4K60 4:4:4 DM® Essentials Receiver and 2x2 Auto-Switcher for, HDMI, USB-C® DisplayPort™, and USB 2.0 Signal Extension over CATx Cable

- *4K60 video with 4:4:4 color sampling*
- *Automatic input switching*
- *HDR10, HDR10+, and Dolby Vision® video formats*
- *Signal extension distance up to 130 ft (40 m) for UHD and 4K signals or up to 230 ft (70 m) for 1080p, WUXGA, and 2K signals*
- *Enterprise-grade security*
- *EDID and HDCP 2. management*
- *Consumer Electronics Control (CEC) capability*
- *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*
- *Low-profile installation*
- *100-240VAC power pack included*

The DM-EXT-2022 KIT consists of a transmitter (HD-TXU-4KZ-211-CHGR) and auto-switching receiver (HD-RXU-4KZ-202), and enables the extension of HDMI® and USB 2.0 signals. This is useful in applications where an AV source is located remotely from its destination, such as a display, projector, or codec solution. A CAT5e or higher twisted pair cable must be used to connect the transmitter and receiver.[1]

4K60 4:4:4 and HDR Support

The DM-EXT-2022 KIT supports video resolutions up to 4K60 with 4:4:4 color sampling. HDR10, HDR10+, and Dolby Vision® video formats are also supported.[2]

Integrated Web Server

The transmitter and auto-switching receiver each provide an integrated web server for device configuration and management. The web servers also provide device, network, and other types of status information.

Automatic Input Switching

Automatic switching between the HDMI and USB-C DisplayPort inputs of the transmitter as well as between the HDMI input and DM input on the receiver occurs based on the last connected input or on the routing priority assigned to each input. 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 transmitter and receiver enable the desired input to be selected manually.

USB 2.0 Data Extension

Two USB 2.0 host ports are provided on both the HD-TXU-4KZ-211-CHGR and HD-RXU-4KZ-202, enabling connection to a wide variety of supported USB 2.0 peripheral devices.[4]

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	3x2 (2 inputs at transmitter plus 1 input at recever x 2 outputs at receiver) auto-switching or manual
Input Signal Types	HDMI® (DVI and Dual-Mode DisplayPort™ interface compatible[4]) and DM Lite® with HDR10, HDR10+, Dolby Vision®, Deep Color, and 4K60 4:4:4 support[2]
Output Signal Types	HDMI® with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support[2]
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 & 3840x2160 4K UHD	24 Hz	4:4:4	12 bit
		30 Hz	4:4:4	12 bit
		60 Hz	4:2:2	12 bit
		60 Hz	4:4:4	8 bit
	2560x1600 WQXGA	60 Hz	4:4:4	8 bit
	1920x1080 HD 1080p	60 Hz	4:4:4	12 bit
Interlaced	1920x1080 HD 1080i	30 Hz	4:4:4	12 bit

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NOTES:

- The maximum supported resolution is 4K60 with 4:4:4 color sampling. Custom resolutions are supported at pixel clock rates up to 600 MHz.
- The USB-C DisplayPort input does not support interlaced video.

Audio

Input Signal Type	DisplayPort over USB-C (DisplayPort Alt Mode)
Output Signal Type	HDMI
Digital 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

Communications

Ethernet	100/1000 Mbps, autoswitching, autonegotiating, autodiscovery, full/half duplex, Secure CIP, DHCP, web browser setup and control, Crestron control system integration, IEEE 802.1X, Authentication, SSH/SSL, TLS
HDMI	HDCP 2.3, EDID, CEC
DM	HDCP 2.3, EDID; USB 2.0 up to 300 Mbps
USB	USB signal extension via USB 2.0 host ports

Connectors - Transmitter (HD-TXU-4KZ-211-CHGR)

24 VDC 4.5A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; PW-2475DU power pack included
DM	(1) 8-pin RJ-45 connector, female, shielded; DM output port for connection to the receiver[1]
HDMI, INPUT 2	(1) HDMI Type A connectors, female; HDMI digital video/audio input; DVI and Dual-Mode DisplayPort interface compatible[4]
DEVICE, INPUT 2	(1) USB Type-C® connector, female; USB 2.0 device port associated with HDMI input for AV sources that require USB 2.0 support; USB signal extender port for connection to a computer or other USB 2.0 host[3]

60W USB INPUT

(1) USB Type-C® connector, female; Digital video/audio input using DisplayPort Alt Mode; USB 2.0 data support; Can also charge connected AV source with up to 60W of power

HOST

(2) USB Type-A connectors, female; USB 2.0 host ports; USB signal extender ports for connection to USB mice, keyboards, or other USB 2.0 peripheral devices;[3] **Available Power:** 500mA @ 5VDC per port

SERVICE

(1) USB 2.0 Type-A connector, female; Used for firmware loading, configuration management, or as a USB host port for one TT-100 series cable caddy (sold separately); Can also provide up to 5V, 500mA power to a USB powered device

LAN

(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port for device configuration and management

Ground

(1) Chassis ground lug

Connectors - Receiver (HD-RXU-4KZ-202)

HDMI INPUT 1	(1) HDMI Type A connector, female; HDMI digital video/audio input; DVI and Dual-Mode DisplayPort interface compatible[4]
DM IN	(1) 8-pin RJ-45 yellow connector, female, shielded; DM input port for connection to the transmitter[1]
HDMI OUTPUT 1-2	(2) HDMI Type A connectors, female; HDMI digital video/audio output; DVI compatible[5]
LAN	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port for device configuration and management
24 VDC 1.9A	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; PW-2420RU power pack included
SERVICE	(1) USB 2.0 Type-A connector, female; Used for firmware loading, configuration management; Can also provide up to 5V 500 mA power to a USB powered device

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HOST   (2) USB Type-A connectors, female; USB 2.0 host ports; USB signal extender ports for connection to USB mice, keyboards, or other USB 2.0 peripheral devices;[3] Available Power: 500mA @ 5VDC per port

Ground   (1) Chassis ground lug

Controls and Indicators - Transmitter (HD-TXU-4KZ-211-CHGR)

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

AUTO   (1) Push button for enabling or disabling automatic switching of inputs; (1) LED, green indicates that automatic switching of inputs is enabled

SETUP   (1) Push button for Ethernet setup; (1) LED, red indicates that the SETUP push button is pressed

INPUT 1   (1) Push button for manual selection of USB-C DisplayPort input; (1) LED, green indicates that the USB-C DisplayPort input is routed to an output, and amber indicates that a source is detected but is not routed to an output

INPUT 2   (1) Push button for manual selection of HDMI input; (1) LED, green indicates that the HDMI input is routed to an output, and amber indicates that a source is detected but is not routed to an output

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

LAN   (2) LEDs on RJ-45 connector, one green and one amber; Green indicates that a 100 Mbps link is established; Solid amber indicates that a 1000 Mbps link is established; Flashing amber indicates 1000 Mbps Ethernet activity

Controls and Indicators - Receiver (HD-RXU-4KZ-202)

PWR   (1) Green/amber bi-color 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; (1) LED, green indicates that automatic switching is enabled

SETUP   (1) Push button for Ethernet setup; (1) LED, red indicates that the SETUP push button is pressed

INPUT 1   (1) Push button for manual selection of HDMI input; (1) LED, green indicates that the HDMI input is routed to an output, and amber indicates that a source is detected but is not routed to an output

INPUT 2   (1) Push button for manual selection of DM Lite input; (1) LED, green indicates that the DM Lite input is routed to an output, and amber indicates that a source is detected but is not routed to an output

OUTPUT 1   (1) Push button for manual selection of HDMI output 1; (1) LED, green indicates that a display or other destination device is detected and HDMI output 1 is transmitting video and amber indicates that a display or other destination device is detected but no video is routed to the output

OUTPUT 2   (1) Push button for manual selection of HDMI output 2; (1) LED, green indicates that a display or other destination device is detected and HDMI output 2 is transmitting video and amber indicates that a display or other destination device is detected but no video is routed to the output

DM IN 2   (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

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LAN
(2) LEDs on RJ-45 connector, one green and one amber;
Green indicates that a 100 Mbps link is established;
Solid amber indicates that a 1000 Mbps link is established;
Flashing amber indicates 1000 Mbps Ethernet activity

Power

Power Pack (included with Transmitter and Receiver)
Input: 100-240VAC;
Output: 24VDC 7.5A;
Models: PW-2420RU and PW-2475DU

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)

Construction

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

Mounting
Surface or rack rail mount

Dimensions - Transmitter (HD-TXU-4KZ-211-CHGR)

Height   1.20 in. (30 mm)
Width   8.52 in. (216 mm)
Depth   6.48 in. (165 mm)

Dimensions - Receiver (HD-RXU-4KZ-202)

Height   1.20 in. (30 mm)
Width   8.52 in. (216 mm)
Depth   6.48 in. (165 mm)

Weight

Transmitter   1.96 lb (0.89 kg)
Receiver   1.95 lb (0.88 kg)

Compliance

Regulatory Model: M202047005
Intertek® Listed for US and Canada, CE, IC, FCC Part 15 Class B digital device

Click here to search product certificates.

Models

DM-EXT-2022 KIT
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Included Accessories

PW-2420RU
Desktop Power Pack, 24VDC, 2.5A, 2.1 mm

Available Accessories

For a list of available accessories, visit the DM-EXT-2022 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.

2. 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.

   4K60 4:4:4 performance and HDR support require the use of USB-3.2 Gen 1 (5 Gbps) cables with support for DisplayPort Alt Mode (DisplayPort 1.4 video, 4K60 4:4:4, 2 lanes). Cables are sold separately.

3. The HD-TXU-4KZ-211-CHGR and HD-RXU-4KZ-202 are engineered to deliver maximum compatibility with the widest possible range of USB devices. Crestron does not guarantee that all USB devices are compatible with the HD-TXU-4KZ-211-CHGR and HD-RXU-4KZ-202.

4. The HDMI output requires an appropriate adapter or interface cable to accommodate a DVI signal. CBL-HD-DVI interface cables are sold 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.

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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

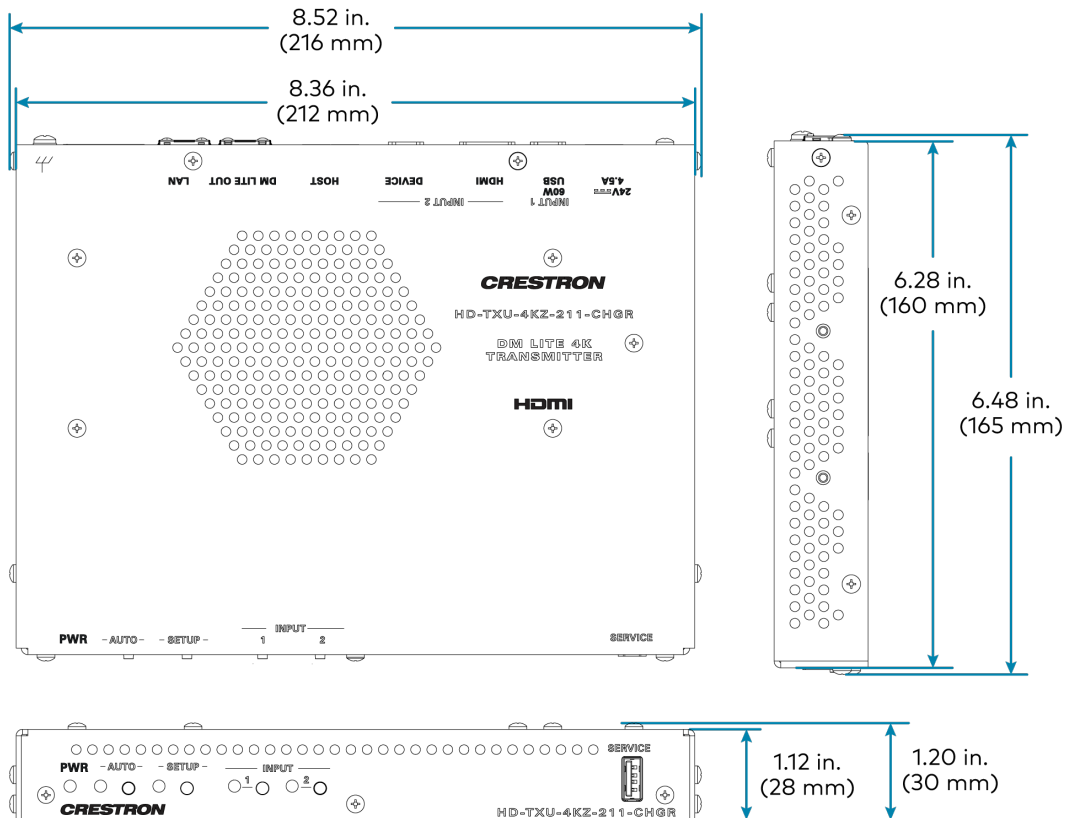Specifications are subject to change without notice.

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Rev 06/04/24

8.52 in.
(216 mm)

8.36 in.
(212 mm)

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HD-TXU-4KZ-211-CHGR

DM LITE 4K
TRANSMITTER

HDMI

LAN   DM LITE OUT   HOST   DEVICE   HDMI   USB   24V   4.5A
                                            60W
        INPUT 2   INPUT 1

PWR – AUTO – – SETUP –   INPUT   1   2   SERVICE

6.28 in.
(160 mm)

6.48 in.
(165 mm)

PWR – AUTO – – SETUP –   INPUT 1 2   SERVICE
CRESTRON   HD-TXU-4KZ-211-CHGR

1.12 in.
(28 mm)

1.20 in.
(30 mm)

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