DM-TX-201-C

DigitalMedia 8G+® Transmitter

Supplemental Guide

Crestron Electronics, Inc.

The product warranty can be found at www.crestron.com/warranty.

The specific patents that cover Crestron products are listed at www.crestron.com/legal/patents.

Certain Crestron products contain open source software. For specific information, please visit www.crestron.com/opensource.

This document was written by the Technical Publications department at Crestron.

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DM-TX-201-C: DigitalMedia 8G+® Transmitter

Introduction

The Crestron® DM-TX-201-C provides an interface for computers and high-definition AV sources as part of a complete Crestron DigitalMedia™ system. The DM-TX-201-C functions as a DM 8G+® transmitter and switcher, providing HDMI®, RGB, and analog audio inputs as well as Ethernet and USB HID ports. In addition to compatibility with other DM 8G+ devices, the DM-TX-201-C is also compatible with HDBaseT® compliant devices.

The DM-TX-201-C provides simple switching between the HDMI and RGB inputs. The inputs can be configured to switch automatically or can be controlled through a Crestron control system. Analog audio breakaway capability enables the analog audio input of the DM-TX-201-C to be used with either video input. The DM-TX-201-C also functions as a keyboard/mouse extender, allowing the connected USB HID compliant host to be controlled by a mouse and/or keyboard that is located at a remote location.

Additional features of the DM-TX-201-C include the following:

- Local HDMI output, which enables pass-through of the selected video and audio signals to feed a local display, monitor, or sound system
- 10BASE-T/100BASE-TX LAN port, which can be used to provide a convenient LAN connection for a local network device
- CEC embedded device control, which provides a gateway for controlling the connected source device through the HDMI connection
- Compatibility with TT-100 Series devices (Crestron Connect It™ cable caddies)
- Detection and reporting of detailed video and audio information via DMTool

This manual provides information about the following:

- Physical description of the connectors, controls, and indicators on the DM-TX-201-C
- Communications using Crestron Toolbox™ software
- Firmware upgrade
- Troubleshooting
- Pin assignments

For installation information, refer to the DM-TX-201-C DO Guide (Doc. 7719). The document is available at www.crestron.com/manuals.

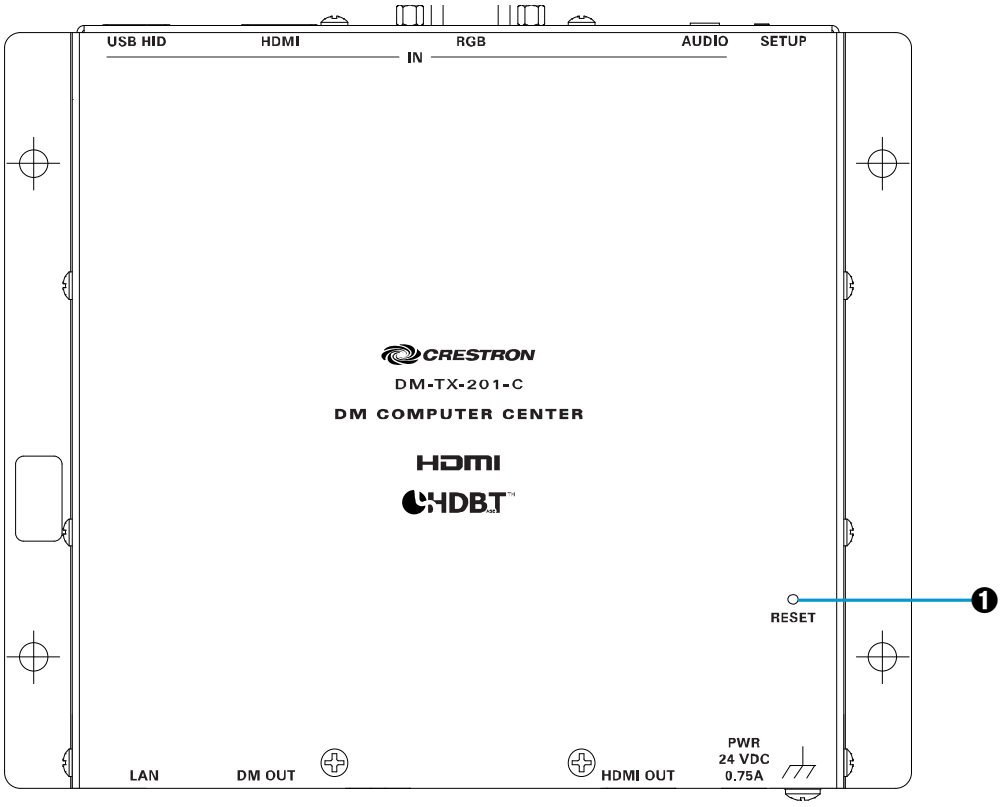
Physical Description

The following sections provide information about the connectors, controls, and indicators that are available on the top, front, and rear of the DM-TX-201-C.

Top View

The following illustration shows the top of the DM-TX-201-C.

Top View

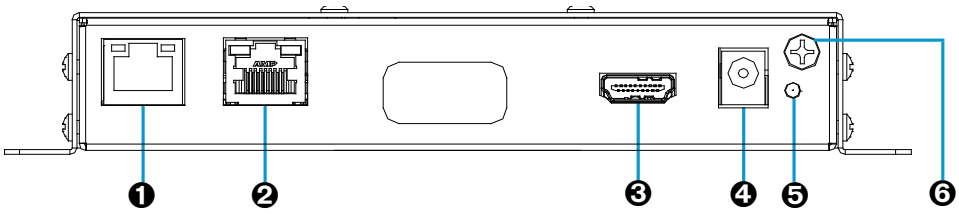


❶ **RESET:** Recessed push button for hardware reset

Front View

The following illustration shows the front of the DM-TX-201-C.

Front View



❶ **LAN:** 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

❷ **DM OUT:** 8-pin RJ-45 female, shielded, with two LED indicators;
DM 8G+ output, HDBaseT compliant;
PoDM and HDBaseT PoE powered device (PD) port[1];
Connects to the DM 8G+ input of a DM® switcher, receiver/room controller, or other DM device, or to an HDBaseT device via CAT5e or Crestron DM-CBL-8G cable;
Green LED indicates DM link status;
Solid amber LED indicates HDCP video;
Blinking amber LED indicates non-HDCP video

❸ **HDMI OUT:** 19-pin Type A HDMI female connector;
HDMI digital video/audio output (DVI compatible);[2]

❹ **PWR 24 VDC 0.75A:** 2.1 x 5.5 mm dc power connector;
24 volt dc power input;
Power pack included

❺ **Power LED:** Green LED, indicates operating power supplied from local power pack, PoDM, or HDBaseT PoE

❻ **Ground**: 6-32 screw, chassis ground lug

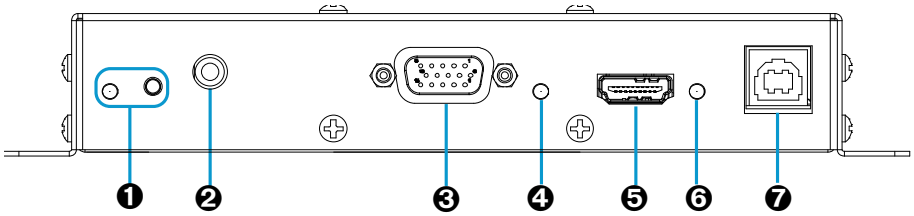
[1] In order for the DM-TX-201-C to receive PoDM, the DM-TX-201-C requires connection to a DM switcher or other DM equipment that has a PoDM power sourcing equipment (PSE) port. In order for the DM-TX-201-C to receive HDBaseT PoE, the DM-TX-201-C requires connection to equipment that has an HDBaseT PoE PSE port. Any wiring that is connected to a PoDM or HDBaseT PoE port is for intrabuilding use only and should not be connected to a line that runs outside of the building in which the PSE is located.

[2] The HDMI OUT connection requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.

Rear View

The following illustration shows the rear of the DM-TX-201-C.

Rear View



❶ **SETUP:** Red LED and miniature recessed push button for Ethernet setup

❷ **AUDIO IN:** 3.5 mm TRS mini phone jack;
Unbalanced stereo line level audio input;
Input level: 2 Vrms maximum;
Input impedance: 10 k ohms

❸ **RGB IN:** HD15 female;
Analog VGA/RGB/video input;
Signal types: VGA, RGB, component, S-Video, or composite[1];
Formats: RGBHV, RGBS, RGsB, YPbPr, Y/C, NTSC, PAL;
Input levels: 0.5 to 1.5 Vp-p with built-in dc restoration;
Input impedance: 75 ohms;
Sync input type: Autodetect RGBHV, RGBS, RGsB, YPbPr;
Sync input level: 3 to 5 Vp-p;
Sync input impedance: 1 k ohm

❹ **RGB IN LED:** Green LED, indicates RGB input is selected

❺ **HDMI IN:** 19-pin Type A HDMI female;
HDMI digital video/audio input (DVI and Dual-Mode DisplayPort compatible)[2]

❻ **HDMI IN LED:** Green LED, indicates HDMI input is selected

❼ **USB HID:** USB Type B female;
USB 2.0 device port for connection to the USB host interface of a computer or other USB HID compliant host device, or for connection of a Crestron TT-100 Series device (Crestron Connect It cable caddy)[3]

[1] The RGB input can accept component, composite, and S-Video signals through an appropriate adapter (not included) or via direct interface to the Crestron MPS Series products. However, input sync detection is not provided for composite or S-Video signal types through this connection.
[2] The HDMI IN connection requires an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. CBL-HD-DVI interface cables are available separately.
[3] The USB HID port does not supply USB power. When connected to a TT-100 Series device (sold separately), the TT-100 Series device must be powered separately through a connection to a Cresnet® network or power supply.

Communications Using Crestron Toolbox Software

Crestron Toolbox software enables communications with the DM-TX-201-C. Communications with the DM-TX-201-C can occur in the following ways:

- Via a DM switcher (DM-MD8X8, DM-MD16X16, or DM-MD32X32)
- Via the LAN port of the DM-TX-201-C. In this scenario, the DM-TX-201-C is used in a stand-alone configuration in which it does not connect to a DM switcher.

Communications via a DM Switcher

Communications with the DM-TX-201-C can be accomplished using USB or TCP/IP communications between a PC running Crestron Toolbox software and a DM switcher.

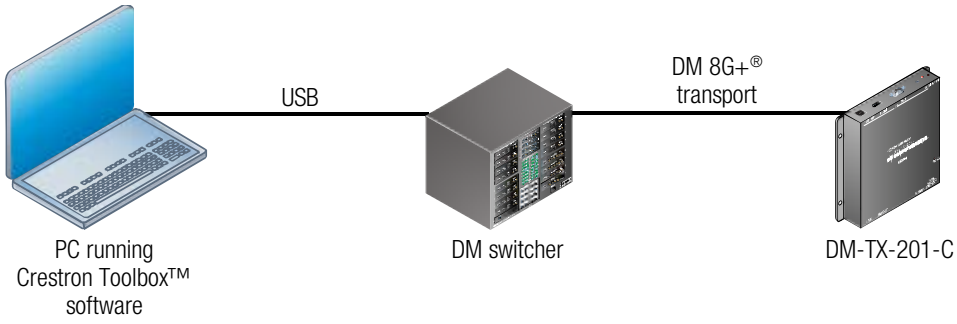
NOTE: TCP/IP provides a faster method of communications than USB and is required for operation with a Crestron control system.

Using USB Communications

Use Crestron Toolbox software to establish USB communications between a PC and a DM switcher.

NOTE: The Type A to Type B USB cable included with a DM switcher connects the USB port on a PC to the COMPUTER port on the DM switcher.

USB Communications via a DM Switcher



To establish USB communications between a PC and a DM switcher, do the following:

1. Using the Address Book, create an entry using the USB communications protocol. When multiple USB devices are connected, identify the DM switcher by entering information into the following text boxes:
   - **Model:** Enter the model name (DM-MD8X8, DM-MD16X16, or DM-MD32X32) of the DM switcher.
   - **Serial:** Enter the serial number of the DM switcher.
   - **Hostname:** Enter the hostname of the DM switcher.

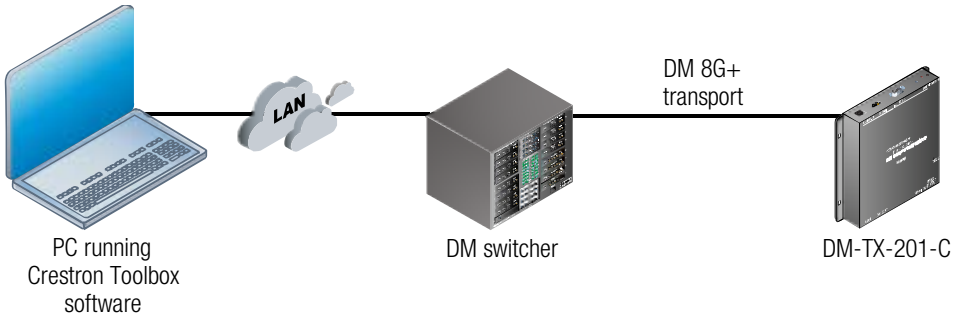
     NOTE: The hostname can be found in the System Info window in the section marked "Ethernet;" however, communications must be established in order to see the hostname in the System Info window.

2. In the Crestron Toolbox toolbar, click . The System Info window opens.
3. In the drop-down list at the bottom of the System Info window, select the entry of the DM switcher. Device information is displayed.

Using TCP/IP Communications

Use Crestron Toolbox software to establish TCP/IP communications between a PC and a DM switcher.

TCP/IP Communications via a DM Switcher



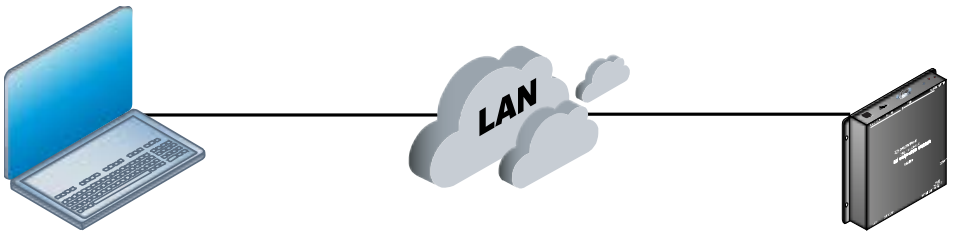
To establish TCP/IP communications via a PC and a DM switcher, do the following:

1. For the IP address of the DM switcher, use DHCP (default setting) or set a static IP address. If DHCP is to be used, proceed to step 2. If a static IP address is to be set, skip step 2 and proceed to step 3.
2. (Applicable to DHCP only) Use the Device Discovery Tool to find the IP address of the DM switcher.
3. (Applicable to static IP address only) To set a static IP address, do the following:
   a. Establish USB communications between the PC and the DM switcher as discussed in "Using USB Communications" on page 5
   b. In the Functions menu, select Ethernet Addressing.
   c. Enter the IP address, IP mask, and default router of the DM switcher.
4. In the Address Book, create an entry for the DM switcher by using the IP address of the DM switcher.
5. In the Crestron Toolbox toolbar, click . The System Info window opens.
6. In the drop-down list at the bottom of the System Info window, select the entry of the DM switcher. Device information is displayed.

Communications via the LAN Port of the DM-TX-201-C

Use Crestron Toolbox software to establish TCP/IP communications between a PC and a DM-TX-201-C via the LAN port of the DM-TX-201-C. In this scenario, the DM-TX-201-C is used in a stand-alone configuration in which it does not connect to a DM switcher.

TCP/IP Communications via the LAN Port of the DM-TX-201-C



To establish TCP/IP communications via the LAN port of the DM-TX-201-C, do the following:

1. Using the Device Discovery Tool, find the IP address of the DM-TX-201-C.

   NOTE: In a stand-alone configuration, DHCP is enabled by default. If desired, the default IP address can be assigned by holding down the SETUP button while applying power. The default IP address, which is 192.168.1.236, overwrites the current setting and remains until it is changed.

2. Using the Address Book, create an entry for the DM-TX-201-C using the TCP connection type, and then enter the IP address.
3. In the Crestron Toolbox toolbar, click . The System Info window opens.
4. In the drop-down list at the bottom of the System Info window, select the entry of the DM-TX-201-C. Device information is displayed.
5. (Optional) If additional changes to TCP/IP settings are desired, do the following:
   a. In the **Functions** menu, select **Ethernet Addressing.**
   b. Enter the static IP address, IP mask, and default router for the DM-TX-201-C.
   c. Close the System Info window.
   d. Change the Address Book entry for the DM-TX-201-C so that it uses the IP address assigned in step 4b.
   e. In the Crestron Toolbox toolbar, click . The System Info window opens.
   f. In the drop-down list at the bottom of the System Info window, select the entry of the DM-TX-201-C. Device information is displayed.

IP Table Configuration

Configuration of the IP table of the DM-TX-201-C is necessary only when the DM-TX-201-C connects to a control system and is used in a stand-alone configuration in which it does not connect to a DM switcher.

NOTE: If the DM-TX-201-C connects to a DM switcher, the IP table of the DM-TX-201-C is created automatically.

To create the IP table of the DM-TX-201-C in a stand-alone configuration, use Crestron Toolbox software and do the following:

1. Using the Device Discovery Tool, find the IP address of the DM-TX-201-C.
2. In the Crestron Toolbox toolbar, click  . The System Info window opens.
3. In the Address Book, select the DM-TX-201-C entry.
4. In the **Functions** menu, select **IP Table Setup**.
5. In the IP table, add, modify, or delete entries.

   NOTE: The DM-TX-201-C can have only one IP table.

   NOTE: The IP ID of multiple DM-TX-201-C devices in the same system must be unique. The IP ID of each DM-TX-201-C that communicates with a control system must match the corresponding IP ID specified in the SIMPL Windows program.

6. Send the IP table to the DM-TX-201-C or save it to a file.

Configuration Using DMTool

DMTool in the Crestron Toolbox software allows configuration of EDID and management of HDCP for the DM-TX-201-C. DMTool also provides detailed audio and video information that can be used for troubleshooting. For additional information, refer to the Crestron Toolbox help file.

Firmware Upgrade

The latest firmware file (*.puf) can be downloaded from the Crestron website after logging in to the website as an authorized user.

To upgrade firmware, use the Crestron Toolbox software and do the following:

1. Depending on whether the DM-TX-201-C connects to a DM switcher, do either of the following:
   - If the DM-TX-201-C connects to a DM switcher, use the Device Discovery Tool to find the IP address of the DM switcher.
   - If the DM-TX-201-C does not connect to a DM switcher, use the Device Discovery Tool to find the IP address of the DM-TX-201-C.
2. Add the discovered IP address to the Address Book in the Crestron Toobox software.
3. Download the appropriate *.puf file from the Crestron website to the PC.
4. Double-click the *.puf file. The Address Book opens.
5. From the list in the Address Book, do either of the following:
   - If the DM-TX-201-C connects to a DM switcher, select the DM switcher. A DM device list is displayed that allows upgrading of all DM devices connected to the DM switcher. The check box of all devices that need to be upgraded is automatically selected.
   - If the DM-TX-201-C does not connect to a DM switcher, select the DM-TX-201-C. A DM device list is displayed. The list allows upgrading of the DM-TX-201-C only.
6. Click Update.
7. After the upgrade process completes, click Recheck to verify the upgrade.

Troubleshooting

The following table provides troubleshooting information. If further assistance is required, contact a Crestron customer service representative.

DM-NVX Troubleshooting

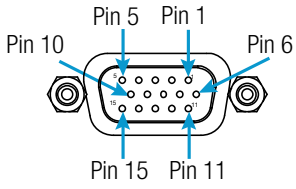
TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
The Power LED does not illuminate.	The device is not receiving power.	If the device is powered using PoDM or HDBaseT PoE: • Verify cable connections to the **DM OUT** port. • Verify that the equipment connected to the **DM OUT** port can provide power to this device. If the device is powered from the included power pack, verify power pack connections to the device and to the power outlet.
The Green LED on the **DM OUT** port does not illuminate.	The device cannot establish a link to the device connected to the **DM OUT** port.	Verify cable connections to the **DM OUT** port.
The device cannot pass HDCP video from the **DM OUT** port.	The display that is connected to the **DM OUT** port is not HDCP compliant.	Verify that **HDMI IN** content is HDCP protected and that the **DM OUT** amber LED is blinking.
The device cannot pass audio and video from the HDMI input.	The HDMI input is not selected.	Verify that HDMI is routed on the device symbol.
	The HDMI source is not transmitting.	Verify that the HDMI IN LED is active.
The device cannot pass audio and video from the RGB input.	The RGB input is not selected.	Verify that RGB is routed on the device symbol.
	The RGB source is not transmitting.	Verify that the **RGB IN** LED is active.
The device does not function due to electrostatic discharge.	The device is not grounded properly.	Check that all ground connections have been made properly.

Appendix: Pin Assignments

This section provides information about pin assignments and wiring for the following connectors:

- RGB IN
- DM OUT
- LAN

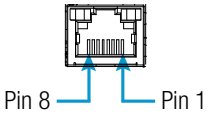
RGB IN Pin Assignments



PIN NUMBER	RGB	YPbPr	S-Video	Composite
1	R	Pr	C	
2	G	Y	Y	
3	B	Pb		COMP
5	GND	GND	GND	GND
6	RED_GND	Pr_GND	C_GND	
7	GRN_GND	Y_GND	Y_GND	
8	BLU_GND	Pb_GND		
13	H			
14	V			

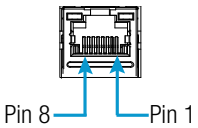
NOTE: For best video performance, ground connections should be kept separate. Do not connect ground wires to the connector shell. The connector shell is reserved for the cable shield.

DM OUT Pin Assignments and Wiring



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

LAN Pin Assignments



PIN NUMBER	SIGNAL	PIN NUMBER	SIGNAL
1	TX+	5	N/C
2	TX–	6	RX–
3	RX+	7	N/C
4	N/C	8	N/C

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