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DM-TX-201-C

DigitalMedia 8G+™ Transmitter 201

Provides a remote input connection for HDMI® and RGB sources as part of a complete DigitalMedia™ System. Connects to the DM 8G+™ input of a DM® Switcher or Receiver via CAT5e or DM 8G® Cable. Includes a USB HID device port, allowing the connected host device to be controlled by a keyboard and mouse at a different location.



Product Description

The DM-TX-201-C provides a simple interface for computers and high-definition AV sources as part of a complete Crestron® DigitalMedia™ system. Its low-profile, surface-mountable design makes it 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 functions as a DM 8G+™ transmitter and switcher, providing HDMI®, VGA, and analog audio inputs along with Ethernet and USB HID ports for a total connectivity solution. 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. It connects to the head end or display location using a single CAT type twisted pair cable.^[1]

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, Ethernet, and control signals over a choice of low-cost 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 video signals with support for HDCP, as well as computer signals up to WUXGA. All signals are transported over a single CAT type cable, supporting distances up to 330 feet (100 m) using Crestron [DM 8G Cable](#) or CAT5e.^[1]

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-201-C can be connected directly to an HDBaseT compliant device without requiring a DM receiver. HDBaseT connectivity through the DM-TX-201-C converges uncompressed Full HD digital video, audio, Ethernet, power, and control signals through a single CAT5e or CAT6.^[1]

Multimedia Computer/AV Interface

The DM-TX-201-C provides simple switching between two inputs. The inputs can be configured to switch automatically or be controlled through a Crestron control system. Inputs include:

- **HDMI** — Provides a digital multimedia input for mobile devices, computers, and AV sources with resolutions up to HD 1080p60 and WUXGA. Also handles DVI and DisplayPort Multimode signals using an appropriate adapter or interface cable^[2].

- **RGB** — This VGA type input handles analog RGB signals up to WUXGA 1920x1200 pixels, as well as analog video up to 1080p60^[3]. 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: Audio breakaway capability enables the analog audio input to be used with either video input.

A single cable connects the DM-TX-201-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.^[1,4] Used with a single DM 8G+ Receiver/Room Controller and optional Crestron control system, the DM-TX-201-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-201-Cs may be installed to enable the distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

In addition to its DM 8G+ output, there is also an HDMI output provided to feed a local HDMI or DVI monitor, eliminating the need for an extra outboard distribution amp or other hardware.

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-201-C includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

USB Extender

The DM-TX-201-C also functions as a keyboard/mouse extender, allowing the connected computer (or other USB HID-compliant host) to be controlled by a mouse and/or keyboard located at a presentation lectern, conference table, or some other remote location. Expanded USB signal routing capability is available using Crestron [USB over Ethernet Extenders](#)^[5].

CEC Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. DigitalMedia provides an alternative to conventional IR and RS-232 device control by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-TX-201-C provides a gateway for controlling the connected source device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR emitters.

Compact and Versatile

The DM-TX-201-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 via PoDM (Power over DigitalMedia) for a true one-wire solution^[4]. An array of indicators is provided for easy setup and troubleshooting.

A Digital Upgrade for Legacy Systems

The DM-TX-201-C also affords a perfect signal converter for integrating DigitalMedia with analog-based systems like Crestron [MPS](#), [QuickMedia®](#), and the CEN-RGBHV Series. A simple HD15 VGA cable connected between the output of an MPS system and the input of the DM-TX-201-C allows every RGB, component, S-Video, and composite video input on the MPS to be converted to DigitalMedia^[3]. Analog audio is converted similarly through an unbalanced stereo audio cable. The DM-TX-201-C's HDMI input may also be used to expand the input capabilities of the MPS system to handle digital AV sources.

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

■ Key Features

- DigitalMedia 8G+™ transmitter and multimedia interface
- Built-in 2x1 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) using DM 8G® cable or CAT5e^[1]
- HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment

- Provides HDMI® and RGB/component video inputs^[3]
- Also supports DVI and DisplayPort Multimode sources^[2]
- Handles video resolutions up to Full HD 1080p
- Handles computer resolutions up to WUXGA
- Handles Dolby Digital®, DTS®, and uncompressed 7.1 linear PCM audio
- HDCP compliant
- Includes a mini-TRS stereo analog audio input
- Includes a local HDMI monitor output
- 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 and Ethernet
- Enables USB HID signal extension for a local computer
- Compatible with Crestron USB over Ethernet Extenders^[5]
- Allows quick, easy setup and diagnostics
- Low-profile surface-mount design
- Powered via the DM connection or local power pack (included)^[4]

Notes:

1. For DM 8G+ or HDBaseT wiring, use Crestron [DM-CBL-8G](#) DigitalMedia 8G Cable, Crestron [DM-CBL](#) DigitalMedia Cable, Crestron [DM-CBL-D](#) DigitalMedia D Cable, or third-party CAT5e (or better) UTP or STP. Maximum wire length for DM 8G+ is 330 ft (100 m) between devices. 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. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. [CBL-HD-DVI](#) interface cables are available separately.
3. The RGB/VGA input can actually accept component, composite, and S-Video signals through an appropriate adapter (not included), or via direct interface to Crestron [MPS](#) Series products. However, input sync detection is not provided for composite or S-Video signal types through this connection.
4. Receiving Power over DM (PoDM) or Power over HDBaseT (PoH) requires connection to a switcher or other equipment that has a PoDM or PoH PSE (Power Sourcing Equipment) port. Any wiring that is connected to a PoDM or PoH 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.
5. Compatible with Crestron [USB-EXT-DM-LOCAL](#) and [USB-EXT-DM-REMOTE](#) USB over Ethernet Extender modules, sold separately.
6. References to the IEEE 802.3af and 802.3at standards are used to demonstrate that PoDM and PoH technology is similar in function to PoE and follows the same essential specifications. The DM-TX-201-C cannot be powered over Ethernet, and its DM OUT port should not be connected directly to an Ethernet network or device.

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Technical Specifications

Video

Switcher	2x1 combination digital/analog switch, Crestron QuickSwitch HD®
Input Signal Types	HDMI®, DVI ^[2] , DisplayPort Multimode ^[2] , RGB/VGA, component ^[3] , S-Video ^[3] , composite ^[3]
Output Signal Types	DM 8G+™ (DigitalMedia™ over one CAT type twisted pair copper wire) ^[1] , HDBaseT®, HDMI, DVI ^[2]

Formats	DM 8G+, HDBaseT, HDMI, DVI, HDCP content protection support, RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL
Input Resolutions, HDMI & DVI, Progressive	640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1365x1024@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@24Hz (1080p24), 1920x1080@25Hz (1080p25), 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI up to 165MHz pixel clock
Input Resolutions, HDMI & DVI, Interlaced	720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by HDMI up to 165MHz pixel clock
Input Resolutions, RGB	640x480@60Hz, 720x480@60Hz (480p), 720x576@50Hz (576p), 800x600@60Hz, 848x480@60Hz, 1024x768@60Hz, 1280x720@50Hz (720p50), 1280x720@60Hz (720p60), 1280x768@60Hz, 1280x800@60Hz, 1280x960@60Hz, 1280x1024@60Hz, 1360x768@60Hz, 1366x768@60Hz, 1400x1050@60Hz, 1440x900@60Hz, 1600x1200@60Hz, 1680x1050@60Hz, 1920x1080@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1152@60Hz
Input Resolutions, Component^[3]	480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60
Input Resolutions, Composite and S-Video^[3]	480i, 576i
Output Resolutions	Matched to inputs
Analog-To-Digital Conversion	10-bit 165 MHz per each of 3 channels

Audio

Switcher	2x1 combination digital/analog switch
Input Signal Types	HDMI, DisplayPort Multimode ^[2] , analog stereo
Output Signal Types	DM 8G+, HDBaseT, HDMI
Formats, HDMI	Dolby Digital®, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24, up to 8ch PCM
Formats, Analog	Stereo 2-channel
Analog-To-Digital Conversion	24-bit 48 kHz
Performance (analog)	Frequency Response: 20Hz to 20kHz ±0.75dB; S/N Ratio: >90dB, 20Hz to 20kHz A-weighted; THD+N: <0.05% @ 1kHz; Stereo Separation: >90dB

Communications

Ethernet	10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP
USB	Supports signal extension of USB HID class devices, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet Extenders ^[5]
DigitalMedia	DM 8G+, HDCP, EDID, CEC, PoDM, Ethernet
HDBaseT	HDCP, EDID, PoH, Ethernet
HDMI	HDCP, EDID, CEC

NOTE: Supports management of HDCP and EDID; supports pass-through and management of CEC between HDMI source and sink, or between HDMI source and a control system

Connectors

LAN	(1) 8-wire RJ45 female, shielded; 10Base-T/100Base-TX Ethernet port
DM OUT	(1) 8-pin RJ45 female, shielded; DM 8G+ output, HDBaseT compliant; PoDM and PoH PD (Powered Device) port ^[4] ; Connects to the DM 8G+ input of a DM switcher, receiver/room controller, or other DM device, or to a HDBaseT device, via CAT5e or Crestron DM-CBL-8G cable ^[1]
HDMI OUT	(1) 19-pin Type A HDMI female; HDMI digital video/audio output; Also supports DVI ^[2]
PWR 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 B female; USB 2.0 device port for connection to the USB host interface of a computer or other USB HID-compliant host
HDMI IN	(1) 19-pin Type A HDMI female; HDMI digital video/audio input; Also supports DVI and DisplayPort Multimode ^[2]
RGB IN	(1) DB15HD female; RGB (VGA), component, S-Video, or composite video input ^[3] ; 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; Sync Input Level: 3 to 5 Vp-p; Sync Input Impedance: 1k Ohms
AUDIO IN	(1) 3.5mm TRS mini phone jack; Unbalanced stereo line-level audio input; Input Level: 2 Vrms maximum; Input Impedance: 10k Ohms

Controls & Indicators

LAN	(2) LEDs, green LED indicates Ethernet link status, amber LED indicates Ethernet activity
DM OUT	(2) LEDs, green LED indicates DM link status, amber LED indicates video and HDCP signal presence
PWR	(1) green LED, indicates operating power supplied via PoDM, PoH, or local power pack
HDMI IN	(1) green LED, indicates HDMI input is selected
RGB IN	(1) green LED, indicates RGB input is selected
SETUP	(1) red LED and (1) miniature recessed pushbutton for Ethernet setup
RESET	(1) miniature recessed pushbutton for hardware reset

Power Requirements

Power Pack	0.75 Amps @ 24 Volts DC; 100-240 Volts AC, 50/60 Hz power pack, model PW-2407WU included
Power over DM (PoDM)	PoDM PD (Powered Device), capable of being powered by a PoDM PSE (Power Sourcing Equipment), conforms to IEEE 802.3af (802.3at Type 1) Class 3 (12.95W) ^[6]
Power over HDBaseT (PoH)	PoH PD (Powered Device), capable of being powered by a PoH PSE (Power Sourcing Equipment), conforms to IEEE 802.3af (802.3at Type 1) Class 3 (12.95W) ^[6]

Note: May be powered via power pack or PoDM/PoH, not both.

Environmental

Temperature	32° to 104°F (0° to 40°C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	30 BTU/Hr

Enclosure

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

Dimensions

Height	6.47 in (165 mm)
Width	7.36 in (187 mm)
Depth	1.24 in (32 mm)

Weight

25.4 oz (721 g)

Notes:

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