

DigitalMedia 8G+® 4K60 4:4:4 HDR Transmitters 202



- 4K DigitalMedia 8G+® transmitter and multimedia interface
- Built-in 2x1 AV switcher with two HDMI® inputs³
- QuickSwitch HD™ technology manages HDCP keys for fast, reliable switching
- Connects to a DM® switcher or receiver over a single CAT type twisted pair cable¹
- Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable¹
- Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e¹
- Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e¹
- HDBaseT® Certified standard — Enables direct connection to other HDBaseT certified equipment
- Local HDMI output (DVI compatible)⁶
- Handles 3D video and Deep Color
- Handles Dolby® TrueHD, Dolby Atmos®, DTS HD®, DTS:X®, and uncompressed 7.1 linear PCM audio
- HDCP 2.2 compliant
- Performs automatic AV signal format management via EDID
- Enables device control via CEC, IR, RS-232, and Ethernet
- Enables USB HID signal extension for a local computer⁵
- Compatible with Crestron® USB over Ethernet Extenders⁷
- Compatible with Crestron Connect It™ Cable Caddies⁸
- Powered via the DM connection or optional power pack, PW-2412WU, (sold separately)^{4,5}

The DM-TX-4KZ-202-C provides a versatile interface for ultra high-definition AV and computer sources as part of a complete Crestron® [DigitalMedia™](#) system. It functions as a DM 8G+® transmitter and switcher with two HDMI® inputs and as a control module, providing RS-232 and IR control ports, plus Ethernet and USB HID ports for a total connectivity solution.

Its low-profile, surface-mountable design makes the DM-TX-4KZ-202-C ideal for installation beneath a conference table, inside a lectern or equipment rack, or at virtually any other location in a boardroom, classroom, auditorium, or residence. It connects to the head end or display location using a single CAT type twisted pair cable. In addition to DM 8G+, it is also compatible with HDBaseT® standard, which allows it to be connected directly to the input of an HDBaseT certified display device.¹

4K60 4:4:4 & HDR Support

Crestron DigitalMedia was the world's first AV signal distribution solution to deliver end-to-end 4K signal management for large-scale commercial and residential applications. DM 4KZ endpoints and cards enable new and existing DM® systems to handle full 4K60 4:4:4 video signals, as well as HDR video signals (HDR10), without having to replace any wiring or switchers. Any Crestron DM system that supports 4K can be upgraded to handle 4K60 4:4:4 and HDR by simply installing DM 4KZ based transmitters, receivers, and I/O cards.²

DM 4KZ technology employs VESA® Display Stream Compression (DSC) to enhance the capabilities of DigitalMedia to handle the extreme bandwidth requirement of resolutions beyond 4K30 4:4:4 and 4K60 4:2:0. DSC is a lightweight, line-based 2:1 compression standard that delivers visually lossless performance for 4K60 4:4:4 and HDR signals. DSC is applied only to 4K60 4:4:4 and HDR input signals. All other signals are transported uncompressed.

DigitalMedia 8G+®

Engineered for ultra high-bandwidth and ultimate scalability, DigitalMedia 8G+ (DM 8G+) provides a true one-wire lossless transport for moving high-definition video, audio, power, Ethernet, and control signals over twisted pair copper wire. DM 8G+ transports uncompressed Full HD 1080p, WUXGA, and 2K signals over distances up to 330 ft (100 m) using Crestron DM Ultra Cable, Crestron DM 8G® Cable, or third-party CAT5e. Higher resolution signals up to UHD and 4K are supported over distances up to 330 ft (100 m) using [DM Ultra Cable](#), 230 ft (70 m) using [DM 8G Cable](#), or 165 ft (50 m) using CAT5e.¹

HDBaseT® Compatible

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ output, the DM-TX-4KZ-202-C can be connected directly to an HDBaseT compliant device without requiring a DM receiver.

Multimedia Computer/AV Interface

The DM-TX-4KZ-202-C provides simple switching among two HDMI . Both inputs support resolutions up to UHD and DCI 4K, and can also handle DVI and Dual-Mode DisplayPort™ signals using an appropriate adapter or interface cable.³ The inputs can be switched automatically for plug-and-play simplicity, or programmatically through a Crestron control system.

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A single CAT type cable connects the DM-TX-4KZ-202-C to a DM switcher or receiver, or to an HDBaseT device, transporting video, audio, control, networking, and power signals all through one simple R-J45 connection.^{1,4,5} Multiple DM-TX-4KZ-202-Cs may be installed and connected to a single DM-MD series switcher to provide input connectivity and signal routing for multiple sources at different locations throughout a room or facility. Or, a single DM-TX-4KZ-202-C can be fed straight to a single DM 8G+ receiver, affording a simple solution for extending a computer or AV signal to a single display.

Local HDMI Output

An HDMI output is included to enable pass-through of the selected input signal to feed a local display, monitor, or sound system.⁶

LAN Connectivity

Along with high-definition AV and control, DigitalMedia also integrates high-speed Ethernet networking for a total signal distribution solution. The DM-TX-4KZ-202-C includes a 10/100 Ethernet port, which can be used to provide a convenient LAN connection for a local network device.

USB Signal Extension

The DM-TX-4KZ-202-C functions as a versatile USB keyboard/mouse extender with both host and device ports provided onboard. This allows a computer (or other USB HID-compliant host) to be connected to the DM-TX-4KZ-202-C and controlled remotely by a USB HID keyboard and/or mouse located elsewhere. Alternately, the keyboard/mouse may be connected locally and used to control a remote computer. Routing of the USB HID signals is handled through the DigitalMedia system. Support for other types of USB devices can be enabled using Crestron USB over Ethernet Extenders ([USB-EXT-DM-LOCAL](#) and [USB-EXT-DM-REMOTE](#)) and Crestron USB over Ethernet Network Wall Plate Endpoints ([USB-NX2-LOCAL-1G](#) and [USB-NX2-REMOTE-1G](#)).⁷

Embedded Device Control

The DM-TX-4KZ-202-C includes built-in IR, RS-232, and Ethernet control ports to enable programmable control of the devices connected to it (via a control system). It also offers an alternative to such conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-TX-4KZ-202-C provides a gateway for controlling the connected source devices right through their HDMI connections, potentially eliminating the need for any dedicated control wires or IR emitters.

Crestron Connect It™

A Crestron Connect It Cable Caddy ([IT-100](#) series) offers a convenient tabletop connectivity solution that works seamlessly with the DM-TX-4KZ-202-C. The cable caddy gets its power and control from the DM-TX-4KZ-202-C through a simple USB connection.⁸

Compact and Versatile

The DM-TX-4KZ-202-C is designed to be mounted to a flat surface or placed on a shelf. It is compact enough to fit discreetly inside a presentation lectern or beneath a table, and can even be attached to a rack rail in the back of an equipment cabinet. It can be powered using the optional power pack, [PW-2412WU](#) (sold separately), or PoDM+ (Power over DigitalMedia Plus) for a true one-wire solution.^{4,5} All connections and LED indicators are positioned on the sides, ensuring optimal access and visibility for a clean, serviceable installation. An array of indicators is provided for easy setup and troubleshooting.

Please refer to the DigitalMedia Resources at www.crestron.com/dmresources for additional design tools and reference documents.

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Maximum Cable Lengths

Resolution	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e Cable (or better) ¹
1920x1080 FHD 1080p	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K			
2048x1152 QWXGA			
2560x1080 UWFHD		230 ft (70 m)	165 ft (50 m)
2560x1440 WQHD			
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

Maximum Resolutions

Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
Progressive	4096x2160 DCI 4K or 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 HD1080p	60 Hz	4:4:4	36 bit
Interlaced	1920x1080 HD1080i	30 Hz	4:4:4	36 bit

NOTE: Common resolutions are shown. Other custom resolutions are supported at pixel clock rates up to 600 MHz.

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Specifications

Video

Switcher	2x1 manual or auto-switching, Crestron QuickSwitch HD technology
Input Signal Types	HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support ² (DVI & Dual-Mode DisplayPort™ compatible ³);
Output Signal Types	DM 8G+ & HDBaseT w/, Deep Color, 3D, & 4K60 4:4:4 support; HDMI w/HDR10, Deep Color, 3D, & 4K60 4:4:4 support ² (DVI compatible ⁶)
Copy Protection	HDCP 2.2

Audio

Switcher	2x1 audio-follow-video
Input Signal Types	HDMI (Dual-Mode DisplayPort compatible ³)
Output Signal Types	DM 8G+ & HDBaseT, HDMI
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	10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB Host	Supports signal extension of USB HID class devices, supports a TT-100 series cable caddy ⁸
USB Device	USB HID signal extension to a USB host, supports computer console (for setup)
RS-232	2-way device control and monitoring up to 115.2k baud with hardware and software handshaking (via control system)
IR/Serial	1-way device control via infrared up to 1.1 MHz or serial TTL/RS-232 (0-5 V) up to 19.2k baud (via control system)
DigitalMedia	DM 8G+, HDCP 2.2, EDID, CEC, PoDM + Ethernet
HDBaseT	HDCP 2.2, EDID, RS-232, PoE+, Ethernet
HDMI	HDCP 2.2, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports management of CEC between the connected HDMI devices and a control system.

Connectors

24 VDC 1.0 A	(1) 2.1 x 5.5 mm DC power connector; 24 VDC power input; PW-2412WU , optional power pack (sold separately)
DM OUT	(1) 8-pin shielded RJ-45, female; DM 8G+ output, HDBaseT compliant; PoDM+ PD port (HDBaseT PoE+ compatible) ^{4,5} ; Connects to the DM 8G+ input of a DM switcher, receiver, or other DM device, or to a HDBaseT device, via CAT5e or Crestron DM-CBL-8G cable, or Crestron DM-CBL-ULTRA cable ¹
HDMI OUT	(1) HDMI Type A, female; HDMI digital video/audio output (DVI compatible ⁶) ²
HDMI IN 1 – 2	(2) HDMI Type A, female; HDMI digital video/audio inputs; (DVI & Dual-Mode DisplayPort compatible ³) ²
USB HID	(1) USB Type A, female; SB 2.0 host port for connection of a mouse/keyboard or other USB HID-compliant device (USB signal extension & routing), or for connection of a Crestron TT-100 series device (Crestron Connect It) ⁸
COMPUTER	(1) USB Type B, female; USB 2.0 device port for computer console (setup), or for connection to a computer or other USB HID-compliant host (USB signal extension & routing)
LAN	(1) 8-pin RJ-45, female; 10Base-T/100Base-TX Ethernet port
COM	(1) 5-pin 3.5 mm detachable terminal block; Bidirectional RS-232 port; Up to 115.2k baud, hardware and software handshaking support
IR	(1) 2-pin 3.5 mm detachable terminal block; IR/Serial port; IR output up to 1.1 MHz; 1-way serial TTL/RS-232 (0-5 V) up to 19200 baud
Ground	(1) 6-32 screw; Chassis ground lug

Controls & Indicators

24 VDC	(1) Green LED, indicates operating power supplied via PoDM+, HDBaseT PoE+, or the optional PW-2412WU power pack (sold separately)
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DM OUT	(2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence
HDMI OUT	(1) Green LED, indicates HDMI signal presence at the HDMI output
HDMI IN 1 – 2	(2) Green LEDs, each indicates HDMI signal presence at the corresponding HDMI input
LAN	(2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
SETUP	(1) Red LED and (1) recessed pushbutton for Ethernet setup
RESET	(1) Recessed pushbutton for hardware reset

Power

Power over DM (PoDM)	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant PoDM+ PD (Powered Device), capable of being powered by a PoDM+ PSE (Power Sourcing Equipment) ⁴
Power over HDBaseT	IEEE 802.3at Type 2 Class 4 (25.5 W) compliant HDBaseT PoE+ PD (Powered Device), capable of being powered by an HDBaseT PoE+ PSE (Power Sourcing Equipment) ⁵
Power pack (optional)	Input: 100-240 VAC, 50/60 Hz Output: 1.25 A @ 24 VDC Model: PW-2412WU (sold separately)
Power Consumption	11.9 W typical using power pack; 12.7 W typical using PoDM+ or HDBaseT PoE+; (without a USB powered device connected)

Environmental

Temperature	32° to 104° F (0° to 40° C)
Humidity	10% to 95% RH (non-condensing)
Heat Dissipation	40.6 BTU/hr using power pack; 43.3 BTU/hr using PoDM+ or HDBaseT PoE+

Enclosure

Chassis	Metal, black finish, with (2) integral mounting flanges, vented top, front, and bottom
Mounting	Freestanding, surface mount, or attach to a single rack rail

Dimensions

Height	11.02 in. (280 mm)
Width	5.34 in. (136 mm)
Depth	1.07 in. (27 mm)

Weight

19.2 oz (545 g)

Compliance

UL Listed for US & Canada, CE, IC, FCC Part 15 Class B digital device, WEEE

Models**DM-TX-4KZ-202-C**
DigitalMedia 8G+® 4K60 4:4:4 HDR Transmitter 202**DM-TX-4KZ-302-C**
DigitalMedia 8G+® 4K60 4:4:4 HDR Transmitter 302**Available Accessories****DM-PSU-ULTRA-MIDSPAN**
DigitalMedia™ Ultra Midspan PoDM++ Injector**DM-CBL-ULTRA-PC Series**
DigitalMedia™ Ultra Patch Cables**DM-CONN-ULTRA-RECP Series**
DigitalMedia™ Ultra Keystone RJ-45 Jack**DM-CBL-ULTRA-NP Series**
DigitalMedia™ Ultra Cable, Non-Plenum Type CMR**DM-CBL-ULTRA-P Series**
DigitalMedia™ Ultra Cable, Plenum Type CMP**DM-CBL-ULTRA-LSZH Series**
DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen**DM-CONN-20**
Connectors for DM-CBL DigitalMedia™ Cable & DM-CBL-ULTRA DigitalMedia Ultra Cable, 20-Pack**DM-CBL-8G-NP Series**
DigitalMedia 8G™ Cable, non-plenum**DM-CBL-8G-P Series**
DigitalMedia 8G™ Cable, plenum**DM-8G-CRIMP-WG**
Crimping Tool for DM-8G-CONN-WG**DM-8G-CONN-WG-100**
Connectors with Wire Guide for DM-CBL-8G DigitalMedia 8G™ Cable**CBL Series:**
Crestron® Certified Interface Cables**CNSP-XX:**
Custom Serial Interface Cable**IRP2**
IR Emitter Probe w/Terminal Block Connector**TT-100 Series**
Crestron Connect It™ Cable Caddy w/120V Outlet**TT-101 Series**
Crestron Connect It™ Cable Caddy, No Outlet

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PW-2412WU

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

USB-EXT-DM-LOCAL

USB over Ethernet Extender with Routing, Host Module

USB-EXT-DM-REMOTE

USB over Ethernet Extender with Routing, 4-Port Device Module

USB-NX2-LOCAL-1G

USB over Ethernet Network Endpoint Wall Plate with Routing, Local

USB-NX2-REMOTE-1G

USB over Ethernet Network Endpoint Wall, Plate with Routing, Remote

Notes:

1. The maximum cable length for DigitalMedia 8G+ (DM 8G+) or HDBaseT is dependent upon the type of cable and resolution of the video signal. Refer to the "Maximum Cable Lengths" table for a detailed overview. Crestron legacy cable models [DM-CBL](#) DigitalMedia Cable and [DM-CBL-D](#) DigitalMedia D Cable support the same resolutions and cable lengths as CAT5e. Shielded cable and connectors are required when bundling multiple cables in a wire run, and are recommended for all applications to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the [Crestron DigitalMedia Design Guide, Doc. #4546](#) for complete system design guidelines. DM 8G+ is compatible with HDBaseT Alliance specifications for connecting to HDBaseT compliant equipment. All wire and cables are sold separately.
2. 4K60 4:4:4 performance and HDR support require the use of HDMI and DisplayPort 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. Please be aware that bandwidth loss is cumulative, so performance may be reduced when inserting multiple cables and couplers inline.
3. The HDMI inputs can accommodate a DVI or Dual-Mode DisplayPort signal using an appropriate adapter or interface cable. [CBL-HD-DVI](#) interface cables are available separately.
4. To power the using HDBaseT PoE requires connection to a switcher or other equipment that has an HDBaseT PoE PSE port. Wiring that connects to a HDBaseT PoE+ PSE port is for intrabuilding use only.
5. To power the using PoDM+ (Power over DigitalMedia Plus) requires connection to a DM switcher or other DigitalMedia equipment that has a PoDM+ PSE port. Wiring that connects to a PoDM+ PSE port is for intrabuilding use only.
6. The HDMI output can accommodate a DVI or Dual-Mode DisplayPort signal using an appropriate adapter or interface cable. [CBL-HD-DVI](#) interface cables are available separately.
7. USB over Ethernet Extender Modules are sold separately. Refer to the Crestron USB over Ethernet Extenders ([USB-EXT-DM-LOCAL](#) and [USB-EXT-DM-REMOTE](#)) and Crestron USB over Ethernet Network Wall Plate Endpoints ([USB-NX2-LOCAL-1G](#) and [USB-NX2-REMOTE-1G](#)) spec sheets for more information.
8. Crestron Connect It Cable Caddy ([TT-100](#) series) sold separately. Refer to each product's spec sheet for more information.

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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