Crestron **DM-MD6X4/DM-MD6X6**
DigitalMedia™ Distribution Center
Operations & Installation Guide

CRESTRON®

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

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Regulatory Compliance

As of the date of manufacture, the DM-MD6X4 and DM-MD6X6 have been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

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 the limits for a 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

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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DigitalMedia™ Distribution Center: DM-MD6X4/DM-MD6X6

Introduction

The DM-MD6X4/DM-MD6X6 DigitalMedia™ Distribution Center provides a simple and cost-effective solution for distributing 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/DM-MD6X6 delivers ultra-reliable, ultra high-bandwidth signal routing over inexpensive CAT5e 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 twisted-pair wire[1]
- Affords a true one-wire solution using DigitalMedia 8G+™ technology
- Features independently switchable 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]
- Supports Deep Color, 3D, and 7.1 channel HD lossless audio
- Supports video resolutions up to WUXGA 1920x1200 and HD 1080p60
- QuickSwitch HD® technology manages HDCP keys for reliable, low-latency switching
- Performs automatic AV signal format management via EDID
- Allows independent scaling for every display through select DM® receivers (sold separately)[3]

(Continued on following page)

1. For DM 8G+™ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines. The manuals are available from the Crestron Web site at www.crestron.com/dmresources. All cable sold separately.
2. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI interface cable sold separately.
3. DM 8G+ receivers with built-in scaling include the DM-RMC-SCALER-C and DM-RMC-200-C. For the HDMI output, use the HD-SCALER.

Features and Functions

(Continued)

- Enables USB HID mouse and keyboard signal extension
- Includes integrated Ethernet switch
- Provides Power over DM (PoDM) for PoDM compatible receivers
- Provides easy 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/DM-MD6X6 provides 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. Just one CAT5e wire run to each receiver transports pure, uncompressed HD video, 7.1 surround sound audio, 10/100 Ethernet, 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 Crestron DigitalMedia 8G™ cable.*

QuickSwitch HD

Handling high-definition digital media means handling HDCP (High-bandwidth Digital Content Protection), 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 issue it a "key" before the content can be viewed. Ordinarily, this causes a complete loss of signal for up to 15 seconds each time a new source or display is selected anywhere in the system. In addition, every source device has a limited number of keys available; therefore, if too many displays are connected, the source stops outputting a signal without warning. Crestron QuickSwitch HD, however, manages the 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.

* For DM 8G+ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines. All cable sold separately.

EDID Format Management

The DM-MD6X4/DM-MD6X6 manages the EDID (Extended Display Identification Data) that modern digital devices use to communicate their capabilities. Through the DM-MD6X4/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/DM-MD6X6 using select DM 8G+ receivers (sold separately) with built-in high-definition 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, letting you share your theater's full HD 1080p 3D image with smaller, lesser displays in the kitchen, bathroom, and bedrooms.

Multi-Channel HD Audio Routing

HDMI is the key to handling all the latest 7.1 surround sound formats such as Dolby® TrueHD and DTS-HD Master Audio™. The DM-MD6X4/DM-MD6X4 supports high-performance routing of all surround sound encoded media, as well as uncompressed multi-channel linear PCM, to every display and AV receiver.

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 just one IP address for the complete DM system.

USB HID Extender

With built-in USB HID (Human Interface Device) signal routing, the DM-MD6X4/DM-MD6X6 lets you control a centralized computer or media server using a mouse or keyboard in another room. The mouse/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/DM-MD6X6.

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

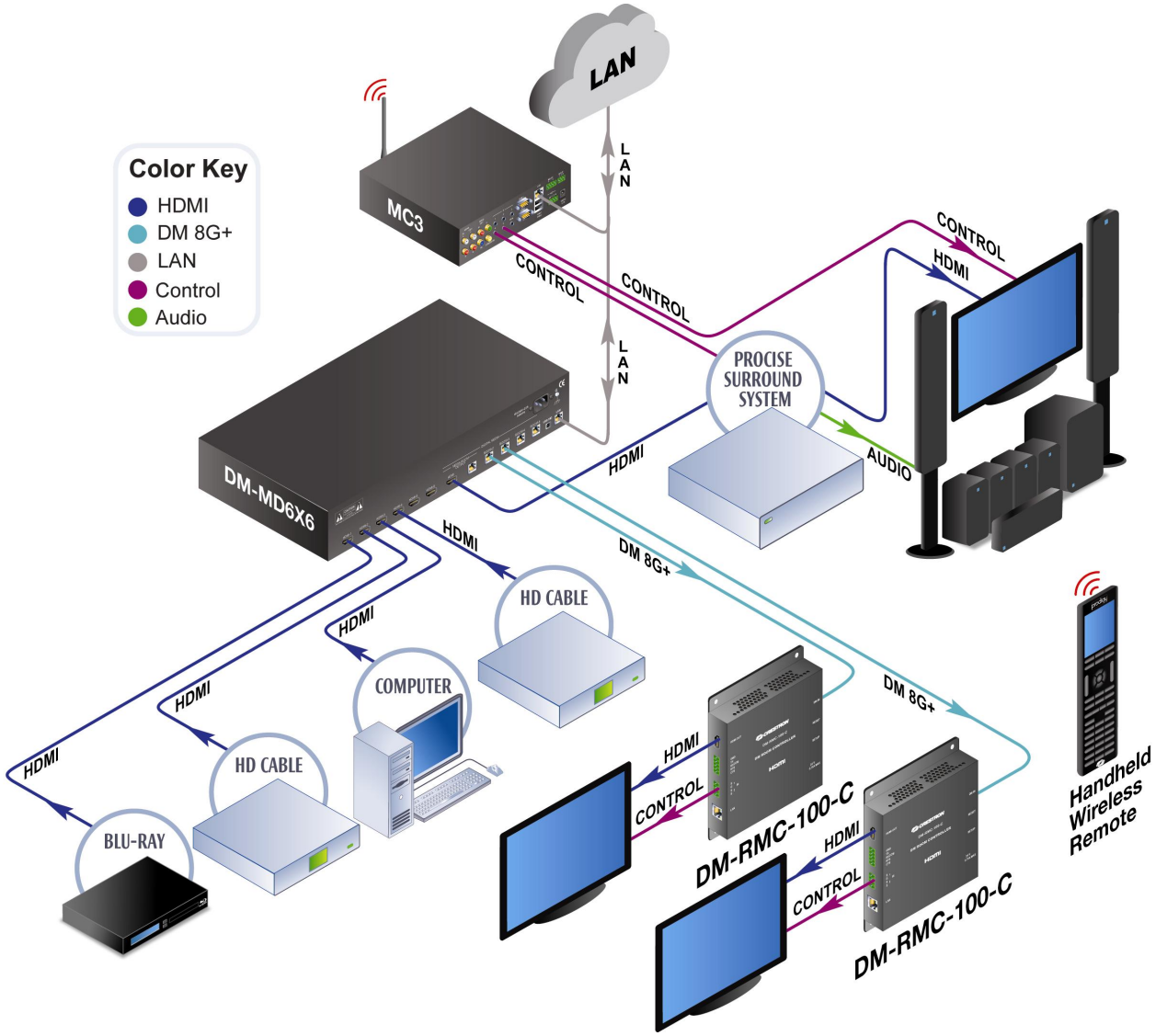
Easy Setup

DM-MD6X4/DM-MD6X6 setup is designed to be quick and easy using its 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/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.

Applications

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

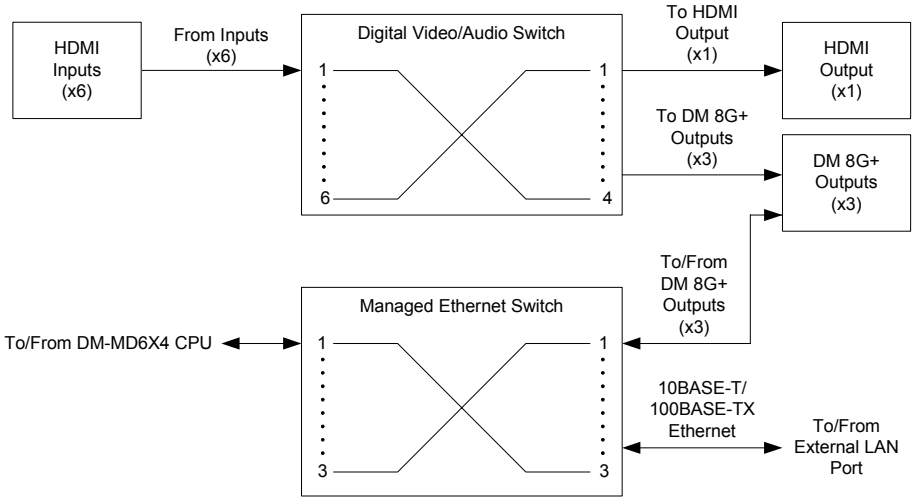
DM-MD6X6 in a Typical Application



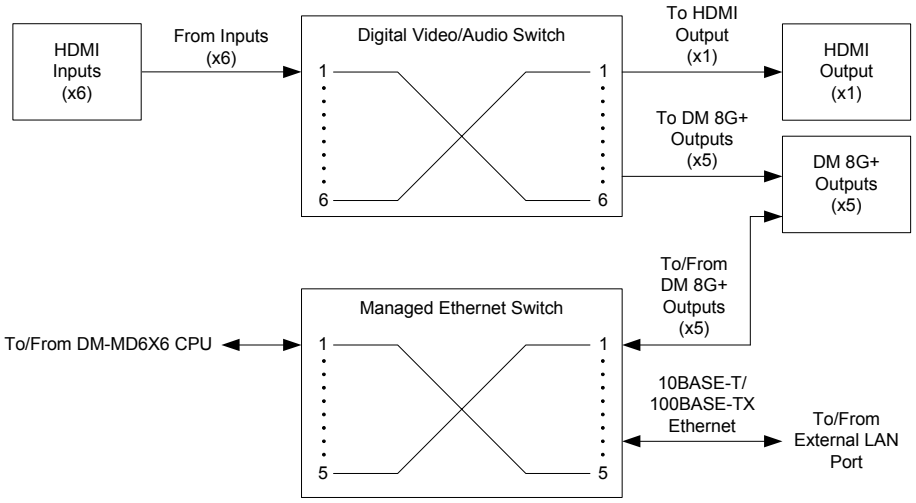
Internal Block Diagram

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/DM-MD6X6 are listed in the following 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 twisted pair copper wire)[2]
Formats	HDMI with Deep Color & 3D, DVI, HDCP content protection support, HDTV up to 1080p60, computer graphics up to UXGA/WUXGA, NTSC or PAL
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+
Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™, up to 8ch PCM
Communications	
DigitalMedia	DM 8G+, HDCP management, EDID format management
Ethernet	10BASE-T/100BASE-TX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, RSTP; For control and console
USB	USB HID port for signal extension/routing for USB HID class devices and USB service port for computer console
Ethernet Switch	Provides one onboard 10BASE-T/100BASE-TX Ethernet port, one internal Ethernet port for the switcher, and up to five remote 10BASE-T/100BASE-TX Ethernet ports via select outboard devices
Power Requirements	
Main Power	2 Amps @ 100-240 Volts AC, 50/60 Hz
Power over DM (PoDM)	Supplies power to up to five DM 8G+ PoDM powered devices
Minimum 2-Series Control System Update File[3, 4]	Version 4.003.0029 or later
Environmental	
Temperature	32º to 104º F (0º to 40º C)
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 textured black finish, vented sides, fan cooled
Faceplate	Metal, textured 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	16.98 in (432 mm) without ears, 19.00 in (483 mm) with ears
Depth	13.35 in (340 mm)
Weight	12.0 lb (5.5 kg)
Available Accessories	
CBL Series	Crestron Certified Interface Cables
DM-8G-CONN-100	DigitalMedia 8G Cable Connectors
DM-CBL-8G	DigitalMedia 8G Cable
DM-RMC-100-C	DigitalMedia 8G+ Receiver & Room Controller 100
DM-RMC-200-C	DigitalMedia 8G+ Receiver & Room Controller 200
DM-RMC-SCALER-C	DigitalMedia 8G+ Receiver & Room Controller with Scaler
HD-SCALER	High-Definition Video Scaler
MP-WP Series	Media Presentation Wall Plates

1. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI interface cable sold separately.
2. For DM 8G+ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines. All cable sold separately.
3. The latest software versions can be obtained from the Crestron Web site. Refer to the NOTE following these footnotes.
4. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.

NOTE: Crestron software and any files on the Web site are for authorized Crestron dealers and Crestron Authorized Independent Programmers (CAIP) only. New users may be required to register to obtain access to certain areas of the site (including the FTP site).

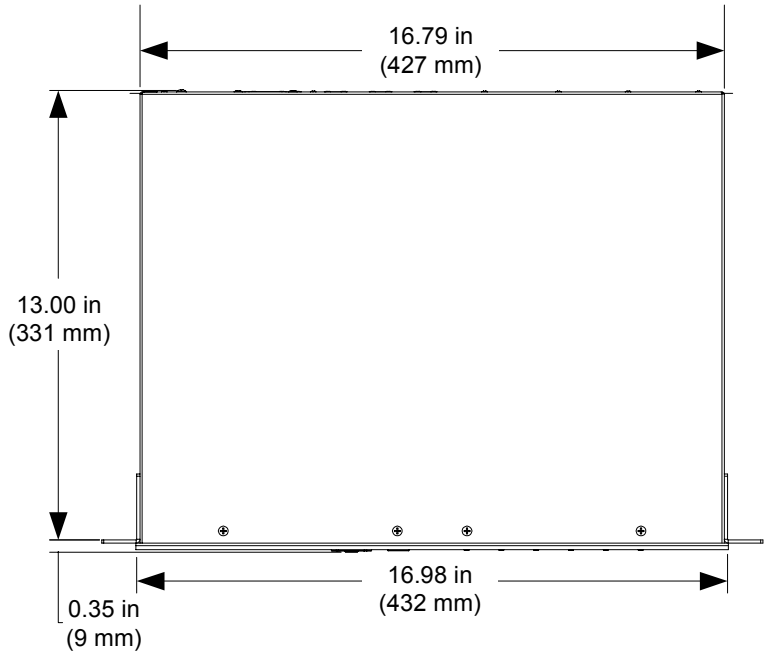
Physical Description

This section provides information on the connections, controls and indicators available on your DM-MD6X4/DM-MD6X6.

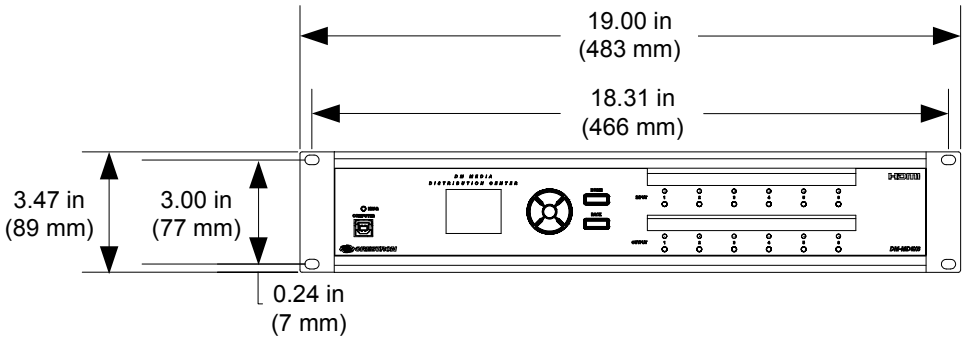
DM-MD6X4 Physical Views (Front and Rear)

DM-MD6X6 Physical Views (Front and Rear)

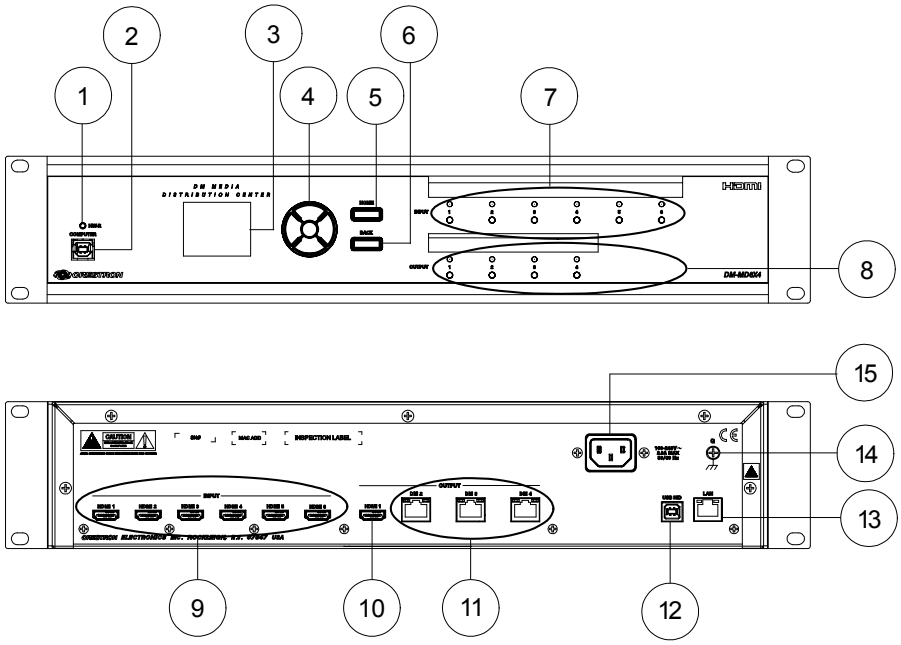
DM-MD6X4/DM-MD6X6 Overall Dimensions (Top View)



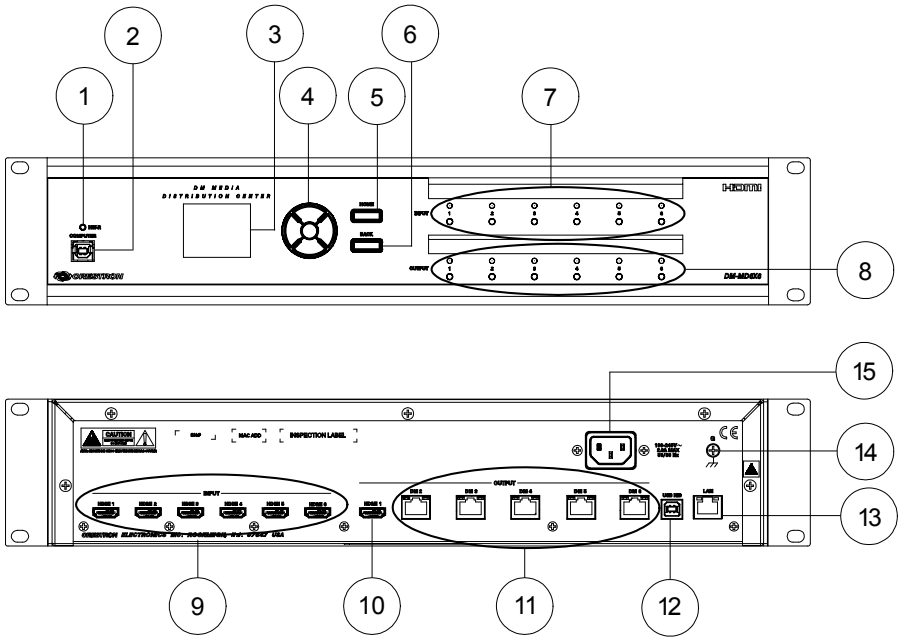
DM-MD6X4/DM-MD6X6 Overall Dimensions (Front View, DM-MD6X6 Shown)



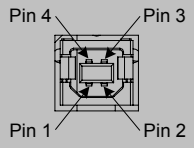
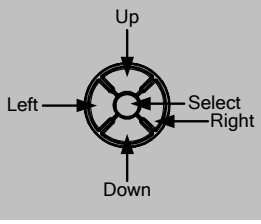
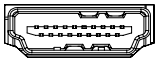
DM-MD6X4 Connectors, Controls & Indicators (Front and Rear Views)



DM-MD6X6 Connectors, Controls & Indicators (Front and Rear Views)

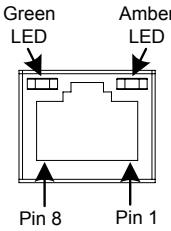
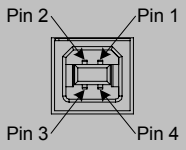
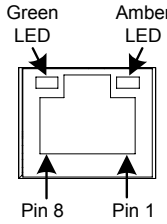
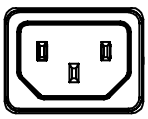


Connectors, Controls & Indicators

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	HW-R Button	(1) Recessed miniature push button for hardware reset
2	COMPUTER 	(1) USB Type B female; USB 1.1 computer console port (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 	(1) 5-way navigation pad for menu navigation and parameter adjustment: Up, Down, Left, and Right navigation buttons; Select button, which 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 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 & Indicators (Continued)

<table>
<tr><th>#</th><th>CONNECTORS, CONTROLS & INDICATORS</th><th>DESCRIPTION</th></tr>
<tr><td>11</td><td>OUTPUT
DM2 – DM4/DM2 – DM6[2, 3]
 
</td><td>DM-MD6X4 (3) or DM-MD6X6 (5)
8-pin RJ-45 female, shielded, with two LED indicators;
DM 8G+ outputs, capable of supplying Power over DM (PoDM);
Connect to DM 8G+ inputs of DM receivers/room controllers or other DM devices via CAT5e or Crestron DM-CBL-8G cable[4]
Green LED indicates DM link status;
Solid amber LED indicates HDCP video;
Blinking amber LED indicates non-HDCP video</td></tr>
<tr><td>12</td><td>USB HID
 
</td><td>(1) USB Type B female;
USB device port for connection to the USB host interface of a computer or other USB HID-compliant host device
<table>
<tr><th>PIN</th><th>DESCRIPTION</th></tr>
<tr><td>1</td><td>+5 VDC</td></tr>
<tr><td>2</td><td>Data -</td></tr>
<tr><td>3</td><td>Data +</td></tr>
<tr><td>4</td><td>Ground</td></tr>
</table></td></tr>
<tr><td>13</td><td>LAN[2]
 
</td><td>(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
<table>
<tr><th>PIN</th><th>SIGNAL</th><th>PIN</th><th>SIGNAL</th></tr>
<tr><td>1</td><td>TX +</td><td>5</td><td>N/C</td></tr>
<tr><td>2</td><td>TX -</td><td>6</td><td>RX -</td></tr>
<tr><td>3</td><td>RX +</td><td>7</td><td>N/C</td></tr>
<tr><td>4</td><td>N/C</td><td>8</td><td>N/C</td></tr>
</table></td></tr>
<tr><td>14</td><td>G
  </td><td>(1) 6-32 screw, chassis ground lug</td></tr>
<tr><td>15</td><td>100 – 240V ~ 2.0A MAX
50/60 Hz
  </td><td>(1) IEC C14 male chassis plug, main power input:
Mates with removable power cord (included)</td></tr>
</table>

1. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI interface cable 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 following table 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. For DM 8G+ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines. All cable sold separately.

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+ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines. The manuals are available from the Crestron Web site at www.crestron.com/dmresources.

The DM-MD6X4/DM-MD6X6 also uses high-speed Ethernet for communications between the device and a control system, computer, media server and other IP-based devices. For general information on connecting Ethernet devices in a Crestron system, refer to the latest version of the Crestron e-Control® Reference Guide (Doc. 6052), which is available from the Crestron Web site (www.crestron.com/manuals). For information specifically related to Ethernet connectivity using DigitalMedia devices, refer to the latest version of the Crestron IP Considerations Guide for the IT Professional (Doc. 4579), which is also available from the Crestron Web site (www.crestron.com/dmresources).

Ethernet Setup

The DM-MD6X4/DM-MD6X6 is 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/DM-MD6X6, DM endpoints consist of DM 8G+ receivers/room controllers such as the DM-RMC-100-C, DM-RMC-200-C, and DM-RMC-SCALER-C.

IP Configuration

The DM-MD6X4/DM-MD6X6 can operate in *DHCP* or *Static IP Address* mode. The DM-MD6X4/DM-MD6X6 also controls the IP addressing information of DM 8G+ receivers/room controllers. When the DM-MD6X4/DM-MD6X6 operates in *DHCP* mode, the DM 8G+ receivers/room controllers also operate in *DHCP* mode. When the DM-MD6X4/DM-MD6X6 operates in *Static IP Address* mode, the DM 8G+ receivers/room controllers receive a static IP configuration equivalent to the DM-MD6X4/DM-MD6X6 IP address plus their slot number. This configuration is sent when the DM-MD6X4/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/DM-MD6X6.

IP Table Setup

DigitalMedia 8G+ devices that receive their IP address configuration via the DM-MD6X4/DM-MD6X6 can also receive their IP table configuration from the DM-MD6X4/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/ DM-6X6 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 Crestron Toolbox help file. The IP IDs of multiple DM-MD6X4/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

A DM-MD6X4/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 multi-unit 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

A DM-MD6X4/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.

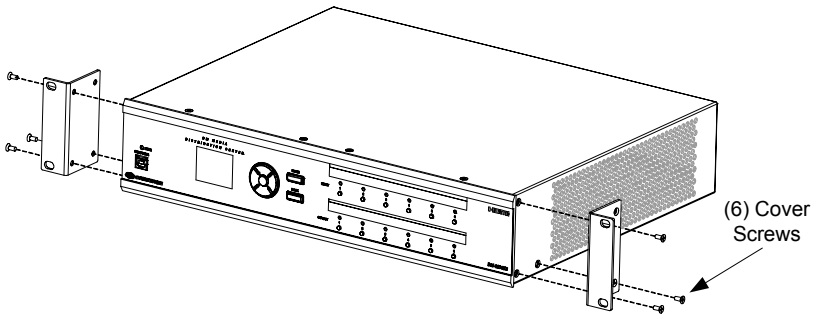
NOTE: If rack mounting is not required, rubber feet are provided for tabletop mounting or stacking. Apply the feet near the corner edges on the underside of the unit.

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 (e.g. use of power strips).

To install the ears:

1. On the DM-MD6X4/DM-MD6X6, there are 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 from step 1 as shown in the following diagram.

Ear Attachment for Rack Mounting

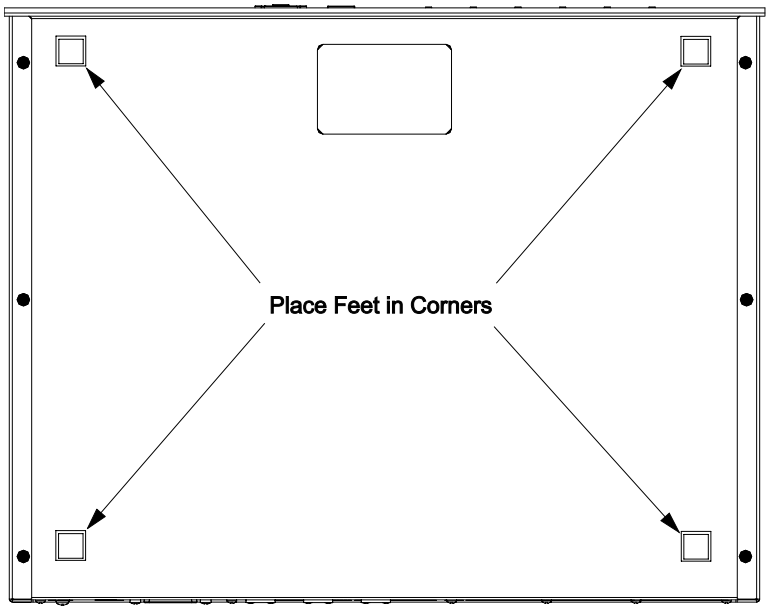


4. Repeat procedure (steps 1 through 3) to attach the remaining ear to the opposite side.

Stacking

Four "feet" are provided with the DM-MD6X4/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 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

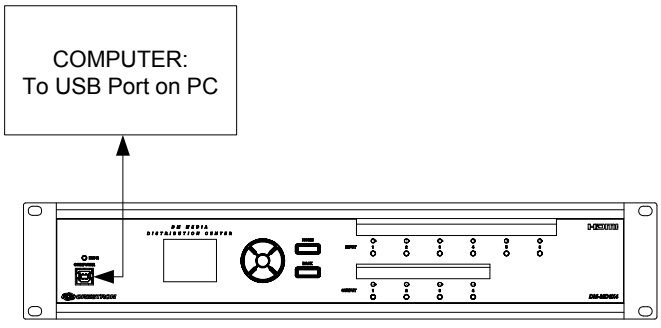


NOTE: No more than two DM-MD6X4/DM-MD6X6 units should be stacked.

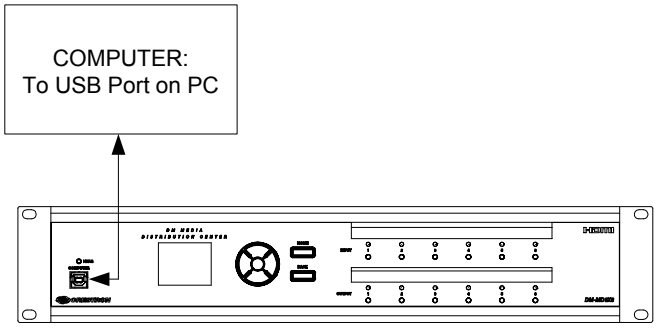
Hardware Hookup

Make the necessary connections as called out in the following illustrations. Refer to "Network Wiring" on page 15. Apply power after all connections have been made.

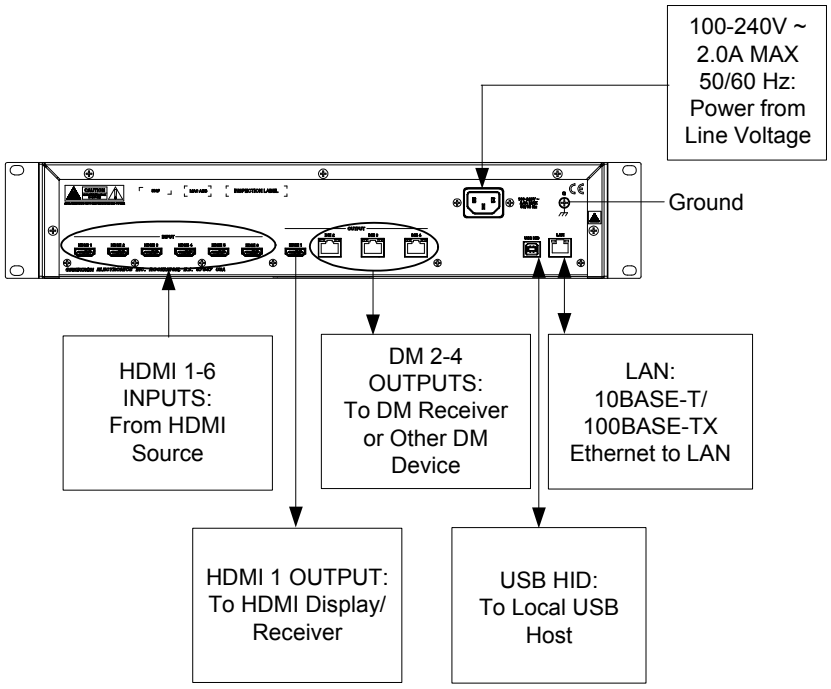
Hardware Connections for the DM-MD6X4 (Front)



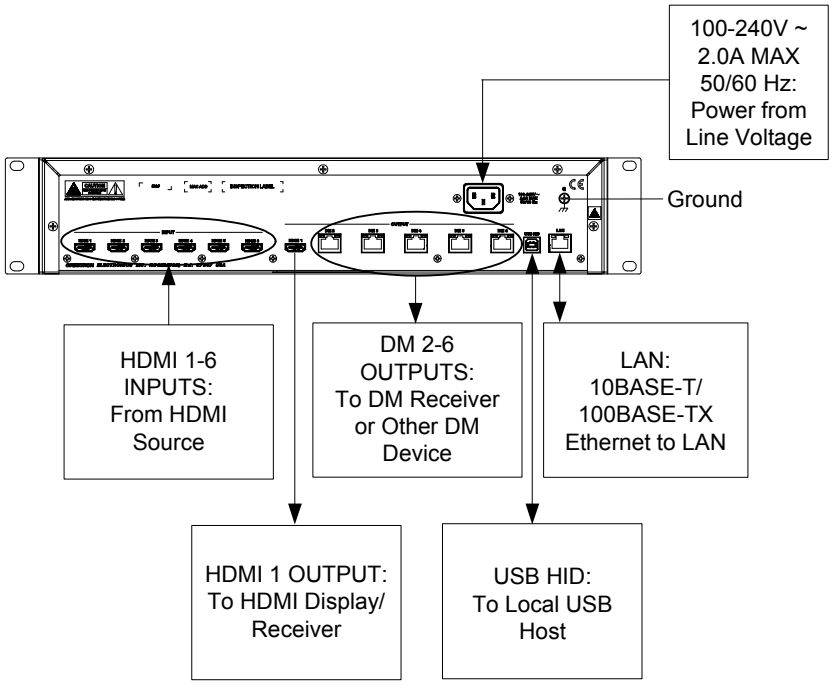
Hardware Connections for the DM-MD6X6 (Front)



Hardware Connections for the DM-MD6X4 (Rear)



Hardware Connections for the DM-MD6X6 (Rear)



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+ wiring up to 330 feet (100 meters) between devices, use Crestron DM-CBL-8G DigitalMedia 8G cable, Crestron DM-CBL DigitalMedia cable, Crestron DM-CBL-D DigitalMedia D cable, or generic CAT5e (or better) UTP or STP. Shielded cable and connectors are recommended to safeguard against unpredictable environmental electrical noise which may impact performance at resolutions above 1080p. Refer to the latest version of the Crestron DigitalMedia Infrastructure Guide (Doc. 4556) for complete wiring guidelines and to the Crestron DigitalMedia Design Guide (Doc. 4789) for complete system design guidelines.

Configuration and Status

Configuration of the DM-MD6X4/DM-MD6X6 as well as viewing DM-MD6X4/DM-MD6X6 status information can be performed from the front panel when the device is in *Installer* mode.

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

Accessing *Installer* Mode

Configuration of the DM-MD6X4/DM-MD6X6 can be performed from the front panel when the device is in *Installer* mode. Status information is also provided.

To access *Installer* mode:

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)

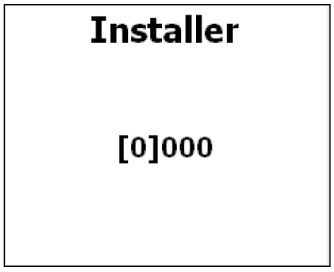
   

   NOTE: After 30 seconds of inactivity, the DM-MD6X4/DM-MD6X6 times out and returns to the home screen while also dimming the LCD.

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:

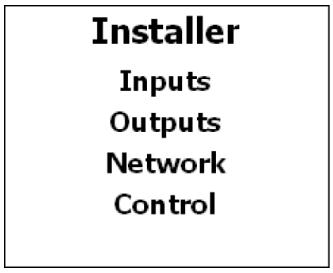
   - If the digit ranges from 1-6, press the appropriate **INPUT/OUTPUT** button that corresponds to the digit to be entered. After a digit is entered, brackets move to the next digit to be entered.
   - If the digit is 0 or ranges from 7-9, press the Up/Down navigation button as necessary until the desired 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/Right navigation button can be used to navigate to a digit in the password.

After the fourth digit is entered, the *Installer* menu 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 DM-MD6X4/DM-MD6X6 inputs and provides status information about the inputs.
- *Outputs:* Configures DM-MD6X4/DM-MD6X6 outputs and provides status information about the outputs.
- *Network:* Configures Ethernet settings and provides network status information.
- *Control:* Configures various front panel controls, *Installer* password, restoration of factory-default settings, and provides firmware version information.

Inputs

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

To configure an input or to view information about the input:

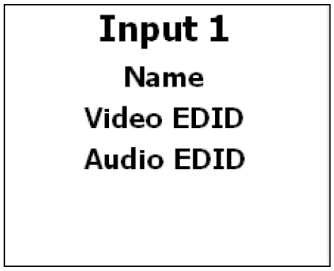
1. Access the *Installer* menu (refer to "Accessing *Installer* Mode" on page 21).

   NOTE: If the DM-MD6X4/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)

   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 default 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. Do 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.

        The selected name 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

For each output, a name can be configured. 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 (for example, a display).

To configure an output or to view information about the output:

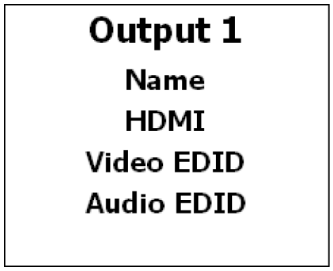
1. Access the *Installer* menu (refer to "Accessing *Installer* Mode" on page 21).

   NOTE: If the DM-MD6X4/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)

   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 default 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. Do 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 firmware version and 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

Configuration of network parameters allows Ethernet settings to be configured for the DM-MD6X4/DM-MD6X6. Network parameters include the following:

- Static IP address (applicable only if DHCP [Dynamic Host Configuration Protocol] is disabled)
- Subnet mask (applicable only if DHCP is disabled)
- Default router IP address (applicable only if DHCP is disabled)
- DHCP (enabling/disabling)

  NOTE: DHCP is enabled by default.

- Control system parameters (IP ID of the DM-MD6X4/DM-MD6X6 and IP address of the control system)

In addition, network status can also be viewed.

To view network status or to configure network parameters:

NOTE: Changes to network parameter settings take effect when the DM-MD6X4/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.

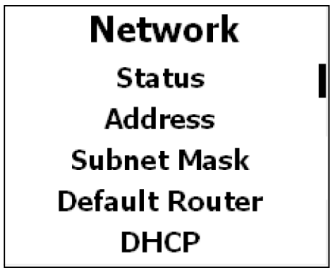
1. Access the *Installer* menu (refer to "Accessing *Installer* Mode" on page 21).

   NOTE: If the DM-MD6X4/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

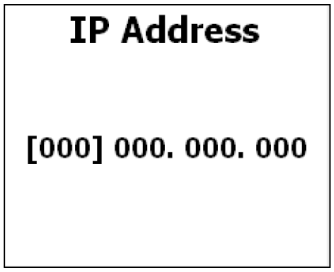


3. Do any of the following as required using the navigation pad:

   - View 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.
   - (Applicable only if *DHCP* is disabled) Configure the following parameters. To do so, navigate to the parameter and then press the Select button.

     ⇒ *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*

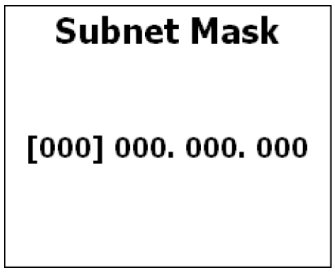
     Enter a static IP address using the navigation pad. For each octet in the IP address, press the Up/Down navigation button until the desired number appears, and then press the Select button.

     NOTE: If necessary, the Left/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.

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

Subnet Mask Configuration Screen



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/Down navigation button until the desired number appears, and then press the Select button.

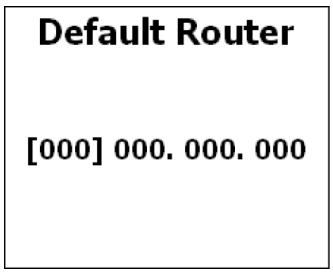
NOTE: A class C network allows up to 255 devices to communicate without a router and has a subnet mask of 255.255.255.0. A class B network allows up to 65,535 devices to communicate without a router and has a subnet mask of 255.255.0.0.

NOTE: If necessary, the Left/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.

⇒ *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



As shown above, 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/Down navigation button until the desired number appears, and then press the Select button.

NOTE: If necessary, the Left/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/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* (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:

  ⇒ *IP ID:* Accesses the *IP ID* configuration screen, which allows the IP ID of the DM-MD6X4/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/DM-MD6X6.

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

  The screen returns to the *Control System* submenu.

⇒ *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/Down navigation button until the desired number appears, and then press the Select button.

NOTE: If necessary, the Left/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, which allows the brightness of the front panel LCD screen to be adjusted
- Password, which allows the *Installer* password to be changed or disabled
- Front panel lock, which prevents/allows changes to signal routings
- Restore defaults, which allows factory-default settings to be restored

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

To configure control parameters or to view firmware version information:

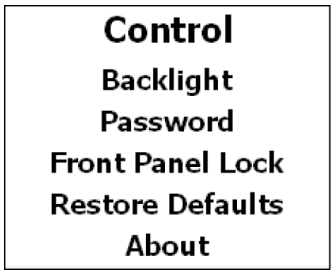
1. Access the *Installer* menu (refer to "Accessing *Installer* Mode" on page 21).

   NOTE: If the DM-MD6X4/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



3. Do 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* (default setting) or *Dim*.

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

        The screen returns to the *Contro*l 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:

        ⇒ If the digit ranges from 1-6, press the corresponding **INPUT/OUTPUT** button.

        ⇒ If the digit is 0 or ranges from 7-9, press the Up/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/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/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* (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 factory-default settings of the DM-MD6X4/DM-MD6X6 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/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: You can also return to the home screen by pressing the **BACK** button as necessary or allowing the DM-MD6X4/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 Web site. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at www.crestron.com/support. First-time users will need to establish a user account.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron Web site (www.crestron.com/software).

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

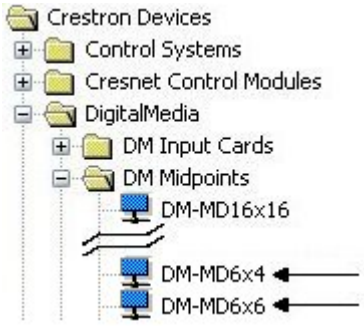
SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers": Configuration and Program.

Configuration Manager

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

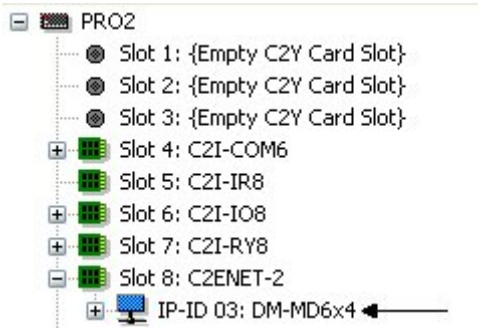
1. To incorporate a DM-MD6X4/DM-MD6X6 into the system, drag the desired device from the DigitalMedia | DM Midpoints folder of the *Device Library* and drop it in the *System Views*.

   Locating DM-MD6X4/DM-MD6X6 in the Device Library

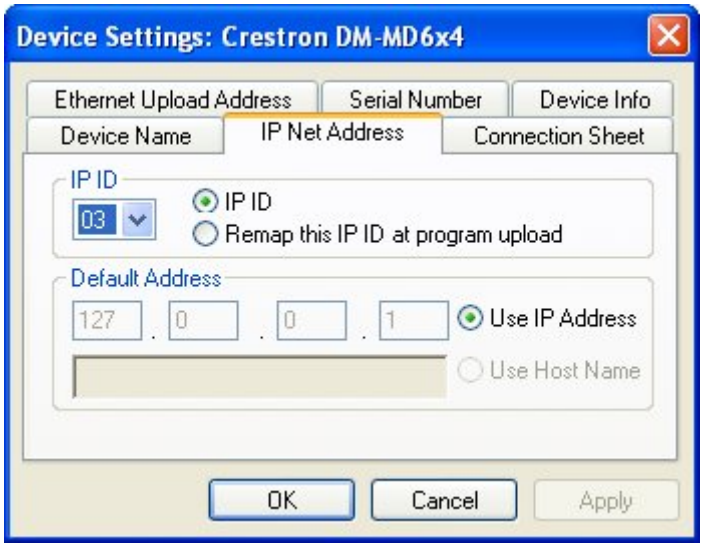
   The system tree of the control system displays the device in the appropriate slot with a default IP ID as shown in the following illustration.

C2ENET-2 Device, Slot 8 (DM-MD6X4 Shown)



2. If additional DM-MD6X4/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 16.

IP Table Options

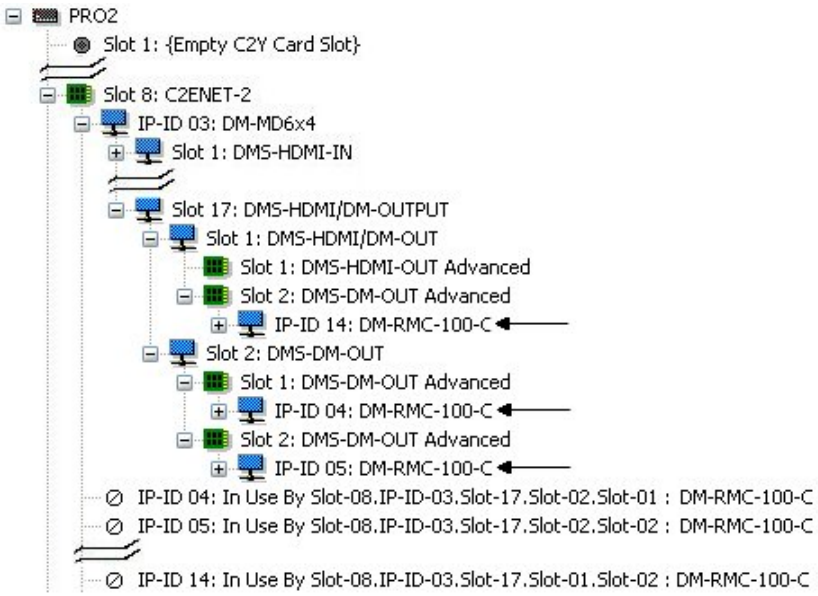
DigitalMedia 8G+ devices that receive their IP address configuration via the DM-MD6X4/DM-MD6X6 (for example, the DM-RMC-100-C, sold separately) can also receive their IP table configuration from the DM-MD6X4/ DM-MD6X6 or have their IP table manually configured. Depending on the application, add DM 8G+ devices as described below:

- Scenario 1: Control Center with Control System, DM-MD6X4/ 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-100-C Shown)

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

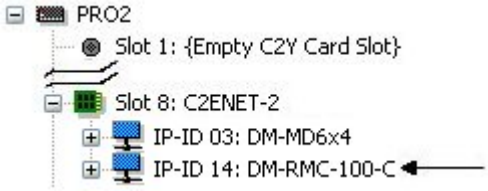
Automatic IP Configuration of DM-MD6X4/DM-MD6X6 (DM-MD6X4 Shown) with DM-RMC-100-C Devices Placed on DMS-DM-OUT Outputs



- Scenario 2: Control Center with Control System, DM-MD6X4/ 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-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-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 SIMPL Windows help file (**F1**).

Uploading and Upgrading

Crestron recommends using the latest programming software and 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.

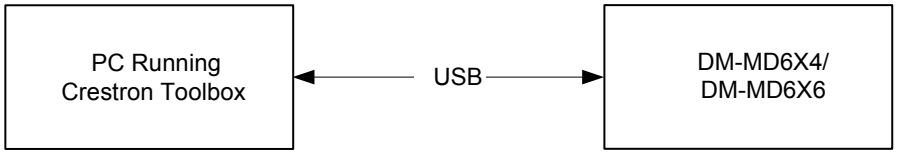
Establishing Communication

Use Crestron Toolbox for communicating with the DM-MD6X4/DM-MD6X6; refer to the 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



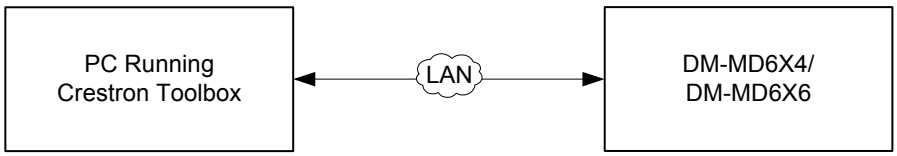
The **COMPUTER** port on the DM-MD6X4/DM-MD6X6 connects to the USB port on the PC via the included Type A to Type B USB cable:

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/DM-MD6X6 "System Info" window (click the icon); communications are confirmed when the device information is displayed.

TCP/IP

NOTE: Required for operation with a Crestron control system.

TCP/IP Communication



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

2. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-MD6X4/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/DM-MD6X6 using the *TCP* connection type, and enter the IP address of the DM-MD6X4/DM-MD6X6.
4. Display the DM-MD6X4/DM-MD6X6 "System Info" window (click the  icon); communications are confirmed when the device information is displayed.
5. (Optional) If additional changes to TCP/IP settings are desired, do the following:
   a. Assign an IP address, IP mask and default router for the DM-MD6X4/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/DM-MD6X6 so that it uses the IP address assigned in step 5a.
   d. Display the DM-MD6X4/DM-MD6X6 "System Info" window (click the  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 Web site as new features are developed after product releases. One has the option to upload programs via the programming software or to upload and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the SIMPL Windows help file or the 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 Web site 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/DM-MD6X6 firmware using Crestron Toolbox:

1. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-MD6X4/DM-MD6X6.
2. Add the IP address found in step 1 to the Address Book in Toolbox.
3. Download the appropriate .puf file from the Crestron Web site to your 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/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/DM-MD6X6 firmware is automatically selected. In addition, the checkbox of any receiver/room controller connected to the DM-MD6X4/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/DM-MD6X6 vary depending on whether it is connected via USB or Ethernet.

USB Connections

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

Ethernet Connections

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

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

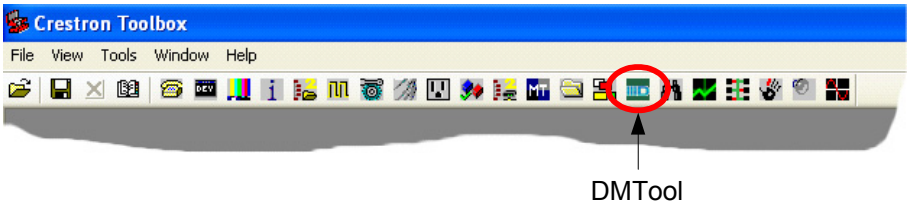
1. Select **Functions | IP Table Setup**.
2. Add, modify or delete entries in the IP table. The DM-MD6X4/DM-MD6X6 can have only one IP table entry.
3. A defined IP table can be saved to a file or sent to the device.

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

DMTool

In the Crestron Toolbox Address Book, select the DM-MD6X4/DM-MD6X6. Then use the DMTool to configure EDID, HDCP or to troubleshoot AV on the DM-MD6X4/DM-MD6X6. Refer to the help file for additional information.

DMTool



Operation

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

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

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)

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

   NOTE: By default, input LEDs on the DM-MD6X4/DM-MD6X6 are not lit. Output LEDs of unrouted outputs are lit.

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/DM-MD6X6 times out. **INPUT** LEDs that were lit become unlit, and **OUTPUT** LEDs that were lit for routed outputs also become unlit. In addition, the DM-MD6X4/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):

1. Ensure that the home screen is displayed on the front panel LCD screen. If it 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 action 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
Device does not function.	Device is not communicating with the network.	Use Crestron Toolbox to poll the network. Verify network connection to the device.
	Electrostatic discharge due to improper grounding.	Check that all ground connections have been made properly.
Incorrect audio or video displayed.	Audio is routed separately from video.	Reroute audio together with video.
Distorted audio or video.	Source does not match capabilities of destination.	Use Crestron Toolbox to manage EDID capabilities of devices in the system.
No video displayed, but audio is heard.	Possible HDCP error.	Check control system error log or DM-MD6X4/DM-MD6X6 for HDCP errors.
HDMI input LED does not illuminate.	HDMI input is not selected.	Verify that HDMI is selected.
HDMI output LED does not illuminate.	Device is not receiving video signal.	Ensure that proper video signal is routed to device.
	Device connected to the **HDMI 1** output port has not sent the hotplug signal.	Power on device connected to the **HDMI 1** output port and ensure that it is switched to the correct input.
Loss of video.	Various causes.	Use DMTool to determine cause and 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.

List of Related Reference Documents

DOCUMENT TITLE
Crestron DigitalMedia Design Guide (www.crestron.com/dmresources)
Crestron DigitalMedia Infrastructure Guide (www.crestron.com/dmresources)
Crestron e-Control Reference Guide (www.crestron.com/manuals)
Crestron IP Considerations Guide for the IT Professional (www.crestron.com/dmresources)

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 Web site (www.crestron.com) for a listing of Crestron worldwide offices.

You can also log onto the online help section of the Crestron Web site (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/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 Web site periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touch screen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty if the product has been used in any application other than that for which it was intended or if it has been subjected to misuse, accidental damage, modification or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced or removed.

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supersedes all previous warranties.

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Operations & Installation Guide – DOC. 7196A
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