Crestron **DM-TX-200**
DigitalMedia™ CAT Transmitter 200
Operations & Installation Guide

CRESTRON®

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

CRESTRON.

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Regulatory Compliance

As of the date of manufacture, the DM-TX-200 has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

CE

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 B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

Industry Canada (IC) Compliance Statement

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

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

Contents

DigitalMedia™ CAT Transmitter 200: DM-TX-200

Introduction

The DM-TX-200 is a DigitalMedia™ (DM) CAT transmitter and switcher that provides a convenient interface for computers and other high-resolution AV sources as part of a complete DigitalMedia system. With both HDMI™ and RGB inputs, the DM-TX-200 is ideal for use at a lectern, conference table, wall plate or any remote location in a boardroom, classroom or residence to provide an input for a laptop computer or similar source. It connects to any DM switcher or DM-RMC-100 Room Controller (both sold separately) via a single DM cable.

Features and Functions

- DigitalMedia™ transmitter and multimedia interface
- Built-in 2x1 AV switcher
- DM CAT output supports up to 450 foot (137 meter) cable length[1]
- Compact surface mount design
- Fits in a Wiremold® 6000 Series Raceway
- Provides HDMI and RGB/component video inputs
- Supports DVI and DisplayPort Multimode sources[2]
- Includes mini-TRS stereo audio input
- Provides onboard auto-switching capability
- Includes USB HID keyboard/mouse port
- Affords single wire connection to a DM-RMC-100 or DM switcher (both sold separately)
- Detects and reports detailed video and audio input information
- Performs automatic AV signal format management via EDID
- Enables device control via CEC
- Easy setup and diagnostics tools via software
- Extends the life of analog based AV systems

1. For DigitalMedia CAT wiring, use DM-CBL DigitalMedia Cable. Up to two DM Repeaters (model DM-DR, sold separately), may be required. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines. It can be obtained from the Crestron website (www.crestron.com/manuals).

2. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI and CBL-DP-HD interface cables sold separately.

DigitalMedia™

As the leader in HDMI and control system technologies, Crestron® has developed DigitalMedia, the first complete HD AV distribution system that takes HDMI to a higher level and allows virtually any mix of AV sources to be distributed throughout the home, office, school or virtually any other facility.

DigitalMedia distributes uncompressed digital video and audio signals up to 450 feet (137 meters) using DM cable[1]. DigitalMedia thoughtfully manages all of the different signals and devices, matching each source's output to the capabilities of the selected display(s) without using scaling or compression. Every signal is preserved in its native video resolution and audio format, ensuring a pure, lossless signal path throughout.

Multimedia Computer /AV Interface

The DM-TX-200 provides simple switching between its two inputs. Its HDMI input supports HDMI and HDCP, handling WUXGA computer resolutions and 1080p60 HDTV with multi-channel lossless audio. The HDMI input can also handle DVI and DisplayPort Multimode signals using an appropriate adapter or dongle[2]. The RGB input handles all analog RGB signals up to WUXGA 1920 x 1200 pixels, as well as component video up to 1080p60[3]. A mini TRS stereo audio input is also provided to accept analog audio signals from an unbalanced line level or headphone output.

NOTE: HDMI requires an appropriate adapter to accommodate a DVI or DisplayPort Multimode signal. RGB connection requires an appropriate adapter to accommodate a YP_bP_r component video signal. Adapters not included.

Used with a single DM-RMC-100 Room Controller and optional Crestron Control System (both sold separately), the DM-TX-200 affords a very simple solution for extending a multimedia computer or AV signal to a single display up to 450 feet (137 meters) away[1]. As part of a larger system using a DM-MD series switcher (sold separately), multiple DM-TX-200s may be installed to enable distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

Keyboard/Mouse Extender

When connected to a DM-MD series switcher (sold separately), the DM-TX-200 functions as a keyboard/mouse extender, allowing a USB HID (Human Interface Device) compliant keyboard and/or mouse at the podium or conference table to control a computer or other host device located at the central equipment rack.

HID devices include mice, keyboards, trackballs and composite devices (e.g. combination keyboard/trackball devices). These devices do not require driver installation on most common operating systems (Windows XP/Vista and Mac OS).

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1. For DigitalMedia CAT wiring, use DM-CBL DigitalMedia Cable. Up to two DM Repeaters (model DM-DR, sold separately), may be required. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.
2. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI and CBL-DP-HD interface cables sold separately.
3. The RGB input can accept component, composite and S-video signals via direct interface to Crestron MPS Series products (sold separately) or through an appropriate adapter (not included). Input sync detection is not provided for composite or S-video signal types through the RGB connection.

There are four options for connecting USB devices to the **USB** port on the DM-TX-200:

1. One mouse

2. One keyboard

3. One mouse and one keyboard connected through a USB hub

4. One composite USB device

EDID Format Management

The DM-TX-200 allows for management of the EDID (Extended Display Identification Data) information that passes between the display devices and input sources in the system. Using Crestron Toolbox™ software, the format and resolution capabilities of each device can be assessed and managed through the DM-TX-200, ensuring reliable operation by instructing sources to output only the resolutions and formats that can be handled by the displays and system wiring.

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 its connection to the control system, the DM-TX-200 provides a gateway for controlling the connected source device right through the HDMI connection, potentially eliminating the need for any dedicated control wires or IR probes. Through proper CEC signal management, DigitalMedia allows you to take control of each device in the system as you like.

Compact and Versatile

The DM-TX-200 is designed to be placed on a shelf or mounted on a flat surface. It is compact enough to fit discreetly inside a presentation lectern or beneath a table and can even be concealed inside a divided Wiremold® 6000 Series Raceway. An array of indicators on the front of the DM-TX-200 provides for easy setup and troubleshooting, verifying the status of connections and signal activity at a glance. Advanced configuration is enabled through Crestron Toolbox software.

### A Digital Upgrade for Legacy Systems

The DM-TX-200 also affords a perfect signal converter for integrating DigitalMedia with analog-based systems like Crestron MPS, QuickMedia® and the CEN-RGBHV series (all sold separately). A simple HD15 VGA cable connected between the output of an MPS system and the input of the DM-TX-200 allows every RGB, component, S-video and composite video input on the MPS to be converted to DigitalMedia*. Analog audio is converted similarly through a simple unbalanced stereo audio cable. The DM-TX-200's HDMI input may also be used to expand the input capabilities of the MPS system to handle digital AV sources.

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*   The RGB input can accept component, composite and S-video signals via direct interface to Crestron MPS Series products (sold separately) or through an appropriate adapter (not included). Input sync detection is not provided for composite or S-video signal types through the RGB connection.

Applications

The following diagram shows a DM-TX-200 in a basic application.

DM-TX-200 in a Basic Application
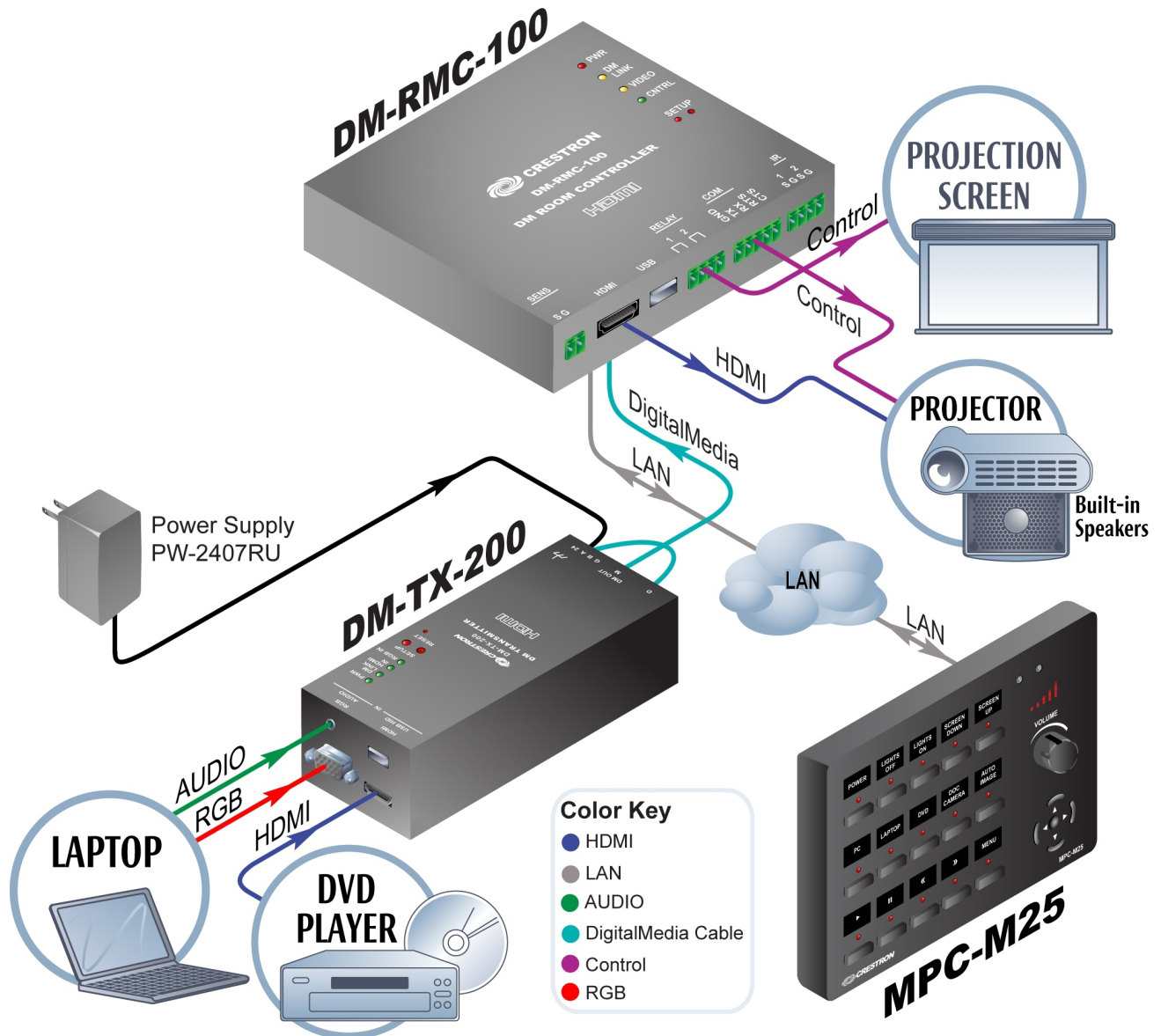
No **LAN** connection is required for the DM-TX-200 to transmit HDMI or USB in a point-to-point configuration. If you wish to use the control ports (IS, RS-232, Relay, Sense) from a control system, you can connect either **LAN** port (on the DM-RMC-100 or on the DM-TX-200) to the control system's network. Both devices will be connected because Ethernet is embedded inside DM. You may also use the other **LAN** connection to provide Ethernet connectivity to a remote device.

You only have to apply power to one (either the DM-RMC-100 or the DM-TX-200) and the other will receive it through the DMNet cable.

Specifications

Specifications for the DM-TX-200 are listed in the following table.

DM-TX-200 Specifications

SPECIFICATION	DETAILS
Video	
Switcher	2x1 combination digital/analog switch, Crestron QuickSwitch HD
Input Signal Types	HDMI, DVI[1], DisplayPort Multimode[1], RGB, component (YP_bP_r)[2], S-video (Y/C)[2], composite[2]
Output Signal Type	DM CAT (DigitalMedia over twisted pair copper wire)
Formats	HDMI, DVI v. 1.0, HDCP v.1.2 content protection support, RGBHV up to UXGA/WUXGA, HDTV up to 1080p60, NTSC or PAL
Input Resolutions	
HDMI & DVI 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

(Continued on following page)

DM-TX-200 Specifications (Continued)

SPECIFICATION	DETAILS
Video	
Input Resolutions (Continued)	
HDMI & DVI 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
RGB	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, 1024 x 768 @ 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, 1366 x 768 @ 60 Hz, 1400 x 1050 @ 60 Hz, 1440 x 900 @ 60 Hz, 1600 x 1200 @ 60 Hz, 1680 x 1050 @ 60 Hz, 1920 x 1080 @ 24 Hz (1080p24), 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
Component[2]	480i, 576i, 480p, 576p, 720p50, 720p60, 1080i25 (1125 lines), 1080i30, 1080p30, 1080p50 (1125 lines), 1080p60
Composite and S-video[2]	480i, 576
Output Resolutions	Matched to inputs
Analog to Digital Conversion	10-bit 165 MHz per each of three channels
Audio	
Switcher	2x1 combination digital/analog switch
Input Signal Types	HDMI, DisplayPort Multimode[1], analog stereo
Output Signal Type	DM CAT (DigitalMedia over twisted pair copper wire)
Formats, HDMI	Dolby Digital®, Dolby Digital EX, DTS®, DTS-ES, DTS 96/24 5.1, up to 8ch PCM
Formats, Analog	Stereo 2-channel
Analog to Digital Conversion	24-bit 48 kHz

(Continued on following page)

DM-TX-200 Specifications (Continued)

SPECIFICATION	DETAILS
Audio (Continued)	
Performance (Analog)	
Frequency Response	20 Hz to 20 kHz ±0.75 dB
S/N Ratio	>90 dB, 20 Hz to 20 kHz A-weighted
THD+N	<0.05% @ 1 kHz
Stereo Separation	>90 dB
Communications	
DigitalMedia	DM CAT, DMNet, HDCP management, EDID format management, CEC
USB	Supports USB HID class devices
Power Requirements	
DMNet Power Usage	12 Watts (0.5 Amps @ 24 Volts DC)
Minimum 2-Series Control System Update File[3, 4]	Version 4.001.1012 or later
Environmental	
Temperature	32º to 104º F (0º to 40º C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	41 BTU/Hr
Enclosure	
Chassis	Metal with black finish
Mounting	Freestanding, surface mountable (mounting bracket included); also fits in a divided Wiremold® 6000 Series Raceway
Dimensions	
Height	6.97 in (177 mm)
Width	2.76 in (70 mm) 3.95 in (100 mm) with mounting bracket
Depth	1.68 in (43 mm)
Weight	18 oz (493 g)
Available Accessories	
CBL-AUDIO	Crestron Certified Mini-TRS Stereo Audio Interface Cable
CBL-DP-HD	Crestron Certified DisplayPort to HDMI Interface Cable
CBL-HD	Crestron Certified HDMI Interface Cable
CBL-HD-DVI	Crestron Certified HDMI to DVI Interface Cable
CBL-VGA	Crestron Certified Computer-VGA Interface Cable
CBL-VGA-AUD	Crestron Certified Computer-VGA Interface Cable with Mini-TRS Audio
DM-CBL	DigitalMedia Cable
DM-CONN	DigitalMedia Cable Connector
DM-DR	DigitalMedia CAT Repeater

(Continued on following page)

DM-TX-200 Specifications (Continued)

SPECIFICATION	DETAILS
Available Accessories (Continued)	
MP-WP130	Media Presentation Wall Plate – DB15HD Computer VGA with Mini-TRS Stereo Audio, Bulkhead
MP-WP131	Media Presentation Wall Plate – DB15HD Computer VGA with Mini-TRS Stereo Audio, Breakout
MP-WP140	Media Presentation Wall Plate – DVI-I with Mini-TRS Stereo Audio
MP-WP150	Media Presentation Wall Plate – HDMI with Mini-TRS Stereo Audio
MP-WP152	Media Presentation Wall Plate - HDMI
MP-WP160	Media Presentation Wall Plate – DisplayPort with Mini-TRS Stereo Audio
MP-WP162	Media Presentation Wall Plate - DisplayPort
MP-WP185	Media Presentation Wall Plate – Crestron DigitalMedia CAT with DMNet

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

2. The RGB input can accept component, composite and S-video signals via direct interface to Crestron MPS Series products (sold separately) or through an appropriate adapter (not included). Input sync detection is not provided for composite or S-video signal types through the RGB connection.

3. The latest software versions can be obtained from the Crestron website. 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 website 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

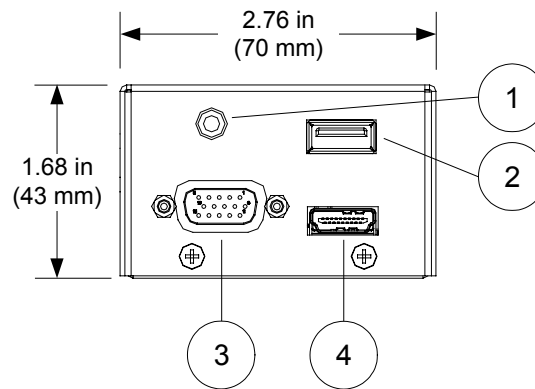This section provides information on the connections, controls and indicators available on your DM-TX-200.

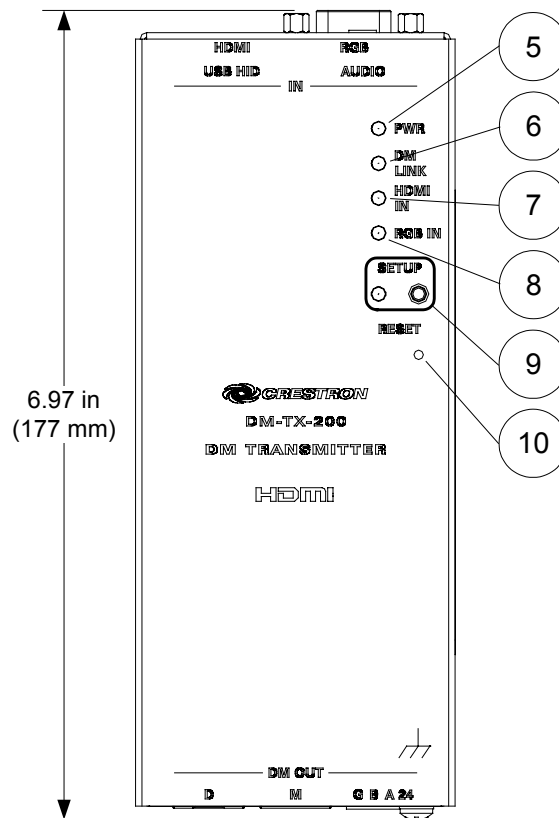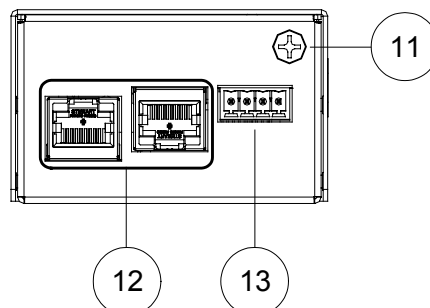*DM-TX-200 Physical View (Bottom Ports Shown)*

DM-TX-200 Physical View (Top Ports Shown)

DM-TX-200 Overall Dimensions (Top View)

2.76 in
(70 mm)

1.68 in
(43 mm)

① 1

② 2

③ 3

④ 4
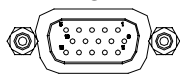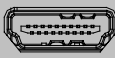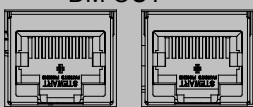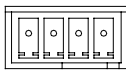
DM-TX-200 Overall Dimensions (Front View)

HDMI   RGB
USB HID   AUDIO
IN

○ PWR

○ DM
   LINK

○ HDMI
   IN

○ RGB IN

SETUP

RESET

CRESTRON
DM-TX-200
DM TRANSMITTER

HDMI

6.97 in
(177 mm)

⑤ 5

⑥ 6

⑦ 7

⑧ 8

⑨ 9

⑩ 10

DM OUT
D   M   G B A 24

DM-TX-200 Overall Dimensions (Bottom View)

⑪ 11

⑫ 12

⑬ 13

Connectors, Controls & Indicators
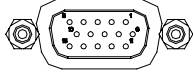
#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
1	AUDIO	(1) 3.5 mm TRS mini phone jack; Unbalanced stereo line level audio input; Input impedance: 10 kΩ; Input level: 2 V_{rms} maximum
2	USB HID	(1) USB Type A female; USB 1.1 host port for connection of a mouse, keyboard or other USB HID-compliant device
3	RGB	(1) DB15HD female, RGB (VGA) or component YP_bP_r) video input[2, 3] Formats: RGBHV, RGBS, RG_SB, YP_bP_r; Input level: 0.5 to 1.5 V_{p-p} with built-in DC restoration; Input impedance: 75 Ω; Sync input type: Autodetect RGBHV, RGBS, RG_SB, YP_bP_r; Sync input level: 3 to 5 V_{p-p}; Sync input impedance: 1 kΩ;
4	HDMI	(1) 19-pin Type A HDMI female; HDMI digital video/audio input; Supports DVI and DisplayPort Multimode[4]
5	PWR LED	(1) Green LED, indicates operating power supplied via DMNet
6	DM LINK LED	(1) Green LED, indicates connection to a downstream DM device
7	HDMI IN LED	(1) Green LED, indicates HDMI input is selected
8	RGB IN LED	(1) Green LED, indicates RGB input is selected
9	SETUP (LED and BUTTON)	(1) Red LED and (1) miniature pushbutton for Ethernet auto-discovery and default IP address
10	RESET BUTTON	(1) Miniature recessed pushbutton for hardware reset
11	Ground	(1) 6-32 screw, chassis ground lug
12	DM OUT[5, 6]	(1) DM CAT output composed of (2) 8-pin RJ-45 female, shielded; Connects to DM CAT input of a DM switcher, receiver/room controller or other DM device via DM-CBL[7].
13	G B A 24[8, 9]	(1) 4-pin 3.5 mm detachable terminal block, DMNet port; Connects to DMNet port of a DM switcher, receiver/room controller or other DM device via DM-CBL[7].

1. An interface connector for the **G B A 24** port is provided with the unit.
2. The RGB input can accept component, composite and S-video signals via direct interface to Crestron MPS Series products (sold separately) or through an appropriate adapter (not included). Input sync detection is not provided for composite or S-video signal types through the RGB connection.

3. Refer to the following table for the **RGB** connector pinouts.

RGB Port

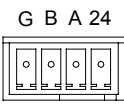| PIN #	RGB	YP$_b$P$_r$	S-VIDEO	COMPOSITE
1	R	P$_r$	C	
2	G	Y	Y	
3	B	P$_b$		Comp
13	H			
14	V			

4. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI and CBL-DP-HD interface cables sold separately.

5. 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.

6. The **DM OUT** port consists of two separate RJ-45 connectors labeled **D** and **M**. The **D** port carries HDMI signal. The **M** port carries data. Refer to the following table for the connector pinouts.

D and M Port

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

7. For DigitalMedia CAT wiring, use DM-CBL DigitalMedia Cable. Up to two DM Repeaters (model DM-DR, sold separately), may be required. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.

8. DMNet wiring is not compatible with Cresnet wiring. DMNet wiring cannot be daisy chained.

9. Refer to the following table for the **G B A 24** connector pinouts.

G B A 24 Port

G B A 24

PIN #	SIGNAL	Description	Wire Color
G	Ground	DC Ground	Black
B	DMNet-	DMNet	Grey
A	DMNet+	DMNet	Orange
24	24V DC	DC Power	Red

Setup

Network Wiring

When wiring the DM network, consider the following:

NOTE: DMNet wiring and Cresnet® wiring are not compatible.

- Use Crestron Certified Wire.

- Use Crestron power supplies for Crestron equipment.

- Provide sufficient power to the system.

- For DigitalMedia CAT wiring, use DM-CBL DigitalMedia Cable. Up to two DM Repeaters (model DM-DR, sold separately) may be required. Refer to the latest revision of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.

    CAUTION: Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system (www.crestron.com/calculators).

For more details, refer to "Check Network Wiring" which starts on page 22.

Identity Code

NOTE: In the SIMPL™ Windows program, when the DM-TX-200 is dropped onto an input card of a DM switcher, its IP ID is assigned automatically and does not require additional programming or configuration. Use the information below when the DM-TX-200 is dropped directly into an Ethernet slot on the control system in SIMPL Windows, without a DM switcher.

The IP ID is set within the DM-TX-200's table using Crestron Toolbox. For information on setting an IP table, refer to the Crestron Toolbox help file. The IP IDs of multiple DM-TX-200 devices 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

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

The following tools and accessories are required for mounting a DM-TX-200 to a surface:

- Phillips screwdriver (not supplied)
- Metal mounting plate (included)
- Two #04-40 x 3/16" pan head Phillips screws (included)

Use the following procedure to mount the DM-TX-200 to a surface:

1. Attach the included metal mounting plate (2023867) to the rear of the unit using the two included #04-40 x 3/16" Phillips screws 2007145), as shown in the following illustration.

Attaching the Mounting Plate to the DM-TX-200

Mounting Plate (2023867)

Screws (2) #04-40 x 3/16" (2007145)
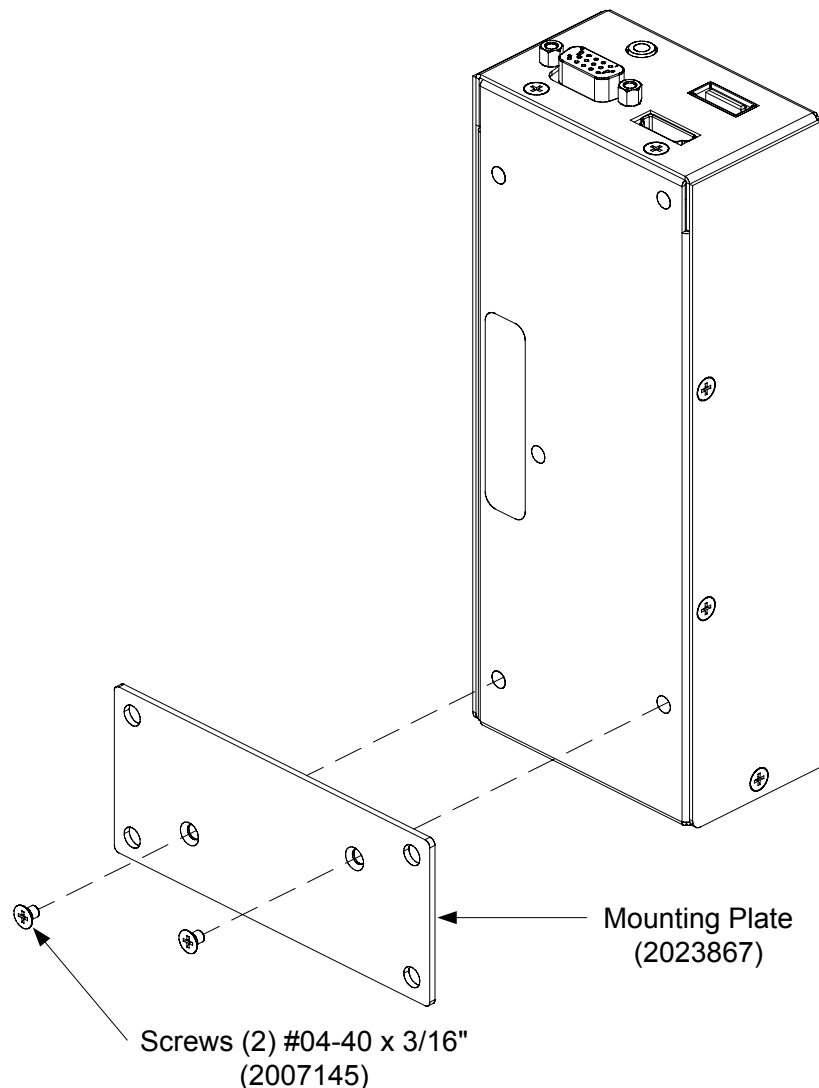
2. Attach the DM-TX-200 to the selected surface using four screws (not supplied) through the holes in the mounting plate.

Hardware Hookup

Make the necessary connections as called out in the illustration that follows this paragraph. Refer to "Network Wiring" on page 13 before attaching the 4-position terminal block connector. Apply power after all connections have been made.

When making connections to the DM-TX-200, note the following:

- Use Crestron power supplies for Crestron equipment.

- The included cable cannot be extended.

Hardware Connections for the DM-TX-200 (Top View)   *Hardware Connections for the DM-TX-200 (Bottom View)*

AUDIO: Unbalanced Stereo Line Level Input	USB HID: From Mouse/Keyboard or Game Controller Input

G B A 24: To DMNet Port of Switcher, Receiver or Other DM Device	Ground

RGB: RGB or Component Video Input	HDMI: Digital Video/ Audio Input

DM OUT: To DM Switcher, Revceiver or Other DM Device

NOTE: Ensure 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.
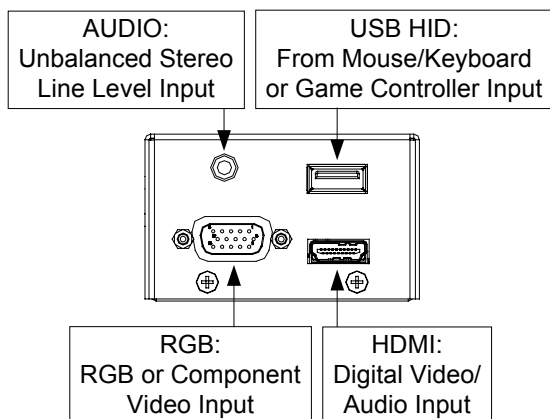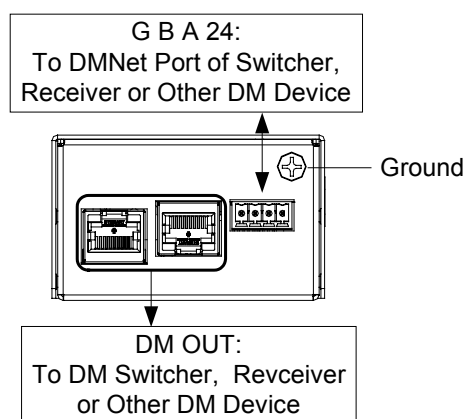
NOTE: For optimum performance, Crestron strongly recommends using DM-CBL DigitalMedia cable, available from Crestron.

NOTE: Minimum recommended length for DM-CBL DigitalMedia cable is 15 feet (~4.6 meters).

NOTE: When used without a DM switcher, the DM-TX-200 can be powered by a PW-2407-RU or any Crestron 24 Volt power supply. Power supply not included.

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 view questions you have submitted to Crestron's True Blue Support, log in at http://support.crestron.com. 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 website.

Crestron has developed an assortment of Windows®-based software tools to develop a controlled DigitalMedia system. For the minimum recommended software versions, visit the Version Tracker page of the Crestron website (www.crestron.com/versiontracker).

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 Manager

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

In the example shown on the following page, the DM-TX-200 is being used in a DigitalMedia system with a DM-MD8X8 Switcher, equipped with a DMC-CAT input card. For details, refer to the latest version of the DigitalMedia Switchers Operations Guide (Doc. 6755).

1. To incorporate the DM-TX-200 into the system, drag the DM-TX-200 from the DigitalMedia | DM Transmitters folder of the *Device Library* and drop it in the *System Views.*

Locating the DM-TX-200 in the Device Library
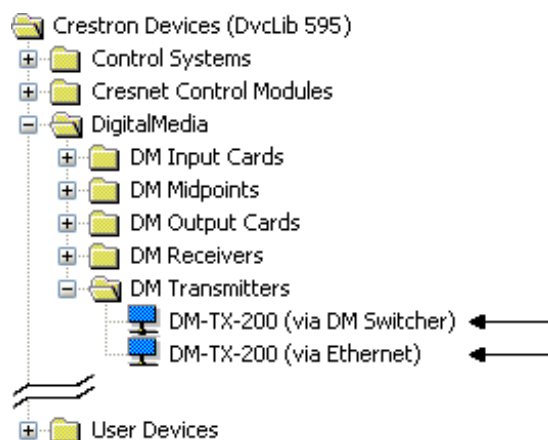
2. The system tree of the control system displays the device in the appropriate slot with an IP ID as shown in the following illustration.

C2Net Device, Slot 8 (Using Input Card in DM Switcher)

```
□ ▥ PRO2
    ⦿ Slot 1: {Empty C2Y Card Slot}
    ⦿ Slot 2: {Empty C2Y Card Slot}
    ⦿ Slot 3: {Empty C2Y Card Slot}
    ⊞ ▤ Slot 4: C2I-COM6
    ⊞ ▤ Slot 5: C2I-IR8
    ⊞ ▤ Slot 6: C2I-IO8
    ⊞ ▤ Slot 7: C2I-RY8
    □ ▤ Slot 8: C2ENET-2
        □ ▦ IP-ID 03: DM-MD8x8
            □ ▦ Slot 1: DMC-CAT
                □ ▤ Slot 1: DMC-CAT Advanced
                    ⊞ ▦ IP-ID 14: DM-TX-200 (via DM Switcher) ◄──────
            ⦿ IP-ID FE: {EMPTY}
    ⊞ ▤ Slot 9: C2Net-Device
    ▤ Slot 10: C2I-PRO2-LCDPANEL
```

NOTE: Alternatively, the DM-TX-200 can be dragged directly to a card such as the C2ENET-2, in the Ethernet slot of the control system, when it is to be used without a DM switcher.

C2Net Device, Slot 8 (Using Ethernet Slot on Control System)

```
□ ▥ PRO2
    ⦿ Slot 1: {Empty C2Y Card Slot}
    ⦿ Slot 2: {Empty C2Y Card Slot}
    ⦿ Slot 3: {Empty C2Y Card Slot}
    ⊞ ▤ Slot 4: C2I-COM6
    ⊞ ▤ Slot 5: C2I-IR8
    ⊞ ▤ Slot 6: C2I-IO8
    ⊞ ▤ Slot 7: C2I-RY8
    □ ▤ Slot 8: C2ENET-2
        ⦿ IP-ID 03: {EMPTY}
        ⦿ IP-ID 04: {EMPTY}
        ⊞ ▦ IP-ID 14: DM-TX-200 (via Ethernet) ◄──────
        ⦿ IP-ID FE: {EMPTY}
    ⊞ ▤ Slot 9: C2Net-Device
    ▤ Slot 10: C2I-PRO2-LCDPANEL
```

3. Additional DM-TX-200 devices are assigned different IP ID numbers as they are added.

4. If necessary, double click a device to open the "Device Settings" window and change the IP ID, as shown in the following figure.

"Device Settings: Crestron DM-TX-200" Window

5. The ID code specified in the SIMPL Windows program must match the IP ID of each unit. Refer to "Identity Code" on page 13

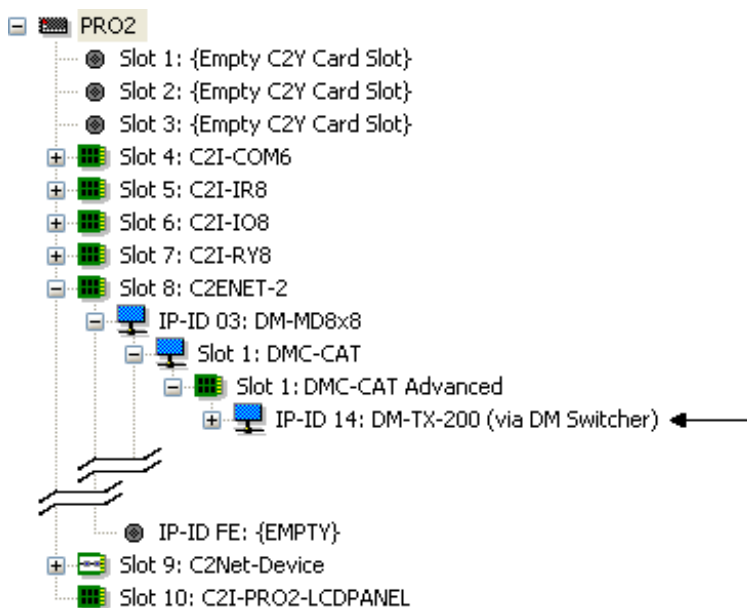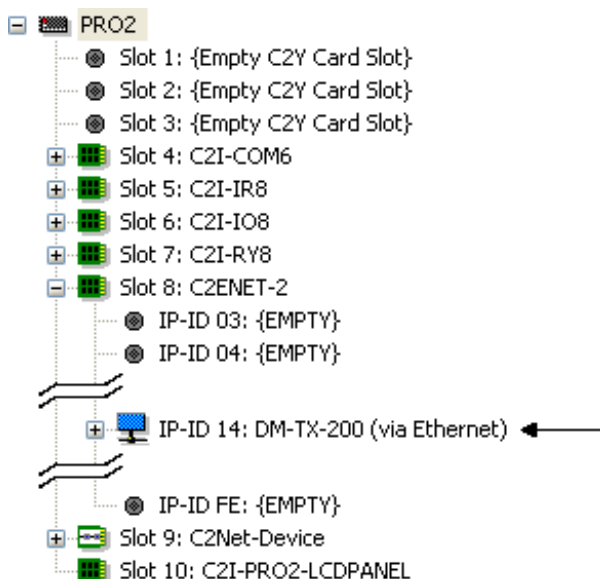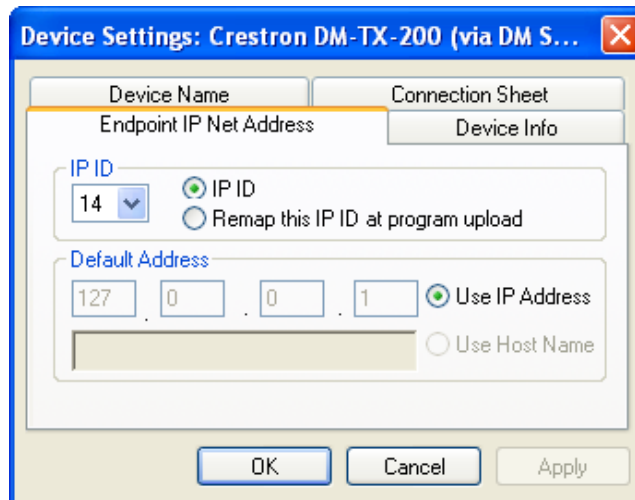*Program Manager*

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 on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (**F1**).

Example Program

An example program for the DM-TX-200 is available from the Crestron website (www.crestron.com/exampleprograms).


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 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-TX-200; refer to the Crestron Toolbox help file for details. There is a single method of communication: indirect communication. This can be accomplished by using the DM-TX-200 with a DM switcher (sold separately) or by using the DM-TX-200 in a standalone setup with a DM-RMC-100 (sold separately).

Via a DM Switcher

Indirect Communication via a DM Switcher
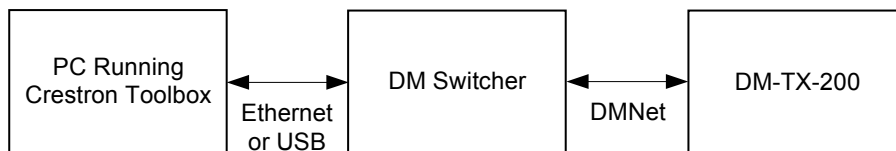
DM-TX-200 connects to DigitalMedia switcher via DMNet.

NOTE: In the SIMPL™ Windows program, when the DM-TX-200 is dropped onto an input card of a DM switcher, its IP ID is assigned automatically and does not require additional programming or configuration. Use the information below when the DM-TX-200 is dropped directly into an Ethernet slot on the control system in SIMPL Windows, without a DM switcher.

Via a DM-RMC-100

Indirect Communication via a DM-RMC-100
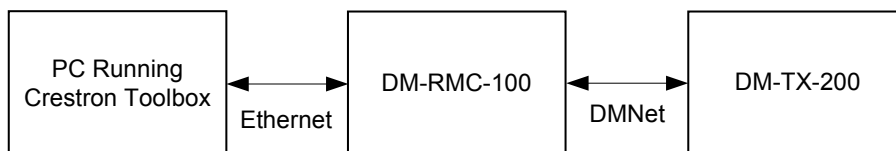
The DM-TX-200 connects to PC via Ethernet:

1. Confirm Ethernet connection between DM-RMC-100 and PC. If connecting through a hub or router, use CAT5 straight through cables with 8-pin RJ-45 connectors. Alternatively, use a CAT5 crossover cable to connect the two **LAN** ports directly without using a hub or router.

2. By default, DHCP is enabled. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-TX-200. To change the IP

configuration, from Crestron Toolbox, display the "System Info" window (click the icon) and select the DM-TX-200 entry from the Address Book. Select **Functions | Ethernet Addressing** and enter the new IP address, IP mask and default router of the DM-TX-200.

> **NOTE:** If the DM-TX-200 is in a non-DHCP environment, a default IP address (192.168.1.232) can be assigned by holding down its **SETUP** button while applying power. This IP address will overwrite any previous settings and will remain until it is changed.

3. Use the Address Book in Crestron Toolbox to create an entry for the DM-TX-200 with the DM-TX-200's TCP/IP communication parameters.

4. Display the "System Info" window (click the icon) and select the DM-TX-200 entry from the Address Book.

Firmware

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. For details on upgrading, refer to the Crestron Toolbox help file.

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.)

To upgrade DM-TX-200 firmware:

1. If the DM-TX-200 is being used with a DM switcher, use the Device Discovery Tool in Crestron Toolbox to find the switcher's IP address. If the DM-TX-200 is being used standalone (with a DM-RMC-100) use the Device Discovery Tool to find the DM-TX-200's IP address. Add this IP address (either the switcher's or the DM-TX-200's, depending on how your unit is connected) to the Address Book in Toolbox.

> **NOTE:** The .puf file for upgrading firmware can be pointed to the IP address of the DM switcher or to the IP address of the DM device (DM-TX-200). When it is pointed to the DM switcher, all DM devices connected to the switcher, including the DM-TX-200, will be upgraded (except for fiber devices). When it is pointed to a DM-TX-200 (in a standalone setup), only the devices connected to the DM-TX-200 will be upgraded (including a DM-DR or DM-RMC-100).

2. Download the appropriate .puf file from the Crestron website.

3. Double-click the .puf file. The Toolbox Address Book will open.

4. From the list in the Address Book, select the DM switcher (if the DM-TX-200 is being used with a switcher) or select the DM-TX-200 (if it is being used with a DM-RMC-100) and click **OK**.

5. From the DM device list, select the item(s) to upgrade using the checkboxes (if they have not already been selected automatically).

6. Click **Update**.

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

IP Configuration

For Ethernet connections, display the "System Info window (click the ▮i▮ icon) and select the **Functions** menu to display actions that can be performed on the DM-TX-200.

When using the DM-TX-200 with a DM-RMC-100 (i.e. without a DM switcher), be sure to use Crestron Toolbox to create the DM-TX-200 IP table.

1. Use the Device Discovery Tool to find the IP address of the DM-TX-200. Then, in the Toolbox, display the "System Info" window and select the DM-TX-200 entry from the Address Book.

2. Select **Functions | IP Table Setup**.

3. Add, modify or delete entries in the IP table. The DM-TX-200 can have only one IP table entry.

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

DM Tool

In the Crestron Toolbox Address Book, select the DM-TX-200. Then use the DM Tool to configure EDID, HDCP or to troubleshoot AV on the DM-TX-200. Refer to the help file for additional information.

DM Tool

DM Tool
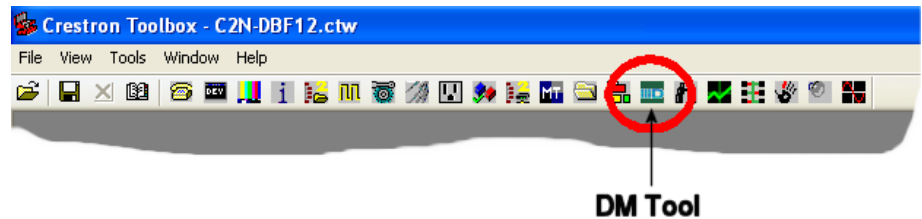
Problem Solving

Troubleshooting

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

DM-TX-200 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.
	Device is not receiving power from a Crestron power source.	Use the provided Crestron power source. Verify connections.
	Device is not receiving sufficient power.	Use the DMNet Power Calculator to help calculate how much power is needed for the system.
PWR LED does not illuminate.	Device is not receiving power.	Verify **PWR** connections are properly attached.
DM LINK LED does not illuminate.	Device is not transmitting DMNet signal.	Verify **DM OUT** connections are properly attached.
Loss of functionality due to electrostatic discharge.	Improper grounding.	Check that all ground connections have been made properly.

Check Network Wiring

Use the Right Wire

In order to ensure optimum performance over the full range of your installation topology, Crestron Certified Wire and only Crestron Certified Wire may be used. Failure to do so may incur additional charges if support is required to identify performance deficiencies because of using improper wire.

Calculate Power

CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. The **EIG** connector on the DM switcher is used to bring in external power. Additional power is rarely required as switchers provide enough power for their maximum configuration of room controllers and repeaters. Please use the DMNet Power Calculator to help calculate how much power is needed for the system (www.crestron.com/calculators).

Refer to the following for maximum DM cable lengths.

Maximum DM Cable Length

Cable Type:	DM-CBL DigitalMedia Cable	
Resolution:	Maximum length without, between, before or after repeaters	Maximum total length using up to 2 repeaters
720p, 1080i, 1080p24	200 ft (60 m)	450 ft (137 m)
1024x768 @75 Hz	200 ft (60 m)	450 ft (137 m)
1080p60	150 ft (45 m)	450 ft (137 m)
1280x1024 @75 Hz	150 ft (45 m)	450 ft (137 m)
1920x1200 @60 Hz	150 ft (45 m)	450 ft (137 m)
1600x1200 @60 Hz	125 ft (38 m)	375 ft (114 m)
1080p60 Deep Color	Not supported	

NOTE: All Crestron certified DMNet wiring must consist of two twisted pairs. One twisted pair is the +24V conductor and the GND conductor and the other twisted pair is the A conductor and the B conductor.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
Crestron DigitalMedia Design Guide
DigitalMedia Switchers Operations Guide

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].

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-TX-200, 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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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

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