

## DM® Essentials 4K60 4:4:4 Transmitter for HDMI®, USB-C®, and USB 2.0 Signal Extension over CATx Cable



- DM® Essentials transmitter functionality designed to interoperate with a DM Essentials HD-RXU-4KZ Series receiver
- Point-to-point extension of an HDMI® or USB-C® DisplayPort™ signal and USB 2.0 data signals over a CAT5e or higher cable
- Two inputs with automatic switching:
  - One HDMI input with associated USB 2.0 USB-C input
  - One USB-C input with DisplayPort Alt Mode capability and USB 2.0 support
- DM® Essentials transmission 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
- 4K60 4:4:4 capability
- HDR10, HDR10+, and Dolby Vision® video formats
- Enterprise-grade security
- Compliance with HDCP 2.3
- Integrated web server for device configuration and management
- Automatic display control using CEC (Consumer Electronics Control)
- EDID management
- Automatic switching of HDMI inputs
- EDID management
- Interoperability with a Crestron 3-Series® or later control system
- XiO Cloud® service support
- .AV Framework™ technology support
- Compact, surface-mountable design
- Power from 24VDC power pack (included)

The HD-TXU-4KZ-211 is a DM® Essentials 4K60 4:4:4 transmitter designed to interoperate with a DM Essentials [HD-RXU-4KZ Series](#) receiver. The paired transmitter and receiver enable extension of HDMI® or USB-C® DisplayPort™ AV signals along with USB 2.0 data. 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 (Crestron [DM-CBL-8G](#) or [DM-CBL-ULTRA](#) sold separately) must be used to connect the HD-TXU-4KZ-211 to the DM Essentials receiver<sup>1</sup>.

### Interoperability with HD-RXU-4KZ Series Receivers

For interoperability between the HD-TXU-4KZ-211 and an HD-RXU-4KZ Series receiver, the DM Essentials output port of the HD-TXU-4KZ-211 must be connected to the DM Essentials input port of the HD-RXU-4KZ Series receiver.

**NOTE:** USB 2.0 data extension is not supported if the HD-TXU-4KZ-211 is paired with a DM Essentials receiver other than an HD-RXU-4KZ Series receiver or paired with a DMPS Essentials switcher.

### 4K60 4:4:4 and HDR Support

The HD-TXU-4KZ-211 supports video resolutions up to 4K60 with 4:4:4 color sampling. HDR10, HDR10+, and Dolby Vision® video formats are also supported.<sup>2</sup>

### USB 2.0 Data Extension

Two USB 2.0 host ports and one USB 2.0 device port are provided on the HD-TXU-4KZ-211, enabling connection to a wide variety of supported USB 2.0 peripheral devices.<sup>3</sup>

### Integrated Web Server

The HD-TXU-4KZ-211 provides an integrated web server for device configuration and management. The web server also enables device, network, and other types of status information to be viewed.

### Automatic Switching of Inputs

The web interface of the HD-TXU-4KZ-211 or control system programming can be used to configure AV switching behavior. Switching between the HDMI and USB-C DisplayPort inputs occurs based on the last connected input or on the routing priority assigned to each input. In addition, input selection push buttons on the front of the HD-TXU-4KZ-211 enable the desired input to be selected manually.

### Compact, Surface-Mountable Design

Compact in design, the HD-TXU-4KZ-211 can be mounted onto a flat surface such as the underside of a table, behind a credenza, or inside a podium. It can also be attached to a single rack rail in the back of an equipment cabinet. The HD-TXU-4KZ-211 can receive power from the included power pack.<sup>4</sup> remote DM Essentials receiver or DMPS Essentials switcher.

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### Specifications

#### Video

<b>Input Signal Types</b>	HDMI® (DVI and Dual-Mode DisplayPort™ interface compatible <sup>4</sup> ) and DisplayPort over USB-C® (DisplayPort Alt Mode) with HDR10, HDR10+, Dolby Vision®, Deep Color, and 4K60 4:4:4 support <sup>2</sup>
<b>Output Signal Type</b>	DM® Essentials with HDR10, HDR10+, Dolby Vision, Deep Color, and 4K60 4:4:4 support <sup>2</sup>
<b>Copy Protection</b>	HDCP 2.3
<b>Resolutions</b>	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
Interlaced (HDMI input only)	1920x1080 HD 1080i	60 Hz	4:4:4	12 bit
		30 Hz	4:4:4	12 bit

**NOTE:** 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

<b>Input Signal Types</b>	HDMI, DisplayPort over USB-C (DisplayPort Alt Mode)
<b>Output Signal Type</b>	DM Essentials
<b>Digital Formats</b>	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

<b>HDMI</b>	HDCP 2.3, EDID, CEC pass-through
<b>USB-C</b>	HDCP 2.3, EDID, CEC pass-through
<b>USB</b>	USB signal extension via USB 2.0 host and device ports
<b>DM Essentials</b>	HDCP 2.3, EDID pass-through
<b>Ethernet</b>	100/1000 Mbps, auto-switching, autonegotiating, auto-discovery, full/half duplex, DHCP, Webbrowser setup and control, Crestron control system integration, IEEE 802.1X, Secure CIP, Authentication, SSH/SSL, TLS

#### Connectors

<b>SERVICE</b>	(1) USB 2.0 Type-A connector, female; Used for firmware loading and configuration management; Can also provide up to 5V, 500mA power to a USB-powered device
<b>24V 1.9A</b>	(1) 2.1 x 5.5 mm DC power connector; 24VDC power input; PW-2420RU power pack included <sup>4</sup>
<b>USB, INPUT 1</b>	(1) USB Type-C® connector, female; Digital video/audio input using DisplayPort Alt Mode; <sup>5</sup> USB 2.0 data support
<b>HDMI, INPUT 2</b>	(2) HDMI Type A connector, female; HDMI digital video/audio input; DVI and Dual-Mode DisplayPort interface compatible <sup>5</sup>
<b>DEVICE, INPUT 2</b>	(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
<b>HOST</b>	(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 devices; <sup>3</sup> Available Power: 500mA @ 5VDC per port
<b>DM OUT</b>	(1) 8-pin RJ-45 yellow connector, female, shielded; DM Essentials output port for connection to a DM Essentials HD-RXU-4KZ Series receiver <sup>1, 6</sup>

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LAN	(1) 8-pin RJ-45 connector, female; 100BASE-TX/1000BASE-T Ethernet port
Ground	(1) Chassis ground lug

### Controls and Indicators

PWR	(1) Bicolor amber/green LED, indicates that power is being applied to the device; 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 (applicable only when used with a DMPS Essentials switcher); (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 Green indicates that a DM Essentials link is established Flashing amber indicates non-HDCP video, and solid amber indicates HDCP video
LAN	(2) LEDs on RJ-45 connector; 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	Input: 100-240VAC Output: 24VDC 2.5A Model: <a href="#">PW-2420RU</a> <sup>4</sup>
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### Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	20% to 90% RH (non-condensing)

### Construction

Chassis	Metal, black finish, vented top, front, rear, and sides, 2 mounting brackets included
Mounting	Freestanding, surface mountable, or attachment to a single rack rail

### Dimensions

Height	1.2 in. (30 mm)
Width	8.52 in. (216 mm)
Depth	6.48 in. (185 mm)

### Weight

1.93 lb (0.88 kg)

### Compliance

#### Regulatory Model: M202047007

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

To search for product certificates, refer to [support.crestron.com/app/certificates](http://support.crestron.com/app/certificates).

### Model

#### HD-TXU-4KZ-211

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### Available Accessories

For a list of available accessories, visit the [HD-TXU-4KZ-211](#) product page.

#### Notes:

- For DM Essentials connections, use Crestron [DM-CBL-8G](#), Crestron [DM-CBL-ULTRA](#), or third-party CAT5e or higher cable. For information about the maximum transmission distance for each cable type, refer to [Online Help Answer ID 1001567](#).

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. Cables are sold separately.

## DM® Essentials 4K60 4:4:4 Transmitter for HDMI®, USB-C®, and USB 2.0 Signal Extension over CATx Cable

- For HDMI inputs, 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 USB-C DisplayPort inputs, 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.

- The HD-TXU-4KZ-211 is 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.
- The HD-TXU-4KZ-211 is powered by the included power pack. The HD-TXU-4KZ-211 cannot receive power from a remote DM Essentials receiver.
- The HDMI input requires an appropriate adapter or interface cable to accommodate a Dual-Mode DisplayPort or DVI signal. [CBL-HD-DVI](#) interface cables are sold separately.  
For the USB-C input, CBL-USB3G1-C-C-6 and CBL-USB3G2-C-C-3 cables are sold separately.
- The HD-TXU-4KZ-211 does not provide power to DMPS Essentials switchers.

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](http://www.crestron.com/How-To-Buy/Find-a-Representative) or contact us for additional information by visiting [www.crestron.com/contact/our-locations](http://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](http://www.crestron.com/warranty) for full details.

The specific patents that cover Crestron products are listed online at [patents.crestron.com](http://patents.crestron.com).

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### HDMI

Specifications are subject to change without notice.

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