

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^[2]
- > Supports cable lengths up to 330 ft (100 m) using DM 8G[®] cable or CAT5e^[2]
- > HDBaseT[®] Certified — Enables direct connection to other HDBaseT certified equipment
- > Provides DisplayPort™, HDMI[®], RGB/component, and composite video inputs^[3,5]
- > Also supports DVI sources^[4]
- > Handles video resolutions up to Full HD 1080p
- > Handles computer resolutions up to WUXGA
- > Handles 3D video and Deep Color
- > Handles Dolby[®] TrueHD, Dolby Atmos[®], DTS-HD[®], and uncompressed 7.1 linear PCM audio
- > Includes RCA and mini-TRS stereo analog line-level audio inputs
- > Allows embedding of stereo 2-channel analog audio signals
- > HDCP compliant
- > 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^[8]
- > Compatible with Crestron Connect It™ Cable Caddies^[9]
- > Allows quick, easy setup and diagnostics
- > Single-space, half-width 19-inch rack-mountable^[1]
- > Under-table mountable^[1]
- > Powered via the DM connection or PW-2407WU power pack (sold separately)^[6,7]

The DM-TX-401-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, 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 can be rack-mounted, placed on a shelf, or attached under a table^[1], and connects to the head end or display location using a single CAT type twisted pair cable.^[2]



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. Mounted under a table or 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 through wall plates and floor boxes as needed, 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 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, Dolby Atmos[®], and DTS-HD[®], 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.^[2]

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.

DM-TX-401-C DigitalMedia 8G+[®] Transmitter 401



DM-TX-401-C – Front View



DM-TX-401-C – Rear View

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.^[3]
- **HDMI** — Provides a digital multimedia input for mobile devices, computers, and AV sources with resolutions up to HD 1080p60 and WUXGA. Also handles DVI signals using an appropriate adapter or interface cable.^[4]
- **PC** — This VGA type input handles analog RGB signals up to WUXGA 1920x1200 pixels, as well as component video up to 1080p60.^[5] 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.
- **Video** — Accepts the connection of an NTSC or PAL composite video source with stereo unbalanced line-level audio.

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

A single CAT type 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.^[2,6,7] 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, which can be used to provide a convenient LAN connection for a local network device.

Embedded Device Control

The DM-TX-401-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). 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 Signal Extension

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. Additional USB devices of virtually any type can be supported using Crestron USB over Ethernet Extenders ([USB-EXT-DM](#)).^[8]

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-401-C. The cable caddy gets its power and control from the DM-TX-401-C through a simple USB connection.^[9]

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Under-Table or Rack Mountable

The DM-TX-401-C is housed in a compact metal enclosure that can be placed on a shelf, attached under a table, or mounted in a 19" equipment rack.^[1] Its 1 RU half-width form factor allows it to fit in a single rack-space alongside a second transmitter or other 1 RU half-width Crestron device. The unit can be powered using a PW-2407WU power pack (sold separately), or PoDM (Power over DigitalMedia) for a true one-wire solution.^[6,7] 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.

SPECIFICATIONS

Video

Switcher: 4x1 auto-switching, auto-detecting multi-format digital/analog inputs; Crestron QuickSwitch HD technology

Input Signal Types: DisplayPort, HDMI w/Deep Color & 3D (DVI & Dual-Mode DisplayPort compatible^[4]), RGB/VGA (RGBHV, RGBS, RGsB), component (YPbPr), S-Video (Y/C), composite (NTSC, PAL)^[5]

Output Signal Types: DM 8G+ & HDBaseT w/Deep Color & 3D^[2]

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 165 MHz pixel clock

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

Resolutions, HDMI, 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 165 MHz pixel clock

Resolutions, HDMI, Interlaced: 720x480@30Hz (480i), 720x576@25Hz (576i), 1920x1080@25Hz (1080i25), 1920x1080@30Hz (1080i30), plus any other resolution allowed by HDMI up to 165 MHz pixel clock

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

Resolutions, Component^[5]: 480i, 576i, 480p, 576p, 720p50, 720p60, 1080p24, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60

Resolutions, Composite & S-Video^[5]: 480i, 576i

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

Audio

Switcher: 4x1 with auto-detecting digital/analog inputs and analog audio breakaway

Input Signal Types: DisplayPort, HDMI (Dual-Mode DisplayPort compatible), analog stereo

Output Signal Types: DM 8G+ & HDBaseT

Digital Formats, DisplayPort: Dolby Digital[®], Dolby Digital EX, DTS[®], DTS-ES, DTS 96/24, LPCM up to 8 channels

Digital Formats, HDMI: 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 dB

Analog Performance: Frequency Response: 20 Hz to 20 kHz ±0.75 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, expandable to support virtually any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet Extenders^[8]; supports a TT-100 series cable caddy^[9]

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, EDID, CEC, PoDM, Ethernet

HDBaseT: HDCP, EDID, PoE, Ethernet

DisplayPort: HDCP, EDID, CEC

HDMI: HDCP, EDID, CEC

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

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Connectors

VID: (1) RCA female;
Composite video input;
Input Level: 1 Vp-p nominal;
Input Impedance: 75 Ohms nominal

PC: (1) HD15 female;
Analog VGA/RGB/video input;
Signal Types: VGA, RGB, component, S-Video, or composite^[5];
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) 3.5 mm 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

HDMI: (1) 19-pin Type A HDMI female;
HDMI digital video/audio input;
(DVI & Dual-Mode DisplayPort compatible^[4])

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

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

DM OUT: (1) 8-pin RJ45 female, shielded;
DM 8G+ output, HDBaseT compliant;
PoDM PD port (HDBaseT PoE compatible)^[6,7];
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^[2]

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

LAN: (1) 8-pin 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, or for connection of a Crestron TT-100 series
device (Crestron Connect It)^[9]

Controls & Indicators

PWR: (1) Green LED, indicates operating power supplied via PoDM,
HDBaseT PoE, or PW-2407WU power pack (sold separately)

RESET: (1) Recessed pushbutton for hardware reset

DM LINK: (1) Green LED, indicates DM link status

SETUP: (1) Red LED and (1) 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

Power Pack (sold separately): 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 1 Class 3 (12.95 W) compliant
PoDM PD (Powered Device), capable of being powered by a PoDM PSE
(Power Sourcing Equipment)^[6]

Power over HDBaseT: IEEE 802.3at Type 1 Class 3 (12.95 W) compliant
HDBaseT PoE PD (Powered Device), capable of being powered by an
HDBaseT PoE PSE (Power Sourcing Equipment)^[7]

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, under-table mountable, or 1 RU half-width
19-inch rack-mountable (adhesive feet attached, under-table and rack
mounting kits 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)

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MODELS & ACCESSORIES

Available Models

DM-TX-401-C: DigitalMedia 8G+[®] Transmitter 401

Available Accessories

PW-2407WU: Wall Mount Power Pack 24VDC, 0.75A, Universal

ST-RMK: Rack Mount Kit

UTK-1U-HALF: Under-Table Mounting Kit

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

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

DM-8G-CONN: Connector for DM-CBL-8G

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

DM-8G-CONN-WG: Connector with Wire Guide for DM-CBL-8G

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

Notes:

1. The **ST-RMK** Rack Mount Kit and **UTK-1U-HALF** Under-Table Mounting Kit are sold separately.
2. For DM 8G+ or HDBaseT wiring, use Crestron **DM-CBL-8G** DigitalMedia 8G Cable or third-party CAT5e (or better) UTP or STP. (Crestron legacy **DM-CBL** DigitalMedia Cable or **DM-CBL-D** DigitalMedia D Cable may also be used.) The 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 or Dual-Mode DisplayPort signal. **CBL-HD-DVI** interface cables are available separately.
5. The PC 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. To power the DM-TX-401-C using PoDM (Power over DigitalMedia) 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.
7. To power the DM-TX-401-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.
8. **USB-EXT-DM** USB over Ethernet Extender Modules are sold separately. Refer to the [USB-EXT-DM](#) spec sheet for more information.
9. **TT-100** series cable caddies are 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.

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