

## DigitalMedia 8G+™ Transmitter 401

- > DigitalMedia 8G+™ transmitter and multimedia interface
- > Built-in 4x1 AV switcher with front panel input selection, 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<sup>[2]</sup>
- > Supports cable lengths up to 330 ft (100 m) using DM 8G® cable or CAT5e<sup>[2]</sup>
- > HDBaseT® Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides DisplayPort, HDMI®, RGB/component, and composite video inputs<sup>[3,5]</sup>
- > Also supports DVI sources<sup>[4]</sup>
- > Handles video resolutions up to Full HD 1080p
- > Handles computer resolutions up to WUXGA
- > Handles 3D video and Deep Color
- > Handles Dolby® TrueHD, DTS-HD®, and uncompressed 7.1 linear PCM audio
- > HDCP compliant
- > Includes RCA and mini-TRS stereo analog audio inputs
- > Detects and reports detailed video and audio input information
- > Performs automatic AV signal format management via EDID
- > Includes advanced analog video processing and time base correction
- > 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
- > Compatible with Crestron USB over Ethernet Extenders<sup>[7]</sup>
- > Allows quick, easy setup and diagnostics
- > Single-space, half-width 19-inch rack-mountable<sup>[1]</sup>
- > Powered via the DM connection or local power pack (included)<sup>[6]</sup>



boxes, requiring just a single DM 8G+ jack (MP-WP181-C or MPI-WP181-C) at each location.

### 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 3D, Deep Color, and HDCP, as well as computer signals up to WUXGA. Audio capabilities include support for high-bitrate 7.1 audio formats like Dolby® TrueHD and DTS-HD Master Audio™ as well as uncompressed linear PCM. 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.<sup>[1]</sup>

### 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-401-C can be connected directly to an HDBaseT compliant device without requiring a DM receiver. HDBaseT connectivity through the DM-TX-401-C converges uncompressed full HD digital video, audio, Ethernet, power, and control signals through a single CAT5e or CAT6.<sup>[2]</sup>

### Multimedia Computer/AV Interface

The DM-TX-401-C provides simple switching among four inputs. Inputs can be selected manually from the front panel, programmatically through a Crestron control system, or automatically by simply connecting a source to one of the inputs. Inputs include:

- **DisplayPort** — Accommodates Apple® laptops and other computers with this type of interface.<sup>[3]</sup>
- **HDMI** — Provides a digital multimedia input for mobile devices, computers, and AV sources with resolutions up to HD 1080p60 and

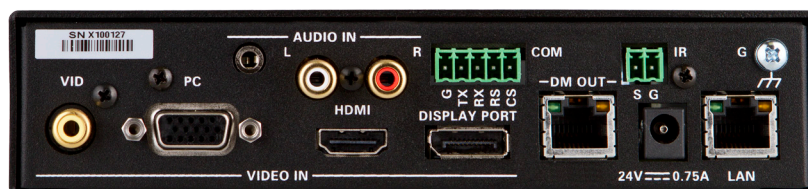
The DM-TX-401-C provides a versatile, rack-mountable<sup>[1]</sup> interface for computers and high-definition AV sources as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G+™ transmitter and switcher, providing DisplayPort, HDMI®, VGA, composite video, and analog audio inputs. 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. 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.<sup>[2]</sup>

Installed in a stationary podium or equipment rack, the DM-TX-401-C offers an ideal solution for integrating rack-mounted sources, switchers, and AV receivers into the DigitalMedia system. As a portable interface, or mounted in a movable lectern or AV cart, it affords a simple means for connecting mobile devices, computers, cameras, and other “BYOD” sources. In a conference center or auditorium, a portable DM-TX-401-C can be connected to the system as needed through wall plates and floor

# DM-TX-401-C DigitalMedia 8G+™ Transmitter 401



DM-TX-401-C – Front View



DM-TX-401-C – Rear View

WUXGA. Also handles DVI signals using an appropriate adapter or interface cable<sup>[4]</sup>.

- **PC** — This VGA type input handles analog RGB signals up to WUXGA 1920x1200 pixels, as well as component video up to 1080p60<sup>[5]</sup>. A 1/8" (3.5mm) stereo audio input is included to accommodate the analog audio signal from an unbalanced line-level source or headphone output.
- **Video** — Accepts the connection of an NTSC or PAL composite video source with stereo unbalanced line-level audio.

Note: Audio breakaway capability enables either of the two analog audio inputs to be used with any video input.

A single cable connects the DM-TX-401-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.<sup>[2,6]</sup> Used with a single DM 8G+ Receiver/Room Controller and optional Crestron control system, the DM-TX-401-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-401-Cs may be deployed to enable the distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

## Advanced Analog Video Processing

Via the PC and Video inputs, the DM-TX-401-C employs advanced analog video processing with anti-aliasing and 3D comb filtering to ensure the reliable distribution of analog VGA and video sources. Built-in time base correction is also included to ensure optimal results for use with video tape players.

## 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-401-C includes a 10/100 Ethernet port, providing a convenient LAN connection for a local network device.

## Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-TX-401-C includes built-in IR, RS-232, and Ethernet control ports to allow programmable control of the devices connected to it. But, it can also provide 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-401-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.

## USB Extender

The DM-TX-401-C functions as a keyboard/mouse extender, allowing a USB HID-compliant keyboard and/or mouse to be connected to the front panel and used to control a computer or other component located at the central equipment rack or some other location. Expanded USB signal routing capability is available using Crestron [USB over Ethernet Extenders](#)<sup>[7]</sup>.

## Rack-Mountable Enclosure

The DM-TX-401-C is housed in a compact metal enclosure that can be placed on a shelf, or mounted in a 19" equipment rack using the optional [ST-RMK](#) rack mount kit<sup>[1]</sup>. Its half-width form factor allows it to fit in a single rack-space alongside a second transmitter or other half-width Crestron device. The unit can be powered using the wall mount power pack (included), or via PoDM (Power over DigitalMedia) for a true one-wire solution<sup>[6]</sup>. An array of controls and indicators is provided 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.

# DM-TX-401-C DigitalMedia 8G+™ Transmitter 401

## SPECIFICATIONS

### Video

**Switcher:** 4x1 combination digital/analog switch, Crestron QuickSwitch HD®

**Input Signal Types:** DisplayPort, HDMI®, DVI<sup>[4]</sup>, RGB/VGA, component<sup>[5]</sup>, S-Video<sup>[5]</sup>, composite

**Output Signal Types:** DM 8G+™ (DigitalMedia™ over one CAT type twisted pair copper wire), HDBaseT® <sup>[2]</sup>

**Formats:** DM 8G+, HDBaseT, DisplayPort, & HDMI w/Deep Color & 3D; DVI; HDCP content protection support; RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, & PAL

**Input Resolutions, DisplayPort, 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@50Hz (1080p50), 1920x1080@60Hz (1080p60), 1920x1200@60Hz, 2048x1152@60Hz, plus any other resolution allowed by DisplayPort up to 165MHz pixel clock

**Input Resolutions, DisplayPort, Interlaced:** 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by DisplayPort up to 165MHz pixel clock

**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<sup>[5]</sup>:** 480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60

**Input Resolutions, Composite and S-Video<sup>[5]</sup>:** 480i, 576i

**Output Resolutions:** Matched to inputs

**Analog-To-Digital Conversion:** 12-bit 170 MHz per each of 3 channels

### Audio

**Switcher:** 4x1 combination digital/analog switch

**Input Signal Types:** HDMI, DisplayPort, analog stereo

**Output Signal Type:** DM 8G+, HDBaseT

**Formats, DisplayPort:** Dolby Digital®, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24, up to 8ch PCM

**Formats, HDMI:** Dolby Digital, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, up to 8ch PCM

**Formats, Analog:** Stereo 2-channel

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

**Input Level Compensation (analog):** ±10 dB

**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<sup>[7]</sup>

**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

**VID:** (1) RCA female, composite video input;

Input Level: 1 Vp-p nominal;

Input Impedance: 75 Ohms nominal

**PC:** (1) DB15HD female;

RGB (VGA), component, S-Video, or composite video input<sup>[5]</sup>;

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: 510 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

**AUDIO IN L, R:** (2) RCA female;

Unbalanced stereo line-level audio input;

Input Level: 2 Vrms maximum;

Input Impedance: 10k Ohms

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**HDMI:** (1) 19-pin Type A HDMI female;  
HDMI digital video/audio input;  
Also supports DVI<sup>[4]</sup>

**DISPLAY PORT:** (1) 20-pin DisplayPort female;  
DisplayPort digital video/audio input<sup>[3]</sup>

**COM:** (1) 5-pin 3.5mm detachable terminal block;  
Bidirectional RS-232 port;  
Up to 115.2k baud, hardware and software handshaking support

**IR:** (1) 2-pin 3.5mm 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

**DM OUT:** (1) 8-pin RJ45 female, shielded;  
DM 8G+ output, HDBaseT compliant;  
PoDM and PoH PD (Powered Device) port<sup>[6]</sup>  
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<sup>[2]</sup>

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

**LAN:** (1) 8-wire RJ45 female;  
10Base-T/100Base-TX Ethernet port

**G:** (1) 6-32 screw, chassis ground lug

**USB HID (front):** (1) USB Type A female;  
USB 2.0 host port for connection of a mouse/keyboard or other  
USB HID-compliant device

## Controls & Indicators

**PWR:** (1) green LED, indicates operating power supplied via PoDM, PoH, or  
local power pack

**RESET:** (1) miniature recessed pushbutton for hardware reset

**DM LINK:** (1) green LED, indicates DM link status

**SETUP:** (1) red LED and (1) miniature recessed pushbutton for  
Ethernet setup

**INPUT AUTO, VIDEO, PC, HDMI, DISPLAY PORT:** (5) green LEDs, indicate  
which input is selected or if auto-switch mode is active

**INPUT SELECT:** (1) pushbutton for selecting inputs or activating auto-  
switch mode

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

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

## 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)<sup>[8]</sup>

**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)<sup>[8]</sup>

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:** 45 BTU/Hr

## Enclosure

**Chassis:** Metal, black finish, vented top and sides

**Front Panel:** Metal, black finish with polycarbonate label overlay

**Mounting:** Freestanding or 1U, half-width 19-inch rack-mountable  
(adhesive feet attached, ST-RMK rack kit sold separately)

## Dimensions

**Height:** 1.76 in (45 mm)

**Width:** 7.07 in (180 mm)

**Depth:** 8.75 in (223 mm)

## Weight

2.0 lb (0.9 kg)

## MODELS & ACCESSORIES

### Available Models

DM-TX-401-C: DigitalMedia 8G+™ Transmitter 401

### Included Accessories

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

### Available Accessories

ST-RMK: Rack Mount Kit

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

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

DM-8G-CONN: DigitalMedia 8G™ Cable Connector

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

DM-8G-CONN-WG: DigitalMedia 8G™ Cable Connector with Wire Guide

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

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

# DM-TX-401-C DigitalMedia 8G+™ Transmitter 401

## Notes:

1. **ST-RMK** Rack Mount Kit sold separately.
2. 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.
3. The DisplayPort input only supports native DisplayPort signals. To connect an HDMI source to this input, an active HDMI-to-DisplayPort converter must be used.
4. The HDMI input requires an appropriate adapter or interface cable to accommodate a DVI signal. **CBL-HD-DVI** interface cables are available separately.
5. The PC/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.
6. 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.
7. Compatible with Crestron **USB-EXT-DM-LOCAL** and **USB-EXT-DM-REMOTE** USB over Ethernet Extender modules, sold separately.
8. 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-401-C cannot be powered over Ethernet, and its DM OUT port should not be connected directly to an Ethernet network or device.

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](http://www.crestron.com/salesreps) or by calling 800-237-2041.

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

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