DM-TX-4K-202-C/DM-TX-4K-302-C

4K DigitalMedia 8G+® Transmitters

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 patents.crestron.com.

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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Introduction

The Crestron® DM-TX-4K-202-C and DM-TX-4K-302-C are DigitalMedia 8G+® transmitters and switchers that provide support for the transport of 4K and Ultra HD video signals. The DM-TX-4K-202-C and DM-TX-4K-302-C provide two HDMI® inputs. In addition to the HDMI inputs, the DM-TX-4K-302-C provides one VGA input and one analog audio input. The DM-TX-4K-202-C and DM-TX-4K-302-C also function as control modules, providing RS-232 and IR control ports. An Ethernet port and a USB HID port are also provided.

This guide provides information about the following:

- Physical description of the side views of the DM-TX-4K-202-C and DM-TX-4K-302-C
- Configuration of some of the capabilities of the DM-TX-4K-202-C and DM-TX-4K-302-C, for example, automatic audio/video signal format management via EDID
- HDCP 2.2. compliance
- Troubleshooting
- Pin assignments

For additional information, refer to the DM-TX-4K-202-C/DM-TX-4K-302-C DO Guide (Doc. 7743) at www.crestron.com/manuals.

Physical Description

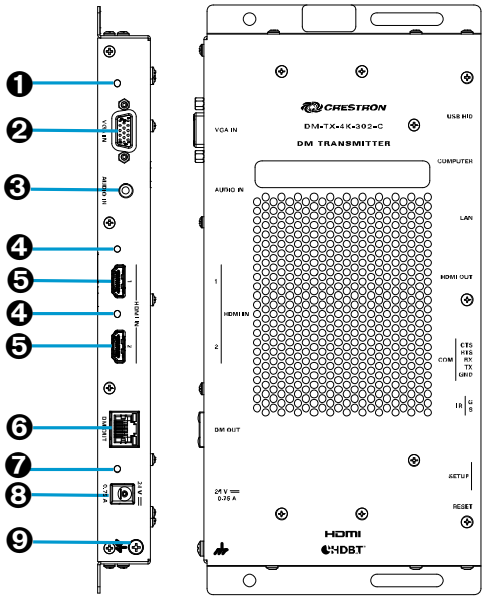
This section provides information about the connectors, controls, and indicators on the left and right sides of the DM-TX-4K-202-C and DM-TX-4K-302-C.

Side View, Left

The following illustration shows the left side of the DM-TX-4K-302-C.

NOTE: The left side of the DM-TX-4K-202-C provides the same connectors and indicators as the DM-TX-4K-302-C with the exception of the VGA IN connector and indicator and the AUDIO IN connector.

Side View, Left (DM-TX-4K-302-C Shown)



❶ VGA IN LED: (DM-TX-4K-302-C only) Green LED, indicates video signal presence at the VGA input

❷ VGA IN: (DM-TX-4K-302-C only) HD15 female, analog VGA/RGB/video input;
Signal Types: VGA, RGB, component, S-Video, or composite;
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, Y/C, composite;
Sync Input Level: 3 to 5 Vp-p;
Sync Input Impedance: 510 Ohms

NOTE: The VGA IN port requires an appropriate passive adapter or breakout cable to accommodate a component, S-video, or composite video signal.

❸ AUDIO IN: (DM-TX-4K-302-C only) 3.5 mm TRS mini phone jack;
Unbalanced stereo line-level audio input;
Input Level: 2 Vrms maximum;
Input Impedance: 10k Ohm

❹ **HDMI IN 1–2 LEDs:** Green LEDs, each indicates HDMI signal presence at the corresponding HDMI input

❺ **HDMI IN 1–2:** 19-pin Type A HDMI female;
HDMI digital video/audio inputs;
(DVI and Dual-Mode DisplayPort compatible)

NOTE: The HDMI IN ports require an appropriate adapter or interface cable to accommodate a DVI or Dual-Mode DisplayPort signal. The CBL-HD-DVI interface cable is available separately.

❻ **DM OUT:** 8-pin RJ45 female, shielded;
DM 8G+® output, HDBaseT® standard compliant;
PoDM+ PD (Powered Device) port (IEEE 802.3at Type 2 Class 4 [25.5 W] compliant and HDBaseT PoE+ compatible) on DM-TX-4K-302-C;
PoDM PD port (IEEE 802.3at Type 1 Class 3 [12.95 W] compliant and HDBaseT PoE compatible) on DM-TX-4K-202-C;
Connects to the DM 8G+ input of a DM® switcher, receiver, or other DM device, or to an HDBaseT device via CAT5e, Crestron DM-CBL-8G, or Crestron DM-CBL-ULTRA cable;
Green LED indicates DM link status;
Solid amber LED indicates HDCP video;
Blinking amber LED indicates non-HDCP video

NOTE: Receiving PoDM+ or PoDM requires connection to a switcher or other equipment that has a corresponding PoDM+ or PoDM PSE (Power Sourcing Equipment) port. Receiving HDBaseT PoE+ or HDBaseT PoE requires connection to a switcher or other equipment that has a corresponding HDBaseT PoE+ or HDBaseT PoE PSE port. Any wiring that is connected to a PoDM+, PoDM, HDBaseT PoE+, or HDBaseT PoE PSE 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.

NOTE: If the DM-TX-4K-302-C does not connect to the included power pack, the DM-TX-4K-302-C requires PoDM+ or HDBaseT PoE+ to power a USB device connected to the USB HID port. Standard PoDM or HDBaseT PoE can be used to power the DM-TX-4K-302-C if no USB device connects to the USB HID port. Unlike for the DM-TX-4K-302-C, standard PoDM or HDBaseT PoE can be used to power a USB device connected to the USB HID port of the DM-TX-4K-202-C.

❼ **Power LED:** Green LED, indicates operating power supplied via PoDM+, PoDM, HDBaseT PoE+, or HDBaseT PoE for the DM-TX-4K-302-C; PoDM or HDBaseT PoE for the DM-TX-4K-202-C; or local power pack

❽ **24 VDC 0.75A:** 2.1 x 5.5 mm dc power connector;
24 Vdc power input;
Power pack included

❾ **Ground (⏚):** 6-32 screw, chassis ground lug

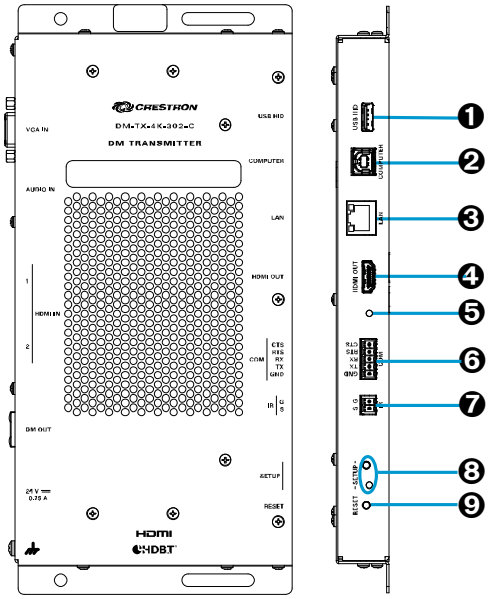
For pin assignment information, refer to the Appendix on page 11.

Side View, Right

The following illustration shows the right side of the DM-TX-4K-302-C.

NOTE: The right side of the DM-TX-4K-202-C provides the same connectors, controls, and indicators as the right side of the DM-TX-4K-302-C.

Side View, Right (DM-TX-4K-302-C Shown)



❶ **USB HID:** USB Type A female;
USB 2.0 host port for connection of a mouse, keyboard, or other USB HID compliant device (USB signal extension and routing), or for connection of a Crestron TT-100 series device (Crestron Connect It™ Cable Caddy. sold separately)

❷ **COMPUTER:** USB Type B female;
USB 2.0 device port for computer console (setup) or for connection to a computer or other USB HID compliant host (USB signal extension and routing)

❸ **LAN:** 8-pin RJ-45 female;
10BASE-T/100BASE-TX Ethernet port;
Green LED indicates Ethernet link status;
Amber LED indicates Ethernet activity

NOTE: Do not connect the LAN port to an Ethernet switch if the DM OUT port connects to a DigitalMedia™ switcher.

❹ **HDMI OUT:** 19-pin Type A HDMI female;
HDMI digital video/audio output (DVI compatible)

NOTE: The HDMI OUT port requires an appropriate adapter or interface cable to accommodate a DVI signal. The CBL-HD-DVI interface cable is available separately.

❺ **HDMI OUT LED:** Green LED, indicates HDMI signal presence at the HDMI output

❻ **COM:** 5-pin 3.5 mm detachable terminal block;
Bidirectional RS-232 port;
Up to 115.2k baud, hardware and software handshaking support

❼ **IR:** 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

❽ **SETUP:** (Applicable only to a configuration in which a DigitalMedia switcher is not used) Red LED and recessed push button for Ethernet setup of the default static IP address of the device

NOTE: The default static IP address of the DM-TX-4K-302-C and the DM-TX-4K-202-C is 192.168.1.205.

❾ **RESET:** Recessed push button for reboot of the device

For pin assignment information, refer to the Appendix on page 11.

Configuration

This section provides information about the following:

- EDID configuration
- HDBaseT configuration
- USB HID control configuration

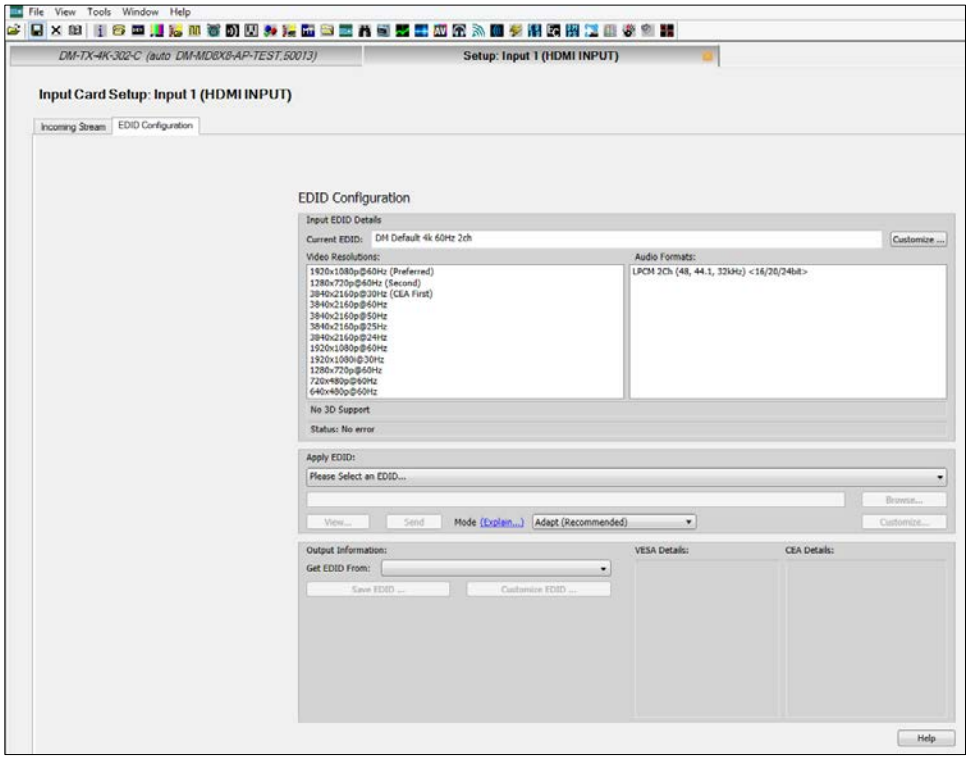
EDID Configuration

EDID (Extended Display Identification Data) configuration allows management of the EDID that is to be sent to the upstream device connected to an HDMI input of the DM-TX-4K-202-C or to an HDMI or VGA input of the DM-TX-4K-302-C. By default, the EDID is set to **DM default 4k 60Hz 2 ch** for an HDMI input or to **01 DM default** for a VGA input. If a different EDID is desired, use DMTool to configure the EDID. An overview of the steps necessary to configure the EDID is as follows:

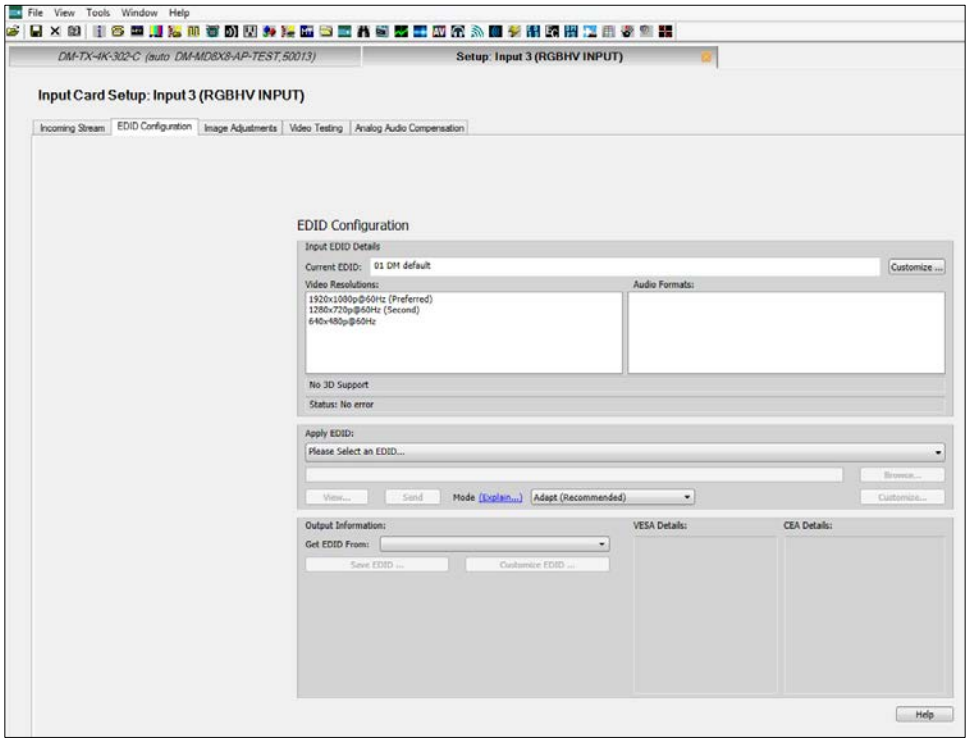
NOTE: For detailed information, refer to the Crestron Toolbox™ help file.

1. Connect to the DM-TX-4K-202-C or DM-TX-4K-302-C.
2. Open the Setup window of the HDMI input for the DM-TX-4K-202-C or the Setup window of the HDMI or VGA input for the DM-TX-4K-302-C.
3. In the EDID Configuration dialog box, configure the EDID by doing any of the following:
    - Customize the current EDID.
    - Load an EDID template and modify it.
    - Create a new EDID file.
    - Load the existing EDID and modify it.
    - Obtain an EDID from the output and then save or customize it.
    - Apply an EDID that is saved on a computer.

EDID Configuration Dialog Box for HDMI Input (DM-TX-4K-302-C Dialog Box Shown)



EDID Configuration Dialog Box for VGA Input (DM-TX-4K-302-C Only)



HDBaseT Configuration

The DM-TX-4K-202-C and DM-TX-4K-302-C are HDBaseT certified, enabling direct connection to other HDBaseT certified equipment. Via the DM 8G+ output of the DM-TX-4K-202-C and DM-TX-4K-302-C, the transmitter can be connected directly to a third-party HDBaseT compliant device without requiring a DigitalMedia receiver.

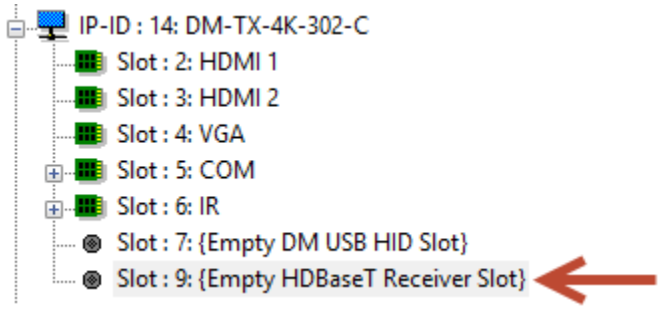
SIMPL Windows allows an HDBaseT receiver device to be added to the DM-TX-4K-202-C or DM-TX-4K-302-C. The HDBaseT receiver device adds a COM port to the DM-TX-4K-202-C or DM-TX-4K-302-C and enables two-way serial communication.

To add a third-party HDBaseT receiver device to the DM-TX-4K-202-C or DM-TX-4K-302-C, use SIMPL Windows. An overview of the necessary step follows.

NOTE: For detailed information, refer to the SIMPL Windows help file.

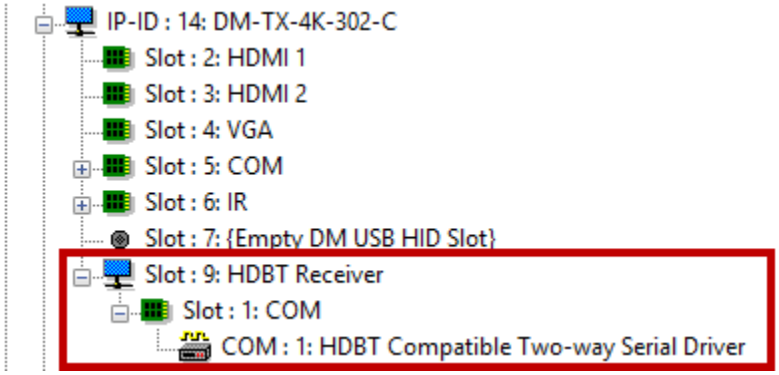
In the Configure View of SIMPL Windows, add a third-party HDBaseT receiver device to slot 9 for the HDBaseT receiver slot of the DM-TX-4K-202-C or DM-TX-4K-302-C.

HDBaseT Receiver Slot (Slot 9)



When the third-party HDBaseT receiver device is added to slot 9, the HDBaseT Receiver symbol adds a COM port to the device and enables two-way serial communication.

Addition of HDBaseT Receiver to Slot 9 and COM Port in Slot 1



USB HID Control Configuration

A keyboard, mouse, or other USB HID compliant device can be connected locally to the USB HID port of the DM-TX-4K-202-C and DM-TX-4K-302-C. The USB HID compliant device can be used to control a remote computer or other host device that is connected to the USB HID compliant port of a DigitalMedia device, that is, a DigitalMedia transmitter or a DMC input card of a DigitalMedia switcher.

Routing of the USB signals is handled by the DigitalMedia system. SIMPL Windows allows routing of USB signals from the device connected to the USB HID port of the DM-TX-4K-202-C or DM-TX-4K-302-C to the host device that is connected to the USB HID compliant port of a DigitalMedia device. To configure USB routing, set the <USB_HID_Control> serial input join to the IP address of the DigitalMedia device to which USB signals are to be routed. The IP address must be in hexadecimal format. For detailed information about the <USB_HID_Control> serial input join and about setting the IP address, refer to the SIMPL Windows help file.

HDCP 2.2 Compliance

The DM-TX-4K-202-C and DM-TX-4K-302-C are compliant with HDCP 2.2. HDCP 2.2, commonly referred to as HDCP 2, is the next generation of HDCP (High-Definition Content Protection). Note the following about HDCP 2:

- Compared to HDCP 1, HDCP 2 brings a higher level of cryptographic protection to HDMI technology.
- HDCP 2 is not HDMI 2. It is possible to have a system built on HDCP 1 and HDMI 2, HDCP 2 and HDMI 1, or HDCP 2 and HDMI 2.
- Although not all 4K content requires HDCP 2, most 4K consumer video content does require HDCP 2.
- Any product that supports HDCP 2 also supports HDCP 1.
- HDCP matters only when the source demands HDCP. If the source demands HDCP 2, then every device in the signal path must support HDCP 2.
- There are no issues related to HDCP 2 and cabling—all cables are “compatible.”

Troubleshooting

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

DM-TX-4K-202-C and DM-TX-4K-302-C Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Video is not displayed, but the audio may be heard.	The HDCP settings of one or more DigitalMedia devices in the signal path do not support the HDCP level of the source.	Ensure that the HDCP settings of all DigitalMedia devices in the signal path support the HDCP level of the source.
	The display does not support the HDCP level of the source.	Ensure that the display supports the HDCP level of the source.
Video is not displayed.	The desired input may not be selected in DMTool.	Ensure that Auto mode is selected or that the desired input is selected in DMTool.
The HDMI video is intermittent.	The HDMI cable connections are faulty.	Verify that each end of the cable is connected properly.
The LAN connection is unresponsive.	The transmitter and another DigitalMedia endpoint are both connected to a DigitalMedia switcher, and the LAN port of the other endpoint is also connected to an Ethernet switch.	When a DigitalMedia endpoint is connected to a DigitalMedia switcher, the LAN port of the endpoint cannot be connected to an Ethernet switch. Disconnect the LAN port from the Ethernet switch.
The transmitter cannot establish a link to the device that is connected to the DM OUT port. The DM link status LED is off.	The cable connections are faulty.	Verify that each end of the cable is properly connected. If necessary, check the cable terminations.
(DM-TX-4K-302-C only) Analog audio is not being heard from the device connected to the AUDIO IN port.	The EDID is not set to 2-channel audio.	Set the EDID to 2-channel audio.
	The analog audio input is not programmed properly in SIMPL Windows.	Ensure that the analog audio input is programmed properly in SIMPL Windows.
	The volume is not set properly in DMTool or in the SIMPL program for the transmitter.	Verify that the volume is properly set for the transmitter.
(DM-TX-4K-302-C only) Component or composite video may not be displayed, may be intermittent, or may be missing color.	The VGA breakout cable connections are faulty.	Ensure that the VGA breakout cable connections are correct.

(Continued on following page)

DM-TX-4K-202-C and DM-TX-4K-302-C Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
The transmitter does not remain powered on.	When the transmitter is not being powered by the included power pack, the DM OUT port is not connected to a PoDM+, PoDM, HDBaseT PoE+, or HDBaseT PoE power sourcing equipment (PSE) port that is required to power the transmitter.	Ensure that the DM OUT port is connected to an appropriate PSE port when not being powered by the included power pack.
The SIMPL Windows program is not operational.	In a configuration in which a DigitalMedia switcher is not used, the IP table is not set properly.	Verify that the IP table is set properly in System Info in the Crestron Toolbox application.
	If the transmitter connects to a DigitalMedia switcher, the transmitter does not connect to the correct DM input port of the switcher.	Ensure that the transmitter connects to the correct DM input port of the switcher.
The video flickers or drops when the transmitter is touched or when metal in the vicinity of the device is touched.	The transmitter is not properly grounded.	Ensure that the transmitter is properly grounded.

NOTE: If, for any reason, the factory default settings of the DM-TX-4K-202-C or DM-TX-4K-302-C must be restored, do the following: From the **Tools** menu in the Crestron Toolbox application, select **Text Console** and enter the following command:

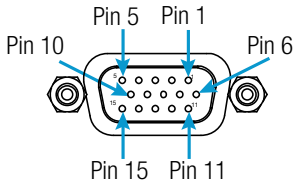
```
restore y
```

Appendix: Pin Assignments

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

- VGA IN (DM-TX-4K-302-C only)
- DM OUT
- LAN

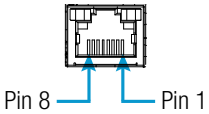
VGA IN Pin Assignments



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			

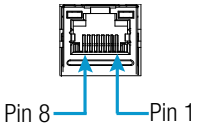
NOTE: For best video performance, ground connections should be kept separate. Do not connect ground wires to the connector shell. The connector shell is reserved for the cable shield.

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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change without notice.