

4K DigitalMedia 8G+® Transmitter 302

- > 4K DigitalMedia 8G+® transmitter and multimedia interface
- > Built-in 3x1 AV switcher with auto-switching and analog audio-breakaway
- > QuickSwitch HD™ technology achieves fast, reliable switching
- > Connects to a DM® switcher or receiver over a single CAT type twisted pair cable^[1]
- > Supports cable lengths up to 330 ft (100 m) for all resolutions up to UHD and 4K using DM Ultra cable^[1]
- > Supports cable lengths up to 330 ft (100 m) for 1080p, WUXGA, and 2K using DM 8G® cable or CAT5e^[1]
- > Supports cable lengths up to 230 ft (70 m) for UHD and 4K using DM 8G cable, or 165 ft (50 m) using CAT5e^[1]
- > HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides two 4K HDMI® inputs and one analog VGA/video input^[6]
- > Also supports DVI and Dual-Mode DisplayPort sources^[7]
- > Handles digital video with resolutions up to 4K and Ultra HD
- > Handles analog video with resolutions up to HD 1080p and WUXGA
- > Handles 3D video and Deep Color
- > Handles Dolby® TrueHD, Dolby Atmos®, DTS-HD®, and uncompressed 7.1 linear PCM audio
- > Includes an unbalanced stereo analog line-level audio input
- > Allows embedding of stereo 2-channel analog audio signals
- > Includes a local 4K HDMI output
- > HDCP 2.2 compliant
- > Detects and reports detailed video and audio input information
- > Performs automatic AV signal format management via EDID
- > Provides a 10/100 Ethernet LAN connection
- > Enables device control via CEC, IR, RS-232, and Ethernet
- > Enables USB HID signal extension for a local keyboard/mouse or computer^[4]
- > Compatible with Crestron® USB over Ethernet Extenders^[5]
- > Compatible with Crestron Connect It™ Cable Caddies^[8]
- > Allows quick, easy setup and diagnostics
- > Low-profile surface-mount design
- > Powered via the DM connection or local power pack (included)^[2,3,4]



table, inside a lectern or equipment rack, or at virtually any other location in a boardroom, classroom, auditorium, or residence.

4K Ultra HD

Crestron DigitalMedia continues to advance the standard for digital AV signal distribution, delivering the world's first end-to-end 4K system solution. The DM-TX-4K-302-C features the latest DM 8G+ technology, providing support for the transport of 4K and Ultra HD video signals. Support for 4K video also ensures support for the latest generation of computers and monitors with native resolutions beyond 1080p and WUXGA.

DigitalMedia 8G+®

As the leader in HDMI and control system technologies, Crestron developed DigitalMedia (DM®) to deliver the first complete HD AV distribution system to take HDMI to a higher level. DigitalMedia allows virtually any mix of HDMI and other AV sources to be distributed throughout a home, office, school, or virtually any other facility. The latest generation of DM is called DigitalMedia 8G™ (DM 8G®). Engineered for ultra-high bandwidth and ultimate scalability, DM 8G provides a true one-wire lossless transport for moving high-definition video, audio, and control signals over a choice of twisted-pair or fiber optic cable.

DM 8G over twisted-pair copper wire is called DigitalMedia 8G+ (DM 8G+). DM 8G+ handles uncompressed Full HD 1080p, Ultra HD, 2K, and 4K video signals with support for 3D, Deep Color, and HDCP 2.2. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD, Dolby Atmos®, and DTS-HD®, as well as uncompressed linear PCM. All signals are transported over a single CAT type wire, supporting 1080p, WUXGA, and 2K signals at distances up to 330 feet (100 m) using Crestron DM Ultra Cable, Crestron DM 8G Cable, or third-party CAT5e. Higher resolutions up to UHD and 4K are supported at distances up to 330 feet (100 m) using DM Ultra Cable, 230 feet (70 m) using DM 8G Cable, or 165 feet (50 m) using CAT5e.^[1]

The DM-TX-4K-302-C provides a versatile interface for computers and high-definition AV sources as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G+® transmitter and switcher with HDMI®, VGA, and analog audio inputs. It also functions as a control module, providing RS-232 and IR control ports, plus Ethernet and USB HID ports for a total connectivity solution. It connects to the head end or display location using a single CAT type twisted pair cable.^[1] In addition to DM 8G+, it is also compatible with HDBaseT®, allowing it to be connected directly to the input of an HDBaseT certified display device. Its low-profile, surface-mountable design makes it ideal for installation beneath a conference

DM-TX-4K-302-C 4K DigitalMedia 8G+® Transmitter 302

HDBaseT® Certified

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-4K-302-C can be connected directly to an HDBaseT compliant device without requiring a DM receiver.

Multimedia Computer/AV Interface

The DM-TX-4K-302-C provides simple switching among three inputs. The inputs can be configured to switch automatically or be controlled through a Crestron control system. Auto-detection on each input enables plug-and-play simplicity, supporting a wide range of input types without requiring any special configuration. Inputs include:

- **HDMI** — Provides two independent digital multimedia inputs for mobile devices, computers, and AV sources with resolutions up to UHD and DCI 4K. These inputs can also handle DVI and Dual-Mode DisplayPort signals using an appropriate adapter or interface cable.
- **VGA** — This input handles analog VGA and RGB signals up to WUXGA 1920x1200 pixels. It can also handle component, S-Video, and composite video signals up to 1080p60 through an appropriate adapter or breakout cable. A 1/8" (3.5 mm) stereo audio input is included to accommodate the analog audio signal from an unbalanced line-level source or headphone output.

Note: Analog audio breakaway capability allows the analog audio input to be used with any video input.

A single CAT type cable connects the DM-TX-4K-302-C to a DM switcher or receiver, or to an HDBaseT device, transporting video, audio, control, networking, and power signals all through one simple RJ45 connection.^[1,2,3] Used with a single DM 8G+ Receiver/Room Controller and optional Crestron control system, the DM-TX-4K-302-C affords a simple solution for extending a computer or AV signal to a single display. As part of a larger system using a DM-MD series switcher, multiple DM-TX-4K-302-Cs may be deployed to enable the distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

Local HDMI Output

An HDMI output is included to enable pass-through of the selected video and audio signals to feed a local display, monitor, or sound system.

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-4K-302-C includes a 10/100 Ethernet port, which can be used to provide a convenient LAN connection for a local network device.

Embedded Device Control

The DM-TX-4K-302-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-4K-302-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.

USB Signal Extension

The DM-TX-4K-302-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-4K-302-C and controlled remotely by a USB HID keyboard and/or mouse located elsewhere. Alternately, the keyboard/mouse may be



DM-TX-4K-302-C – Left, Front, & Right Views

DM-TX-4K-302-C 4K DigitalMedia 8G+® Transmitter 302

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](#)).^[4,5]

Crestron Connect It™

A Crestron Connect It Cable Caddy ([TT-100 series](#)) offers a convenient tabletop connectivity solution that works seamlessly with the DM-TX-4K-302-C. The cable caddy gets its power and control from the DM-TX-4K-302-C through a simple USB connection.^[4]

Compact and Versatile

The DM-TX-4K-302-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. The unit can be powered using the wall mount power pack (included), or PoDM+ (Power over DigitalMedia Plus) for a true one-wire solution.^[2,3,4] An array of indicators is provided on the unit for easy setup and troubleshooting.

Please refer to the [DigitalMedia Resources Webpage at <http://www.crestron.com/dmresources/>](#) for additional design tools and reference documents.

SPECIFICATIONS

Maximum Cable Lengths

Cable Type:	DM-CBL-ULTRA DM® Ultra Cable	DM-CBL-8G DM 8G® Cable	CAT5e (or better) ^[1]
Resolution:			
1080p60 Full HD	330 ft (100 m)	330 ft (100 m)	330 ft (100 m)
1920x1200 WUXGA			
1600x1200 UXGA			
2048x1080 DCI 2K		230 ft (70 m)	165 ft (50 m)
2560x1440 WQHD			
2560x1600 WQXGA			
3840x2160 4K UHD			
4096x2160 DCI 4K			

Video

Switcher: 3x1 auto-switching, auto-detecting multi-format digital/analog inputs; Crestron QuickSwitch HD technology

Input Signal Types: HDMI w/Deep Color, 3D, & 4K (DVI & Dual-Mode DisplayPort compatible^[7]); VGA/RGB (RGBHV, RGBS, RGsB); component (YPbPr); S-Video (Y/C); composite (NTSC, PAL)^[6]

Output Signal Types: DM 8G+ & HDBaseT w/Deep Color, 3D, & 4K; HDMI w/Deep Color, 3D, & 4K (DVI compatible^[7])

Maximum Resolutions:

Input Type	Scan Type	Resolution	Frame Rate	Color Sampling	Color Depth
HDMI	Progressive	4096x2160 DCI 4K or 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	
		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	
	VGA/RGB	Progressive	1600x1200 UXGA	60 Hz	n/a
1920x1200 WUXGA	60 Hz		n/a		
Component ^[6]	Progressive	1920x1080 HD1080p	60 Hz	n/a	
		1920x1080 HD1080i	30 Hz	n/a	
Composite or S-Video ^[6]	Interlaced	480i NTSC or 576i PAL	60 Hz	n/a	

NOTE: Common resolutions are shown; other custom resolutions are supported at pixel clock rates up to 300 MHz for digital inputs, or 165 MHz for analog inputs

Audio

Switcher: 3x1 with auto-detecting digital/analog inputs and analog audio breakaway

Input Signal Types: HDMI (Dual-Mode DisplayPort compatible^[7]), analog stereo

Output Signal Types: DM 8G+ & HDBaseT, 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™, LPCM up to 8 channels

Analog Formats: Stereo 2-channel

Analog-To-Digital Conversion: 24-bit 48 kHz

Analog Input Level Compensation: ±10.0 dB

Analog Performance: Frequency Response: 20 Hz to 20 kHz ±0.5 dB
S/N Ratio: >90 dB, 20 Hz to 20 kHz A-weighted

THD+N: <0.05% @ 1 kHz

Stereo Separation: >90 dB

Communications

Ethernet: 10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP

USB: Supports signal extension of USB HID class devices, supports a TT-100 series cable caddy^[8], 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 Volts) up to 19.2k baud (via control system)

DigitalMedia: DM 8G+, HDCP 2.2, EDID, CEC, PoDM+^[4], Ethernet

HDBaseT: HDCP 2.2, EDID, CEC, RS-232, PoE+^[4], Ethernet

HDMI: HDCP 2.2, EDID, CEC

DM-TX-4K-302-C 4K DigitalMedia 8G+[®] Transmitter 302

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

Connectors

VGA IN: (1) HD15 female;
Analog VGA/RGB/video input;
Signal Types: VGA, RGB, component, S-Video, or composite^[6];
Formats: RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL;
Input Levels: 0.5 to 1.5 Vp-p with built-in DC restoration;
Input Impedance: 75 Ohms;
Sync Input Type: Autodetect RGBHV, RGBS, RGsB, YPbPr, Y/C, composite;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 510 Ohms

AUDIO IN: (1) 3.5 mm TRS mini phone jack;
Unbalanced stereo line-level audio input;
Input Level: 2 Vrms maximum;
Input Impedance: 10k Ohms

HDMI IN 1 – 2: (2) 19-pin Type A HDMI female;
HDMI digital video/audio inputs;
(DVI & Dual-Mode DisplayPort compatible^[7])

DM OUT: (1) 8-pin RJ45 female, shielded;
DM 8G+ output, HDBaseT compliant;
PoDM+ PD port (HDBaseT PoE+ compatible)^[2,3,4];
Connects to the DM 8G+ input of a DM switcher, receiver, or other DM device, or to an HDBaseT device, via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable^[1]

24VDC 0.75A: (1) 2.1 x 5.5 mm DC power connector;
24 Volt DC power input;
PW-2407WU power pack included

Ground: (1) 6-32 screw; Chassis ground lug

USB HID: (1) USB Type A female;
USB 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)^[4,8]

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 RJ45 female;
10Base-T/100Base-TX Ethernet port

HDMI OUT: (1) 19-pin Type A HDMI female;
HDMI digital video/audio output (DVI compatible^[7])

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 Volts) up to 19200 baud

Controls & Indicators

VGA IN: (1) Green LED, indicates video signal presence at the VGA input
HDMI IN 1 – 2: (2) Green LEDs, each indicates HDMI signal presence at the corresponding HDMI input

DM OUT: (2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence

24VDC: (1) Green LED, indicates operating power supplied via PoDM+, HDBaseT PoE+, or local power pack

LAN: (2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity

HDMI OUT: (1) Green LED, indicates HDMI signal presence at the HDMI output

SETUP: (1) Red LED and (1) recessed pushbutton for Ethernet setup

RESET: (1) Recessed pushbutton for hardware reset

Power

Power Pack (included): Input: 100-240 Volts AC, 50/60 Hz
Output: 0.75 Amps @ 24 Volts DC
Model: PW-2407WU

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)^[2];

Note: May be powered by a standard PoDM PSE (Class 3) if no USB device is connected to the USB HID port^[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)^[3];

Note: May be powered by a standard HDBaseT PoE PSE (Class 3) if no USB device is connected to the USB HID port^[4]

Environmental

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

Humidity: 10% to 90% RH (non-condensing)

Heat Dissipation: 34.4 BTU/hr

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: 5.35 in (136 mm)

Depth: 1.08 in (28 mm)

Weight

1.48 lb (670 g)

DM-TX-4K-302-C 4K DigitalMedia 8G+[®] Transmitter 302

MODELS & ACCESSORIES

Available Models

DM-TX-4K-302-C: 4K DigitalMedia 8G+[®] Transmitter 302

Included Accessories

PW-2407WU: Wall Mount Power Pack, 24VDC, 0.75A, 2.1 mm, Universal (Qty. 1 included)

Available Accessories

DM-PSU-ULTRA-MIDSPAN: DigitalMedia™ Ultra Midspan PoDM++ Injector

DM-CBL-ULTRA-PC: DigitalMedia™ Ultra Patch Cables

DM-CONN-ULTRA-RECP: DigitalMedia™ Ultra Keystone RJ45 Jack

DM-CBL-ULTRA-NP: DigitalMedia™ Ultra Cable, Non-Plenum Type CMR

DM-CBL-ULTRA-P: DigitalMedia™ Ultra Cable, Plenum Type CMP

DM-CBL-ULTRA-LSZH: DigitalMedia™ Ultra Cable, Low Smoke Zero Halogen (Available only in Europe)

DM-CONN: Connectors for DM-CBL-ULTRA DigitalMedia Ultra Cable

DM-CBL-8G-NP: DigitalMedia 8G™ Cable, non-plenum

DM-CBL-8G-P: DigitalMedia 8G™ Cable, plenum

DM-8G-CONN: Connectors for DM-CBL-8G DigitalMedia 8G™ Cable

DM-8G-CRIMP: Crimping Tool for DM-8G-CONN

DM-8G-CONN-WG: Connectors with Wire Guide for DM-CBL-8G DigitalMedia 8G™ Cable

DM-8G-CRIMP-WG: Crimping Tool for DM-8G-CONN-WG

CBL Series: Crestron® Certified Interface Cables

MP-WP Series: Media Presentation Wall Plates

MPI-WP Series: Media Presentation Wall Plates - International Version

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe w/Terminal Block Connector

USB-EXT-DM: USB over Ethernet Extender with Routing

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 recommended 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. To power the DM-TX-4K-302-C using PoDM+ (Power over DigitalMedia Plus) requires connection to a DM switcher or other equipment that has a PoDM+ PSE port. Any wiring that is connected to a PoDM+ PSE port is for intra-building use only and should not be connected to a line that runs outside of the building in which the PSE is located.
3. To power the DM-TX-4K-302-C using HDBaseT PoE+ requires connection to a switcher or other equipment that has an HDBaseT PoE+ PSE port. Any wiring that is connected to an HDBaseT PoE+ PSE port is for intra-building use only and should not be connected to a line that runs outside of the building in which the PSE is located.
4. To enable the supply of power to an external USB device via the USB HID port, the DM-TX-4K-302-C must be powered using the provided 24VDC power pack or PoDM+ or HDBaseT PoE+. The DM-TX-4K-302-C may be powered using standard PoDM or HDBaseT PoE (802.3at Type 1 Class 3) if no USB device is connected to its USB HID port.
5. USB-EXT-DM USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM](#) spec sheet for more information.
6. The VGA input requires an appropriate passive adapter or breakout cable to accommodate a component, S-Video, or composite video signal.
7. HDMI connections require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. [CBL-HD-DVI](#) interface cables are available separately.
8. Crestron Connect It Cable Caddy (TT-100 series) sold separately. Refer to the [TT-100](#) spec sheet for more information.

This product may be purchased from an authorized Crestron dealer. To find a dealer, please contact the Crestron sales representative for your area. A list of sales representatives is available online at www.crestron.com/salesreps or by calling 800-237-2041.

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.

Crestron, the Crestron logo, Crestron Connect It, DigitalMedia, DigitalMedia 8G, DigitalMedia 8G+, DM, DM 8G, DM 8G+, and QuickSwitch HD are either trademarks or registered trademarks of Crestron Electronics, Inc. in the United States and/or other countries. Dolby, Dolby Atmos, and Dolby Digital are either trademarks or registered trademarks of Dolby Laboratories in the United States and/or other countries. DTS, DTS-HD, and DTS-HD Master Audio are either trademarks or registered trademarks of DTS, Inc. in the United States and/or other countries. HDBaseT and the HDBaseT Alliance logo are either trademarks or registered trademarks of the HDBaseT Alliance in the United States and/or other countries. HDMI and the HDMI Logo are either trademarks or registered trademarks of HDMI Licensing LLC in the United States and/or other countries. Other trademarks, registered trademarks, and trade names may be used in this document to refer to either the entities claiming the marks and names or their products. Crestron disclaims any proprietary interest in the marks and names of others. Crestron is not responsible for errors in typography or photography. Specifications are subject to change without notice. ©2016 Crestron Electronics, Inc.

DM-TX-4K-302-C 4K DigitalMedia 8G+® Transmitter 302

