

DigitalMedia 8G™ Single-Mode Fiber Transmitter 401

- > DigitalMedia 8G™ Single-Mode Fiber 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 one single-mode fiber strand^[2]
- > Supports cable lengths up to 7.5 miles (12 km) using CresFiber® 8G SM or G.652.D single-mode fiber^[2]
- > 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, 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^[6]
- > Allows quick, easy setup and diagnostics
- > Single-space, half-width 19-inch rack-mountable^[1]
- > Universal power pack included



DigitalMedia 8G™ Single-Mode Fiber

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 SM Fiber uses single-mode fiber to enable long-distance signal distribution across a campus, complex, or municipality. DM 8G SM Fiber 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 one strand of single-mode fiber, supporting distances up to 7.5 miles (12 km) using CresFiber® 8G SM or G.652.D single-mode fiber optic cable.^[2]

Multimedia Computer/AV Interface

The DM-TX-401-S2 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" (3.5mm) 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.

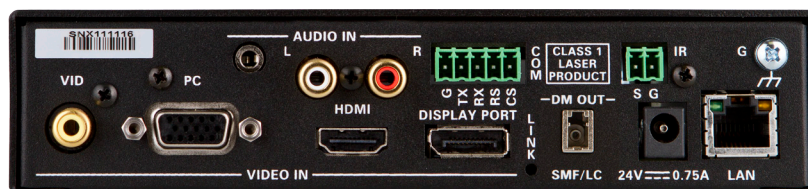
The DM-TX-401-S2 provides a versatile, rack-mountable^[1] interface for computers and high-definition AV sources as part of a complete Crestron® DigitalMedia™ system. It functions as a DM 8G® SM Fiber transmitter and switcher, providing DisplayPort®, HDMI®, VGA, composite video, and analog audio inputs. 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. It connects to the head end or display location using one single-mode fiber strand.^[2]

Installed in a stationary podium or equipment rack, the DM-TX-401-S2 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-S2 can be connected to the system as needed through wall plates and floor boxes, requiring just a single LC optical fiber connection at each location.

DM-TX-401-S2 DigitalMedia 8G™ Single-Mode Fiber Transmitter 401



DM-TX-401-S2 – Front View



DM-TX-401-S2 – Rear View

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

A single fiber strand connects the DM-TX-401-S2 to a DM switcher or receiver, transporting video, audio, control, and networking signals all through one simple LC type optical connection.^[2] Used with a single DM 8G SM Fiber Receiver/Room Controller and optional Crestron control system, the DM-TX-401-S2 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-S2s 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-S2 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-S2 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-S2 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-S2 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-S2 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](#)^[6].

Rack-Mountable Enclosure

The DM-TX-401-S2 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^[1]. Its half-width form factor allows it to fit in a single rack-space alongside a second transmitter or other half-width Crestron device. 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 combination digital/analog switch, Crestron QuickSwitch HD®

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

Output Signal Types: DM 8G® SM Fiber (DigitalMedia™ over one single-mode fiber optic strand)^[2]

Formats: DM 8G SM Fiber, 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,

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

Input Resolutions, Composite and S-Video^[5]: 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 SM Fiber

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^[6]

DigitalMedia: DM 8G SM Fiber, HDCP, EDID, CEC, 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^[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) 3.5mm 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

HDMI: (1) 19-pin Type A HDMI female;

HDMI digital video/audio input;

Also supports DVI^[4]

DISPLAY PORT: (1) 20-pin DisplayPort female;

DisplayPort digital video/audio input^[3]

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 SMF/LC: (1) LC female optical fiber connector;

DM 8G Single-Mode Fiber output;

Connects to DM 8G SM Fiber input of a DM switcher, receiver/room controller, or other DM device via CRESFIBER8G-SM single-mode fiber optic cable^[2]

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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 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

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

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

Environmental

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

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

Heat Dissipation: 43 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-S2: DigitalMedia 8G™ Single-Mode Fiber Transmitter 401

Included Accessories

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

Available Accessories

ST-RMK: Rack Mount Kit

CRESFIBER8G-SM-P: CresFiber® 8G Single-Mode Fiber Optic Cable, plenum

CRESFIBER8G-SM-CONN-LC-12: CresFiber® 8G Single-Mode Fiber Optic Cable Connector, LC, 12-Pack

CRESFIBER-TK: CresFiber® Termination Kit (AFL Telecommunications™)

CBL Series: Crestron® Certified Interface Cable

CNSP-XX: Custom Serial Interface Cable

IRP2: IR Emitter Probe w/Terminal Block Connector

MP-WP Series: Media Presentation Wall Plates

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

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

Notes:

1. **ST-RMK** Rack Mount Kit sold separately.
2. The maximum cable length for DigitalMedia 8G Single-Mode Fiber (DM 8G SM Fiber) is 7.5 miles (12 km) using Crestron **CRESFIBER8G-SM** or third-party G.652.D (or better) single-mode fiber optic cable. Refer to the [Crestron DigitalMedia Design Guide, Doc. #4546](#) for complete system design guidelines. 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. Compatible with Crestron **USB-EXT-DM-LOCAL** and **USB-EXT-DM-REMOTE** USB over Ethernet Extender modules, sold separately.

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.

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