Crestron® DM-MD6X4/DM-MD6X6

DigitalMedia™ Distribution Center

Installation & Operation Guide

CRESTRON®

This document was prepared and written by the Technical Publications department at:

CRESTRON.

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Regulatory Compliance

As of the date of manufacture, the product has been tested and found to comply with specifications for CE marking.

C E

This product is Listed to applicable UL® Standards and requirements tested by Underwriters Laboratories Inc.
Ce produit est homologué selon les normes et les exigences UL applicables par Underwriters Laboratories Inc.

c(UL)us

Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following conditions:
(1) This device may not cause harmful interference and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with with the limits of Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada (IC) Compliance Statement

CAN ICES-3 (A)/NMB-3(A)

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Introduction

The Crestron® DM-MD6X4 and DM-MD6X6 DigitalMedia™ distribution centers distribute multiple high-definition sources to up to four rooms (DM-MD6X4) or up to six rooms (DM-MD6X6) as part of a complete Crestron system. Featuring DigitalMedia 8G+® technology, the DM-MD6X4 and DM-MD6X6 deliver ultra high-bandwidth signal routing over CAT5e (or better) wiring[1].

Features and Functions

- Provides a low-cost, high-performance multiroom HD AV signal routing solution
- Distributes uncompressed digital video and audio over CAT5e (or better) twisted-pair wire[1]
- Affords a true one-wire solution using DigitalMedia 8G+ technology
- HDBaseT® Alliance Certified–Enables direct connection to other HDBaseT certified equipment
- Features independently switchable HDBaseT or DM 8G+® outputs for three (DM-MD6X4) or five (DM-MD6X6) remote displays
- Allows up to a 330-foot (100-meter) wire distance to each display
- Includes one HDMI® output for a local display or audio processor
- Provides inputs for six HDMI, DVI, or DisplayPort Multimode sources[2]
- Handles video resolutions up to Full HD 1080p
- Handles computer resolutions up to WUXGA
- Handles 3D video and Deep Color
- Handles Dolby® TrueHD audio, DTS HD® audio, and uncompressed 7.1 linear PCM audio
- HDCP compliant
- QuickSwitch HD™ technology manages HDCP keys for fast, reliable switching

(Continued on following page)

1. For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G™ cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546) at www.crestron.com/manuals. All wire and cables are sold separately.
2. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. Crestron CBL-HD-DVI interface cables are sold separately.

Features and Functions

(Continued)

- Auto-Locking® technology achieves rapid switching between disparate sources
- Performs automatic AV signal format management via EDID
- Allows independent scaling for every display through select DM® receivers[3]
- Enables USB HID mouse and keyboard signal extension
- Expanded USB routing capabilities available using USB-EXT-DM USB over Ethernet extenders[4]
- Includes integrated Ethernet switch
- Private Network Mode–Requires only one IP address for the complete DM system
- Provides Power over DM for PoDM compatible receivers
- Provides setup and diagnostics tools via front panel or software
- Includes built-in universal power supply
- Allows native Crestron system integration via Ethernet
- Standard component width or two-space rack mountable

HD Matrix Switcher

The DM-MD6X4 and DM-MD6X6 provide six HDMI® inputs to handle HDTV receivers, DVD or Blu-ray Disc® players, media servers, computers, and other HD digital sources. Outputs include one HDMI and three (DM-MD6X4) or five (DM-MD6X6) DigitalMedia ports, furnishing simple one-wire connectivity for a local display or audio processor, and three (DM-MD6X4) or five (DM-MD6X6) additional displays anywhere in the house. QuickSwitch HD™ matrix switching allows any display to view any source at any time.

DigitalMedia 8G+

Crestron exclusive DM 8G+® technology affords the ultimate in simplicity, providing a true one-wire interface for distributing high-definition video, audio, and control signals to multiple displays throughout a residence or commercial structure. Simply connect a DM 8G+ receiver (sold separately) at each flat-panel display or projector for a complete AV and control interface. Only one CAT5e (or better) wire run to each receiver transports pure, uncompressed HD video, 7.1 surround sound audio, 10/100 Ethernet, power, and control signals for a fully integrated media system with minimal wiring. DM 8G+ allows for wire runs up to 330 feet (100 meters) using CAT5e (or better) or Crestron DigitalMedia 8G™ cable.[*]

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3. DM 8G+ receivers with built-in scaling include the DM-RMC-SCALER-C, DM-RMC-200-C, DM-RMC-4K-SCALER-C, and DM-RMC-4K-SCALER-C-DSP. For the HDMI output, use the HD-SCALER-HD-E or the HD-SCALER-VGA-E.

4. USB-EXT DM USB over Ethernet extender modules are sold separately. Refer to the USB-EXT-DM spec sheet on the product webpage for more information.

* For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546). All wire and cables are sold separately.

HDBaseT® Alliance Certified

Crestron DigitalMedia 8G+ technology is designed using HDBaseT Alliance specifications, ensuring interoperability with other HDBaseT certified products. Via its DM 8G+ outputs, the DM-MD6X4 and DM-MD6X6 can be connected directly to HDBaseT compliant display devices without requiring any DM® receivers.

Quickswitch HD

Handling high-definition digital media means handling HDCP (High-bandwidth Digital Content Protection), which is the encryption scheme that content providers use to protect their DVDs, Blu-ray Discs, and broadcast signals against unauthorized copying. Viewing HDCP encrypted content requires the source device to "authenticate" each display in the system and to issue it a key before the content can be viewed. Ordinarily, this process causes a complete loss in signal for up to 15 seconds each time a new source or display is selected anywhere in the system. Additionally, every source device has a limited number of keys available, so if too many devices are connected, the source stops outputting a signal without warning. Crestron Quickswitch HD solves this problem by managing keys for every HDCP-compliant device in the system, maintaining continuous authentication for each device to ensure fast, reliable routing of any source to any number of display devices.

Auto-Locking® Technology

Crestron Auto-Locking technology enables high-speed signal switching by instantaneously configuring every device in the signal path as soon as the signal reaches the first device. Whether switching between sources or TV channels, Auto-Locking significantly reduces the time it takes each device to sense the new signal and to configure itself to handle the changes, virtually eliminating any noticeable gap while switching.

EDID Format Management

The DM-MD6X4 and DM-MD6X6 manage the EDID (Extended Display Identification Data) that modern digital devices use to communicate their capabilities. Through the DM-MD6X4 and DM-MD6X6, the format and resolution capabilities of each device can be assessed, allowing the installer to configure EDID signals appropriately for the most desirable and predictable behavior.

A Scaler for Every Display

Scaling capability can be added to the DM-MD6X4 and DM-MD6X6 using select DM 8G+ receivers (sold separately) with built-in HD and 4K scalers.* By placing an independent high-performance scaler at every display device, DigitalMedia truly delivers the most flexible and user-friendly solution for routing multiple disparate sources to many different display devices. This "Distributed Scaler Approach" ensures an optimal image on every screen no matter what sources are selected. Distributed scaling allows a high-resolution computer source to be viewed on any display in the building, and allows a high-definition 3D source to be viewed on lower resolution 2D displays without compromising the original signal, such as letting a home theater's Full HD 1080p 3D image be shared with smaller, lesser displays in other rooms.

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* DM 8G+ receivers with built-in scaling include the DM-RMC-SCALER-C, DM-RMC-200-C, DM-RMC-4K-SCALER-C, and DM-RMC-4K-SCALER-C-DSP. For the HDMI output, use the HD-SCALER-HD-E or HD-SCALER-VGA-E.

Multi-Channel HD Audio Routing

The DM-MD6X4 and DM-MD6X6 allow for the routing of signals containing multichannel surround sound audio, supporting high-bitrate formats such as Dolby® TrueHD and DTS HD Master Audio™ technology, as well as uncompressed linear PCM (pulse-code modulation).

Built-In Ethernet Switch

In addition to transporting digital video and audio, DigitalMedia can also extend high-speed Ethernet to display devices that require a LAN connection. 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. Through the 10/100 Ethernet port, the DM-MD6X4/DM-MD6X6 provides a single-point connection to a home network or corporate LAN, requiring only one IP address for the complete DM system, including all connected DM receivers.

USB Signal Routing

With built-in USB HID (Human Interface Device) signal routing, the DM-MD6X4 and DM-MD6X6 can control a centralized computer or media server using a mouse or keyboard in another room. The mouse and keyboard can be connected to any DM 8G+ receiver (sold separately) that includes a USB HID port, while the host computer is connected to the USB HID port on the rear panel of the DM-MD6X4 or DM-MD6X6. Crestron also offers USB over Ethernet extenders (USB-EXT-DM, sold separately), which may be used to enable the routing of multiple USB devices of virtually any type that are managed seamlessly through the DigitalMedia system.[*]

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 a connection to a Crestron control system, the DM-MD6X4 and DM-MD6X6 provides a gateway for controlling many devices directly through their HDMI connections, which may eliminate the need for any dedicated control wires or IR emitters.

Easy Setup

Setup for the DM-MD6X4 and DM-MD6X6 is designed to be quick and easy using the device's front panel or Crestron Toolbox™ software, configuring inputs and outputs automatically while letting the installer make intelligent design decisions along the way. Out of the box, the DM-MD6X4 and DM-MD6X6 front panel supports basic signal routing for testing and troubleshooting during installation. The front panel label strips can be customized using Crestron Engraver software or standard 3/8" tape labels, allowing for the clear designation of each input and output. Inputs and outputs may also be designated by name through the software to appear on the LCD display.

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[*]   USB-EXT DM USB over Ethernet extender modules are sold separately. Refer to the USB-EXT-DM spec sheet on the product webpage for more information.

Applications

The diagram below shows a DM-MD6X6 in a typical application.

DM-MD6X6 in a Typical Application
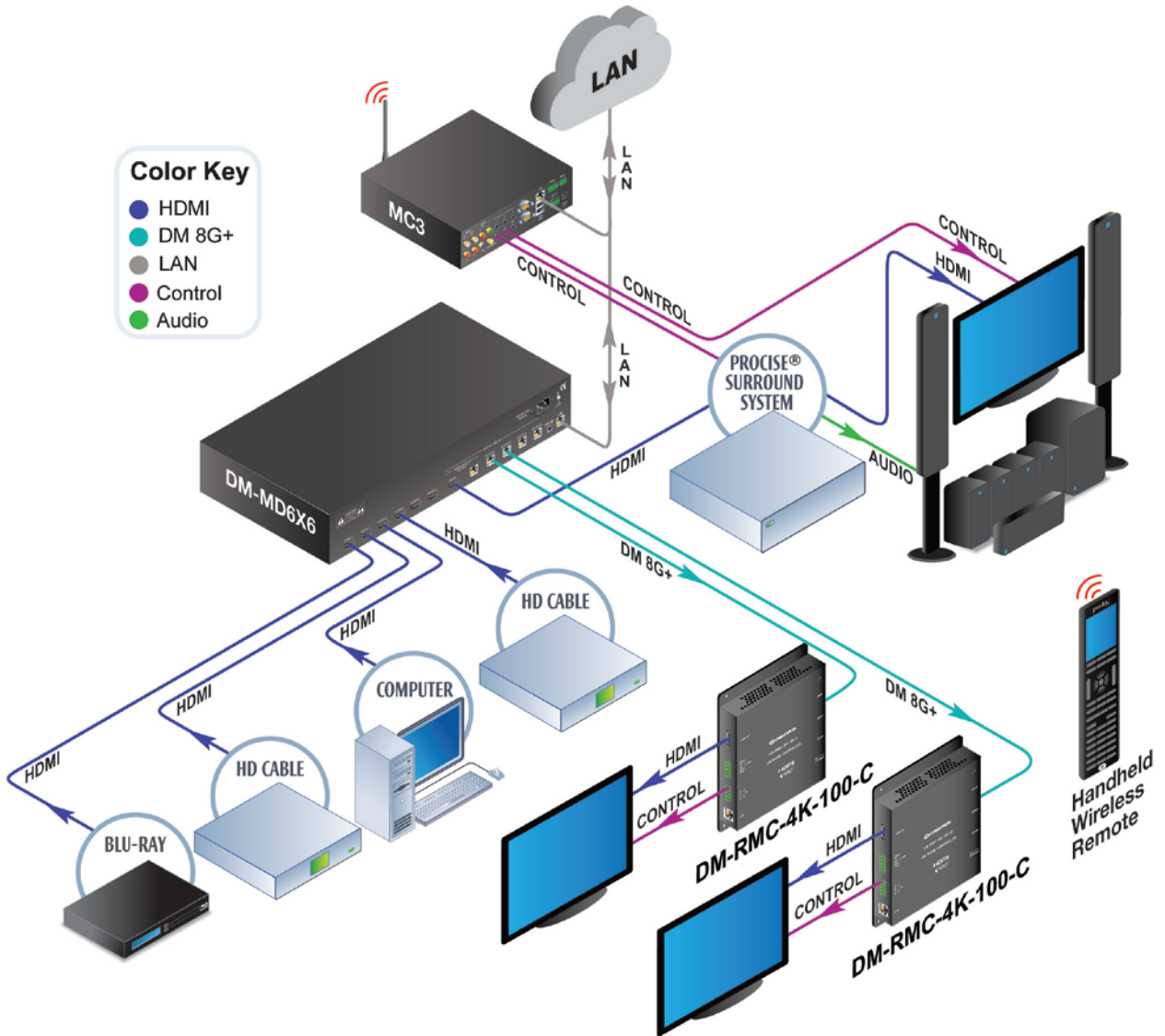
Internal Block Diagrams

The following diagrams represent the switching abilities of the DM-MD6X4 and DM-MD6X6.

Internal Block Diagram of the DM-MD6X4

Internal Block Diagram of the DM-MD6X6

Specifications

Specifications for the DM-MD6X4 and DM-MD6X6 are listed in the below table.

DM-MD6X4/DM-MD6X6 Specifications

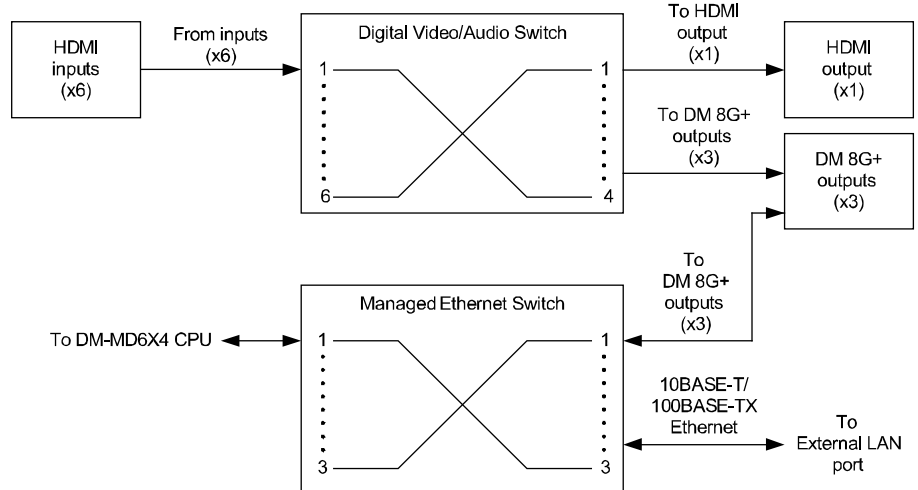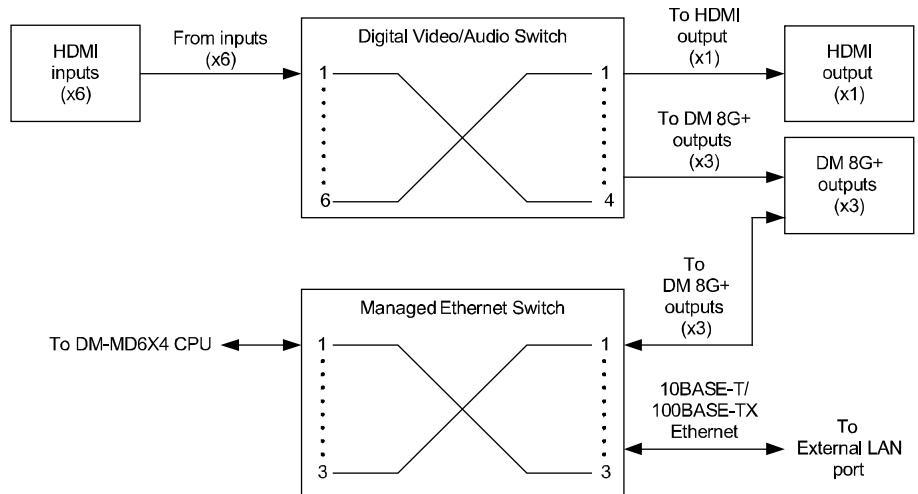| SPECIFICATION	DETAILS
Video	
Switcher	6X4 (DM-MD6X4) or 6x6 (DM-MD6X6) digital matrix switch, Crestron QuickSwitch HD
Input Signal Types	HDMI, DVI[1], DisplayPort Multimode[1]
Output Signal Types	HDMI, DVI[1], DM 8G+ (DigitalMedia over one CAT5e or better twisted pair copper wire)[2], HDBaseT[2]
Formats	DM 8G+, HDBaseT, HDMI with Deep Color and 3D; DVI; HDCP content protection support
Input Resolutions	
Progressive	640 x 480 @ 60 Hz 720 x 480 @ 60 Hz (480p) 720 x 576 @ 50 Hz (576p) 800 x 600 @ 60 Hz 848 x 480 @ 60 Hz 852 x 480 @ 60 Hz 854 x 480 @ 60 Hz 1024 x 768 @ 60 Hz 1024 x 852 @ 60 Hz 1024 x 1024 @ 60 Hz 1280 x 720 @ 50 Hz (720p50) 1280 x 720 @ 60 Hz (720p60) 1280 x 768 @ 60 Hz 1280 x 800 @ 60 Hz 1280 x 960 @ 60 Hz 1280 x 1024 @ 60 Hz 1360 x 768 @ 60 Hz 1365 x 1024 @ 60 Hz 1366 x 768 @ 60 Hz 1400 x 1050 @ 60 Hz 1440 x 900 @ 60 Hz 1600 x 900 @ 60 Hz 1600 x 1200 @ 60 Hz 1680 x 1050 @ 60 Hz 1920 x 1080 @ 24 Hz (1080p24) 1920 x 1080 @ 25 Hz (1080p25) 1920 x 1080 @ 50 Hz (1080p50) 1920 x 1080 @ 60 Hz (1080p60) 1920 x 1200 @ 60 Hz 2048 x 1080 @ 24 Hz 2048 x 1152 @ 60 Hz plus any other resolution allowed by HDMI up to 165 MHz pixel clock
Interlaced	720 x 480 @ 30 Hz (480i) 720 x 576 @ 25 Hz (576i) 1920 x 1080 @ 25 Hz (1080i25) 1920 x 1080 @ 30 Hz (1080i30) plus any other resolution allowed by HDMI up to 165 MHz pixel clock

(Continued on following page)

DM-MD6X4/DM-MD6X6 Specifications (Continued)

SPECIFICATION	DETAILS
Video (Continued)	
Output Resolutions	Matched to inputs
Audio	
Switcher	6x4 (DM-MD6X4) or 6x6 (DM-MD6X6) digital matrix switch, audio-follow-video
Input Signal Types	HDMI, DisplayPort Multimode[1]
Output Signal Types	HDMI, DM 8G+. HDBaseT
Formats	Dolby Digital® audio, Dolby Digital EX, Dolby Digital Plus, Dolby TrueHD, DTS® audio, DTS ES, DTS 96/24, DTS HD High Res, DTS HD Master Audio, up to 8ch PCM
Communications	
DigitalMedia	DM 8G+, HDCP[3], EDID[3], CEC[3], PoDM, Ethernet
Ethernet	10/100 Mbps, auto-switching, auto-negotiating, auto-discovery, full/half duplex, DHCP, Private Network Mode
HDBaseT	HDCP[3], EDID[3], PoH, Ethernet
HDMI	HDCP[3], EDID[3], CEC[3]
USB	Supports signal extension and routing of USB HID class devices, expandable to support almost any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet extenders[4]; USB device port for computer console (setup)
Power Requirements	
Main Power	2 Amps @ 100-240 Volts AC, 50/60 Hz
Power over DM (PoDM)	PoDM PSE (Power Sourcing Equipment), each DM 8G+ port supplies up to 15.4 Watts (Class 0–3) to one PoDM Powered Device
Power over HDBaseT (PoH)	PoH PSE (Power Sourcing Equipment), each DM 8G+ port supplies up to 15.4 Watts (Class 0–3) to one PoDM Powered Device
Environmental	
Temperature	32 ºF to 104 ºF (0 ºC to 40 ºC)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	310 BTU/hr

(Continued on following page)

DM-MD6X4/DM-MD6X6 Specifications (Continued)

SPECIFICATION	DETAILS
Enclosure	
Chassis	Metal with black finish, vented sides, fan cooled
Faceplate	Metal, black finish with polycarbonate label overlay
Mounting	Freestanding or 2U 19-inch rack mountable (adhesive feet and rack ears included)
Dimensions	
Height	3.47 in (89 mm) without feet
Width	17.03 in (433 mm) without ears, 19.00 in (483 mm) with ears
Depth	13.38 in (340 mm)
Weight	12.0 lb (5.5 kg)
Available Accessories	
CBL Series	Crestron Certified Interface Cables
DM-8G-CONN	DigitalMedia 8G Cable Connectors
DM-8G-CONN-WG	DigitalMedia 8G Cable Connectors with Wire Guide
DM-8G-CRIMP	Crimping Tool for DM-8G-CONN
DM-8G-CRIMP-WG	Crimping Tool for DM-8G-CONN-WG
DM-CBL-8G	DigitalMedia 8G Cable
DM-RMC-200-C	DigitalMedia 8G+ Receiver & Room Controller 200
DM-RMC-4K-100-C	4K DigitalMedia 8G+ Receiver & Room Controller 100
DM-RMC-4K-SCALER-C	4K DigitalMedia 8G+ Receiver & Room Controller with Scaler
DM-RMC-4K-SCALER-C-DSP	4K DigitalMedia 8G+ Receiver & Room Controller with Scaler
DM-RMC-SCALER-C	DigitalMedia 8G+ Receiver & Room Controller with Scaler & Downmixing
HD-SCALER-HD-E	High-Definition Video Scaler, HDMI In and HDMI Out
HD-SCALER-VGA-E	High Definition Video Scaler, VGA In, HDMI Out
MP-WP(I) Series	Media Presentation Wall Plates (U.S. and International Versions)
USB-EXT DM	USB over Ethernet Extender with Routing

1. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. Crestron CBL-HD-DVI interface cables are sold separately.

2. For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546). All wire and cables are sold separately.

3. The DM-RM6X4 and DM-RM6X6 support management of HDCP and EDID; the devices also support management of CEC between the connected HDMI devices and a control system.

4. USB-EXT DM USB over Ethernet extender modules are sold separately. Refer to the USB-EXT-DM spec sheet on the product webpage for more information.

Physical Description

This section provides information on the connections, controls, and indicators available on the DM-MD6X4 and DM-MD6X6.
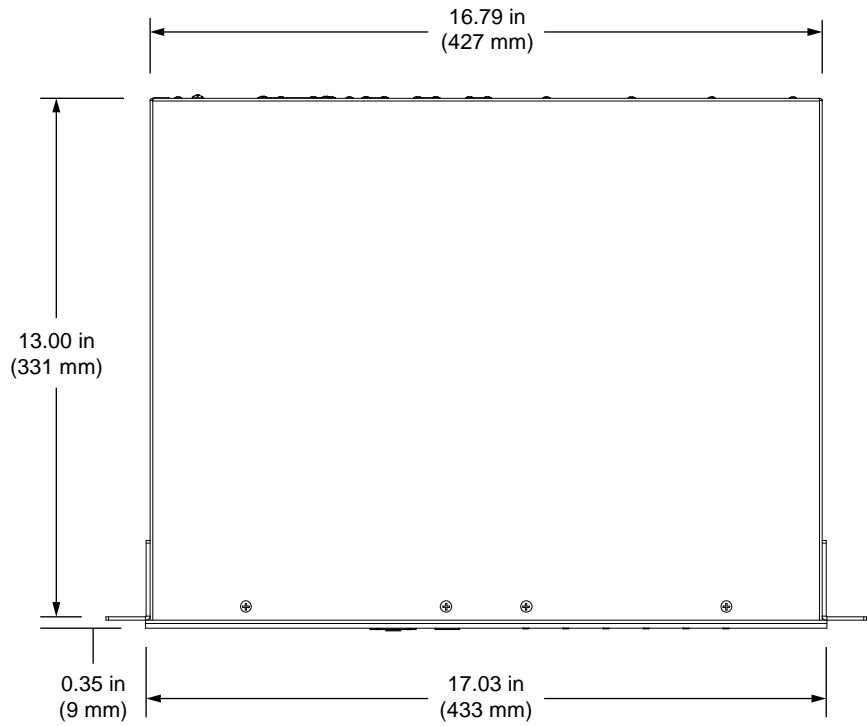
DM-MD6X4 Physical Views (Front and Rear)

DM-MD6X6 Physical Views (Front and Rear)

DM-MD6X4/DM-MD6X6 Overall Dimensions (Top View)

16.79 in
(427 mm)

13.00 in
(331 mm)

0.35 in
(9 mm)

17.03 in
(433 mm)

DM-MD6X4/DM-MD6X6 Overall Dimensions (Front View, DM-MD6X6 Shown)

3.47 in   3.00 in
(89 mm)   (77 mm)

0.24 in
(7 mm)

18.31 in
(466 mm)

19.00 in
(483 mm)
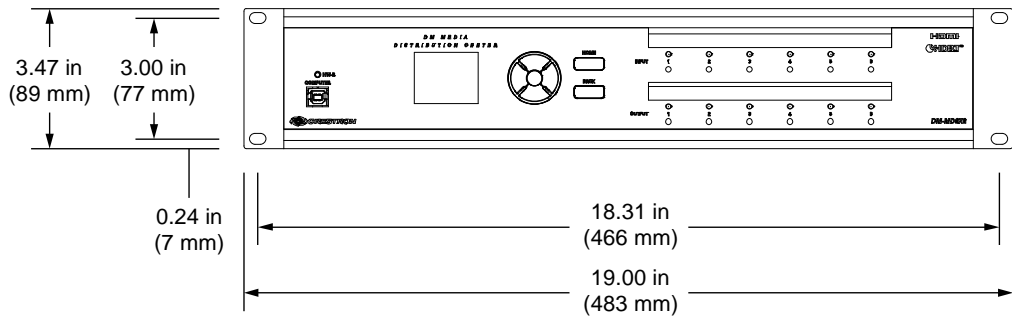
DM-MD6X4 Connectors, Controls, and Indicators (Front and Rear Views)
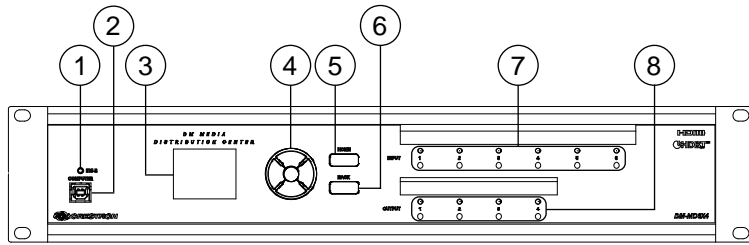
DM-MD6X6 Connectors, Controls, and Indicators (Front and Rear Views)
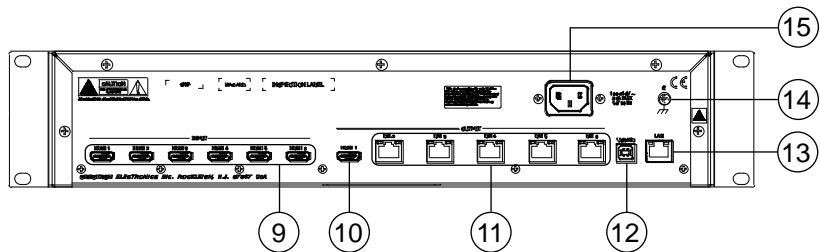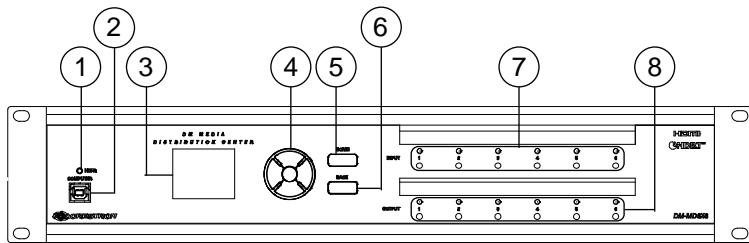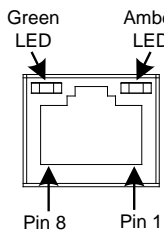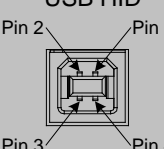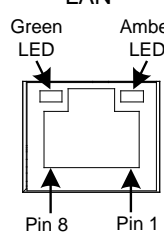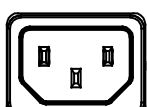
Connectors, Controls, and Indicators

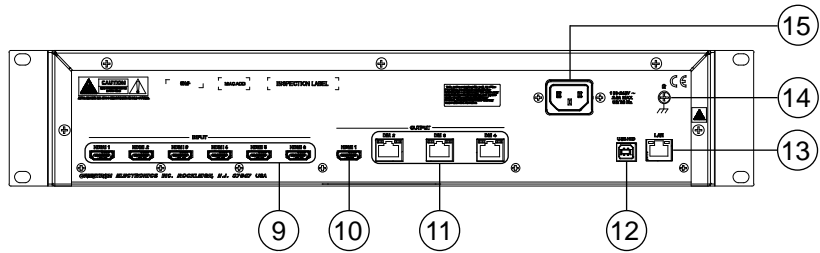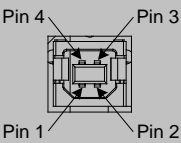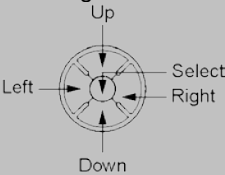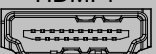| #	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	HW-R Button	(1) Recessed miniature push button for hardware reset
2	COMPUTER Pin 4 Pin 3 Pin 1 Pin 2	(1) USB Type B female; USB computer console port (setup only) (6 foot [~1.8 meters] cable included) 	PIN	DESCRIPTION	 	1	+5 VDC	 	2	Data -	 	3	Data +	 	4	Ground	
3	Liquid Crystal Display (LCD)	(1) 16-bit TFT active matrix color LCD; 2 inch (52 mm) diagonal; 220 x 176 pixel resolution; Displays setup menus, EDID and HDCP details for source and destination devices, audio/video signal information, and other details; Allows custom naming of inputs and outputs
4	Navigation Pad Up Left — Select / Right Down	(1) 5-way navigation pad for menu navigation and parameter adjustment: Up, Down, Left, and Right navigation buttons; Select button: Executes highlighted menu item or value
5	HOME Button	(1) Push button, returns to the home screen
6	BACK Button	(1) Push button, steps menu back one menu level
7	INPUT Buttons and LEDs, 1–6	(6) Push buttons and green LEDs, select input for routing
8	OUTPUT Buttons and LEDs, 1–4/1–6	**DM-MD6X4** (4) or **DM-MD6X6** (6) push buttons and green LEDs, select output destination(s)
9	INPUT HDMI 1 – HDMI 6	(6) 19-pin Type A HDMI female, digital video/audio inputs; Signal Types: HDMI, DVI, or DisplayPort Multimode[1]
10	OUTPUT HDMI 1	(1) 19-pin Type A HDMI female, digital video/audio output; Signal Types: HDMI, DVI[1]

(Continued on following page)

Connectors, Controls, and Indicators (Continued)

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
11	OUTPUT DM2 – DM4/DM2 – DM6[2, 3] Green LED · Amber LED Pin 8 · Pin 1	**DM-MD6X4** (3) or **DM-MD6X6** (5) 8-pin RJ-45 female, shielded, with two LED indicators; DM 8G+ outputs, HDBaseT compliant PoDM and PoH PSE (Power Sourcing Equipment) ports[4] Connects to DM 8G+ inputs of DM receivers/room controllers or other DM devices, or to an HDBaseT device, via CAT5e (or better) or Crestron DM-CBL-8G cable.[5] Green LED indicates DM link status; Solid amber LED indicates HDCP video; Blinking amber LED indicates non-HDCP video
12	USB HID Pin 2 · Pin 1 Pin 3 · Pin 4	(1) USB Type B female; Supports signal extension and routing of USB HID class devices, expandable to support almost any USB 1.1 or 2.0 device using Crestron USB-EXT-DM USB over Ethernet extenders[6] **PIN** · **DESCRIPTION** 1 · +5 VDC 2 · Data - 3 · Data + 4 · Ground
13	LAN[2] Green LED · Amber LED Pin 8 · Pin 1	(1) 8-pin RJ-45 female, shielded, with two LED indicators; 10BASE-T/100BASE-TX Ethernet port, Green LED indicates Ethernet link status; Amber LED indicates Ethernet activity **PIN** · **SIGNAL** · **PIN** · **SIGNAL** 1 · TX + · 5 · N/C 2 · TX - · 6 · RX - 3 · RX + · 7 · N/C 4 · N/C · 8 · N/C
14	G	(1) 6-32 screw, chassis ground lug
15	100–240V ~ 2.0A MAX 50/60 Hz	(1) IEC C14 male chassis plug, main power input: Mates with removable power cord (included)

1. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. Crestron CBL-HD-DVI interface cables are sold separately.

2. To determine which is pin 1 on the cable, hold the cable so the end of the eight pin modular jack is facing away from you, with the clip down and copper side up. Pin 1 is on the far left.

3. A DM output port consists of an RJ-45 connector. Refer to the table on the following page for the connector pinouts.

DM Output Connector Pinouts

PIN #	WIRE COLOR	PIN #	WIRE COLOR
1	Orange/White	5	Blue/White
2	Orange	6	Green
3	Green/White	7	Brown/White
4	Blue	8	Brown

4. Any wiring that is connected to a PoDM or PoH PSH 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. For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546). All wire and cables are sold separately.

6. USB-EXT DM USB over Ethernet extender modules are sold separately. Refer to the USB-EXT-DM spec sheet on the product webpage for more information.

Setup

Network Wiring

When wiring the DM network, consider the following:

- Use Crestron Certified Wire.

- Use Crestron power supplies for Crestron equipment.

    CAUTION: Failure to use Crestron power supplies could cause equipment damage or void the Crestron warranty.

- Provide sufficient power to the system.

- For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546). All wire and cables are sold separately.

The DM-MD6X4 and DM-MD6X6 also use high-speed Ethernet for communications between the device and a control system, computer, media server and other IP-based devices. For information related to Ethernet connectivity using DigitalMedia devices, refer to the IP Considerations Guidelines for the IT Professional Design Guide (Doc. 4579) at www.crestron.com/manuals.

Ethernet Setup

The DM-MD6X4 and DM-MD6X6 are designed to control the Ethernet settings of DM endpoints in order to reduce the amount of IP configuration necessary and make the DM endpoints swappable without reconfiguration. For the DM-MD6X4 and DM-MD6X6, DM endpoints consist of DM 8G+ receivers/room controllers such as the DM-RMC-SCALER-C, DM-RMC-200-C, DM-RMC-4K-SCALER-C, and DM-RMC-4K-SCALER-C-DSP.

IP Configuration

The DM-MD6X4 and DM-MD6X6 can operate in DHCP or Static IP Address mode. The DM-MD6X4 and DM-MD6X6 also control the IP addressing information of DM 8G+ receivers/room controllers. When the DM-MD6X4 and DM-MD6X6 operate in DHCP mode, the DM 8G+ receivers/room controllers also operate in DHCP mode. When the DM-MD6X4 and DM-MD6X6 operate in Static IP Address mode, the DM 8G+ receivers/room controllers receive a static IP configuration equivalent to the DM-MD6X4 or DM-MD6X6 IP address plus their slot number. This configuration is sent when the DM-MD6X4 or DM-MD6X6 starts up. Refer to the following table for information about static IP address configuration of DM 8G+ receivers/room controllers.

Static IP Address Configuration of DM 8G+ Receivers/Room Controllers

DM-MD6X4/DM-MD6X6 OUTPUT NUMBER	DM 8G+ RECEIVER/ROOM CONTROLLER IP ADDRESS*
1	N/A (HDMI only)
2	Base + 18
3	Base + 19
4	Base + 20
5 (DM-MD6X6 only)	Base + 21
6 (DM-MD6X6 only)	Base + 22

* Base equals the static IP address of the DM-MD6X4 or DM-MD6X6.

IP Table Setup

DigitalMedia 8G+ devices that receive their IP address configuration via the DM-MD6X4 and DM-MD6X6 can also receive their IP table configuration from the DM-MD6X4 and DM-MD6X6.

For more information, refer to "IP Table Options" on page 33.

Identity Code

The IP ID can be set from the front panel or in the IP table of the DM-MD6X4 or DM-MD6X6 using Crestron Toolbox. For information on setting the IP ID from the front panel, refer to the discussion of the IP ID parameter at the bottom of page 28. For information on setting an IP table, refer to the embedded Crestron Toolbox help file. The IP IDs of multiple DM-MD6X4 or DM-MD6X6 units in the same system must be unique.

When setting the IP ID, consider the following:

- The IP ID of each unit must match an IP ID specified in the SIMPL Windows program.

- Each device using IP to communicate with a control system must have a unique IP ID.

Installation

Ventilation

The DM-MD6X4 and DM-MD6X6 should be used in a well-ventilated area. The venting holes should not be obstructed under any circumstances.

To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications. Consider using forced air ventilation and/or incrementing the spacing between units to reduce overheating. Consideration must be given if installed in a closed or multiunit rack assembly since the operating ambient temperature of the environment may be greater than the room ambient temperature. Contact with thermal insulating materials should be avoided on all sides of the unit.

Rack Mounting

The DM-MD6X4 and DM-MD6X6 can be mounted in a rack or stacked with other equipment. Two "ears" are provided with the unit so that it can be rack mounted. These ears must be installed prior to mounting. Complete the following procedure to attach the ears to the unit. The only tool required is a #1 or #2 Phillips screwdriver.

WARNING: To prevent bodily injury when mounting or servicing this unit in a rack, take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

NOTE: If rack mounting is not required, rubber feet are provided for tabletop mounting or stacking. Apply the feet near the corner edges on the underside of the unit.

NOTE: Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

To install the ears, use the following procedure:

1. Locate the screws that secure each side of the top cover. Using a #1 or #2 Phillips screwdriver, remove the three screws closest to the front panel from one side of the unit. Refer to the diagram following step 3 for a detailed view.

2. Position a rack ear so that its mounting holes align with the holes vacated by the screws in step 1.

3. Secure the ear to the unit with the three screws removed in step 1 as shown in the following diagram.

Ear Attachment for Rack Mounting

Cover screws (6)
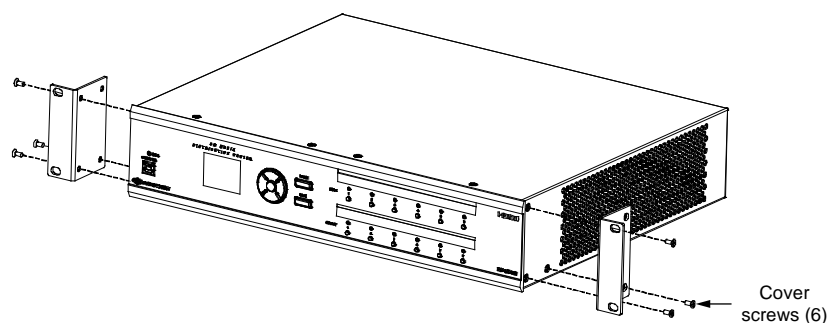
4. Repeat the above procedure (steps 1 through 3) to attach the remaining ear to the opposite side.

Stacking

Four "feet" are provided with the DM-MD6X4 and DM-MD6X6 so that if the unit is not rack mounted, the rubber feet can provide stability when the unit is placed on a flat surface or when it is stacked. These feet should be attached prior to the hookup procedure. Refer to the following illustration for placement of the feet.

Foot Placement for the DM-MD6X4/DM-MD6X6

Place Feet in Corners
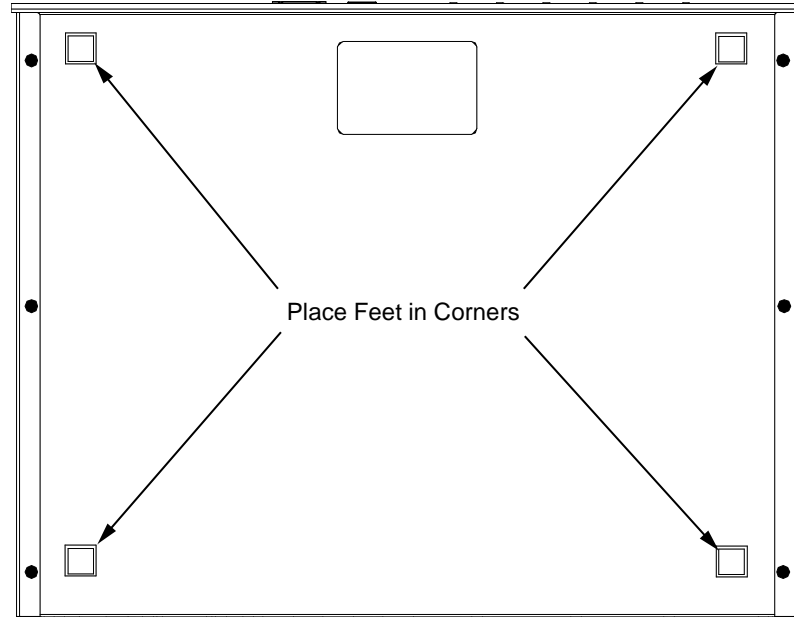
NOTE: No more than two DM-MD6X4 or DM-MD6X6 units should be stacked.

Hardware Hookup

Make the necessary connections as called out in the following illustrations. Refer to "Network Wiring" on page 16. Apply power after all connections have been made.

Hardware Connections for the DM-MD6X4 (Front)

COMPUTER:
To computer
console

Hardware Connections for the DM-MD6X6 (Front)

COMPUTER:
To computer
console

Hardware Connections for the DM-MD6X4 (Rear)

100–240 V
(~2.0 A max)
50/60 Hz:
From
ac power outlet   Ground

LAN:
10BASE-T/
100BASE-TX
Ethernet to LAN

HDMI 1–6:   HDMI 1:   DM 2–4:   USB HID:
From HDMI   To HDMI   To DM receiver   To local
source   display/receiver or other DM or   USB host
                                       HDBaseT device

Hardware Connections for the DM-MD6X6 (Rear)

100–240 V
(~2.0 A max)
50/60 Hz:
From
ac power outlet   Ground

LAN:
10BASE-T/
100BASE-TX
Ethernet to LAN

HDMI 1–6:   HDMI 1:   DM 2–6:   USB HID:
From HDMI   To HDMI   To DM receiver   To local
source   display/receiver or other DM or   USB host
                                       HDBaseT device

NOTE: Ensure that the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).

NOTE: To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the table of specifications.

NOTE: For DM 8G+ or HDBaseT wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise that may impact performance at resolutions above 1080p. For complete system design guidelines, refer to the Crestron DigitalMedia Design Guide (Doc. 4546). All wire and cables are sold separately.

Configuration and Status

When the DM-MD6X4 and DM-MD6X6 is in Installer mode, use the front panel to configure the device and to view status information.

NOTE: Crestron Toolbox can also be used to configure the DM-MD6X4 and DM-MD6X6 and to view status information. For more information, refer to the embedded Crestron Toolbox help file.

Accessing Installer Mode

When the DM-MD6X4 or DM-MD6X6 is in Installer mode, use the front panel to configure the device and to view status information.

To access Installer mode, use the following procedure:

1. Ensure that the home screen is displayed on the front panel LCD screen. If it is not displayed, press the **HOME** button.

   The home screen is shown below.

   Home Screen (DM-MD6X6 Shown)

   NOTE: After 30 seconds of inactivity, the DM-MD6X4 and DM-MD6X6 time out and return to the home screen while dimming the LCD.

2. Press the **BACK** button.

   The **Installer** password screen appears as shown below.

   Installer Password Screen

   The first digit is enclosed in brackets when the **Installer** password screen appears.

3. Enter the four-digit password (the default password is "1234"). To enter a digit, do either of the following:

- If the digit ranges from 1–6, press the appropriate **INPUT** or **OUTPUT** button that corresponds to the digit to be entered. After a digit is entered, brackets move to the next digit to be entered.

- If the digit is 0 or ranges from 7–9, press the Up or Down navigation button as necessary until the desired digit appears between the brackets, and then press the Select button. Brackets move to the next digit to be entered.

NOTE: If necessary, the Left or Right navigation button can be used to navigate to a digit in the password.

After the fourth digit is correctly entered, the **Installer** menu screen appears as shown below.

NOTE: The password can be changed or disabled. For information on changing or disabling the password, refer to the discussion of the **Password** parameter in the "Control" section on page 30.

Installer Menu
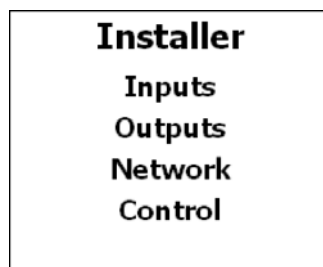
As shown above, the **Installer** menu allows configuration of the following items:

- **Inputs***:* Configures the DM-MD6X4 or DM-MD6X6 inputs and provides status information about the inputs

- **Outputs***:* Configures the DM-MD6X4 or DM-MD6X6 outputs and provides status information about the outputs

- **Network***:* Configures the Ethernet and control system connection settings and provides network status information

- **Control***:* Configures the various front panel controls, allows editing of the Installer password, allows restoring to factory-default settings, and provides firmware version information.

Inputs

A name can be configured for each input. In addition, Video EDID and Audio EDID information, which is presented to the upstream source device, can be viewed. (EDID configuration is set using the DMTool in Crestron Toolbox.)

To configure an input or to view information about the input, use the following procedure:

1. Access the **Installer** menu screen. (Refer to "Accessing Installer Mode" on page 21.)

    NOTE: If the DM-MD6X4 or DM-MD6X6 is already in Installer mode, press the **BACK** button on the front panel until the **Installer** menu appears.

2. Navigate to **Inputs** if it is not already highlighted, and then press the Select button on the navigation pad.

    The **Input** submenu appears as shown below for the currently selected input. (Note that the LED of the currently selected input is lit.)

    Input Submenu (Input 1 Shown)

    Input 1
    Name
    Video EDID
    Audio EDID
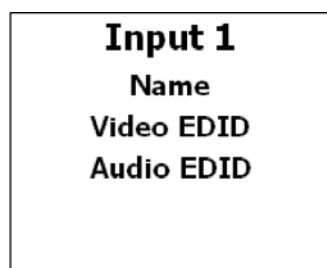
    The name of the input is shown at the top of the **Input** submenu. For input 1, the default name is **Input 1**; for input 2, the name is **Input 2**; and so on.

3. Select the desired input by pressing the appropriate **INPUT** button, numbered from 1 to 6, on the front panel.

    The LED of the selected input lights, and the name of the input appears at the top of the **Input** submenu.

4. Perform any of the following using the navigation pad:

    *   Change the name of the input as follows:

        a. Navigate to **Name** if it is not already highlighted, and then press the Select button.

            A scrollable list of predefined source names appears for the input.

        b. Navigate to the desired source name in the list, and then press the Select button to confirm the selection.

            The selected name now appears at the top of the **Input** submenu for the selected input.

    *   View Video EDID information. To do so, navigate to **Video EDID** on the **Input** submenu and then press the Select button.

    *   View Audio EDID information. To do so, navigate to **Audio EDID** on the **Input** submenu and then press the Select button.

Outputs

A name can be configured for each output. In addition, information about the connected DM 8G+ receiver/room controller can be viewed, as well as Video EDID and Audio EDID information. The EDID information is read from the downstream device (such as a display).

To configure an output or to view information about the output, use the following procedure:

1. Access the **Installer** menu screen. (Refer to "Accessing Installer Mode" on page 21.)

   > **NOTE:** If the DM-MD6X4 or DM-MD6X6 is already in Installer mode, press the **BACK** button on the front panel until the **Installer** menu appears.

2. Navigate to **Outputs**, and then press the Select button on the navigation pad.

   The **Output** submenu appears as shown below for the currently selected output. (The LED of the currently selected output is lit.)

   Output Submenu (Output 1 Shown)

   Output 1
   Name
   HDMI
   Video EDID
   Audio EDID
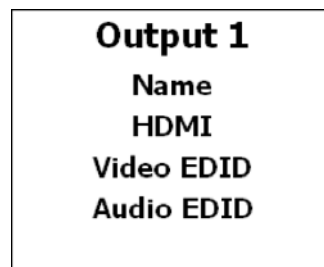
   The name of the output is shown at the top of the **Output** submenu. For output 1, the default name is **Output 1**; for output 2, the name is **Output 2**; and so on.

3. Select the desired output by pressing the appropriate **OUTPUT** button numbered from 1 to 4 (DM-MD6X4) or from 1 to 6 (DM-MD6X6).

   The LED of the selected output lights, and the name of the output appears at the top of the **Output** submenu.

4. Perform any of the following using the navigation pad:

   - Change the name of the output as follows:

     a. Navigate to **Name** if it is not already highlighted, and then press the Select button.

        A scrollable list of predefined room names appears for the output.

     b. Navigate to the desired room name in the list, and then press the Select button.

        The selected name appears at the top of the **Output** submenu for the selected output.

- For outputs 2–4 (DM-MD6X4) and outputs 2–6 (DM-MD6X6), view information such as the firmware version and the IP address of the connected DM 8G+ receiver/room controller. To do so, navigate to the model name of the connected DM 8G+ device on the **Output** submenu, and then press the Select button.

    NOTE: For output 1, **HDMI** is always displayed on the **Output** submenu. Pressing the Select button displays **HDMI** again.

- View Video EDID information. To do so, navigate to **Video EDID** on the Output submenu and then press the Select button.

- View Audio EDID information. To do so, navigate to **Audio EDID** on the Output submenu and then press the Select button.

Network

Ethernet settings can be configured for the DM-MD6X4 and DM-MD6X6 by configuring network parameters. Network parameters include the following:

- **IP Address** (applicable only if DHCP [Dynamic Host Configuration Protocol] is disabled): Allows adding or editing a static IP addres

- **Subnet Mask** (applicable only if DHCP is disabled): Allows adding or editing a subnet mask address

- **Default Router** (applicable only if DHCP is disabled): Allows adding or editing a default router address

- **DHCP**: Allows DHCP to be enabled or disabled

    NOTE: DHCP is enabled by default.

- **Control System**: (the IP ID of the DM-MD6X4 or DM-MD6X6 and the IP address of the control system): Allows adding and editing control system parameters

In addition, the network status can also be viewed.

To view network status or to configure network parameters, use the following procedure:

NOTE: Changes to network parameter settings take effect when the DM-MD6X4 or DM-MD6X6 exits Installer mode and the device automatically reboots. A message appears on the LCD screen indicating that the device is rebooting. For information about exiting Installer mode, refer to "Exiting Installer Mode" on page 31.

1. Access the **Installer** menu screen. (Refer to "Accessing Installer Mode" on page 21.)

    NOTE: If the DM-MD6X4 or DM-MD6X6 is already in Installer mode, press the **BACK** button on the front panel until the **Installer** menu appears.

2. Navigate to **Network**, and then press the Select button on the navigation pad.

    The **Network** submenu appears as shown on the following page. The submenu is scrollable as indicated by the bar on the right side of the screen.

Network Submenu

3. Perform any of the following as required using the navigation pad:

- View the network status. To do so, navigate to **Status** if it is not already highlighted, and then press the Select button. Basic and advanced status information can be viewed.

- If DHCP is disabled, configure the following parameters. To do so, navigate to the parameter and then press the Select button.

  o **Address**: Accesses the **IP Address** configuration screen, which allows a unique static IP address to be entered

  IP Address Configuration Screen
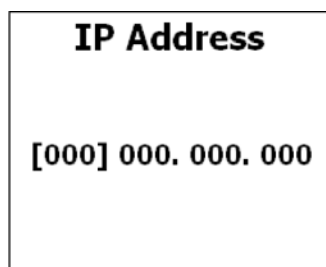
  As shown above, the first octet of the IP address is enclosed in brackets when the **IP Address** configuration screen appears.

  > **NOTE: IP Address** is applicable only if DHCP is set to **Off** in the **Network** submenu. If DHCP is set to **On**, the following message is displayed at the bottom of the **IP Address** configuration screen:

  *DHCP ON: Address invalid

  Enter a static IP address using the navigation pad. For each octet in the IP address, press the Up or Down navigation button until the desired number appears, and then press the Select button.

  > **NOTE:** If necessary, the Left or Right navigation button can be used to navigate to an octet in the IP address.

  The screen returns to the **Network** submenu after the last octet is selected.

  o **Subnet Mask**: Accesses the **Subnet Mask** configuration screen, which allows the address of the subnet mask that is set on the network to be entered

Subnet Mask Configuration Screen

Subnet Mask

[000] 000. 000. 000

As shown above, the first octet of the subnet mask is enclosed in brackets when the **Subnet Mask** configuration screen appears.

NOTE: Subnet Mask is applicable only if DHCP is set to **Off** in the **Network** submenu. If DHCP is set to **On**, the following message is displayed at the bottom of the **Subnet Mask** configuration screen:

*DHCP ON: Address invalid

Enter the subnet mask using the navigation pad. For each octet in the subnet mask, press the Up or Down navigation button until the desired number appears, and then press the Select button.

NOTE: A class C network allows up to 255 devices to communicate without a router and has a subnet mask of 255.255.255.0. A class B network allows up to 65,535 devices to communicate without a router and has a subnet mask of 255.255.0.0.

NOTE: If necessary, the Left or Right navigation button can be used to navigate to an octet in the subnet mask.

The screen returns to the **Network** submenu after the last octet is selected.

o **Default Router***:* Accesses the **Default Router** configuration screen, which allows the IP address of the network's device (usually a router) to be entered

The default router IP address enables communication between the network and the Internet.

Default Router Configuration Screen

Default Router

[000] 000. 000. 000

As shown on the prior page, the first octet of the default router IP address is enclosed in brackets when the **Default Router** configuration screen appears.

NOTE: Default Router is applicable only if DHCP is set to **Off** in the **Network** submenu. If DHCP is set to **On**, the following message is displayed at the bottom of the **Default Router** configuration screen:

*DHCP ON: Address invalid

Enter the default router IP address using the navigation pad. For each octet in the IP address, press the Up or Down navigation button until the desired number appears, and then press the Select button.

NOTE: If necessary, the Left or Right navigation button can be used to navigate to an octet in the default router IP address.

The screen returns to the **Network** submenu after the last octet is selected.

- Enable or disable DHCP:

  a. Navigate to **DHCP** in the **Network** submenu, and then press the Select button.

      The **DHCP** configuration screen appears, allowing DHCP to be set to **On** (the default setting) or **Off**.

      NOTE: An asterisk indicates the current setting.

      NOTE: When set to **On**, the IP address is automatically assigned by a DHCP server on the LAN for a predetermined period of time.

  b. Navigate to the desired setting, and then press the Select button.

      The screen returns to the **Network** submenu.

- Configure control system parameters:

  a. Navigate to **Control System** in the **Network** submenu, and then press the Select button.

      The **Control System** submenu appears, allowing configuration of **IP ID** and **IP Address** settings.

  b. Navigate to the desired parameter, and then press the Select button:

      o **IP ID***:* Accesses the **IP ID** configuration screen, which allows the IP ID of the DM-MD6X4 or DM-MD6X6 to be selected. The value ranges from 03 (default setting) to FE. The value selected must match the IP ID specified in SIMPL Windows and the value on the control system's IP table for the DM-MD6X4 or DM-MD6X6.

         Specify the IP ID by pressing the Up or Down button until the desired value appears, and then press the Select button.

The screen returns to the **Control System** submenu.

   o **IP Address**: Accesses the **Ctrl Sys IP Addr** configuration screen, which allows the IP address of the control system to be entered.

Enter the control system IP address using the navigation pad. For each octet in the IP address, press the Up or Down navigation button until the desired number appears, and then press the Select button.

NOTE: If necessary, the Left or Right navigation button can be used to navigate to an octet in the control system IP address.

The screen returns to the **Control System** submenu after the last octet is selected.

Control

The following control parameters can be configured:

- **Backlight**: Allows the brightness of the front panel LCD screen to be adjusted

- **Password**: Allows the Installer password to be changed or disabled

- **Front Panel:Lock**: Prevents or allows changes to signal routings

- **Restore Defaults**: Restores the device to factory settings

In addition, firmware version information about the DM-MD6X4 or DM-MD6X6 and connected DM 8G+ receivers/room controllers can be viewed.

To configure control parameters or to view firmware version information, use the following procedure:

1. Access the **Installer** menu screen. (Refer to "Accessing Installer Mode" on page 21).

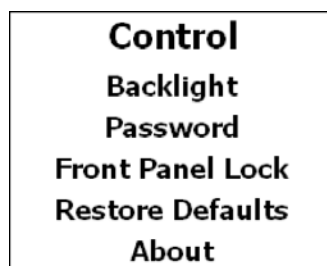**NOTE:** If the DM-MD6X4 or DM-MD6X6 is already in Installer mode, press the **BACK** button on the front panel until the **Installer** menu appears.

---

2. Navigate to **Control** and then press the Select button on the navigation pad.

The **Control** submenu appears as shown below.

Control Submenu

> **Control**
> **Backlight**
> **Password**
> **Front Panel Lock**
> **Restore Defaults**
> **About**

3. Perform any of the following using the navigation pad:

- Adjust the brightness of the LCD as follows:

    a. Navigate to **Backlight** if it is not already highlighted, and then press the Select button.

    The **Backlight** configuration screen appears, which allows the brightness of the display to be set to **Bright** (the default setting) or **Dim**.

    b. Navigate to the desired setting, and then press the Select button.

    The screen returns to the **Control** submenu.

- Change or disable the Installer password as follows:

    a.   Navigate to **Password** and then press the Select button.

    The **Password** configuration screen appears.

    b. Enter the desired four-digit password. To enter a digit, do either of the following:

        o If the digit ranges from 1–6, press the corresponding **INPUT** or **OUTPUT** button.

        o If the digit is 0 or ranges from 7–9, press the Up or Down navigation button as necessary until the desired digit appears between the brackets, and then press the Select button.

        NOTE: Setting the password to "0000" disables password protection.

        NOTE: If necessary, the Left or Right navigation button can be used to navigate to a digit in the password.

    After the fourth digit is entered, the screen returns to the **Control** submenu.

- Prevent or allow changes to signal routings as follows:

    a. Navigate to **Front Panel Lock** and then press the Select button.

    The **Front Panel Lock** configuration screen appears, allowing Front Panel Lock to be set to **On** or **Off** (the default setting).

    NOTE: An asterisk indicates the current setting.

    NOTE: When set to **On**, changes cannot be made to signal routings as described in the "Operation" section on page 39.

    b. Navigate to the desired setting, and then press the Select button.

    The screen returns to the **Control** submenu.

- Restore the DM-MD6X4 or DM-MD6X6 to its factory settings as follows:

  a. Navigate to **Restore Defaults** and then press the Select button.

     The **Restore Defaults** configuration screen appears.

  b. Press the Down button on the navigation pad to highlight **Yes**, and then press the Select button.

     A prompt appears asking you whether you are sure you want to restore the default settings.

  c. Select **Yes** to restore the default settings or **No** to cancel.

     The screen returns to the **Control** submenu.

- View firmware information about the DM-MD6X4 or DM-MD6X6 and connected DM 8G+ receivers/room controllers. To do so, navigate to **About** and then press the Select button.

Exiting Installer Mode

To exit Installer mode, return to the home screen by pressing the **HOME** button.

NOTE: The home screen can also be accessed by pressing the **BACK** button as necessary or by allowing the DM-MD6X4 or DM-MD6X6 to time out after 30 seconds of inactivity.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or to view questions that have been submitted to Crestron's True Blue Support, log in at http://www.crestron.com/support. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends using the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website at http://www.crestron.com/software.

Crestron provides an assortment of Windows® software-based tools to develop a customized system. Use SystemBuilder™ software or SIMPL Windows to create a program to control the DM-MD6X4 or DM-MD6X6.

Programming with SystemBuilder

SystemBuilder is a comprehensive programming environment. Appropriate for most systems, it can quickly and easily generate a complete working program including both control processor logic and touch screen graphics.

Programming with SIMPL Windows

SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers": Configuration and Program.

Configuration Manager

Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the **Device Library**.

1. To incorporate a DM-MD6X4 or DM-MD6X6 into the system, drag the desired device from the **DigitalMedia > DM Midpoints** folder of the **Device Library** and drop it in the **System Views**. (Refer to the image on the following page.)

   *Locating the DM-MD6X4/DM-MD6X6 in the Device Library*
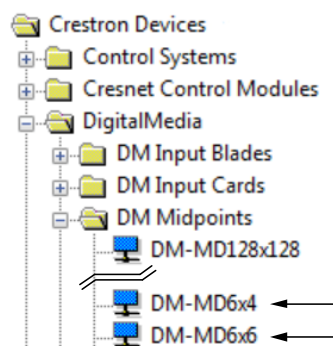
The system tree of the control system displays the device in the appropriate slot with a default IP ID as shown in the illustration on the following page.

PRO3 Device, Slot 5 (DM-MD6X4 Shown)
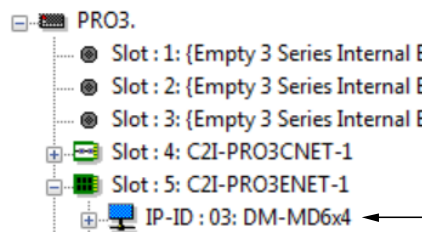
2. If additional DM-MD6X4 or DM-MD6X6 devices are to be added, repeat step 1 for each device. Each device is assigned a different IP ID number as it is added.

3. If necessary, double-click a device to open the **Device Settings** dialog box and change the IP ID as shown in the following illustration.

Device Settings Dialog Box (DM-MD6X4 Shown)
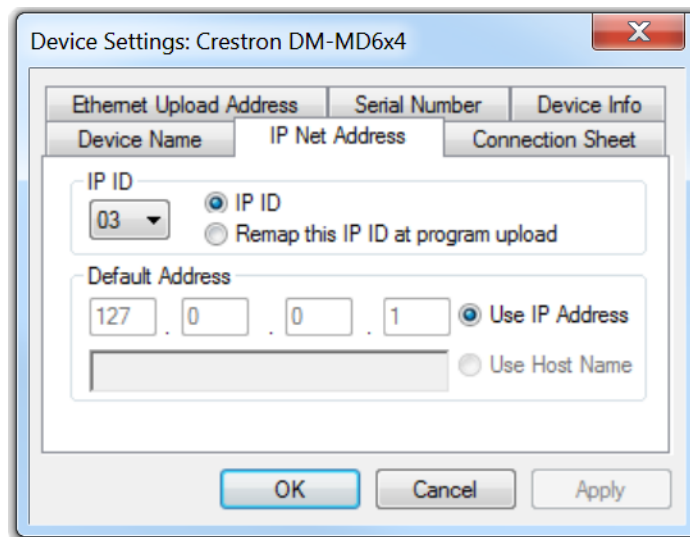
NOTE: The ID code specified in the SIMPL Windows program must match the IP ID of each unit. Refer to "Identity Code" on page 17.

IP Table Options

DigitalMedia 8G+ devices that receive their IP address configuration via the DM-MD6X4 and DM-MD6X6 (for example, the DM-RMC-4K-100-C, sold separately) can also receive their IP table configuration from the DM-MD6X4 and DM-MD6X6 or have their IP table manually configured. Depending on the application, add DM 8G+ devices as described below:
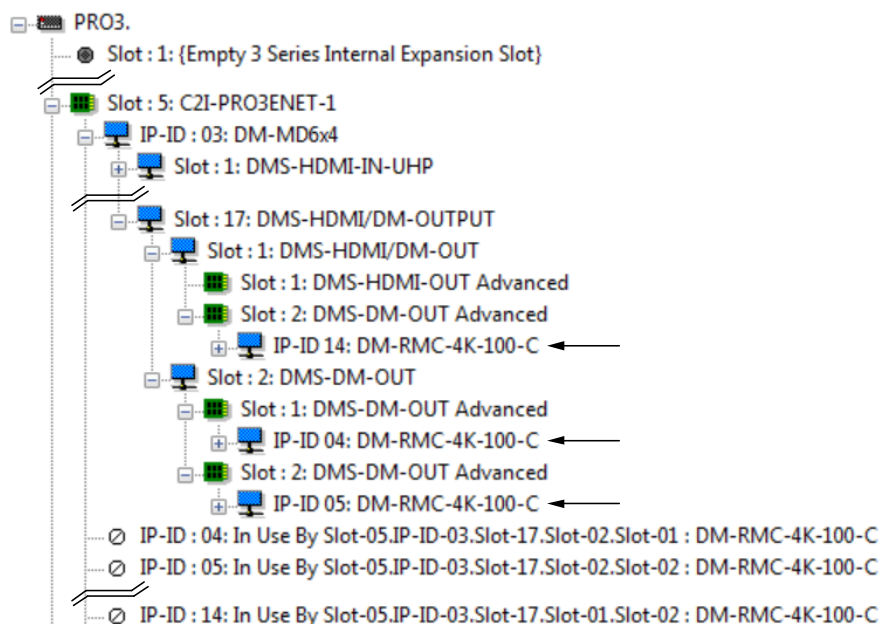
- **Scenario 1**: Control center with control system, DM-MD6X4 or DM-MD6X6, and DM 8G+ room controller (sold separately); automatic IP table configuration

*Control Center Containing Control System, DM-MD6X4/DM-MD6X6, and
DM 8G+ Room Controller (DM-RMC-4K-100-C Shown)*

To configure a SIMPL Windows program for this layout, drop a DM 8G+
room controller, such as the DM-RMC-4K-100-C (sold separately), onto the
slots that are on the DM-MD6X4 or DM-MD6X6 as shown in the
illustration below. The IP table of each device will be automatically
configured and uploaded.

*Automatic IP Configuration of DM-MD6X4/DM-MD6X6 (DM-MD6X4 Shown)
with DM-RMC-4K-100-C Devices Placed on DMS-DM-OUT Outputs*

Scenario 2: Control center with control system, DM-MD6X4 or
DM-MD6X6, and DM 8G+ room controller (sold separately); manual IP
table configuration

To configure a SIMPL Windows program for this layout, drop a DM 8G+
device, such as the DM-RMC-4K-100-C (sold separately), onto the control
system's Ethernet slot. The IP table of each DM 8G+ device will require
manual configuration. Refer to the following illustration.

*Manual IP Configuration of DM 8G+ Device (DM-RMC-4K-100-C Shown)
Placed on Ethernet Slot on Control System*
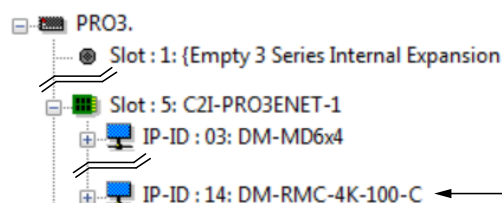
Program Manager   Program Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols.

The symbol can be viewed by double-clicking the icon or dragging it into **Detail View**. Each signal in the symbol is described in the embedded SIMPL Windows help file.

Uploading and Upgrading

Crestron recommends using the latest programming software and recommends that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade, it is necessary to establish communication. Once communication has been established, files (for example, firmware) can be transferred to the control system (and/or device). Finally, program checks can be performed (such as changing the device ID or creating an IP table) to ensure proper functioning.

Establishing Communication

Use Crestron Toolbox for communicating with the DM-MD6X4 and DM-MD6X6; refer to the embedded Crestron Toolbox help file for details. There are two methods of communication: USB and TCP/IP.

USB

NOTE: The USB port can be used for initial setup of Ethernet parameters. (The front panel also allows setup of Ethernet parameters as discussed in the "Network" section on page 25.
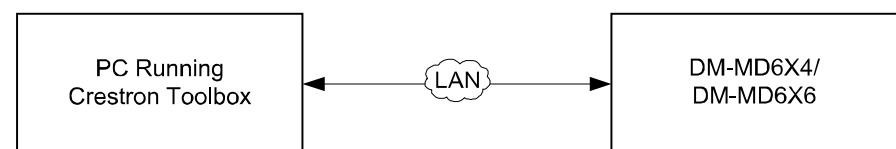
USB Communication
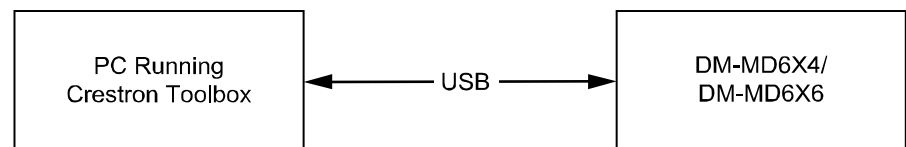
The COMPUTER port on the DM-MD6X4 and DM-MD6X6 connects to the USB port on the PC via the included Type A to Type B USB cable:

1. Use the Address Book in Crestron Toolbox to create an entry using the expected communication protocol (USB). When multiple USB devices are connected, identify the DM device by entering "DM-MD6X4" or "DM-MD6X6" in the **Model** textbox, the unit's serial number in the **Serial** textbox, or the unit's hostname in the **Hostname** textbox. The hostname can be found in the **System Info** window in the section marked **Ethernet***;* however, communications must be established in order to see this information in the **System Info** window.

2. Display the DM-MD6X4 or DM-MD6X6 **System Info** window (click the ⓘ icon); communications are confirmed when the device information is displayed.

TCP/IP

NOTE: This method is required for operation with a Crestron control system.

TCP/IP Communication

1. Establish USB communication between the DM-MD6X4 or DM-MD6X6 and the PC.

2. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-MD6X4 or DM-MD6X6. The tool is available in Toolbox version 1.15.143 or later.

3. Use the Address Book in Crestron Toolbox to create an entry for the DM-MD6X4 or DM-MD6X6 using the **TCP** connection type, and then enter the IP address of the DM-MD6X4 or DM-MD6X6.

4. Display the DM-MD6X4 or DM-MD6X6 **System Info** window (click the ![i] icon); communications are confirmed when the device information is displayed.

5. (Optional) If additional changes to TCP/IP settings are desired, perform the following procedure:

    a. Assign an IP address, IP mask, and default router for the DM-MD6X4 or DM-MD6X6 via Crestron Toolbox (**Functions > Ethernet Addressing**).

    b. Close the **System Info** window.

    c. In Crestron Toolbox, change the Address Book entry for the DM-MD6X4 or DM-MD6X6 so that it uses the IP address assigned in step 5a.

    d. Display the DM-MD6X4 or DM-MD6X6 **System Info** window (click the ![i] icon); communications are confirmed when the device information is displayed.

Programs and Firmware

Program or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases. Programs can be uploaded via the programming software or uploaded and upgraded via Crestron Toolbox. For details on uploading and upgrading, refer to the embedded SIMPL Windows help file or the embedded Crestron Toolbox help file.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox.

Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

Upgrade the DM-MD6X4 and DM-MD6X6 firmware using Crestron Toolbox:

1. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-MD6X4 or DM-MD6X6.

2. Add the IP address found in step 1 to the Address Book in Crestron Toolbox.

3. Download the appropriate .puf file from the Crestron website to a location on the connected PC.

4. Double-click the .puf file. The Toolbox Address Book opens.

5. From the list in the Address Book, select the entry listed for the DM-MD6X4 or DM-MD6X6 (the address is listed as **USB** *or* **TCP/IP**), and then click **OK.**

   The DM device list is displayed, and the checkbox of the DM-MD6X4 or DM-MD6X6 firmware is automatically selected. In addition, the checkbox of any receiver/room controller connected to the DM-MD6X4 or DM-MD6X6 is automatically selected if the firmware of the receiver/room controller needs to be upgraded.

6. Click **Update.**

7. After the process is complete, click **Recheck** to verify the upgrade.

Program Checks

Actions that can be performed on the DM-MD6X4 and DM-MD6X6 vary depending on whether it is connected via USB or Ethernet.

USB Connections

For USB connections, display the **System Info** window in Crestron Toolbox (click the icon), and select the **Functions** menu to display actions that can be performed on the DM-MD6X4 and DM-MD6X6.

Ethernet Connections

For Ethernet connections, display the **System Info** window in Crestron Toolbox (click the icon), and select the **Functions** menu to display actions that can be performed on the DM-MD6X4 and DM-MD6X6.

Be sure to use Crestron Toolbox to create the DM-MD6X4 or DM-MD6X6 IP table.

1. Select **Functions > IP Table Setup**.

2. Add, modify, or delete entries in the IP table. The DM-MD6X4 or DM-MD6X6 can have only one IP table entry.

3. A defined IP table can be saved to a file or sent to the device.

Edit the control system's IP table to include an entry for the DM-MD6X4 or DM-MD6X6. The entry should list the IP ID of the DM-MD6X4 or DM-MD6X6 (specified on the IP table of the DM-MD6X4 or DM-MD6X6) and the internal gateway IP address 127.0.0.1.

DMTool

In the Crestron Toolbox Address Book, select the DM-MD6X4 or DM-MD6X6. Then, use DMTool to configure EDID, HDCP, or to troubleshoot AV on the DM-MD6X4 or DM-MD6X6. Refer to the embedded help file for additional information. To access DMTool, click the DMTool icon in Crestron Toolbox as shown in the below image. DMTool can also be accessed by navigating to **Tools > DMTool**.

DMTool
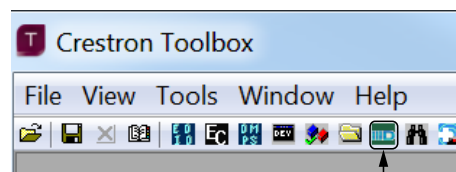
DMTool

Operation

A signal input to the DM-MD6X4 and DM-MD6X6 can be routed to up to four outputs on the DM-MD6X4 or up to six outputs on the DM-MD6X6. Use the front panel controls on the DM-MD6X4 or DM-MD6X6 to route an input signal to outputs or to disconnect routed signals.

NOTE: Crestron Toolbox can also be used to control the routing of signals. For more information, refer to the embedded Crestron Toolbox help file.

Routing an Input Signal to Output(s)

An input signal can be routed to one or more outputs simultaneously.

To route an input signal to output(s), use the following procedure:

1. Ensure that the home screen is displayed on the front panel LCD screen. If it the home screen not displayed, press the **HOME** button. The home screen is shown below.

   Home Screen (DM-MD6X6 Shown)

   When the home screen is displayed, the DM-MD6X4 or DM-MD6X6 is in Route mode.

   NOTE: By default, the input LEDs on the DM-MD6X4 or DM-MD6X6 are not lit. The output LEDs of unrouted outputs light.

2. Press the appropriate **INPUT** button that corresponds to the input to be routed. **INPUT** buttons are numbered **1**–**6**.

   The LED of the selected input lights. In addition, video and audio information about the selected input is provided on the LCD screen. The LED(s) of output(s) currently routed to the input also light.

3. Press the appropriate **OUTPUT** button(s) that correspond to the desired output(s).

   NOTE: For the DM-MD6X4, up to four **OUTPUT** buttons, numbered **1**–**4**, can be pressed for the selected input. For the DM-MD6X6, up to six **OUTPUT** buttons, numbered **1**–**6**, can be pressed for the selected input.

   The LED(s) of the selected output(s) flash. In addition, the following message appears on the LCD screen:

   Press Select to Route
   Press Back to Cancel

4. As indicated on the LCD screen, press the Select button on the navigation pad to route the signal.

    The selected input is routed to the selected output(s). The LED(s) of the selected output(s) light steadily.

NOTE: After 30 seconds of inactivity, the DM-MD6X4 or DM-MD6X6 times out. The input LEDs that were lit become unlit, and the output LEDs that were lit for routed outputs also become unlit. In addition, the DM-MD6X4 or DM-MD6X6 returns to the home screen while also dimming the LCD.

Disconnecting Routed Signal(s)

One or more routed signals can be disconnected simultaneously.

To disconnect routed signal(s), use the following procedure:

1. Ensure that the home screen is displayed on the front panel LCD screen. If the home screen is not displayed, press the **HOME** button.

    NOTE: The LEDs of all routed outputs are not lit.

    ---

2. Press the **OUTPUT** button(s) that correspond to the output(s) to be disconnected.

    The LED of the selected output(s) flashes.

3. Press the Select button on the navigation pad.

    The selected output(s) are disconnected. The LED(s) of the selected output(s) light steadily.

Problem Solving

Troubleshooting

The following table provides corrective actions for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

DM-MD6X4/DM-MD6X6 Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
The device does not function.	The device is not communicating with the network.	Use Crestron Toolbox to poll the network. Verify that the device is connected to the network.
	There is electrostatic discharge due to improper grounding.	Check that all ground connections have been properly made.
Incorrect audio or video is displayed.	The audio is routed separately from the video.	Reroute the audio together with the video.
There is distorted audio or video.	The source does not match the capabilities of the destination.	Use Crestron Toolbox to manage the EDID capabilities of the devices in the system.
There is no video displayed, but audio is heard.	There is a possible HDCP error.	Check the control system error log or the DM-MD6X4/ DM-MD6X6 for HDCP errors.
The HDMI input LED does not illuminate.	The HDMI input is not selected.	Verify that HDMI is selected.
The HDMI output LED does not illuminate.	The device is not receiving a video signal.	Ensure that the proper video signal is routed to device.
	The device connected to the **HDMI 1** output port has not sent the hotplug signal.	Power on the device connected to the **HDMI 1** output port and ensure that it is switched to the correct input.
There is a loss of video.	There are various causes.	Use the DMTool in Crestron Toolbox to determine the cause and to correct accordingly.

NOTE: For more advanced diagnostics, use the DMTool in Crestron Toolbox.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron Web site at www.crestron.com/manuals.

List of Related Reference Documents

DOCUMENT TITLE
Crestron DigitalMedia System Design Guide (Doc. 4546)
IP Considerations Guidelines for the IT Professional Reference Guide (Doc. 4579)

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling Crestron at 1-888-CRESTRON [1-888-273-7876]. For assistance in your region, please refer to the Crestron website (www.crestron.com) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron website (www.crestron.com/onlinehelp) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the DM-MD6X4 and DM-MD6X6, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

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