Crestron DM-MD8X8

CRESTRON DigitalMedia™

8x8 DigitalMedia™ Switcher

- *Distributes uncompressed digital video and audio over CAT5e/6 or fiber*
- *Supports HDMI 1.3a with Deep Color and 7.1 channel HD lossless audio*
- *Supports video resolutions up to WUXGA 1920x1200 and HD 1080p60*
- *Allows cable length to 450 feet using DigitalMedia Cable, 3280 feet (1 km) using CresFiber™*
- *Supports up to 8 DM room controllers with easy expansion for more outputs*
- *Configurable inputs support a complete range of digital and analog signal types*
- *Detects and displays detailed video and audio input information*
- *QuickSwitch HD™ technology minimizes HDMI switching latency*
- *Manages HDCP digital rights management for every device*
- *Performs automatic AV signal format management via EDID*
- *Distributes USB HID mouse, keyboard, and game controller signals*
- *Allows full audio and USB breakaway switching*
- *Integrates with analog audio distribution systems*
- *Enables simultaneous output of stereo and surround sound audio*
- *Includes integrated Ethernet switch with Gigabit LAN port*
- *Includes built-in power distribution for DM transmitters, repeaters, and room controllers*
- *Provides easy setup and diagnostics tools via front panel or software*
- *4-space 19-inch rack-mountable*

Crestron DM Switchers provide the foundation for a complete DigitalMedia system, delivering an advanced, true high-definition multi-room AV signal routing solution that's extremely flexible and installer-friendly. The DM-MD8X8 affords low-latency switching and pure, lossless distribution of HDMI and other signals to support the latest Blu-ray Disc™ players, HDTV receivers, digital media servers, video game consoles, and all your other AV devices.

The DM-MD8X8 is field-configurable to handle up to 8 AV sources, and provide up to 8 DM room outputs with expansion capability for even larger applications. A full selection of DM switcher input cards, DM transmitters*, and DM room controllers provides extensive connectivity throughout the home or office, supporting a complete range of analog and digital signal types — all through one switcher! User-friendly setup and troubleshooting tools are provided through the DM-MD8X8 front panel, or via Crestron Toolbox™ software, to make setting up a complete multi-room HD system easy.

DigitalMedia™—You can't talk about AV and home entertainment today without talking about high-definition, and creating a professional HD AV distribution system means handling the challenges that come with HDMI. HDMI is the new standard for interfacing high-definition AV equipment, but despite its many benefits, wasn't developed with multi-room distribution in mind. So, as the leader in HDMI and control system technologies, Crestron has developed DigitalMedia, the first complete HD AV distribution system that takes HDMI to a higher level, and allows virtually any mix of AV sources to be distributed throughout the home from a centralized rack location.

DigitalMedia (DM) distributes uncompressed digital video and audio signals over a choice of CAT5e/6-based copper wiring or multi-mode fiber*. DigitalMedia thoughtfully manages all of the different signals and devices, matching each source's output to the capabilities of the selected display(s) without using scaling or compression. Every signal is preserved in its native video resolution and audio format, ensuring a pure, lossless signal path throughout.

Of course DigitalMedia handles more than just audio and video. Integrated Ethernet and USB HID distribution allows computers, media servers, and video game consoles to be installed out-of-sight and accessed from anywhere in the house. And naturally, Crestron control is also built-in for controlling the displays and other room devices without additional wiring.

Modular Architecture— The DM-MD8X8 features a modular architecture with 8 input card slots, and 2 quad output card slots. Each card slot on the DM-MD8X8 is field-installable, allowing for easy and flexible system configuration with the ability to make changes to the system as needs change.

A wide selection of DM input cards are offered to support a complete range of digital and analog AV signal types. One or two output cards may be installed to feed up to 8 DM Room Controllers (receivers) using either DigitalMedia Cable or CresFiber* fiber optic cable. DigitalMedia allows for cable lengths up to 450 feet (137 m) using DM cable, or 3280 feet (1 km) using CresFiber*. HDMI outputs are also available for connection to a centralized surround sound processor or video monitor.

Output Expansion—An HDMI "pass-thru" output is provided on every input card to allow the inputs of up to 5 DM switchers to be daisy-chained, enabling the configuration of very large distribution systems with many DM outputs.

Versatile Audio Routing—HDMI is the key to handling all the latest 7.1 surround sound formats like Dolby® TrueHD and DTS-HD Master Audio. Great for your high-end home theater, but how do you share that same source with other audio zones in the house?

DigitalMedia provides the answer, allowing for the simultaneous distribution of multi-channel surround sound and two-channel stereo signals from the same HDMI source. Equipped with a DMC-HD-DSP input card, the DM-MD8X8 employs onboard DSP processing to derive a stereo down-mix from the original multi-channel signal. Both signals can be routed separately or simultaneously from any of the switcher's DM outputs, allowing either signal to be selected for output at each DM receiver location.

Back at the switcher, the digital stereo signal is also converted to analog to enable sharing with every other room in the house via an AAE, CNX-PAD8A, or other multi-room audio distribution system. The DM-MD8X8 also allows bulky surround sound processors and amplifiers to be located centrally instead of at the display location via optional local HDMI outputs.

Computer Compatibility—Besides handling every available HDTV format supported by HDMI, DigitalMedia also supports the distribution of DVI and RGB* computer signals, and is fully compatible with DVI computer monitors up to 1920 x 1200 WUXGA.

Built-in Ethernet Switch—In addition to digital video and audio, DigitalMedia also carries 10/100 Ethernet to each Room Controller, supporting streaming media for multimedia devices, or just providing LAN connectivity for any room device that requires Ethernet or Internet access. Its Gigabit Ethernet connection to the external LAN helps maximize bandwidth for each network port. Ethernet is also utilized internally by the Crestron control bus to manage all of the DM devices in the system and provide display control in each room.

USB HID Switch—DigitalMedia lets you centralize ALL of your HD sources - not just television receivers and DVD changers, but also media servers, computers, and even video game consoles. Built-in USB HID (Human Interface Device) signal routing allows USB HID compatible keyboards, mice, and game controllers to be connected at each display location, extending their signals through to the centralized equipment via USB HID ports provided on select switcher input cards.

EDID Format Management—With HDMI comes a slew of confusing video and audio formats to keep track of, and chances are not every device in your system supports all of the same formats. In a typical one-room system, HDMI attempts to resolve this confusion using EDID. When two HDMI devices are connected together, the receiving device (a display or surround sound processor) uses EDID to announce its format capabilities to the source device (a TV tuner or video player), which in turn configures itself to output the most effective format that both devices can support.

But, try to distribute a bunch of disparate sources to a house full of different displays and audio systems, and you're likely to experience some serious conflicts. For instance, the Blu-ray player that's feeding your 1080p projector in the theater may restrict itself to a lower resolution, or even shut off completely, if someone decides to view the same signal on the 32" TV in the bedroom. And instead of enjoying the incredible 7.1 Dolby TrueHD format supported by your high-end theater sound system, you may find your listening experience limited to Dolby 5.1, or even plain old stereo.

The DM-MD8X8 takes full advantage of EDID to prevent such conflicts, assessing the formats supported by each system device, and then allowing the installer to assign compatible devices in logical arrangements. Conflicting combinations can be prohibited so only the optimum signal formats get delivered to each display and audio system in the house.

QuickSwitch HD™ Technology—As the move to digital takes hold, more and more movie studios and television service providers are using a copy-protection scheme called HDCP to protect their DVDs, Blu-ray Discs, and broadcast signals against unauthorized copying. To view HDCP encrypted content in full high-definition requires the source device to "authenticate" every display and signal processor through an HDMI connection before delivering an output signal. This process occurs every time any HDMI signal is switched, causing a complete loss of signal for up to 15 seconds whenever a new source or display is selected anywhere in the house.

Crestron exclusive QuickSwitch HD technology eliminates this issue by maintaining a constant HDCP connection with each HDMI device in the system. By eliminating the need to re-authenticate each time a different source or display is selected, QuickSwitch HD achieves very fast switching of HDMI signals.

HDCP Key Management—Another aspect to HDCP is its use of "keys" to manage the handshaking that occurs between any two devices. Every HDMI source device has a limit to how many downstream devices it can support, determined by the number of HDCP keys it has available. Rarely is that limit advertised or specified by the manufacturer or service provider, so connect too many displays or processors and the source will simply stop outputting a signal without warning.

To prevent such surprises, the DM-MD8X8 tests the HDCP limits of each HDMI source, allowing the installer to configure the system around any limitations, or substitute a different component.

CEC Signal Management—The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. To ensure this outcome, the DM-MD8X8 intercepts the CEC signals that many HDMI devices generate without your knowledge, preventing any unwanted commands from being executed — like a Blu-ray player attempting to turn off the video display when it gets turned off, or a DVD player trying to pause the other players in the system when it is playing. Through proper CEC management, DigitalMedia allows you to take control of each device as you like.

Easy Setup—Via the front panel or using Crestron Toolbox software, every step of the DM-MD8X8's setup process is designed to be quick and easy, configuring inputs and outputs automatically while letting the installer make intelligent design decisions along the way. The switcher even tests and measures the length of each DM cable, automatically making the appropriate calibrations for optimal signal transmission to every room. With DigitalMedia, an entire 8x8 system can be commissioned in only 15 minutes.

SPECIFICATIONS

Video

Switcher: 8x8 digital matrix, modular input/output cards, resolution management, HDCP v.1.1 content protection support, Crestron QuickSwitch HD
Input Signal Types: Configurable via plug-in cards supporting HDMI, DVI*, RGB*, component (YPbPr), S-Video (Y/C), and composite video, and DM (DigitalMedia) over copper wire* or fiber*
Output Signal Types: Configurable via plug-in cards supporting DM over copper wire or fiber*, and HDMI
Formats: HDMI v.1.3a w/Deep Color, DVI v.1.0, RGBHV up to UXGA/WUXGA, HDTV up to 1080p60, NTSC or PAL
Input Resolutions, HDMI/DVI and RGB: 640x480@60Hz, 720x480@60Hz (480p), 800x600@60Hz, 848x480@60Hz, 852x480@60Hz, 854x480@60Hz, 1024x768@60Hz, 1024x852@60Hz, 1024x1024@60Hz, 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@60Hz (1080p60), 1920x1200@60Hz, 2048x1080@24Hz, 2048x1152@60Hz, plus any other resolution allowed by HDMI v.1.3a
Input Resolutions, Component: 480i, 576i, 480p, 576p, 720p50, 720p60, 1080i25 (1125 lines), 1080i30, 1080p24, 1080p25, 1080p30, 1080p50 (1125 lines), 1080p60
Input Resolutions, Composite and S-Video: 480i, 576i
Output Resolutions: Matched to inputs

Audio

Switcher: 8x8 digital multi-channel audio-follow-video matrix switching, plus independent 8x8 stereo matrix for audio breakaway
Input Signal Types: Configurable via modular plug-in cards supporting HDMI, analog (stereo or surround encoded 2-channel), SPDIF, and DM over copper wire* or fiber*
Output Signal Types: DM over copper wire or fiber*, and HDMI
(Some input cards also include analog pass-thru audio outputs)
Formats, HDMI only: Dolby® TrueHD 7.1, Dolby Digital Plus 7.1, DTS-HD Master Audio™ 7.1, DTS-HD High Res 7.1, 6ch PCM, 8ch PCM
Formats, HDMI and SPDIF: Dolby Digital AC3 5.1, Dolby Digital EX 5.1, DTS 5.1, DTS-ES Matrix 5.1, DTS-ES Discrete 6.1, DTS 96/24 5.1, 2ch PCM
Formats, Analog: Stereo 2-Channel

Ethernet

General: 10/100/1000BaseT, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, IEEE 803.U compliant
Switch: (1) 10/100/1000BaseT Gigabit Ethernet port (rear panel); (16) 10BaseT/100BaseTX Ethernet ports (actual hardware ports are exposed on select outboard devices)

USB

Switcher: 8x8 matrix
Protocols: Supports USB HID class devices

Crestron Electronics, Inc. 15 Volvo Drive | Rockleigh, NJ 07647
Tel: 800.237.2041 / 201.767.3400 | Fax: 201.767.1903
www.crestron.com

Card Slots

1 – 8: (8) DM switcher input card slots;
Each slot accepts (1) DM input card
DM OUTPUTS (SLOT 1 – 2): (2) DM switcher output card slots;
Each slot accepts (1) 4-channel DM output card

Connectors

LAN: (1) 8-wire RJ45 female w/2 LED indicators;
10/100/1000BaseT Ethernet port;
Green LED indicates link status;
Yellow LED indicates Ethernet activity

24ABG / EIG 1 – 4 (SLOT 1 – 2):
(8) sets of (1) 4-pin and (1) 3-pin 3.5mm detachable terminal blocks; Comprises (8) DMNet ports with "EIG" power selection ports, each set associated with a corresponding DM output port on the DM output card in either DM output card slot; Each DMNet port provides power and communications for a DM device connected via DM cable

Each EIG port connects to an external power supply‡, or to the internal power source via a jumper, to power the DM device connected to the corresponding DMNet port; Maximum Load: 75 Watts (3.13 Amps @ 24 Volts DC) per port when connected to external power supply‡, otherwise limited to available DMNet power (see "Power Requirements" below)

100-240V~4.0A 50/60Hz: (1) IEC Socket, main power input;
Mates with removable power cord, included

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

COMPUTER (front): (1) USB Type B female;
USB 1.1 computer console port (6 ft cable included)

LCD Display

Green LCD dot matrix, 128 x 64 resolution, adjustable LED backlight; Displays inputs/outputs by name, video & audio signal information, Ethernet configuration and setup menus

Controls and Indicators

SOFTKEYS: (4) pushbuttons for activation of LCD driven functions
HW-R: (1) recessed miniature pushbutton for hardware reset, reboots the switcher
ROUTE: (1) pushbutton and red LED, selects ROUTE mode to allow routing changes
VIEW: (1) pushbutton and red LED, selects VIEW mode for viewing current routes
INFO: (1) pushbutton and red LED, selects INFO mode for viewing AV and device info
MENU: (1) pushbutton, steps menu back one level
ENTER: (1) pushbutton, executes highlighted menu or value
AUDIO: (1) pushbutton & red LED, selects audio routing view
VIDEO: (1) pushbutton & red LED, selects video routing view
USB: (1) pushbutton & red LED, selects USB routing view
Quick-Adjust Knob: (1) continuous turn rotary encoder, adjusts menu parameters
IN 1 – 8: (8) pushbuttons and red LEDs, select input for routing
OUT 1 – 8: (8) pushbuttons and red LEDs, select output for routing

Power Requirements

Main Power: 4 Amps @ 100-240 Volts AC, 50/60 Hz
Available DMNet Power: 55 Watts (2.3 Amps @ 24 Volts DC) from internal power supply

Environmental

Temperature: 32° to 104°F (0° to 40°C)
Humidity: 10% to 90% RH (non-condensing)
Heat Dissipation: 475 BTU/Hr

Enclosure

Chassis: Steel, black matte powder coat finish, vented sides, fan-cooled
Faceplate: Extruded aluminum, black matte powder coat finish with polycarbonate label overlay
Mounting: Freestanding or 4U 19-inch rack-mountable (adhesive feet and rack ears included)

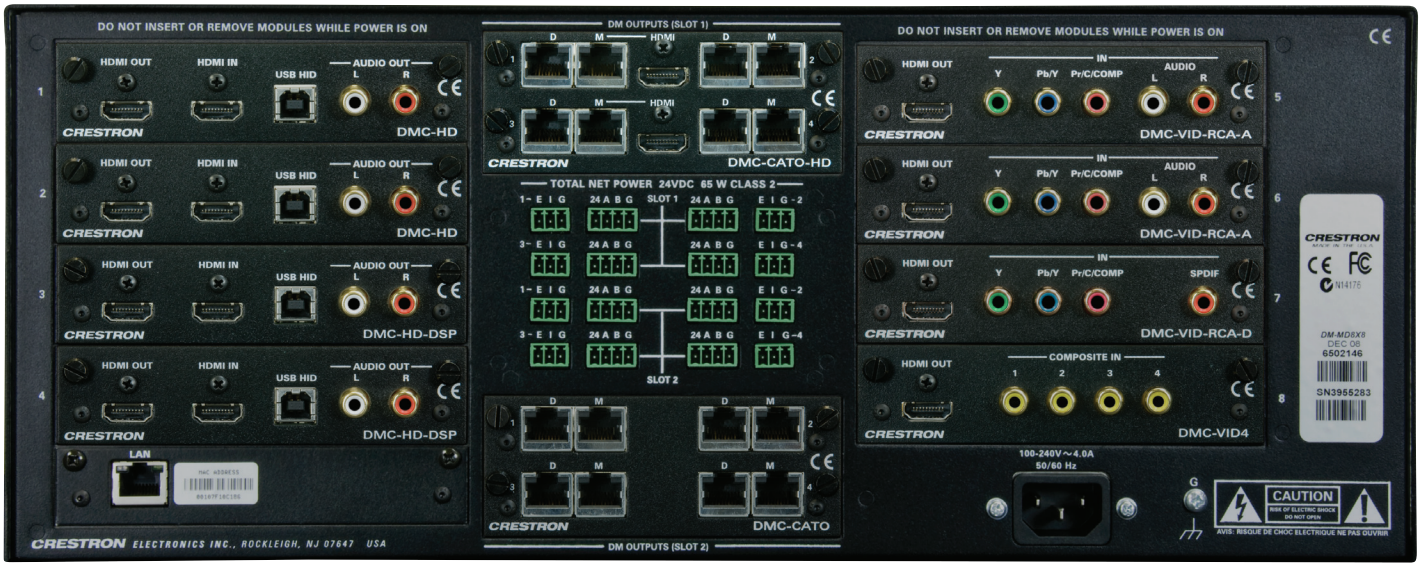
Dimensions

Height: 6.97 in (17.68 cm) without feet
Width: 17.28 in (43.90 cm), 19.0 in (48.26 cm) with ears
Depth: 18.06 in (45.87 cm)

Weight

20.0 lb (9.1 kg)

Rear View of DM-MD8X8



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AVAILABLE ACCESSORIES

DMC-HD
HDMI Input Card

DMC-HD-DSP
HDMI Input Card w/DSP

DMC-VID-RCA-A
RCA Analog Video Input Card w/Analog Audio

DMC-VID-RCA-D
RCA Analog Video Input Card w/SPDIF Audio

DMC-VID4
Security Camera Input Card

DMC-CATO
Quad DM Output Card

DMC-CATO-HD
Quad DM Output Card w/HDMI

DM-CBL-NP
DigitalMedia™ Cable, Non-Plenum

DM-CBL-P
DigitalMedia™ Cable, Plenum

DM-CONN
DigitalMedia™ Cable Connector

* Future option, not currently available.

† DVI connectivity is currently enabled via HDMI input/output ports using third-party adapters; DVI/RGB input card coming soon.

‡ For external DMNet power, use Crestron CNPWS-75, C2N-SPWS300, or other Cresnet power supply as required.

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Specifications subject to change without notice. Doc.4774 01/09