Crestron **DM-TX-100/-F**
DigitalMedia™
CAT & Fiber Transmitters 100

Operations 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-100 and DM-TX-100-F have been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

$\mathsf{C}\,\mathsf{E}$ ✔

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

Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

The DM-TX-100-F is a class 1M laser product. It complies with safety regulations of IEC-60825-1, FDA 21 CFR 1040.11 and FDA 21 CFR 1040.10.

⚠ LASER RADIATION

LASER RADIATION
DO NOT VIEW DIRECTLY
WITH OPTICAL INSTRUMENTS
CLASS 1M LASER PRODUCT

WARNING: Invisible laser radiation may be emitted from disconnected fibers or connectors. Do not stare into beams or view directly with optical instruments.

NOTE: Plug the included dust caps into the optical transceivers when the fiber optic cable is unplugged.

Contents

DigitalMedia™ CAT & Fiber Transmitters 100: DM-TX-100/-F

Introduction

The DM-TX-100 is a DigitalMedia™ CAT transmitter and the DM-TX-100-F is a DM Fiber transmitter. Part of the Crestron® DM® product line, they provide a single HDMI® input for a computer or high definition AV source. They are ideal for use at a lectern, conference table, wall plate or any remote location in a boardroom, classroom or residence to route an HDMI signal to a display or switcher many feet away.

For simplicity within this guide, the term "DM-TX-100/-F" is used except where noted.

Features and Functions

- DigitalMedia™ transmitter and HDMI interface
- DM CAT output (DM-TX-100 only) supports up to 450 foot (137 meter) cable length[1]
- DM Fiber output (DM-TX-100-F only) supports up to 1000 foot (300 meter) cable length[2]
- Compact surface mount design
- Provides HDMI digital video/audio input at any location
- Supports DVI and DisplayPort Multimode sources[3]
- Handles HD video with Deep Color and 3D
- Includes USB HID device port for connection to a computer

(Continued on following page)

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 is available from the Crestron Web site at www.crestron.com/digitalmedia.
2. For DigitalMedia fiber wiring, use CresFiber or other quality duplex multimode fiber optic cable. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.
3. HDMI requires an appropriate adapter or interface cable to accommodate a DVI or DisplayPort Multimode signal. CBL-HD-DVI and CPL-DP-HD interface cables sold separately.

Features and Functions

(Continued)

- Affords single wire connection to a DM-RMC-100 (DM-TX-100), DM-RMC-100-F (DM-TX-100-F) or DM-MD switcher (all sold separately)
- Detects and reports detailed video and audio input information[1]
- Performs automatic AV signal format management via EDID[1]
- Enables device control via CEC

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[2] for the DM-TX-100 and up to 1000 feet (300 meters) using multimode fiber optic cable[3] for the DM-TX-100-F. 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

Via its HDMI input, the DM-TX-100/-F supports HDMI with Deep Color and HDCP, handling WUXGA computer resolutions and 1080p60 HDTV with multi-channel HD lossless audio. The HDMI input can also handle DVI and DisplayPort Multimode signals using an appropriate adapter or dongle. Crestron offers a complete range of professional AV interface cables and wall plates to complement the DM-TX-100/-F for a total custom installation solution.

NOTE: 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.

Used with a single DM-RMC-100 Room Controller (for the DM-TX-100) or a DM-RMC-100-F (for the DM-TX-100-F) and optional Crestron Control System (all sold separately), the DM-TX-100/-F affords a very simple solution for extending a multimedia computer or AV signal to a single display up to 450 feet (137 meters) away[2] for the DM-TX-100 and up to 1000 feet (300 meters) away[3] for the DM-TX-100-F. As part of a larger system using a DM series switcher (sold separately), multiple DM-TX-100/-Fs may be installed to enable distribution of several sources at different locations to feed multiple displays throughout any room or larger facility.

1. DM-TX-100 only.
2. For DigitalMedia CAT wiring us DM-CBL. 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.
3. For DigitalMedia fiber wiring, use CresFiber or other quality duplex multimode fiber optic cable. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.

Keyboard/Mouse Extender

The DM-TX-100/-F also functions as a keyboard/mouse extender, allowing the computer or other USB HID (Human Interface Device) compliant host device connected to the DM-TX-100/-F to be controlled by a keyboard and mouse connected at the display location.

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).

EDID Format Management (DM-TX-100 only)

The DM-TX-100 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-100, ensuring reliable operation by instructing sources to output only the resolutions and formats that can be handled by the displays and system wiring.

Embedded Device Control

The primary objective of every Crestron system is to enable precisely the control desired for a seamless user experience. The DM-TX-100/-F includes built-in IR and Ethernet control ports to allow programmable control of the devices connected to it. The DM-TX-100/-F also provides an alternative to conventional control methods by harnessing the CEC (Consumer Electronics Control) signal embedded in HDMI. Through its connection to the control system, the DM-TX-100/-F 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.

Compact and Versatile

The DM-TX-100/-F is designed to be mounted on a flat surface or attached to a rack rail in the back of an equipment cabinet. It may also be used portably for connection to a DM wall plate input (MP-WP185 sold separately). It is compact enough to fit discreetly inside a presentation lectern or beneath a table. An array of indicators on the front of the DM-TX-100/-F 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.

Applications

The following diagrams show a DM-TX-100 and DM-TX-100-F in a basic application.

DM-TX-100 in a Basic Application
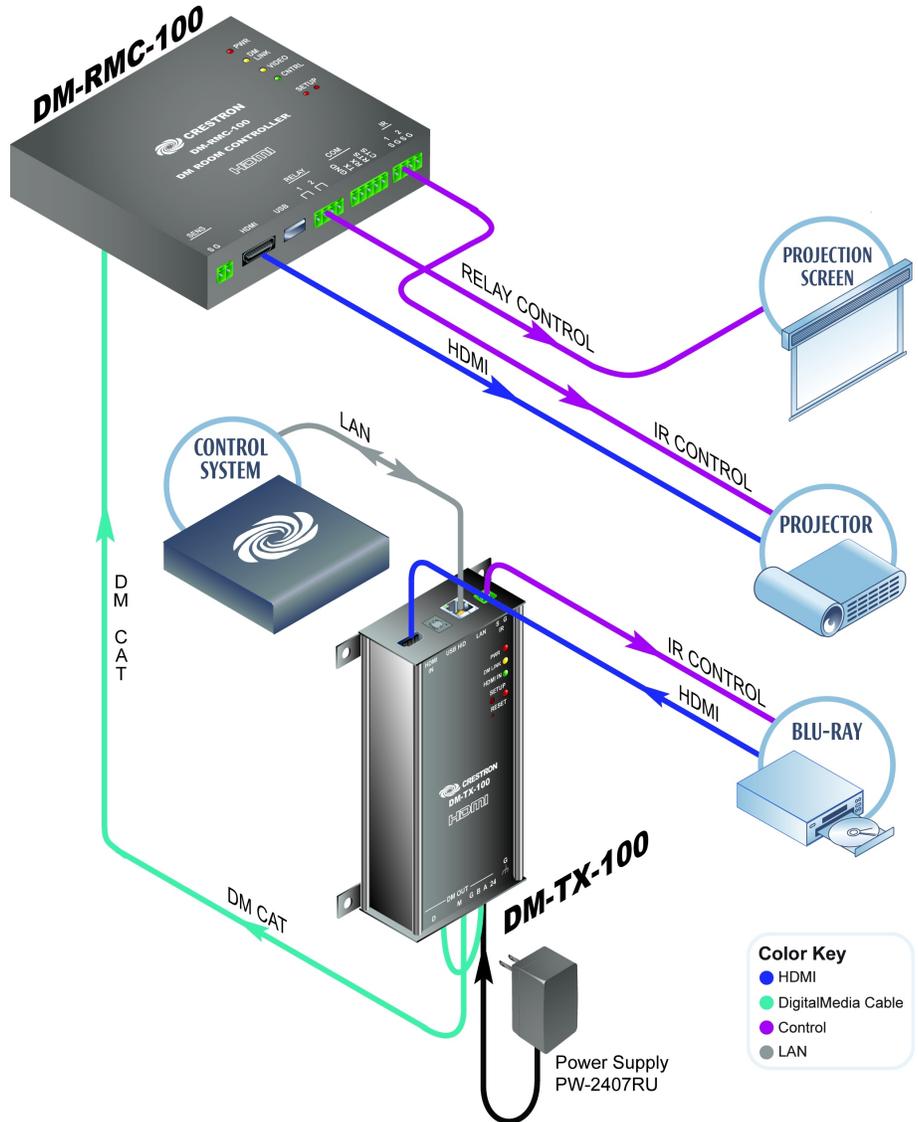
DM-TX-100-F in a Basic Application
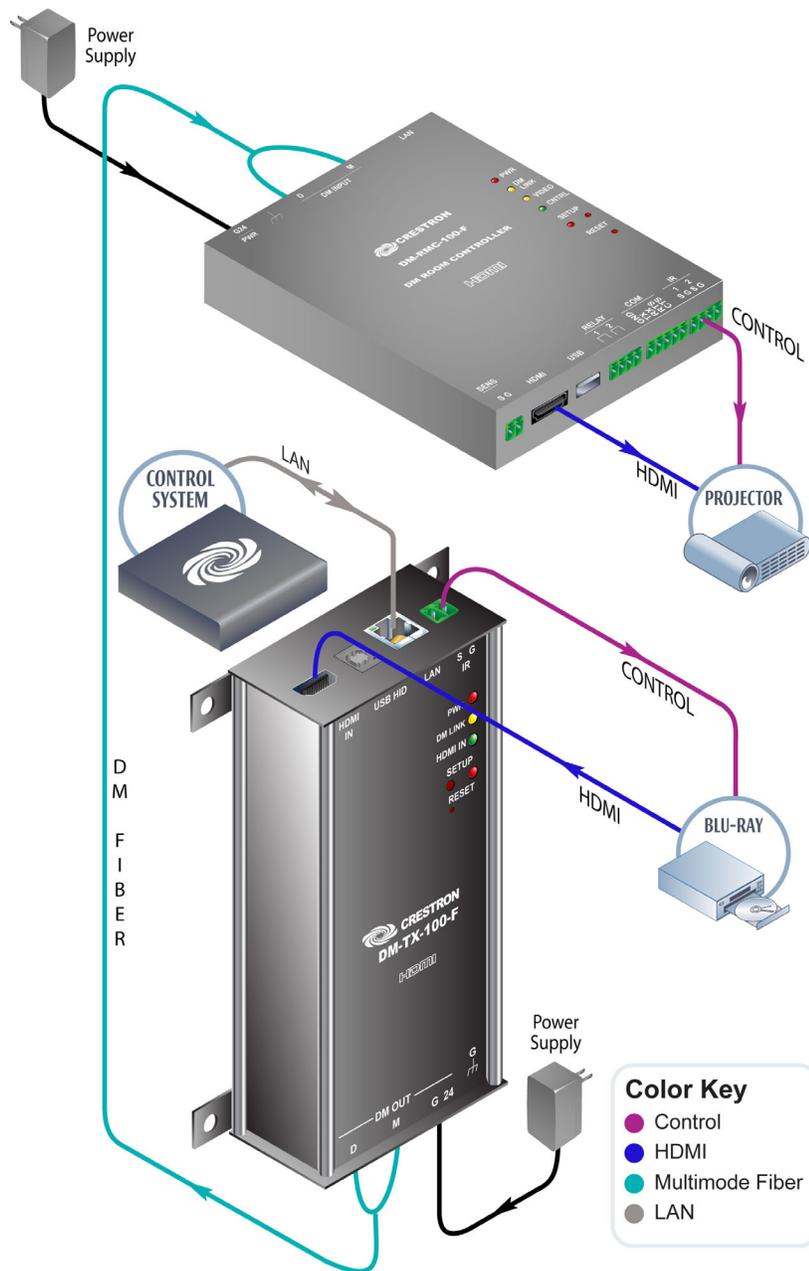
No **LAN** connection is required for these devices to transmit HDMI and USB in a point-to-point configuration. If you wish to use the control ports (IR, RS-232, Relay, Sense) from a control system, you can connect either **LAN** port (on the DM-TX-100/-F) to the control system's network. Both devices 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.

For DM CAT (e.g. DM-TX-100) you only have to apply power to one and the other will receive it through the DMNet cable. For DM fiber (e.g. DM-TX-100-F), each end has a local power supply. With the DM-TX-100-F, all you need is the fiber connection.

Specifications

Specifications for the DM-TX-100/-F are listed in the following table.

DM-TX-100/-F Specifications

SPECIFICATION	DETAILS
Video	
Input Signal Types	HDMI, DVI[1] and DisplayPort Multimode[1]
Output Signal Type	
DM-TX-100	DM CAT (DigitalMedia over twisted pair copper wire)
DM-TX-100-F	DM Fiber (DigitalMedia over multimode fiber optic cable)
Formats	HDMI with Deep Color and 3D, DVI, HDCP content protection support
Input Resolutions	
Progressive	640 x 480 @ 60 Hz 720 x 480 @ 60 Hz (480p) 720 x 576 @ 50 Hz (576p) 800 x 600 @ 60 Hz 848 x 480 @ 60 Hz 852 x 480 @ 60 Hz 854 x 480 @ 60 Hz 1024 x 768 @ 60 Hz 1024 x 852 @ 60 Hz 1024 x 1024 @ 60 Hz 1280 x 720 @ 50 Hz (720p50) 1280 x 720 @ 60 Hz (720p60) 1280 x 768 @ 60 Hz 1280 x 800 @ 60 Hz 1280 x 960 @ 60 Hz 1280 x 1024 @ 60 Hz 1360 x 768 @ 60 Hz 1365 x 1024 @ 60 Hz 1366 x 768 @ 60 Hz 1400 x 1050 @ 60 Hz 1440 x 900 @ 60 Hz 1600 x 900 @ 60 Hz 1600 x 1200 @ 60 Hz 1680 x 1050 @ 60 Hz 1920 x 1080 @ 24 Hz (1080p24) 1920 x 1080 @ 25 Hz (1080p25) 1920 x 1080 @ 50 Hz (1080p50) 1920 x 1080 @ 60 Hz (1080p60) 1920 x 1200 @ 60 Hz 2048 x 1080 @ 24 Hz 2048 x 1152 @ 60 Hz Plus any other resolution allowed by HDMI, up to 165 MHz pixel clock
Interlaced	720 x 480 @ 30 Hz (480i) 720 x 576 @ 25 Hz (576i) 1920 x 1080 @ 25 Hz (1080i25) 1920 x 1080 @ 30 Hz (1080i30) Plus any other resolution allowed by HDMI, up to 165 MHz pixel clock
Output Resolution	Matched to input

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DM-TX-100/-F Specifications (Continued)

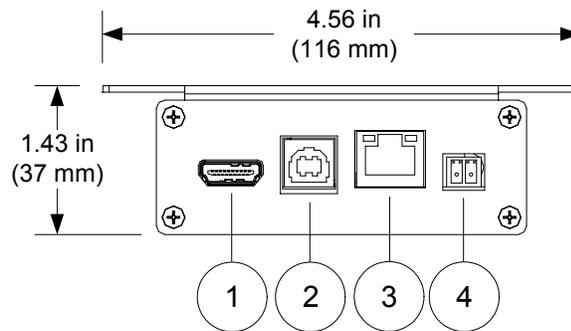| SPECIFICATION	DETAILS
Audio	
Input Signal Types	HDMI, DisplayPort Multimode[1]
Output Signal Type	
DM-TX-100	DM CAT
DM-TX-100-F	DM Fiber
Formats	Dolby Digital®, Dolby Digital EX, Dolby Digital Plus, Dolby® TrueHD, DTS®, DTS-ES, DTS 96/24, DTS-HD High Res, DTS-HD Master Audio™ Up to 8ch PCM
Communications	
DigitalMedia	
DM-TX-100	DM CAT, DMNet, HDCP management, EDID format management, CEC
DM-TX-100-F	DM Fiber, CEC
Ethernet	10BASE-T/100BASE-TX, auto-switching, auto-negotiating, auto-discovery, full/half duplex, TCP/IP, UDP/IP, CIP, DHCP, RSTP
USB	Supports USB HID class devices
Power Requirements[2]	
DMNet Power Usage (DM-TX-100)	9 Watts (0.38 Amps @ 24 Volts DC)
Power Pack (DM-TX-100-F)	0.75 Amps @ 24 Volts DC; 100-240 Volts AC, 50/60 Hz power pack included
Minimum 2-Series Control System Update File[3, 4]	Version 4.1.1012 or later
Environmental	
Temperature	32º to 104º F (0º to 40º C)
Humidity	10% to 90% RH (non-condensing)
Heat Dissipation	31 BTU/Hr
Enclosure	
Chassis	Aluminum with polycarbonate label overlay and (4) integral mounting flanges
Mounting	Freestanding, surface mount or attach to a single rack rail

(Continued on following page)

DM-TX-100/-F Specifications (Continued)

| SPECIFICATION	DETAILS
Dimensions	
Height	7.60 in (193 mm)
Width	4.56 in (116 mm)
Depth	1.43 in (37 mm)
Weight	
DM-TX-100	19 oz (517 g)
DM-TX-100-F	20 oz (562 g)
Included Accessory[5]	24 Volt DC power pack
Available Accessories	
CBL-DP-HD	DisplayPort to HDMI™ Interface Cable
CBL-HD	HDMI™ Interface Cable
CBL-HD-DVI	HDMI™ to DVI Interface Cable
CRESFIBER[5]	CresFiber™ Fiber Optic Cable
CRESFIBER-CONN-SC50UM[5]	CresFiber™ Fiber Optic Cable Connector
CRESFIBER-DUAL-SC[5]	CresFiber™ Duplex Fiber Optic Cable Assembly, 50/125, SC
DM-CBL[6]	DigitalMedia Cable
DM-CONN[6]	DigitalMedia Cable Connector
IRP2	IR Emitter Probe
MP-WP140	Media Presentation Wall Plate – DVI with Mini-TRS Stereo Audio
MP-WP152	Media Presentation Wall Plate – HDMI
MP-WP162	Media Presentation Wall Plate – DisplayPort
MP-WP185[6]	Media Presentation Wall Plate – Crestron DigitalMedia CAT with DMNET
MP-WP186[5]	Media Presentation Wall Plate – Crestron DigitalMedia Fiber

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. Power for the DM-TX-100-F may be drawn from DMNet or local power supply. Power supply included with DM-TX-100-F.
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.
5. DM-TX-100-F only.
6. DM-TX-100 only.

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-TX-100/-F.

DM-TX-100/-F Physical View (Bottom Ports of DM-TX-100 Shown*)

*   For bottom ports of DM-TX-100-F, refer to illustration at the bottom of page 10.

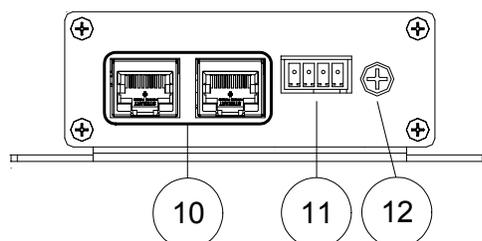*DM-TX-100/-F Physical View (Top Ports of DM-TX-100 Shown)*
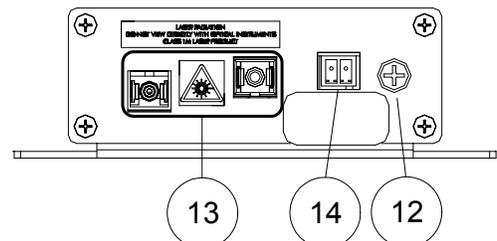
DM-TX-100/-F Overall Dimensions (Top View)

DM-TX-100/-F Overall Dimensions (Front View of DM-TX-100 Shown)
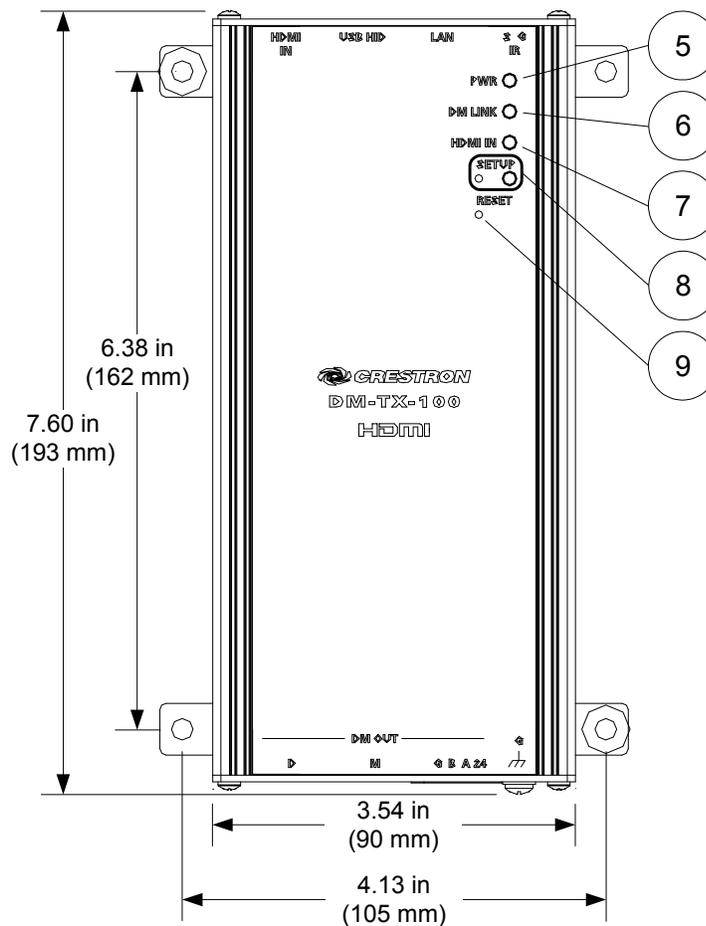
DM-TX-100 Overall Dimensions (Bottom View)
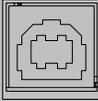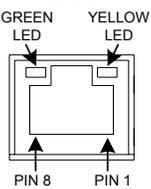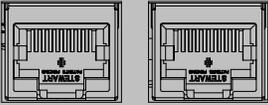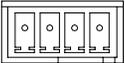

DM-TX-100-F Overall Dimensions (Bottom View)

Connectors, Controls & Indicators

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
1	HDMI IN	(1) 19-pin Type A HDMI female HDMI digital video/audio input Supports DVI and DisplayPort Multimode[2]
2	USB HID	(1) USB Type B female USB 1.1 host port for connection to the mouse/keyboard or game controller input of a USB HID-compliant host device
3	LAN[3] GREEN LED YELLOW LED PIN 8 PIN 1	(1) 8-wire RJ-45 female with two LED indicators 10BASE-T/100BASE-TX Ethernet port Green LED indicates link status Yellow LED indicates Ethernet activity PIN / SIGNAL / PIN / SIGNAL 1 / TX + / 5 / N/C 2 / TX - / 6 / RC - 3 / RC + / 7 / N/C 4 / N/C / 8 / N/C
4	IR	(1) 2-pin 3.5 mm detachable terminal block, IR/Serial port IR output up to 1.1 MHz 1-way serial TTL/RS-232 (0-5 Volts) up to 19200 baud
5	PWR LED	(1) Green LED, indicates operating power supplied via DMNet (or local power supply[4])
6	DM LINK LED	(1) Green LED, indicates connection to a downstream DM device
7	HDMI IN LED	(1) Green LED, indicates HDMI input signal presence and lock status
8	SETUP (LED and BUTTON)	(1) Red LED and (1) miniature pushbutton for Ethernet auto-discovery and default IP address
9	RESET BUTTON	(1) Miniature recessed pushbutton for hardware reset
10	DM OUT[3, 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, 8]
11	G B A 24[5, 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, 8]

(Continued on following page)

Connectors, Controls & Indicators (Continued)

#	CONNECTORS[1], CONTROLS & INDICATORS	DESCRIPTION
12	G	(1) 6-32 screw, chassis ground lug
13	DM OUT[4, 10]	(1) DM fiber output composed of (2) SC female fiber optic connectors; Connects to DM fiber input of a DM switcher, receiver/room controller or other DM device via CresFiber fiber optic cable[11]
14	G 24[4, 12]	(1) 2-pin 3.5 mm detachable terminal block, 24 Volt DC power input Connects to local power supply (included) or to DMNet port (**24** and **G** only) of a DM switcher

1. Interface connectors for **IR, G B A 24** (DM-TX-100) and **G 24** (DM-TX-100-F) ports are provided with the unit.
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. 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.
4. DM-TX-100-F only.
5. DM-TX-100 only.
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 tables for the connector pinouts.

D and M Port Wiring

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

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
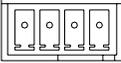
G B A 24			
PIN #	**SIGNAL**	**DESCRIPTION**	**WIRE COLOR**
G	Ground	DC Ground	Black
B	DMNet-	DMNet	Grey
A	DMNet+	DMNet	Orange
24	24V DC	DC Power	Red

10. The **DM OUT** port consists of two separate fiber optic SC type connectors, labeled **D** and **M**. The **D** port carries HDMI signal. The **M** port carries data.

11. For DigitalMedia fiber wiring, use CresFiber or other quality duplex multimode fiber optic cable. Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.

12. Refer to the following table for the **G 24** connector pinouts.

G 24 Port

G 24			
PIN #	**SIGNAL**	**DESCRIPTION**	**WIRE COLOR**
G	Ground	DC Ground	Black
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.

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

- 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.

- For DigitalMedia Fiber wiring, use CresFiber or other quality simplex multimode fiber optic cable. The maximum supported cable length is 1000 feet (~300 meters). Refer to the latest version of the Crestron DigitalMedia Design Guide (Doc. 4789) for complete wiring guidelines.

For more details, refer to "Check Network Wiring" on page 26.

The DM-TX-100/-F also uses high-speed Ethernet for communications between the device and a control system, computer, media server and other IP-based devices. For 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).

Identity Code

NOTE: In the SIMPL™ Windows program, the IP ID of the DM-TX-100/-F is assigned automatically and does not require additional programming when the DM-TX-100/-F is dropped onto an output card of a DM switcher. Use the information below when the DM-TX-100/-F 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-100/-F IP 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-100/-F 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.

Hardware Hookup

Make the necessary connections as called out in the illustration that follows this paragraph. Refer to "Network Wiring" on page 14 before attaching the 4-position terminal block connector. Apply power after all connections have been made.

When making connections to the DM-TX-100/-F use Crestron power supplies for Crestron equipment.

Hardware Connections for the DM-TX-100/-F (Top View)


```
HDMI IN:                          LAN:
Digital Video / Audio             10BASE-T/100BASE-TX
Input                             Ethernet to LAN
```

```
USB HID:                          IR:
To Mouse/Keyboard or Game         To IR Device (e.g. Projector)
Controller Input of USB Host Device   or Devices without RS-232
```
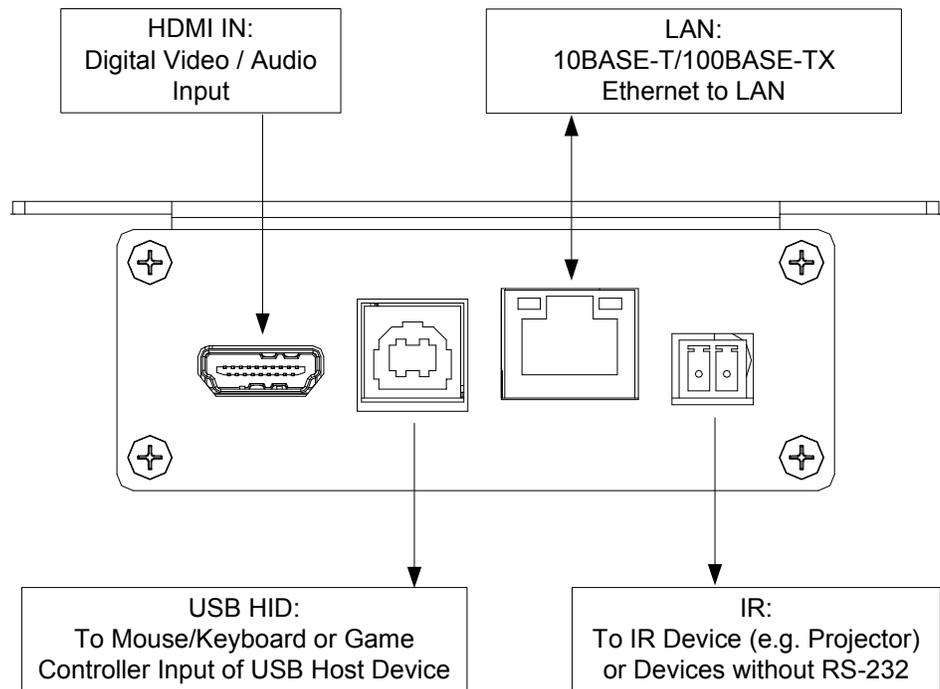
Hardware Connections for the DM-TX-100 (Bottom View)


```
DM OUT:
To DM Switcher, Receiver or
Other DM Device
```

Ground

```
G B A 24:
To DMNet Port of Switcher, Receiver
or Other DM Device
```
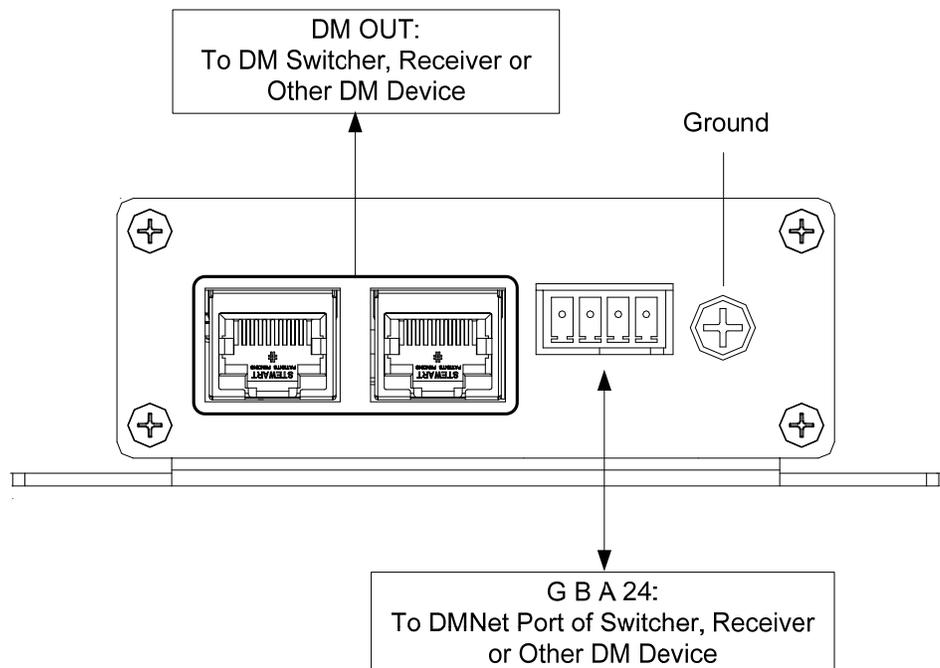
Hardware Connections for the DM-TX-100-F (Bottom View)

```
                    ┌─────────────────────────────┐
                    │         DM OUT:             │
                    │ To DM Switcher, Receiver or  │
                    │      Other DM Device         │
                    └─────────────────────────────┘
                                                        Ground
```



```
                    ┌─────────────────────────────┐
                    │          G 24:              │
                    │  To DMNet Port of Switcher,  │
                    │  Receiver of Other DM Device │
                    └─────────────────────────────┘
```
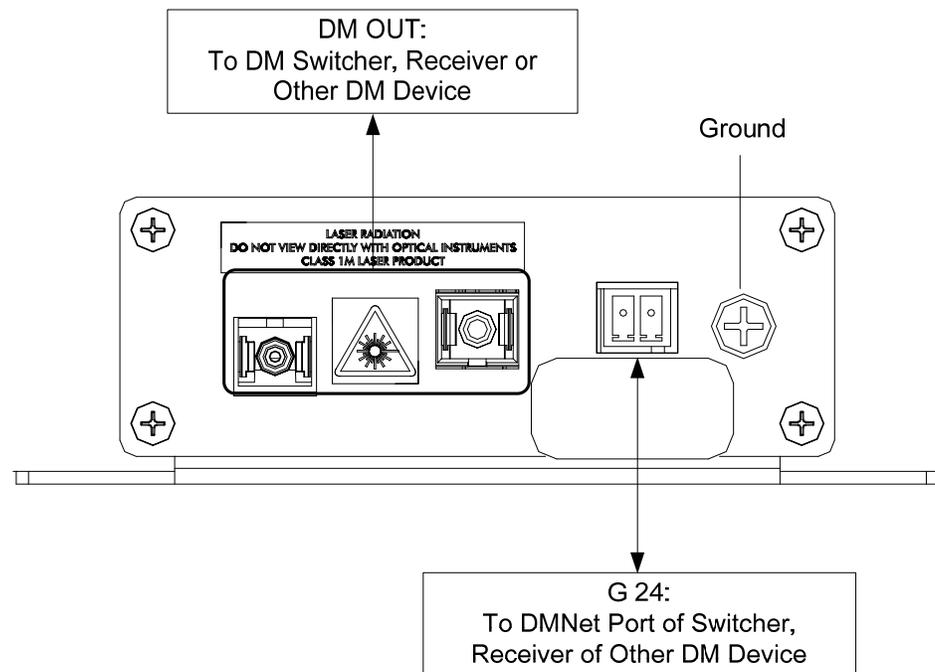
NOTE: Ensure the unit is properly grounded by connecting the chassis ground lug to an earth ground (building steel).

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 with the DM-TX-100, use DM-CBL DigitalMedia cable. For optimum performance with the DM-TX-100-F, Crestron recommends using CresFiber or other quality duplex multimode fiber optic cable.

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-100/-F can be powered by a PW-2407RU or any Crestron 24 Volt power supply. Power supply included with DM-TX-100-F, not included with DM-TX-100.

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 Crestron SIMPL Windows to create a program to control the DM-TX-100/-F. For the minimum recommended software versions, visit the Version Tracker page of the Crestron Web site (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 and Program.

Configuration Manager

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

In the examples shown on the following pages, the DM-TX-100 and DM-TX-100-F are being used in a DigitalMedia system with a DM-MD8X8 Switcher, equipped with a DMC-CAT input card (for the DM-TX-100) or a DMC-F input card (for the DM-TX-100-F). For details, refer to the latest version of the DigitalMedia Switchers Operations Guide (Doc. 6755).

1. Locate the DM-TX-100/-F in the DigitalMedia | DM Transmitters folder of the *Device Library*.

Locating the DM-TX-100 and DM-TX-100-F in the Device Library
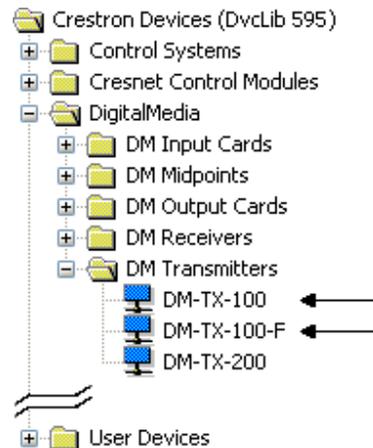
2. Drag the DM-TX-100 or DM-TX-100-F from the *Device Library* and drop it into either of the following in the *System Views*:

- A compatible input card of a DM switcher

- Directly to a card in the Ethernet slot of the control system (used without a DM switcher)

The system tree of the control system displays the DM-TX-100 or DM-TX-100-F in the appropriate slot with a default IP ID as shown in the following examples. In the first example, the DM-TX-100 is used with the DMC-CAT input card in a DM-MD8X8 switcher. The DM-TX-100-F is also shown with the DMC-F input card in a DM-MD8X8 switcher.

C2ENet Device, Slot 8 (DM-TX-100 Shown Using Input Card in DM Switcher)

C2ENet Device, Slot 8 (DM-TX-100-F Shown 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-F
                    ⊟ ▦ Slot 1: DMC-F Advanced
                          ⊞ 🖥 IP-ID 14: DM-TX-100-F ◄
              ◉ IP-ID FE: {EMPTY}
  ⊞ ▦ Slot 9: C2Net-Device
      ▦ Slot 10: C2I-PRO2-LCDPANEL
```
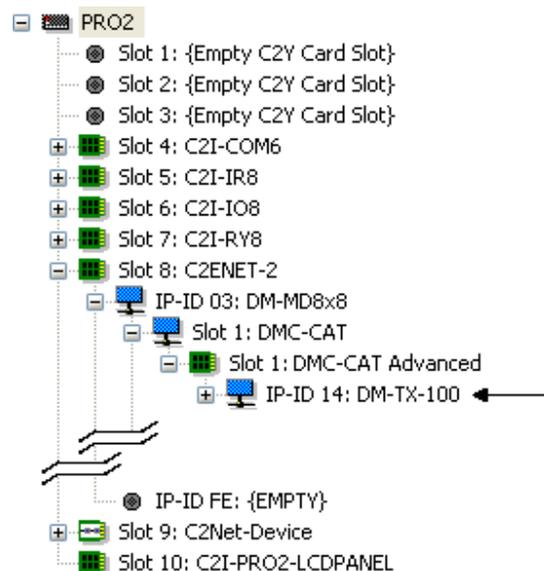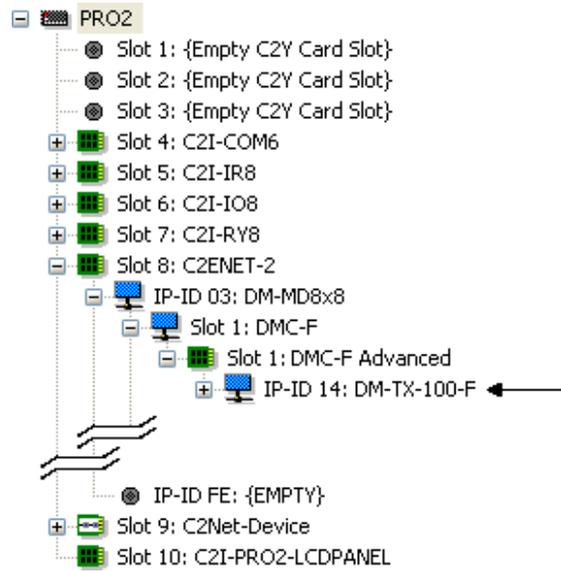
In the second example, the DM-TX-100/-F can be dragged directly to a card such as the C2ENET-2, in the Ethernet slot of the control system, when it is to be used without a DM switcher.

C2ENet Device, Slot 8 (DM-TX-100 Shown 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-100 ◄
        ◉ IP-ID FE: {EMPTY}
  ⊞ ▦ Slot 9: C2Net-Device
      ▦ Slot 10: C2I-PRO2-LCDPANEL
```
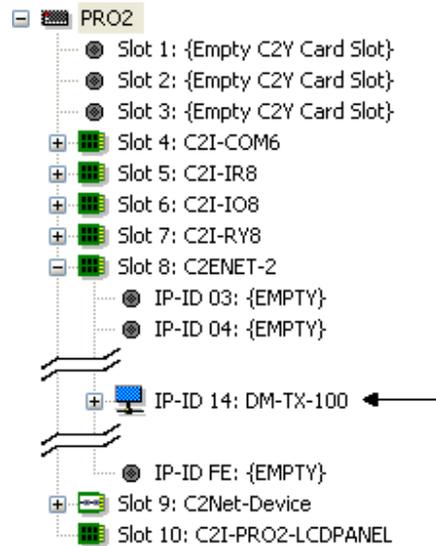
C2ENet Device, Slot 8 (DM-TX-100-F Shown Using Ethernet Slot on Control System)
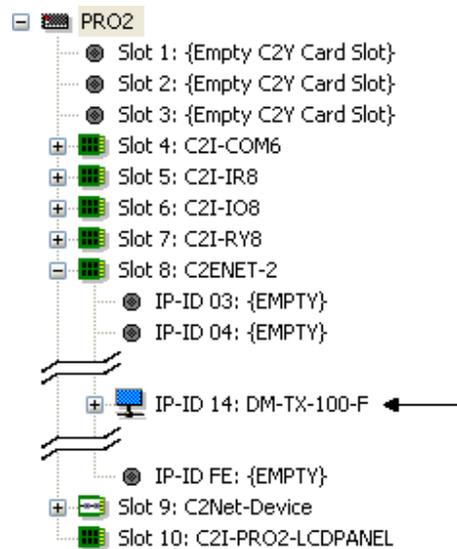
3. If additional DM-TX-100/-F devices are to be added, repeat step 2 for each device. Each DM-TX-100/-F device is assigned a different IP ID.

4. If necessary, double click a device to open the "Device Settings" window and change the IP ID, as shown in the following figure (DM-TX-100 shown).

"Device Settings: Crestron DM-TX-100" Window
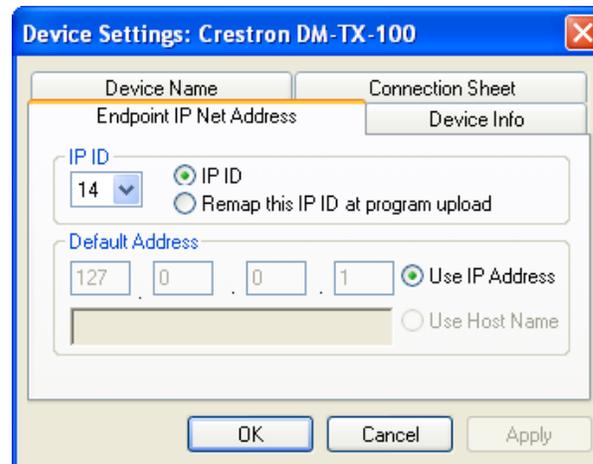
NOTE: The ID code specified in the SIMPL Windows program must match the IP ID of each unit. Refer to "Identity Code" on page 14.

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**).

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). In addition, the IP table of the device can be configured.

Establishing Communication

Use Crestron Toolbox for communicating with the DM-TX-100/-F; refer to the Crestron Toolbox help file for details.

The DM-TX-100/-F has an internal Ethernet switch that allows communication between the DM-TX-100/-F and a PC running Crestron Toolbox. As shown in the following illustration, the DM-TX-100/-F connects to the PC in either of the following ways:

- Locally via the LAN port when the DM-TX-100/-F is used in a standalone configuration (not connected to a DM switcher)

- Remotely via the Ethernet network over the "M" fiber when the DM-TX-100/-F connects to a DM switcher

Internal Ethernet Switch Connection via Local LAN Port or "M" Fiber
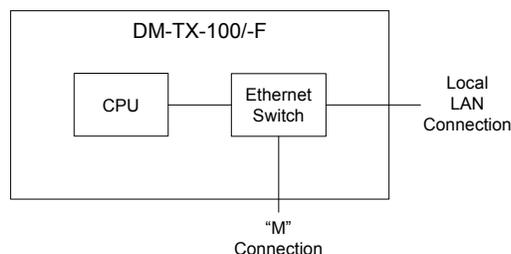
Communication via LAN Port

TCP/IP Communication via LAN Port of DM-TX-100/-F
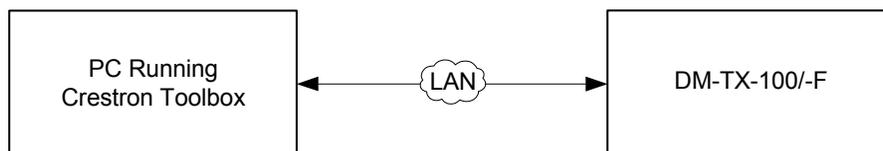
The DM-TX-100/-F connects to a PC via Ethernet:

1. Use the Device Discovery Tool in Crestron Toolbox to find the IP address of the DM-TX-100/-F. The tool is available in Toolbox version 1.15.143 or later.

   NOTE: When the DM-TX-100/-F is used in a standalone configuration (not used with a DM switcher), DHCP is enabled by default. If desired, a default IP address (192.168.1.244) can be assigned by holding down its **SETUP** button while applying power. This IP address overwrites any previous settings and remains until it is changed manually.

2. Use the Address Book in Crestron Toolbox to create an entry for the DM-TX-100/-F using the TCP connection type, and enter the IP address of the DM-TX-100/-F.

3. Display the "System Info" window of the DM-TX-100/-F (click the ![i] icon); communications are confirmed when the device information is displayed.

4. (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-TX-100/-F via the Crestron Toolbox (**Functions** | **Ethernet Addressing**).

   b. In Crestron Toolbox, change the Address Book entry for the DM-TX-100/-F so that it uses the IP address assigned in step 4a.

   c. Display the "System Info" window of the DM-TX-100/-F (click the ![i] icon); communications are confirmed when the device information is displayed.

| *Communication via DM Switcher* | *TCP/IP Communication via DM Switcher* |

DM-TX-100/-F connects to DigitalMedia switcher via DM network:

1. Establish communication between the PC and the DM switcher as described in the latest version of the DigitalMedia Switchers Operations Guide (Doc. 6755).

2. Use the Device Discovery Tool in Crestron Toolbox to detect the IP address of the DM-TX-100/-F. The tool is available in Toolbox version 1.15.143 or later.

   NOTE: When the DM-TX-100/-F is connected to a DM switcher, the switcher manages the IP configuration of the DM-TX-100/-F and assigns the proper IP address.

3. Use the Address Book in Crestron Toolbox to create an entry for the DM-TX-100/-F using the TCP connection type, and enter the IP address of the DM-TX-100/-F.Use the Address Book in Crestron Toolbox to create an entry for the DM-TX-100/-F using the expected communication protocol (Indirect). Select the IP address of the DM-TX-100/-F and the address book entry of the control system that is connected to the DM-TX-100/-F.

4. Display the "System Info" window of the DM-TX-100/-F (click the ![i] icon); communications are confirmed when the device information is displayed.

Firmware

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

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.)

To upgrade DM-TX-100/-F firmware:

1. Do either of the following.

   - If the DM-TX-100/-F is connected to a DM switcher, use the Device Discovery Tool in Crestron Toolbox to find the IP address of the switcher. If the DM-TX-100/-F is being used with a DM switcher, use the Device Discovery Tool in Crestron Toolbox to find the IP address of the switcher. Add the IP address of the switcher to the Address Book in Toolbox.

     > **NOTE:** When the .puf file is pointed to the DM switcher, all DM devices connected to the switcher, including the DM-TX-100/-F, will be upgraded. When it is pointed to a DM-TX-100/-F in a standalone configuration, only the DM-TX-100/-F will be upgraded.

   - If the DM-TX-100/-F is being used in a standalone configuration (not used with a DM switcher), use the Device Discovery Tool to find the IP address of the DM-TX-100/-F.If the DM-TX-100/-F is not being used with a DM switcher (standalone configuration), use the Device Discovery Tool to find the IP address of the DM-TX-100/-F. Add the IP address of the DM-TX-100/-F to the Address Book in Toolbox.

2. Download the appropriate .puf file from the Crestron Web site.

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

4. From the list in the Address Book, select the DM switcher (if the DM-TX-100/-F is being used with a switcher) or select the DM-TX-100/-F (if it is being used in a standalone configuration) 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

If the DM-TX-100/-F is used in a standalone configuration (not connected to a DM switcher), use Crestron Toolbox to create the IP table of the DM-TX-100/-F:

NOTE: If the DM-TX-100/-F connects is connected to a DM switcher, the IP table entry of the DM-TX-100/-F is created automatically.

1. Use the Device Discovery Tool to find the IP address of the DM-TX-100/-F. Then, in the Toolbox, display the "System Info" window (click the ⓘ icon) and select the DM-TX-100/-F entry from the Address Book.

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

3. Add, modify or delete entries in the IP table. The DM-TX-100/-F can have only one IP table entry.

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

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-100/-F 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.

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

Check Network Wiring

Use the Right Wire

To ensure optimum performance over the full range of your installation topology, use Crestron Certified Wire only. 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 most typical configurations. 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 table for maximum cable lengths using various cables.

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)
1024 x 768 @ 75 Hz	200 ft (60 m)	450 ft (137 m)
1080p60	150 ft (45 m)	450 ft (137 m)
1280 x 1024 @ 75 Hz	150 ft (45 m)	450 ft (137 m)
1920 x 1200 @ 60 Hz	150 ft (45 m)	450 ft (137 m)
1600 x 1200 @ 60 Hz	125 ft (38 m)	375 ft (114 m)
1080p60 Deep Color	50 ft (15 m)	150 ft (45 m)

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.

NOTE: 1080p60 is the most common resolution used in residential installations.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron Web site (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 e-Control Reference Guide
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 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-TX-100/-F, 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; touchscreen 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.

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Version 2, June 1991

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PREAMBLE

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