technology
Scaler, HDMI Output	4K video scaler with intelligent frame rate conversion, Deep Color support, content adaptive noise reduction, 3:2/2:2 pull-down detection and recovery
Input Signal Type	HDMI with Deep Color and 4K (DVI and Dual-Mode DisplayPort™ interface compatible ²)
Output Signal Type	HDMI with Deep Color and 4K (DVI compatible ³)
Copy Protection	HDCP 2.2
Maximum Resolutions	Common resolutions are listed in the following table.

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K & 3840x2160 4K UHD	24 Hz	4:4:4	30 bit
		30 Hz	4:4:4	24 bit
		30 Hz	4:2:2	36 bit
		60 Hz	4:2:0	24 bit
	2560x1600 WQXGA	60 Hz	4:4:4	36 bit
	1920x1080 HD 1080p	60 Hz	4:4:4	36 bit

NOTES:

- Common resolutions are supported at pixel clock rates up to 300 MHz.
- Interlaced video sources are not supported.

Audio

Input Signal Type	HDMI (Dual-Mode DisplayPort interface compatible ²)
Output Signal Type	HDMI, analog stereo line-level
Digital Formats	2-channel LPCM
Digital to Analog Conversion	24-bit, 48 kHz
Output Volume	-80 to +20 dB level adjustment range; Independent mute for HDMI and analog audio outputs
Analog Output Performance	Frequency Response: 20 Hz to 20 kHz ±0.5 dB; S/N Ratio: >95 dB @ 10 dBV, 20 Hz to 20 kHz, A-weighted; THD+N: <0.005% @ 1 kHz and 10 dBV; Stereo Separation: 20 Hz to 20 kHz ≤80 dB

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Communications

Ethernet	100/1000 Mbps, autoswitching, autonegotiating, autodiscovery, full/half duplex, CIP, DHCP, web browser setup and control
RS-232	Two way device control and monitoring up to 115.2k baud; Hardware and software handshaking
IR	One way device control via infrared up to 60 kHz
HDMI	HDCP 2.2, EDID, CEC
DM	HDCP 2.2, EDID

Connectors - Transmitter (HD-TXC-4KZ-101)

24 VDC 1.25A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; PW-2420RU power pack included
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NOTE: Either included power pack will power both the transmitter and the connected receiver. Do not connect both power packs at once.

DM	(1) 8-pin RJ-45 connector, female, shielded; DM output port for connection to the receiver ¹
HDMI IN	(1) HDMI Type A connectors, female; HDMI digital video/audio input; DVI and Dual-Mode DisplayPort interface compatible ²
COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Supports RS-232 up to 115.2k baud; Hardware and software handshaking
IR IN/OUT	(1) 4-pin 3.5 mm detachable terminal block; Comprised of (1) IR input port and (1) IR output port; IR IN is for connection from a Crestron IR control port or other IR signal source and passes the IR input signal to the IR OUT port on the HD-RX-4K-210-C-E receiver; IR OUT is for connection to an IR emitter (IRP2 , sold separately) and transmits the IR signal from the IR IN port on the HD-RX-4K-210-C-E receiver; Supports IR up to 60 kHz

Connectors - Receiver (HD-RX-4K-210-C-E)

HDMI INPUT 1	(1) HDMI Type A connector, female; HDMI digital video/audio input; DVI and Dual-Mode DisplayPort interface compatible ²
DM INPUT 2	(1) 8-pin RJ-45 yellow connector, female, shielded; DM link port for connection to the HD-TX-4KZ-101 transmitter ¹
HDMI OUTPUT	(1) HDMI Type A connector, female; HDMI digital video/audio output (DVI compatible ³)

NOTE: CEC over the HDMI output provides Power On/Off control of the display device without a control system or full programmable control of any device with a control system.

AUDIO L/R	(1) 5-pin 3.5 mm detachable terminal block; Balanced/unbalanced stereo line-level audio output; Maximum Output Level: 4Vrms balanced, 2Vrms unbalanced; Output Impedance: 200Ω balanced, 100Ω unbalanced
Ethernet	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port
I/O 1-2	(2) 2-pin detachable terminal blocks; Comprised of 2 Versiport digital input/output or analog input ports (referenced to GND); Digital Input: Rated to 0-24VDC, input impedance 20kΩ, logic threshold >3.125V low/0 and <1.875V high/1; Digital Output: 250 mA sink from maximum 24VDC, catch diodes for use with real world loads; Analog Input: Rated for 0-10VDC, protected to 24VDC maximum, input impedance 21kΩ with pull-up resistor disabled; Programmable 5V, 2kΩ pull-up resistor per pin
RELAY 1-2	(2) 2-pin detachable terminal blocks; Comprised of 2 normally open, isolated relays; Rated 1A, 30VAC/VDC; MOV arc suppression across contacts

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IR (1) 2-pin 3.5 mm detachable terminal block; IR output control port; Supports IR up to 60 kHz; [IRP2](#) emitter sold separately

NOTE: The IR port provides Power On/Off control of the display device with the use of a control system.

COM (1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Supports RS-232 up to 115.2k baud; Hardware and software handshaking

NOTE: The COM port provides Power On/Off control of the display device without a control system or full programmable control of any device with a control system.

24 VDC 1.25A (1) 2.1 x 5.5 mm DC power connector; 24VDC power input; [PW-2412WU](#) power pack included

NOTE: Either included power pack will power both the receiver and the connected transmitter. Do not connect both power packs at once.

SERVICE (1) USB Type A connector, female; For factory use only

Controls and Indicators - Transmitter (HD-TXC-4KZ-101)

LINK (1) Green LED, indicates that DM link is established.

PWR (1) Green/amber bi-color LED; Amber indicates that the device is booting; Green indicates that the device is operational

HDMI IN (1) Green LED, indicates that the device is receiving an HDMI signal

DM OUT (2) LEDs on RJ-45 connector, one green and one amber; Green indicates that DM link is established; Flashing amber indicates non-HDCP video; Solid amber indicates HDCP video

Controls and Indicators - Receiver (HD-RX-4K-210-C-E)

PWR (1) Green/amber bi-color LED; Amber indicates that the device is booting; Green indicates that the device is operational

INPUT 1-2 (2) Push buttons for manual input selection and (2) LEDs; Green indicates that video source is selected; Amber indicates that video is detected but source is not selected

AUTO (1) Push button to enable or disable automatic switching; (1) LED, green indicates that automatic switching is enabled

SETUP (1) Red LED and (1) push button for display of IP address on the HDMI output

DM (2) LEDs on RJ-45 connector, one green and one amber; Green indicates that DM link is established; Flashing amber indicates non-HDCP video; Solid amber indicates HDCP video

Ethernet (2) LEDs on RJ-45 connector, one green and one amber; Green indicates that Ethernet link is established; Flashing amber indicates Ethernet activity

Power

Power Pack (included with Transmitter and Receiver) Input: 100-240VAC; Output: 24VDC 2.5A; Models: [PW-2420RU](#) and [PW-2412WU](#)

NOTE: Either included power pack will power both the transmitter and receiver. Do not connect both power packs at once.

Power Consumption 14.8 W typical

Environmental

Temperature 32° to 104° F (0° to 40° C)

Humidity **Transmitter:** 20% to 90% RH (non-condensing); **Receiver:** 10% to 90% RH (non-condensing)

Heat Dissipation 50.5 BTU/hr

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Ambient Noise Level N/A (fanless)

Construction

Chassis Metal, black finish, vented sides, 2 mounting flanges

Mounting Surface or rack rail mount

Dimensions - Transmitter (HD-TXC-4KZ-101)

Height 1.20 in. (30 mm)

Width 4.19 in. (106 mm)

Depth 1.08 in. (27 mm)

Dimensions - Receiver (HD-RX-4K-210-C-E)

Height 5.11 in. (130 mm)

Width 4.19 in. (106 mm) with mounting flanges attached

Depth 7.94 in. (202 mm)

Weight

Transmitter 1.2 lb (0.55 kg)

Receiver 1.19 lb (0.54 kg)

Compliance

Regulatory Model: M202047002

Intertek® Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

Click [here](#) to search product certificates.

Models

DM-EXT-1021 KIT

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Included Accessories

PW-2412WU

Wall Mount Power Pack, 24VDC, 1.25A, 2.1 mm, Universal

PW-2420RU

Desktop Power Pack, 24VDC, 2.5A, 2.1 mm

Available Accessories

For a list of available accessories, visit the [DM-EXT-1021 KIT](#) product page.

Notes:

1. For the DM CATx cable connection, 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. The DM ports in this kit are not compatible with DigitalMedia 8G+, HDBaseT®, PoE, or PoDM technology or any other type of CATx based interface or network.
2. The HDMI input requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. [CBL-HDI-DVI](#) interface cables are available separately.
3. The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. [CBL-HDI-DVI](#) interface cables are available separately.

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 by calling 855-263-8754.

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.

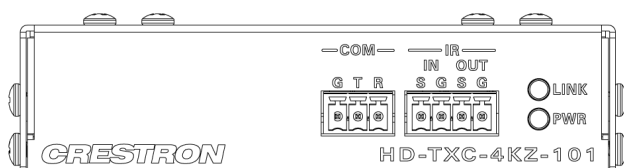
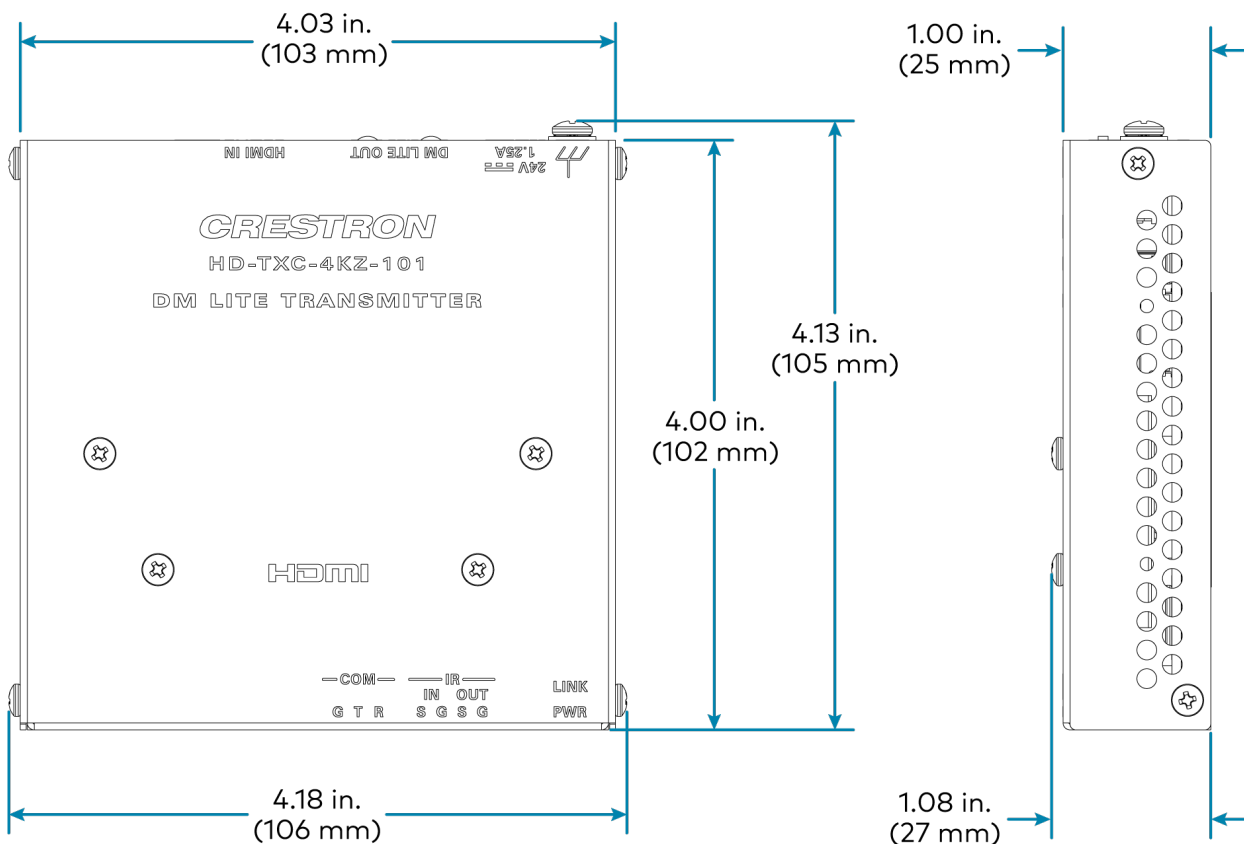
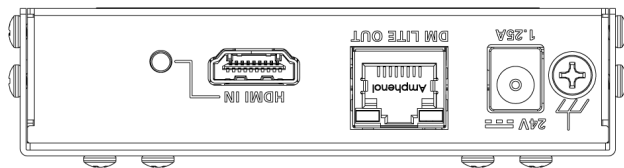
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