Crestron **CAT5 Wiring** Reference Guide

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Contents

Crestron CAT5 Wiring

Introduction

Category 5 (CAT5) wiring is a twisted pair cable designed for Ethernet networks. These networks operate at speeds of up to 100 Megabits per second (Mbps) using the 100baseT standard. Crestron® takes advantage of this specification for a variety of audio and video applications. This document contains basic CAT5 information and specific wiring connections for Crestron audio and video CAT5 devices.

The term "Category" refers to the classifications of UTP (unshielded twisted pair) cables. The differences in the classification of the cables are their electrical performance criteria. ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify these categories of twisted pair cabling systems, which includes wires, junctions, cable material and connectors, in terms of the data rates that they can sustain. There are currently three main Categories of cable - Category 3, Category 4, and Category 5.

- Category 3 = Rated to 16 MHz (used for Ethernet 10BaseT)
- Category 4 = Rated to 20 MHz (used for Token-Ring, 10BaseT)
- Category 5 = Rated to 100 MHz (used for 100BaseT, 10BaseT)

Under the 10BaseT/100BaseT (twisted pair) standard, the distance between connected components cannot exceed 328 feet (100 meters).

In large Ethernet configurations, Crestron recommends the use of a hub or switch for signal distribution. Generally, in a hub system every device must have a separate wire returning to a central point.

CAT5 wire is typically four pairs of 24AWG solid copper wires, with each pair twisted about three times per inch. It can be supplied with or without a foil shield, and with various outer insulation materials.

CAT5E (enhanced) is essentially the same as CAT5, however it is made to higher electrical standards.

NOTE: Special plenum cable is required if you are running the wire in heating system plenums or in certain commercial settings.

Electrical Measurements of CAT5E Wiring

The specifications for CAT5E wiring can vary within a range as specified by TIA/EIA. These specifications depend on the kind of connections (permanent, patchcords, etc.), the length of cable run, and the type of termination connectors. The following are a list of measurements that are made on CAT5E cables.

- **Attenuation** is a measure of signal loss from one end of a cable to the other, and is measured in each pair of wires.
- **NEXT** (Near End Cross Talk) is a measurement of noise that is coupled from an adjacent pair of wires, usually the receiving pair and the transmitting pair. NEXT is measured for all pair combinations.
- **PSNEXT** (Power Sum NEXT) is the measurement of one pair while all the other pairs are in use. This calculation is made for each pair in the cable.
- **Delay Skew** (Propagation Delay) is the measurement of signal speed through the wires. All the wires of the cable are fed the same signal simultaneously. The time difference at the receiving end of each wire is measured, and the shortest time is subtracted from the longest time.
- **FEXT** (Far End Cross Talk) is measured by transmitting on one pair and measuring cross talk on an adjacent pair at the far end of the cable.
- **ELFEXT** (Equal Level Far End Cross Talk) is FEXT minus Attenuation.
- **PSELFEXT** (Power Sum ELFEXT) uses all wires in the cable.
- **ACR** (Attenuation to Cross Talk Ratio) is a measurement of the ratio of signal to noise and reveals the bandwidth of the cable. It is derived by the difference between NEXT and Attenuation.

Installation Notes

- Never pull CAT5 wire with excessive force. The CAT5 tension limitation is 25 lbs, much lower than standard audio/video cable.
- Never step on or crush, kink, or crimp CAT5.
- Avoid periodic sags; vary the intervals if the cable must sag.
- Do not bend CAT5 wire tightly around a corner; ensure that it bends gradually, so that a whole circle would be at least two inches in diameter.
- Do not allow knots or kinks, even temporarily.
- When using conduit, do not fill to more than 40% if using more than two cables (National Electrical Code, Chapter 9, Table 1).
- Never untwist the two wires in a single pair for more than 1/3-1/2" (0.84 – 1.27 cm) when making a connection (the twists are critical to canceling out interference between the wires).
- Never run CAT5 parallel to power wiring closer than six inches.
- Avoid splices. Every splice degrades the line.

CAT5 Pin and Color Specifications

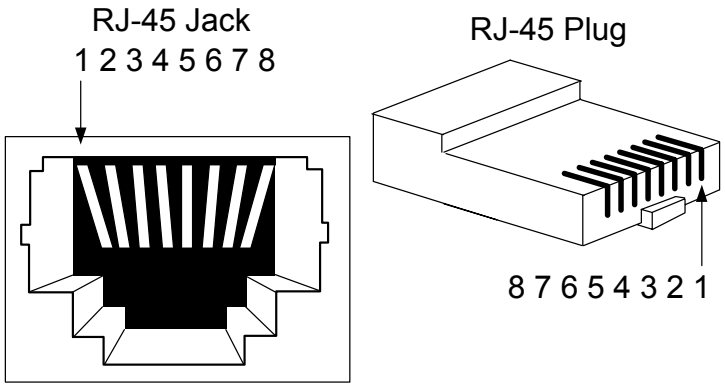
There are two standards for CAT5 wiring, TIA-568B and TIA-568A.

TIA-568B is a straight-through connection. The signals on pins 1 through 8 are identical on both ends of the cable.

TIA-568A is a straight-through connection. The signals on pins 1 through 8 are identical on both ends of the cable. However, the orange and green pairs of wires exchange pair numbers and are connected to different pins than TIA-568B.

NOTE: To determine which pin is number 1, hold the cable so that the end of the eight pin modular plug is facing toward you, with clip down and copper side up. When looking down at the copper connections, pin 1 will be on the far right.

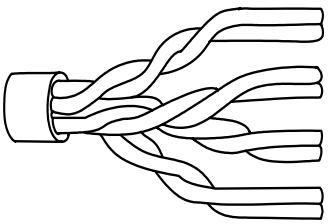
NOTE: Do not confuse pair numbers with pin numbers. A pair number is used for reference only (e.g., 10BaseT Ethernet uses pairs 2 & 3). The pin numbers indicate actual physical locations on the plug and jack.



CAT5 Cable Pairs

The CAT5 twisted cable pairs are color-coded; the pair colors depend on which EIA specification is used, TIA-568B or TIA-568A.

CAT5 Pair Color Coding



PAIR #	SPECIFICATION TIA-568B	SPECIFICATION TIA-568A
Pair 1	White/Blue Blue	White/Blue Blue
Pair 2	White/Orange Orange	White/Green Green
Pair 3	White/Green Green	White/Orange Orange
Pair 4	White/Brown Brown	White/Brown Brown

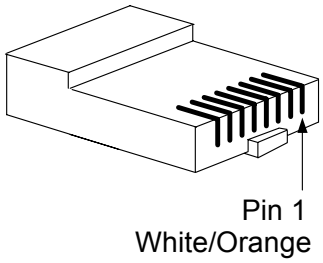
NOTE: Because of their identical pair groupings, cables terminated with either T568A or T568B pair assignments may be used interchangeably, provided that both ends are terminated with the same pin/pair scheme.

CAT5 Wiring EIA Specification TIA-568B

Crestron standard CAT5 cable color/pin arrangement is EIA specification TIA-568B, with identical pin assignments on both ends of the cable.

RJ-45 Jack Pinouts – Standard 568B

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

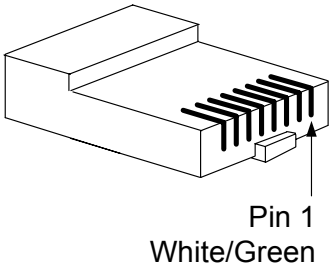


CAT5 Wiring EIA Specification TIA-568A

In the EIA specification TIA-568A CAT5 cable color/pin arrangement, the pairs remain the same, but the pin number assignment for the orange and green pairs change.

RJ-45 Jack Pinouts – Standard 568A

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



Audio Applications

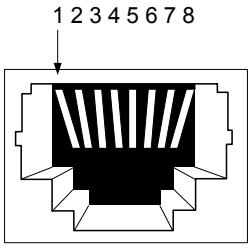
NOTE: Balanced audio does not require a shield if the cable has good common mode characteristics (such as CAT5). Unbalanced audio signals are sent on a single wire, using ground as the reference for the signal. Ground wires are problematic because they can carry current when exposed to electromagnetic fields or when there is a voltage difference between the two connecting pieces of equipment. Balanced audio uses two signal wires. The signal and its complement are sent down the twisted pair together. Any noise picked up tends to be of equal amplitude and in phase on both wires. At the receiver, the two signals are subtracted, and noise is cancelled out. This technique is called common mode rejection.

ABAR-1/ABARI-1 Balanced Audio Connector

This eight-pin RJ-45 port receives audio output signals from Crestron Home (CH) products such as the CNXRMCLV, CEN-IDOC, and CNX-BIPAD8 (as well as others).

ABAR-1 RJ-45 Audio Connector

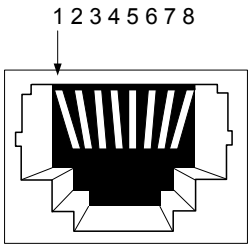
PIN #	SIGNAL
1	Audio Left In +
2	Audio Left In -
3	Audio Right In +
4	Not Connected
5	Not Connected
6	Audio Right In -
7	Not Connected
8	Not Connected



CEN-IDOC/CENI-IDOC Balanced Audio Connector

CEN-IDOC/CENI-IDOC RJ-45 Audio Connector

PIN #	SIGNAL
1	Audio Left Out +
2	Audio Left Out -
3	Audio Right Out +
4	Not Connected
5	Not Connected
6	Audio Right Out -
7	Not Connected
8	Not Connected

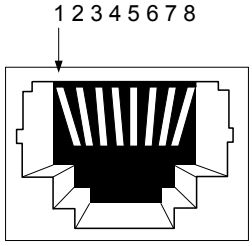


CNX-PBAR4 Balanced Audio Connector

The 8-pin RJ-45 connectors provide bi-directional balanced audio connection to CNXRMCLV room boxes and to CNX-BIPAD8 audio distribution processors.

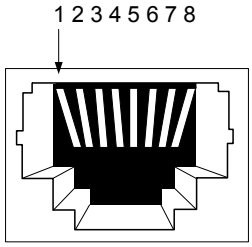
CNX-PBAR4 RJ-45 Audio Connector (AUDIO INPUT)

PIN #	SIGNAL
1	Audio Left In +
2	Audio Left In -
3	Audio Right In +
4	Audio Left Out +
5	Audio Left Out -
6	Audio Right In -
7	Audio Right Out +
8	Audio Right Out -



CNX-PBAR4 RJ-45 Audio Connector (AUDIO OUTPUT)

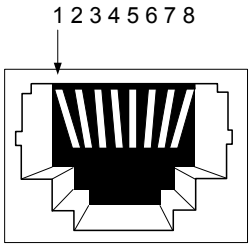
PIN #	SIGNAL
1	Audio Left Out +
2	Audio Left Out -
3	Audio Right Out +
4	Audio Left In +
5	Audio Left In -
6	Audio Right Out -
7	Audio Right In +
8	Audio Right In -



CNXRMCLV Balanced Audio Connector

CNXRMCLV RJ-45 Connector Pinout (AUDIO)

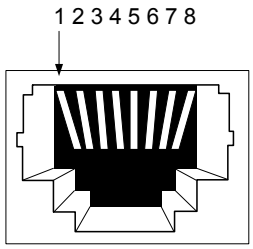
PIN #	SIGNAL
1	Audio out L +
2	Audio out L -
3	Audio out R +
4	Audio In L +
5	Audio In L -
6	Audio out R -
7	Audio In R +
8	Audio In R -



CNX-BIPAD8 Balanced Audio Connector

CNX-BIPAD8 RJ-45 Connector Pinout (ROOMS 1 – 8)

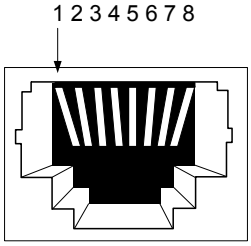
PIN #	SIGNAL
1	Audio In L +
2	Audio In L -
3	Audio In R +
4	Audio Out L +
5	Audio Out L -
6	Audio In R -
7	Audio Out R +
8	Audio Out R -



Crestron Home (CH) Balanced Audio Connector

Crestron Home (CH) RJ-45 Audio Connector

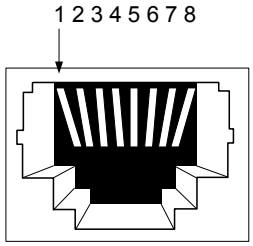
PIN #	SIGNAL
1	Mic Left Out +
2	Mic Left Out -
3	Mic Right Out +
4	Audio Left In +
5	Audio Left In -
6	Mic Right Out -
7	Audio Right In +
8	Audio Right In -



TPS-IMC-BV Balanced Audio Connector

TPS-IMC-BV RJ-45 Connector Pinout (AUDIO INPUT)

PIN #	SIGNAL
1	Mic out +
2	Mic out -
3	Mic out +
4	Audio In L +
5	Audio In L -
6	Mic out -
7	Audio In R +
8	Audio In R -



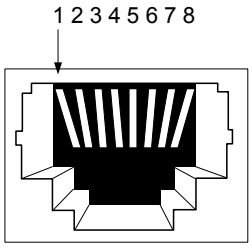
TPS-IMPC Balanced Audio Connector

This 8-pin RJ-45 mates with the TPS-3000, TPS-5000, or TPS-6000 touchpanel. The 8-pin audio cable assembly is supplied. Even though the 10-pin net/video cable may

fit into the port, do not use it. This port provides audio input to the touchpanel and microphone output from the touchpanel.

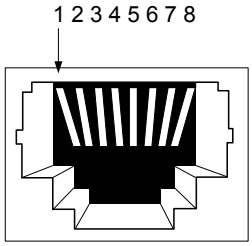
TPS-IMPC RJ-45 Connector Pinout (AUDIO)

PIN #	SIGNAL
1	Left In +
2	Left In -
3	GND/Shield
4	Right In +
5	Right In -
6	GND/Shield
7	Mic Out +
8	Mic Out -



TPS-IMW Audio Connector

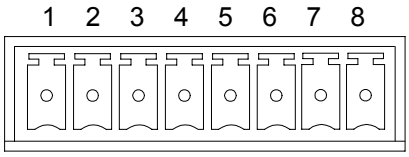
PIN #	SIGNAL
1	Audio Shield
2	Audio Left +
3	Audio Left -
4	Audio Right +
5	Audio Right -
6	Mic Out Shield
7	Mic Out +
8	Mic Out -



TPS-2000L Balanced Audio Connector

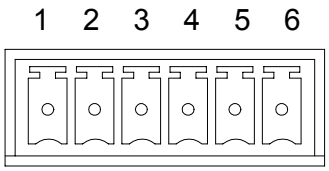
TPS-2000L Mini 8-pin Connector Pinout (Mono Audio)

PIN #	SIGNAL
1	Audio In +
2	Audio In -
3	Ground/Shield
4	Mic Out +
5	Mic Out -
6	Ground/Shield
7	Video In +
8	Video In -



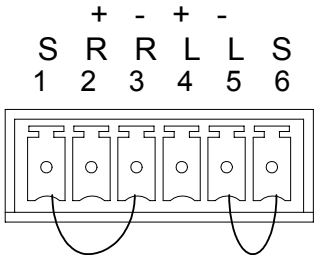
TPS-3000L/3100L/4000L Balanced Audio Connector

PIN #	SIGNAL
1	Shield (S)
2	Right In +
3	Right In -
4	Left In +
5	Left In -
6	Shield (S)



TPS-3000L/TPS-3100L/4000L Unbalanced Audio Connector

PIN #	SIGNAL
1	Ground (S)
2	Right In +
3	Right Ground -
4	Left Input +
5	Left Ground -
6	Ground (S)

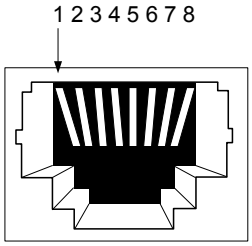


NOTE: Use two jumpers and connect Right Ground (pin 3) to Right Shield (pin 1), and connect Left Ground (pin 5) to Left Shield (pin 6) at the TPS-3000L Audio Input connector.

C2N-DAP8 and C2N-DAP8RC Balanced Audio Connector

C2N-DAP8RC RJ-45 Audio Connector

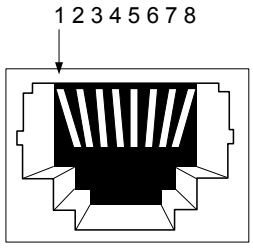
PIN #	SIGNAL
1	Left Audio Out +
2	Left Audio Out -
3	Right Audio Out +
4	Right Audio Out -
5	Left Audio In +
6	Left Audio In -
7	Right Audio In +
8	Right Audio In -



C2N-TXM Audio Out Connector

C2N-TXM AUDIO OUT Pinout

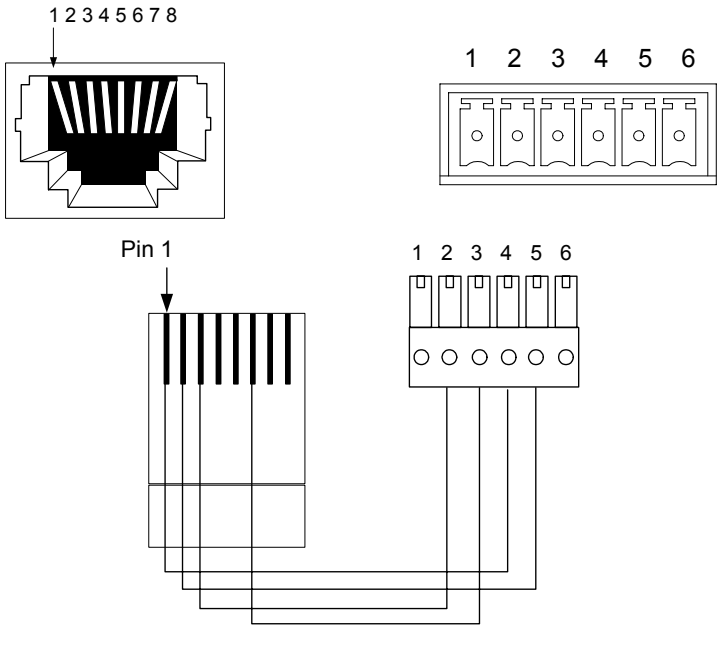
PIN #	SIGNAL
1	Left Audio Out +
2	Left Audio Out -
3	Right Audio Out +
4	Not Connected
5	Not Connected
6	Right Audio Out +
7	Not Connected
8	Not Connected



Balanced Audio Cable from CNXRMCLV to TPS-IMC, TPS-IMC-BV, & TPS-IMW

Audio Cable Connections From CNXRMCLV RJ-45 Connector (AUDIO) to TPS-IMC, TPS-IMC-BV and TPS-IMW Mini Connector (AUDIO INPUT)

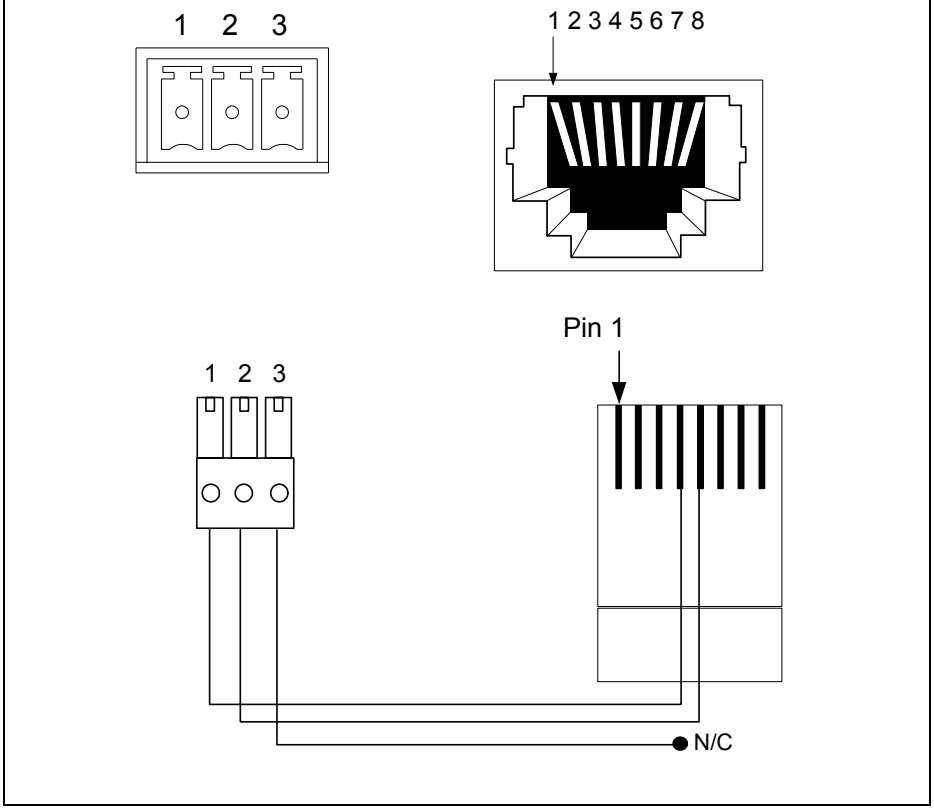
FROM PIN #	CNXRMCLV (AUDIO) RJ-45 CONNECTOR	TO PIN #	TPS-IMC, TPS-IMC-BV AND TPS-IMW (AUDIO INPUT) MINI CONNECTOR
3	Audio Out R +	2	Audio In R +
6	Audio Out R -	3	Audio In R -
1	Audio Out L +	4	Audio In L +
2	Audio Out L -	5	Audio In L -



Mic Cable Wiring from TPS-IMC, TPS-IMC-BV, & TPS-IMW to CNXRMCLV

TPS-IMC, TPS-IMC-BV and TPS-IMW Mini Connector (MIC OUT) to CNXRMCLV RJ-45 Connector (AUDIO)

FROM PIN #	TPS-IMC, TPS-IMC-BV AND TPS-IMW (MIC OUT) MINI CONNECTOR	TO PIN #	CNXRMCLV (AUDIO) RJ-45 CONNECTOR
1	Mic Out +	4	Audio In +
2	Mic Out -	5	Audio In -
3	Shield	Not Connected	Not Connected

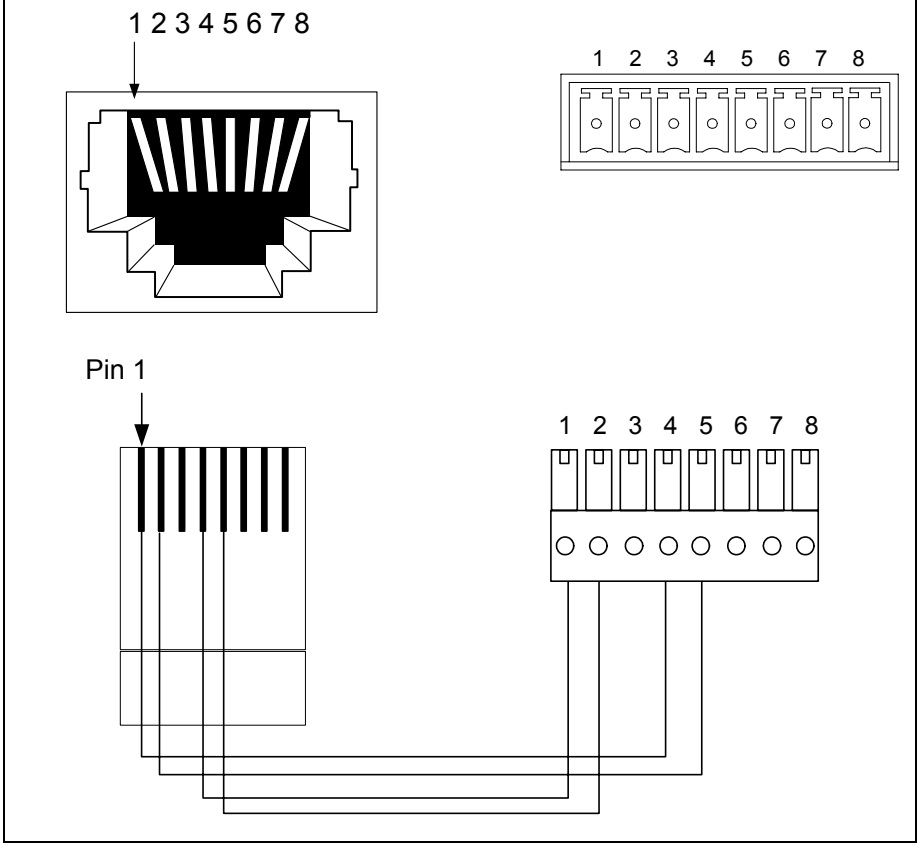


Balanced Audio Connection from CNX-BIPAD8 to TPS-2000L

NOTE: Set to MONO on output.

CNX-BIPAD8 RJ-45 Connector (ROOMS 1 – 8) to 8-pin TPS-2000L Mini Connector

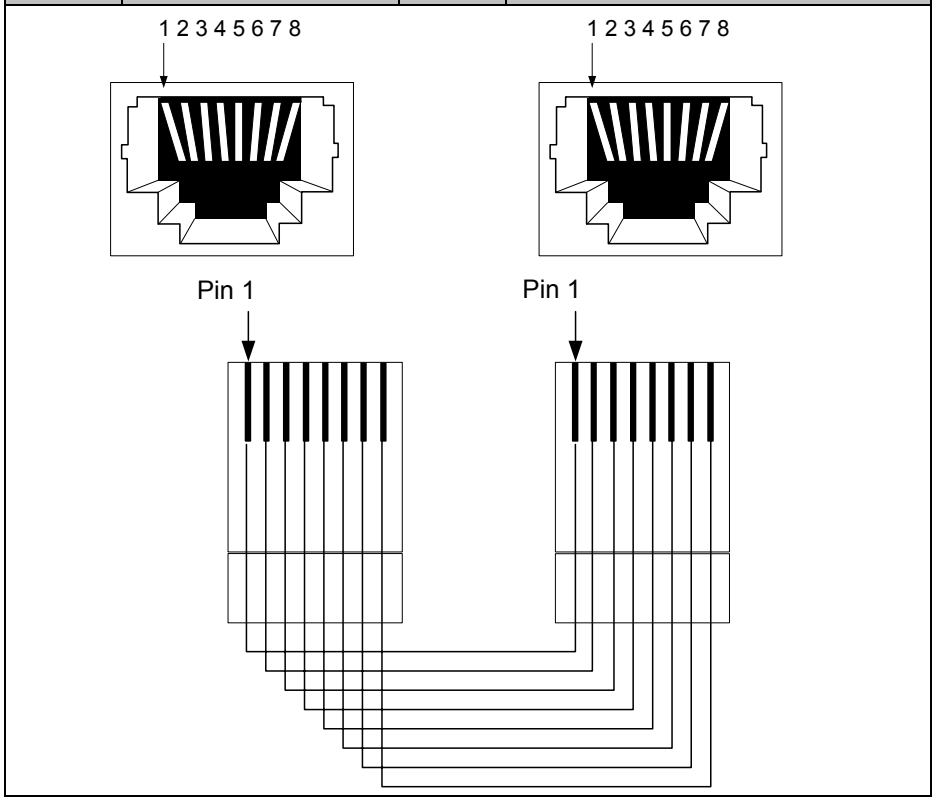
FROM PIN #	CNX-BIPAD8 (ROOMS 1 - 8) RJ-45 CONNECTOR	TO PIN #	TPS-2000L MINI CONNECTOR (MONO AUDIO)
4	Left Audio Out +	1	Audio In +
5	Left Audio Out -	2	Audio In -
Not Connected	Not Connected	3	Ground/Shield
1	Audio Left In +	4	Mic Out +
2	Audio Left In -	5	Mic Out -
Not Connected	Not Connected	6	Ground/Shield
Not Connected	Not Connected	7	Video In +
Not Connected	Not Connected	8	Video In -



Balanced Audio Connections from TPS-IMC-BV to CNX-BIPAD8 (Mic and Audio)

Mic and Audio from TPS-IMC-BV RJ-45 Connector (AUDIO INPUT) to CNX-BIPAD8 RJ-45 Connector (ROOMS 1 – 8)

FROM PIN #	TPS-IMC-BV (AUDIO INPUT) RJ-45 CONNECTOR	TO PIN #	CNX-BIPAD8 (ROOMS 1 - 8) RJ-45 CONNECTOR
1	Mic Out +	1	Audio In L + for the mic to operate
2	Mic Out -	2	Audio In L - for the mic to operate
3	Mic Out +	3	Audio In R + for the mic to operate
4	Audio Left In +	4	Audio Left out +
5	Audio Left In -	5	Audio Left out -
6	Mic Out -	6	Audio In R - for the mic to operate
7	Audio In Right +	7	Audio Out Right +
8	Audio In Right -	8	Audio Out Right -

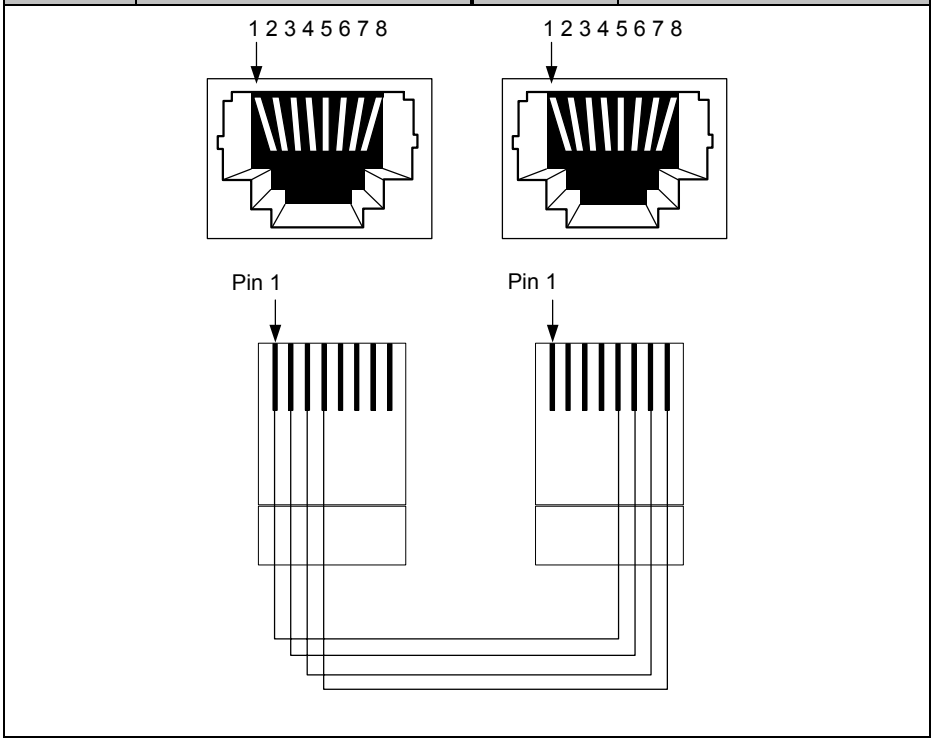


Connect the TPS-IMC-BV to the CNX-BIPAD8 using the Crestron TPS Audio cable. Audio on both channels will work properly when connecting the TPS panel and the TPS-IMC-BV and using a standard EIA 568B CAT5 cable between CNX-BIPAD8 and TPS-IMC-BV.

When connecting the CNX-BIPAD8 direct to the TPS touchpanel (not using the TPS-IMC-BV) using a standard CAT5 cable or Crestron TPS Audio cable, only the audio on the right channel will operate.

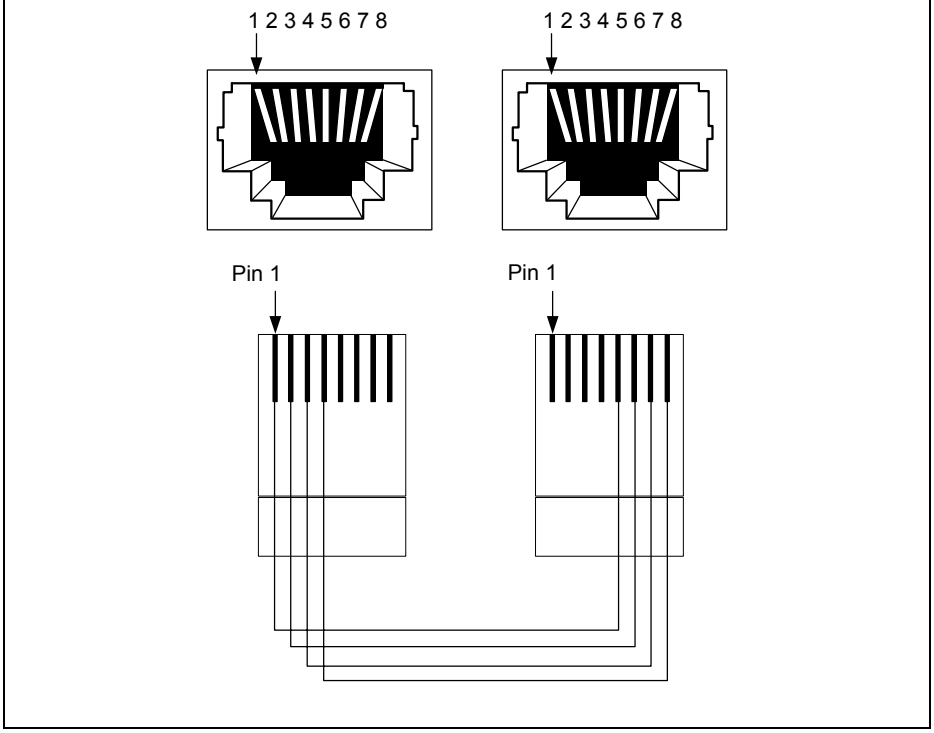
Audio from C2N-DAP8RC to CNXRMCLV

C2N-DAP8RC RJ-45 Audio Connector		*CNXRMCLV RJ-45 Connector (AUDIO)*	
PIN #	**SIGNAL**	**PIN #**	**SIGNAL**
1	Left Audio Out +	1	Left Audio Out +
2	Left Audio Out -	2	Left Audio Out -
3	Right Audio Out +	3	Right Audio Out +
4	Right Audio Out -	4	Right Audio Out +
5	Left Audio In +	5	Left Audio In +
6	Left Audio In -	6	Left Audio In -
7	Right Audio In +	7	Right Audio In +
8	Right Audio In -	8	Right Audio In -



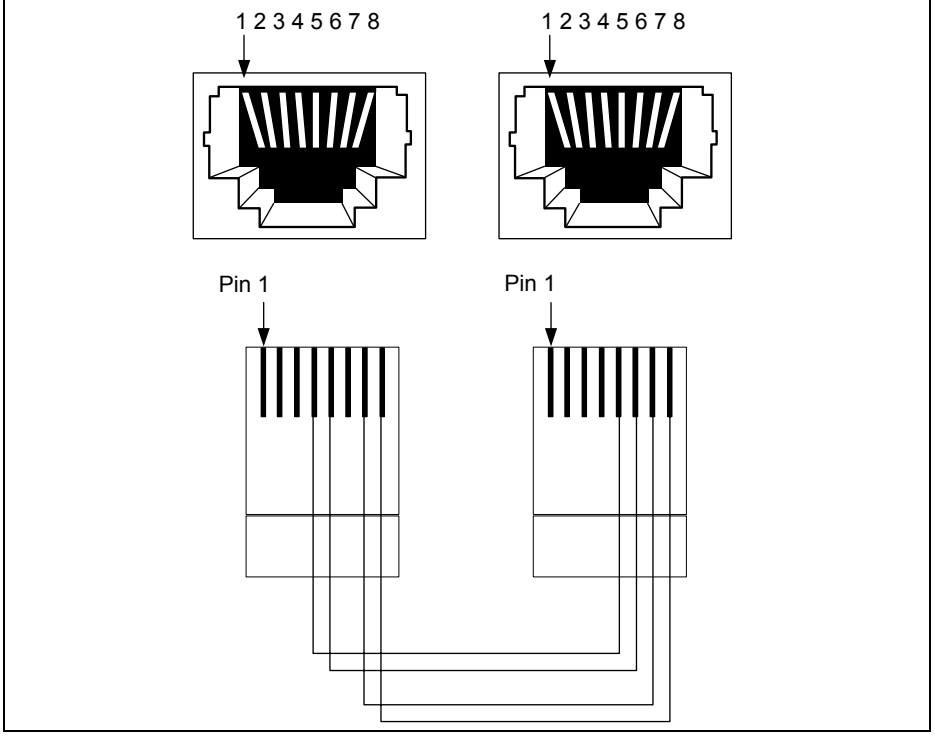
Audio from CNXRMCLV to C2N-DAP8

CNXRMCLV RJ-45 Connector (AUDIO)		*C2N-DAP8RC RJ-45 Audio Connector*	
PIN #	**SIGNAL**	**PIN #**	**SIGNAL**
1	Left Audio Out +	1	Left Audio Out +
2	Left Audio Out -	2	Left Audio Out -
3	Right Audio Out +	3	Right Audio Out +
4	Right Audio Out -	4	Right Audio Out +
5	Left Audio In +	5	Left Audio In +
6	Left Audio In -	6	Left Audio In -
7	Right Audio In +	7	Right Audio In +
8	Right Audio In -	8	Right Audio In -



Audio from CNX-BIPAD8 to C2N-DAP8

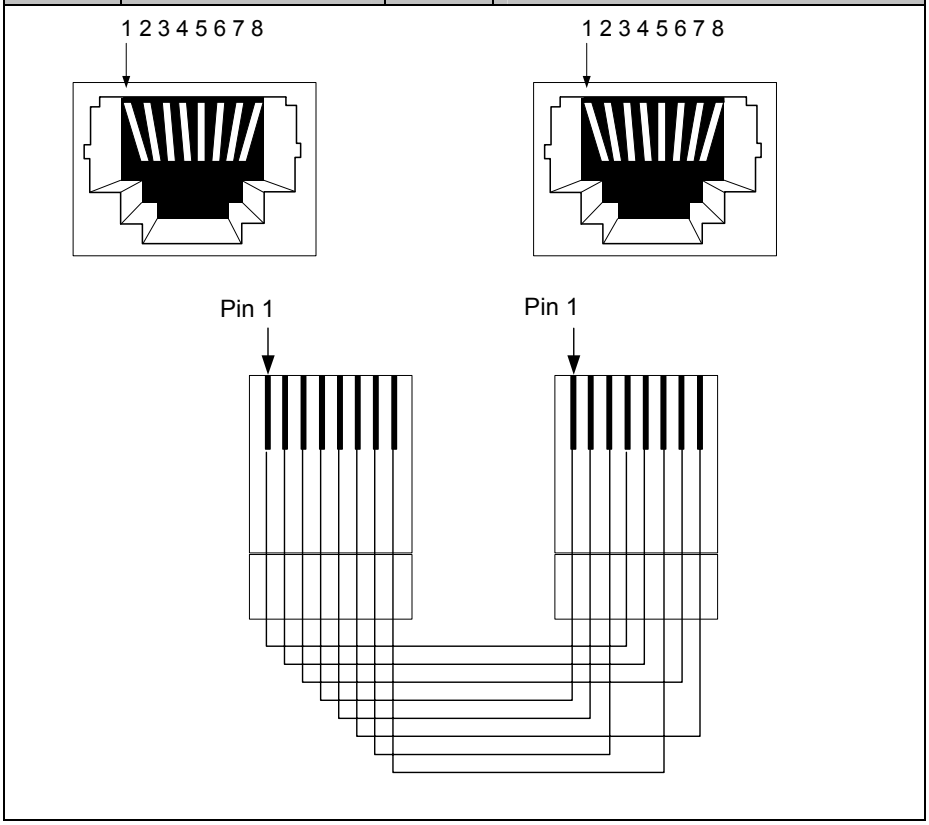
CNX-BIPAD8 RJ-45 (ROOMS 1 – 8) Connector		*C2N-DAP8 AUDIO*	
PIN #	**SIGNAL**	**PIN #**	**SIGNAL**
1	Left Audio In +	1	Left Audio Out +
2	Left Audio In -	2	Left Audio Out -
3	Right Audio In +	3	Right Audio Out +
4	Left Audio Out +	4	Right Audio Out -
5	Left Audio Out -	5	Left Audio In +
6	Right Audio In -	6	Left Audio In -
7	Right Audio Out +	7	Right Audio In +
8	Right Audio Out -	8	Right Audio In -



Audio and Mic Connections from TPS-IMC-BV to CNXRMCLV

Audio and Mic from TPS-IMC-BV RJ-45 Connector (AUDIO INPUT) to CNXRMCLV RJ-45 Connector (AUDIO) via Custom Cable

FROM PIN #	TPS-IMC-BV (AUDUIO INPUT) RJ-45 CONNECTOR	TO PIN #	CNXRMCLV (AUDIO) RJ-45 CONNECTOR
1	Mic Out +	4	Audio In L + for the mic to operate
2	Mic Out -	5	Audio In L - for the mic to operate
3	Mic Out +	7	Audio In R + for the mic to operate
4	Audio Left In +	1	Audio Left out +
5	Audio Left In -	2	Audio Left out -
6	Mic out -	8	Audio In R - for the mic to operate
7	Audio In Right +	3	Audio Out Right +
8	Audio In Right –	6	Audio Out Right -



NOTE: Connecting the TPS-IMC-BV to the CNX-RMCLV does not work when using a standard CAT5 cable for balanced audio. You must make the custom cable in the preceding table.

Audio and Mic Connections to Touchpanel Direct from CNXRMCLV

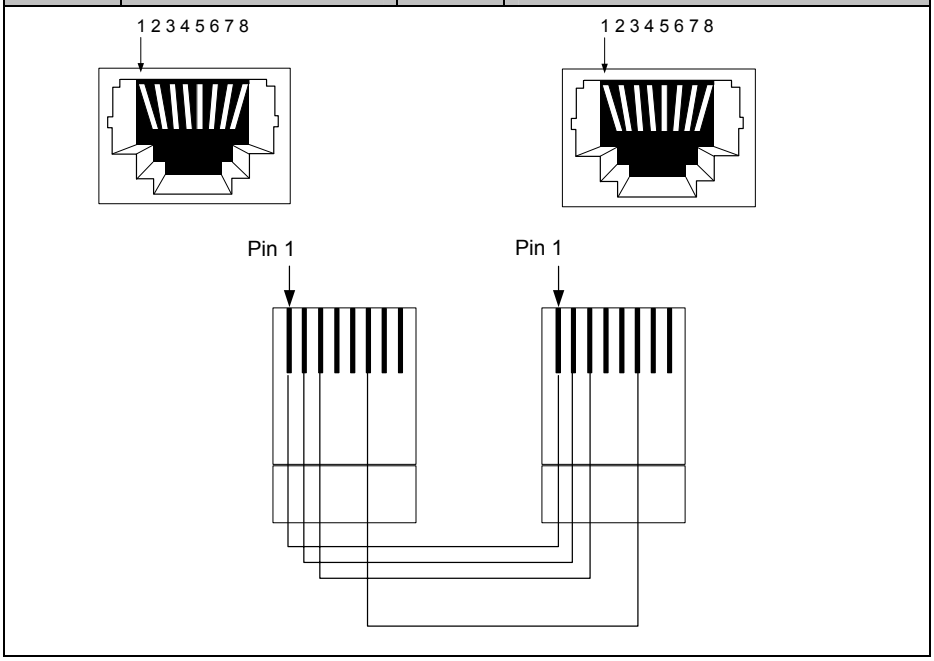
When wiring the TPS touch panel direct to the CNXRMCLV, audio on the left channel works using either a standard CAT5 cable or the Crestron TPS Audio cable.

The MIC OUT of the TPS-IMC-BV to a CNXRMCLV does not work if you use a standard CAT5 cable. If you wire directly to the TPS panel not using the TPS-IMC-BV, only the right channel is available. The recommended way to wire audio to the CNXRMCLV, and obtain both channels of audio to the TPS touchpanel, is to use the TPS-IMC or TPS-IMW and connect the CNXRMCLV directly to the mini connector labeled AUDIO INPUT, using a CAT5 cable. Refer to page 10 for a diagram.

Audio Output from C2N-TXM to CNX-BIPAD8

Audio from C2N-TXM RJ-45 Connector (AUDIO OUTPUT) to CNX-BIPAD8 RJ-45 Connector

FROM PIN #	C2N-TXM (AUDIO OUTPUT) RJ-45 CONNECTOR	TO PIN #	CNX-BIPAD8 (ROOMS 1 - 8) RJ-45 CONNECTOR
1	Audio Out L +	1	Audio In L +
2	Audio Out L -	2	Audio In L -
3	Audio Out R +	3	Audio In R
4	Not Connected	4	Not Connected
5	Not Connected	5	Not Connected
6	Audio Out R -	6	Audio In R -
7	Not Connected	7	Not Connected
8	Not Connected	8	Not Connected



Balanced and Unbalanced Audio and Video Applications

Balanced Audio and Balanced Video from CNXRMCLV to TPS-2000L

NOTE: Requires two cables, one from the AUDIO RJ-45 connector, and one from the VIDEO OUT RJ-45 connector.

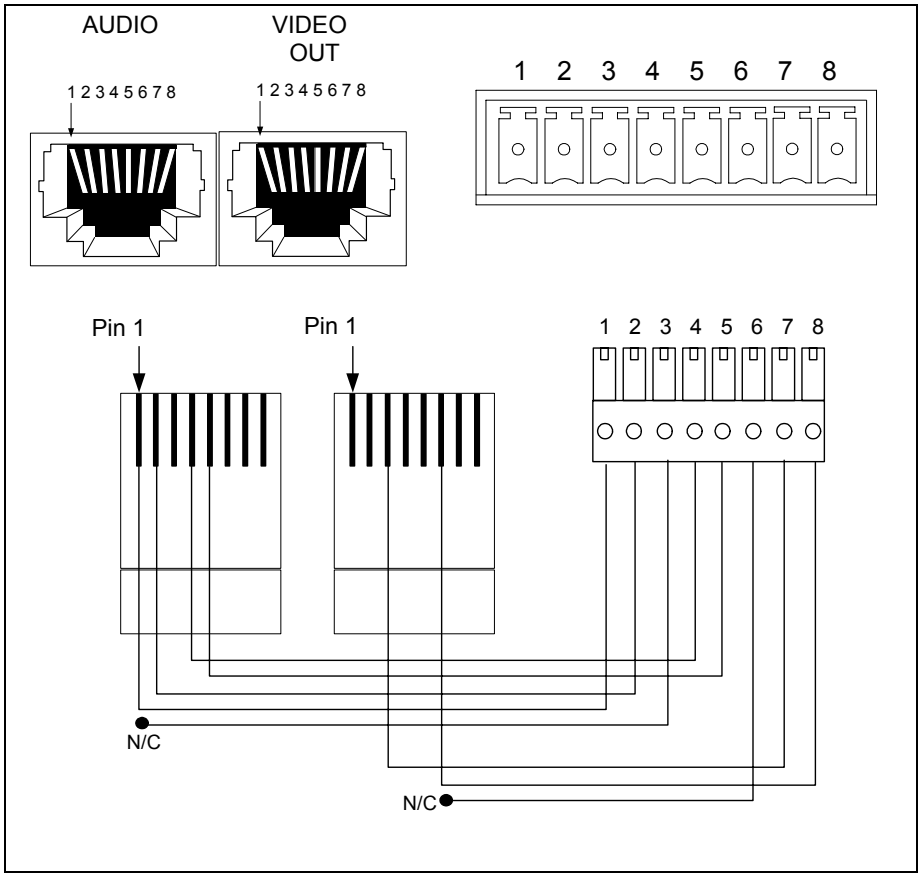
NOTE: Video out from the CNXRMCLV is on Channel F using the configuration below. This is the recommended connection.

NOTE: Video out of the CNX-PVID is level 2.

Balanced Audio and Balanced Video Connections from CNXRMCLV RJ-45 Connectors (AUDIO and VIDEO OUT) to TPS-2000L Mini Connector

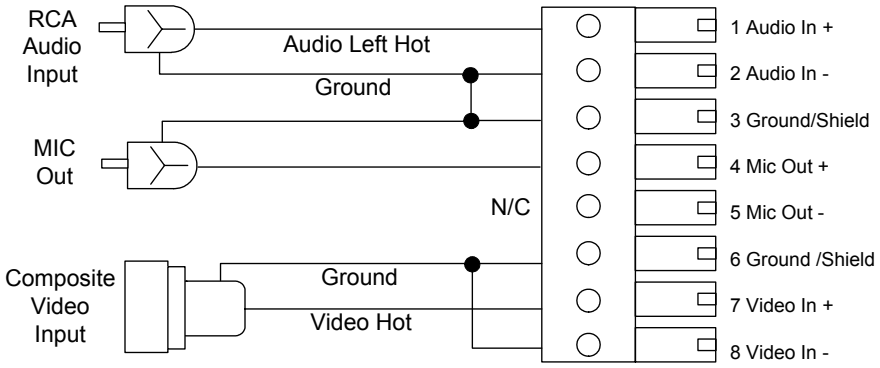
FROM PIN #		CNXRMCLV (AUDIO & VIDEO OUT) RJ-45 CONNECTORS	TO PIN #	TPS-2000L MINI CONNECTOR
Audio CAT5	1	Audio Out + (from RJ-45 Audio connector)	1	Audio In +
	2	Audio Out - (from RJ-45 Audio connector)	2	Audio In -
	Not Connected	Not Connected	3	Ground/Shield
	4	Audio In + (from RJ-45 Audio connector)	4	Mic Out +
	5	Audio In – (from RJ-45 Audio connector)	5	Mic Out -
	Not Connected	Not Connected	6	Ground/Shield
Video CAT5	3	Video Out + (From RJ-45 VIDEO OUT connector) Balanced + Video from CNX-PVID or Room Box	7	Video In +
	6	Video Out - (From RJ-45 VIDEO OUT connector) Balanced - Video from CNX-PVID or Room Box	8	Video In -

Balanced Audio and Balanced Video Connections from CNXRMCLV RJ-45 Connectors (AUDIO and VIDEO OUT) to TPS-2000L Mini Connector) - Continued



Unbalanced Audio Input, Video Input, and MIC Output for a TPS-2000L

Unbalanced Audio and Video Connections for a TPS-2000L Mini Connector



For unbalanced audio input single-ended connections, connect the signal (-) terminal, and the ground/shield terminal, to the input ground/shield.

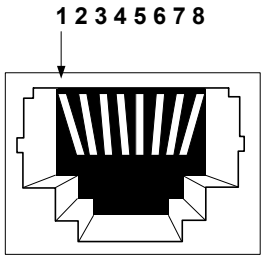
- For unbalanced audio input, connect the hot lead (+) of standard audio cable to pins 1 and ground (-) to pin 2. Provide a jumper from pin 2 to pin 3 Ground/Shield.
- For unbalanced MIC output, connect the standard audio cable hot lead (+) to pin 4 and the shield to pin 3. Pin 5 is not connected. The output of audio should never be grounded, that could damage the chip.
- For unbalanced video input, connect the hot lead to pin 7 and the shield to pin 8 and 6.
- MIC Out is a line level output.

Balanced Video Applications

Crestron Home (CH) Balanced Video Connector

Crestron Home (CH) RJ-45 Video Connector

PIN #	SIGNAL
1	Level 1 +
2	Level 1 -
3	Level 2 +
4	Level 3 +
5	Level 3 -
6	Level 2 -
7	Not Connected
8	Not Connected



Level 1 = Composite Video

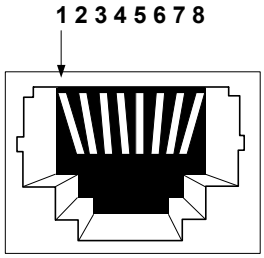
Level 1 plus 2 = S-Video (Y on level 1 and C on level 2)

Level 1 plus 2 plus 3 = Component Video (Y, P_B, P_R)

CNXRMCLV Balanced Input and Output Video Connectors

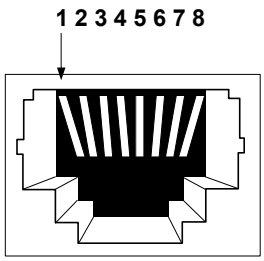
CNXRMCLV RJ-45 Connector Pinout (VIDEO IN)

PIN #	SIGNAL
1	Level 1 +
2	Level 1 -
3	Level 2 +
4	Level 3 +
5	Level 3 -
6	Level 2 -
7	Level 4 +
8	Level 4 -



CNXRMCLV RJ-45 Connector Pinout (VIDEO OUT)

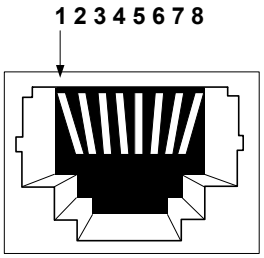
PIN #	SIGNAL
1	Output E +
2	Output E -
3	Output F +
4	Output G -
5	Output G +
6	Output F -
7	Output H +
8	Output H -



CNX-PVID8 Balanced Video Connector

CNX –PVID8 RJ-45 Connector Pinout (ROOMS 1 - 8)

PIN #	SIGNAL
1	Level 1 +
2	Level 1 -
3	Level 2 +
4	Level 3 +
5	Level 3 -
6	Level 2 -
7	Level 4 +
8	Level 4 -



TPS-IMW NET/Video Connector

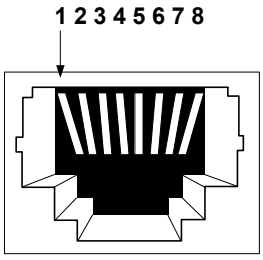
NET/VIDEO 10-Pin RJ-45 Connector

PIN #	SIGNAL	DESCRIPTION
1	+24V	Power (Network)
2	GND	Ground (Network)
3	C+	Chrominance (Positive)
4	C-	Chrominance (Negative)
5	Y	Data (Network)
6	Z	Data (Network)
7	Y+	Luminance (Positive)/Composite
8	Y-	Luminance (Negative)/Composite
9	GND	Ground (Network)
10	+24V	Power (Network)

TPS-IMC-BV Balanced Video Connector

TPS-IMC-BV RJ-45 Connector Pinout (BALANCED VIDEO)

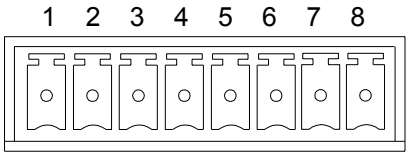
PIN #	SIGNAL
1	Chrominance +
2	Chrominance -
3	Luminance +
4	Not Connected
5	Not Connected
6	Luminance -
7	Not Connected
8	Not Connected



TPS-2000L Video and Audio Connector

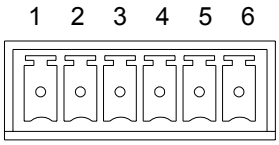
TPS-2000L Mini 8-Pin Connector Pinout

PIN #	SIGNAL
1	Audio In +
2	Audio In -
3	Ground/Shield
4	Mic Out +
5	Mic Out -
6	Ground/Shield
7	Video In +
8	Video In -



TPS-3000L/TPS-3100L/4000L NTSC/PAL Balanced Video Input Connector

PIN #	SIGNAL
1	Chrominance +
2	Chrominance -
3	Chrominance Shield
4	Luminance +
5	Luminance -
6	Luminance Shield

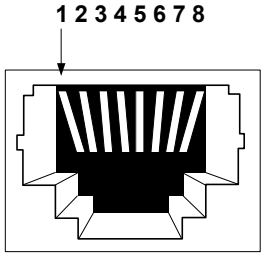


NOTE: When sending balanced video from a CNX-BIPAD8 or CNX-PVID device, only the positive and negative wires are connected to the touchpanel. Do not connect the Shield (S) wires.

CNXRMC Balanced Video Input Connector

CNXRMC RJ-45 Connector Pinout (VIDEO IN)

PIN #	SIGNAL
1	Level 1 +
2	Level 1 -
3	Level 2 +
4	Level 3 +
5	Level 3 -
6	Level 2 -
7	Not Connected
8	Not Connectec



Level 1 = Composite Video

Level 1 plus 2 = S-Video (Y on level 1 and C on level 2)

Level 1 plus 2 plus 3 = Component Video (Y, P_B, P_R)

Level 4 = Composite Video (fixed compensation) or Digital Audio

Balanced Video From CNX-PVID8 to C2N-DAP8RC

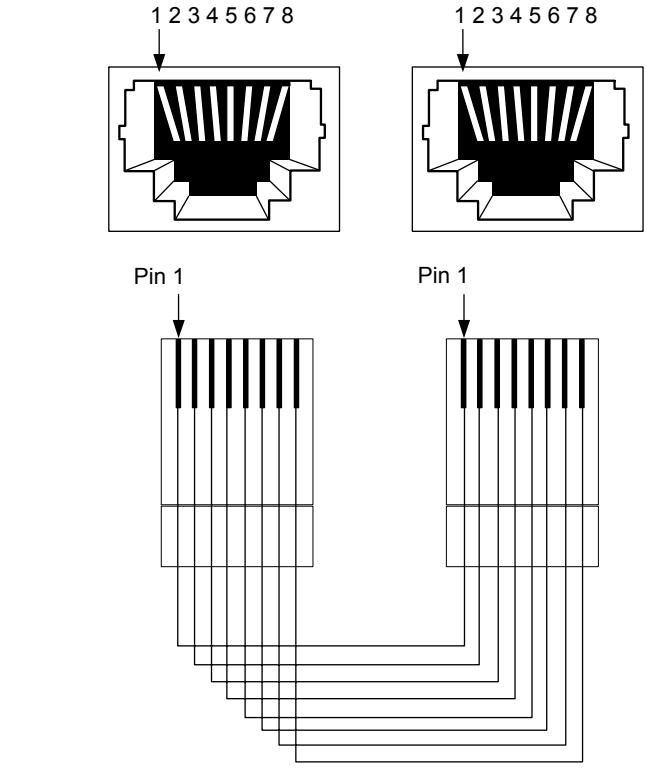
Level 1 = Composite Video

Level 1 plus 2 = S-Video (Y on level 1 and C on level 2)

Level 1 plus 2 plus 3 = Component Video (Y, P_B, P_R)

Level 4 = Composite Video (fixed compensation) or Digital Audio

CNX –PVID8 RJ-45 Connector (ROOMS 1 - 8)		***C2N-DAP8RC RJ-45 Video IN Connector***	
PIN #	**SIGNAL**	**PIN #**	**SIGNAL**
1	Level 1 +	1	Level 1 +
2	Level 1 -	2	Level 1 -
3	Level 2 +	3	Level 2 +
4	Level 3 +	4	Level 3 +
5	Level 3 -	5	Level 3 -
6	Level 2 -	6	Level 2 -
7	Level 4 +	7	Level 4 +
8	Level 4 -	8	Level 4 -



Balanced Video From C2N-DAP8RC to CNX-PBVR4

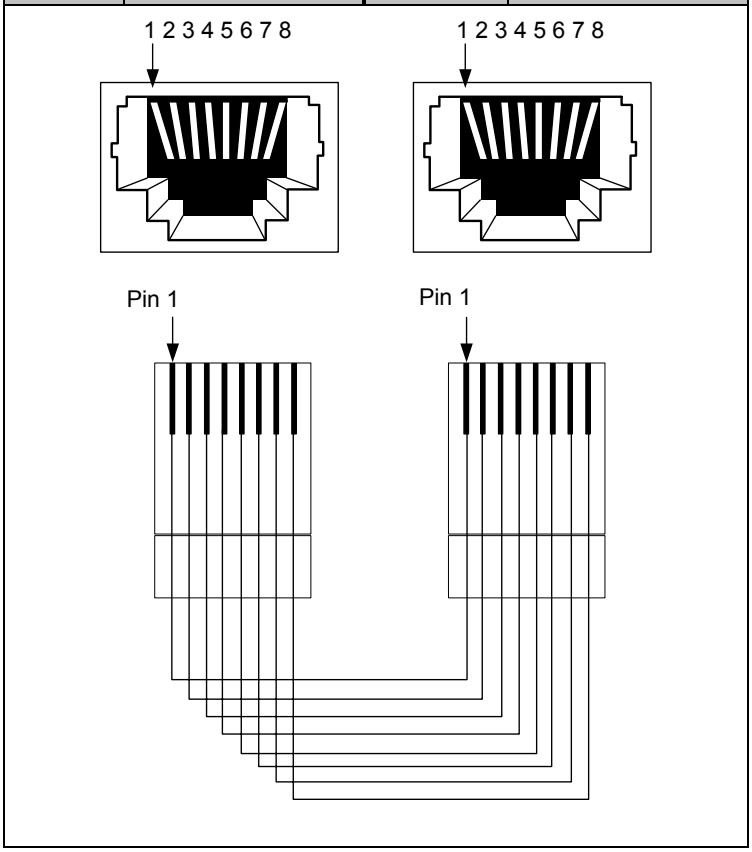
Level 1 = Composite Video

Level 1 plus 2 = S-Video (Y on level 1 and C on level 2)

Level 1 plus 2 plus 3 = Component Video (Y, P_B, P_R)

Level 4 = Composite Video (fixed compensation) or Digital Audio

C2N –DAP8RC RJ-45 VIDEO OUT Connector		*CNX-PBVR4 RJ-45 VIDEO IN Connector*	
PIN #	**SIGNAL**	**PIN #**	**SIGNAL**
1	Level 1 +	1	Level 1 +
2	Level 1 -	2	Level 1 -
3	Level 2 +	3	Level 2 +
4	Level 3 +	4	Level 3 +
5	Level 3 -	5	Level 3 -
6	Level 2 -	6	Level 2 -
7	Level 4 +	7	Level 4 +
8	Level 4 -	8	Level 4 -

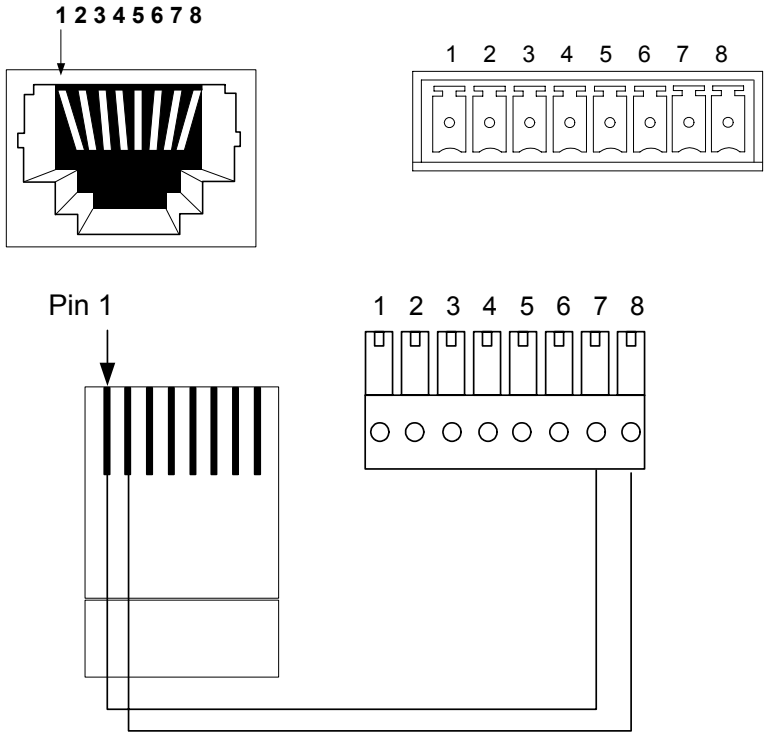


Balanced Composite Video from CNX-PVID to TPS-2000L

To connect the TPS-2000L to the CNX-PVID, any level from the CNX-PVID will work. Connect pin 7 of the TPS-2000L to any positive level on the CNX-PVID. Connect pin 8 of the TPS-2000L to the negative level on CNX-PVID. The following example shows level 1.

Balanced Composite Video Connections from TPS-2000L Mini Connector to CNX-PVID RJ-45 Connector (ROOMS 1 – 8)

FROM PIN #	CNX-PVID (ROOMS 1 - 8) RJ-45 CONNECTOR	TO PIN #	TPS-2000L MINI CONNECTOR
Not Connected	Not Connected	1	Audio In +
Not Connected	Not Connected	2	Audio In -
Not Connected	Not Connected	3	Ground/Shield
Not Connected	Not Connected	4	Mic Out +
Not Connected	Not Connected	5	Mic Out -
Not Connected	Not Connected	6	Ground/Shield
1	Level 1 positive	7	Video In +
2	Level 1 Negative	8	Video In -



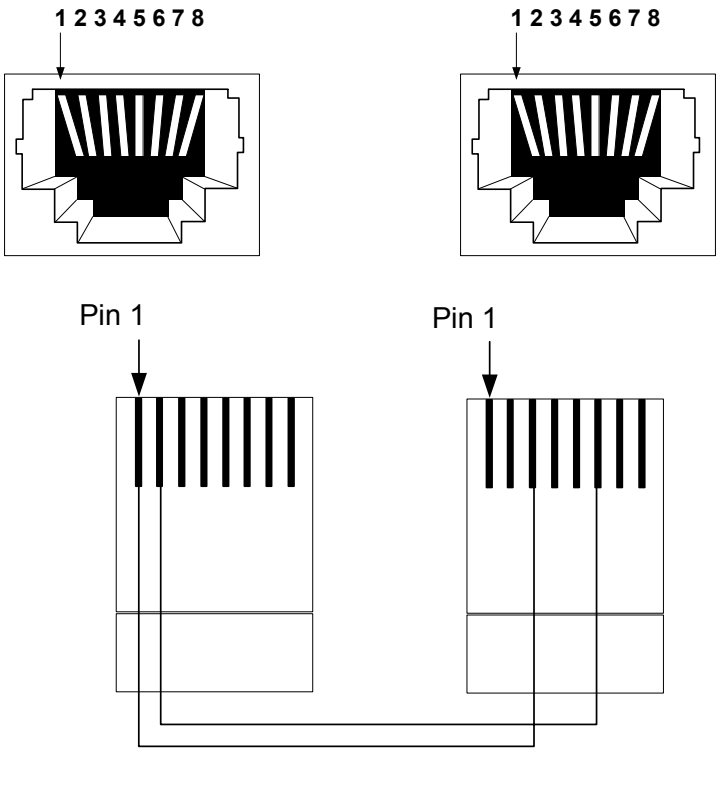
Balanced Composite Video from CNX-PVID to TPS-IMC-BV

Using a standard EIA-568B CAT5 cable, program the composite video to output from level 2 of the CNX-PVID. Set the switch labeled Bal/Coax to *Bal* on the TPS-IMC-BV.

NOTE: Connection shown below is for Level 1 Output from CNX-PVID.

Balanced Composite Video from CNX-PVID RJ-45 Connector (ROOMS 1 – 8) to TPS-IMC-BV RJ-45 Connector (BALANCED VIDEO)

FROM PIN #	CNX-PVID (ROOMS 1 - 8) RJ-45 CONNECTOR	TO PIN #	TPS-IMC-BV (BALANCED VIDEO) RJ-45 CONNECTOR
		1	Chrominance + Input
		2	Chrominance - Input
1	Level 1 +	3	Luminance + Input
		4	Not Connected
		5	Not Connected
2	Level 1 -	6	Luminance - Input
		7	Not Connected
		8	Not Connected

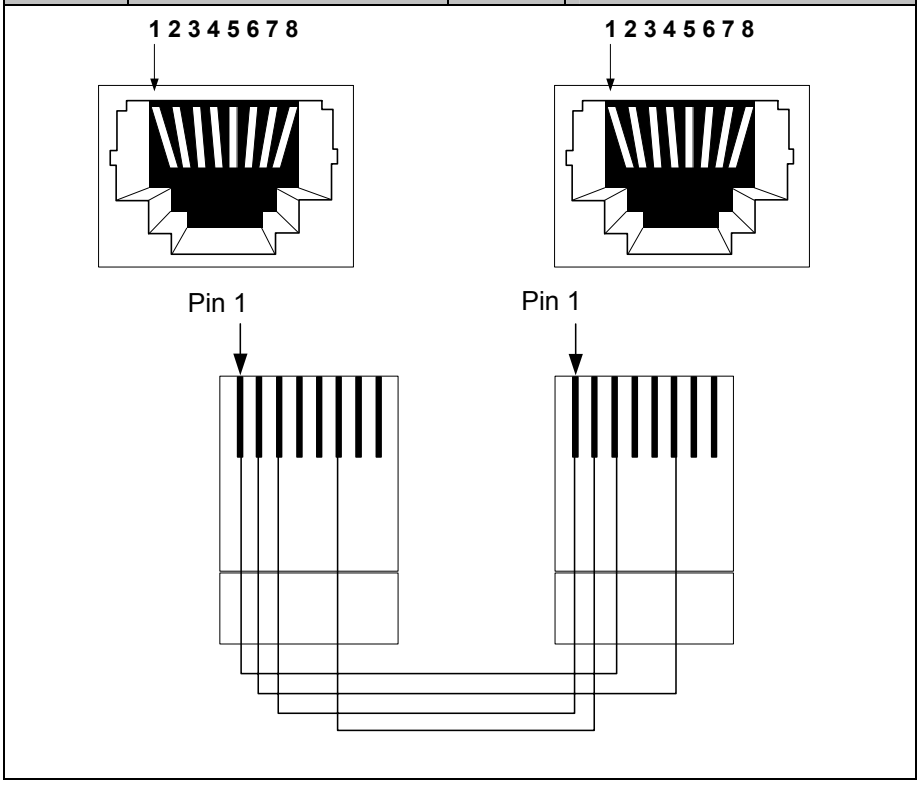


Balanced S-Video from CNX-PVID to TPS-IMC-BV

Using a standard EIA-568B CAT5 cable, program the S-video to output from level 2 of the CNX-PVID C (Chrominance) and level 1 for Y (Luminance). Set the switch labeled Bal/Coax to *Bal* on the TPS-IMC-BV.

Balanced S-Video from CNX-PVID RJ-45 Connector (ROOMS 1 – 8) to TPS-IMC-BV RJ-45 Connector (BALANCED VIDEO)

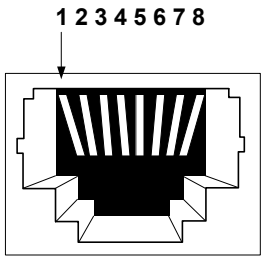
FROM PIN #	CNX-PVID (ROOMS 1 - 8) RJ-45 CONNECTOR	TO PIN #	TPS-IMC-BV (BALANCED VIDEO) RJ-45 CONNECTOR
1	Level 1 +	3	Luminance + Input
2	Level 1 -	6	Luminance - Input
3	Level 2 +	1	Chrominance + Input
4	Not Connected	4	Not Connected
5	Not Connected	5	Not Connected
6	Level 2 -	2	Chrominance - Input
7	Not Connected	7	Not Connected
8	Not Connected	8	Not Connected



C2N-TFM and C2N-TTVFM AM Radio Port

AM Radio Port (RJ-45)

PIN #	SIGNAL
1	+24 VDC
2	+24 VDC
3	COM +
4	Audio +
5	Audio -
6	COM -
7	GND
8	GND

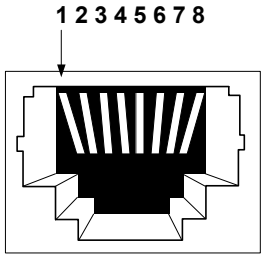


NOTE: This connector is only used for interfacing with Crestron products specifically designed to work with this unit. It cannot be used for connections to Cresnet® or Crestron audio distribution devices.

C2N-TAMWX AM/Weather Band Tuner

REMOTE RJ-45 Connector

PIN #	SIGNAL
1	+24 VDC
2	+24 VDC
3	COM +
4	Audio +
5	Audio -
6	COM -
7	GND
8	GND

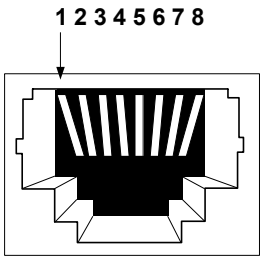


NOTE: This connector is only used for interfacing with Crestron products specifically designed to work with this unit. It cannot be used for connections to Cresnet or Crestron audio distribution devices.

C2N-IIF Intercom Interface

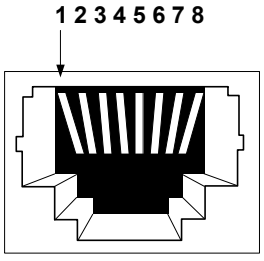
C2N-IIF Video (OUT) RJ-45 Connector

PIN #	SIGNAL
1	Video +
2	Video -
3	Not Connected
4	Not Connected
5	Not Connected
6	Not Connected
7	Not Connected
8	Not Connected



C2N-IIF Audio (IN/OUT) RJ-45 Connector

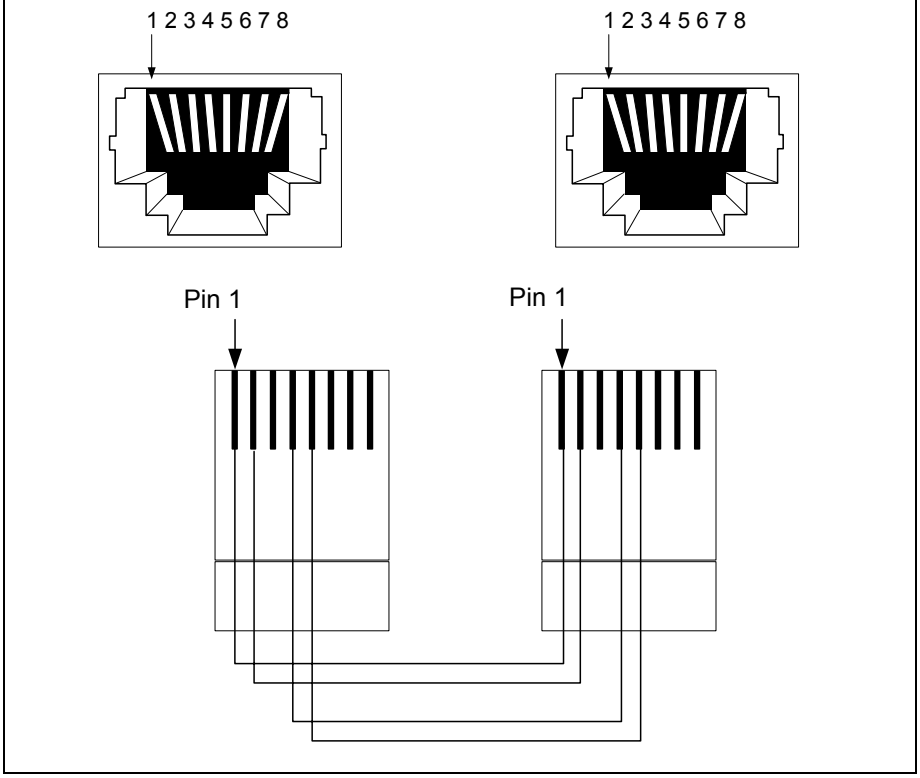
PIN #	SIGNAL
1	Line Level MIC Out +
2	Line Level MIC Out -
3	Not Connected
4	Line Level Audio In+
5	Line Level Audio In -
6	Not Connected
7	Not Connected
8	Not Connected



Audio Connections from C2N-IIF to C2N-IADS30X24 Intercom Audio Distribution System

Audio from C2N-IIF RJ-45 Connector (AUDIO IN/OUT) to C2N-IADS RJ-45 Connector (REMOTE AUDIO IN/OUT)

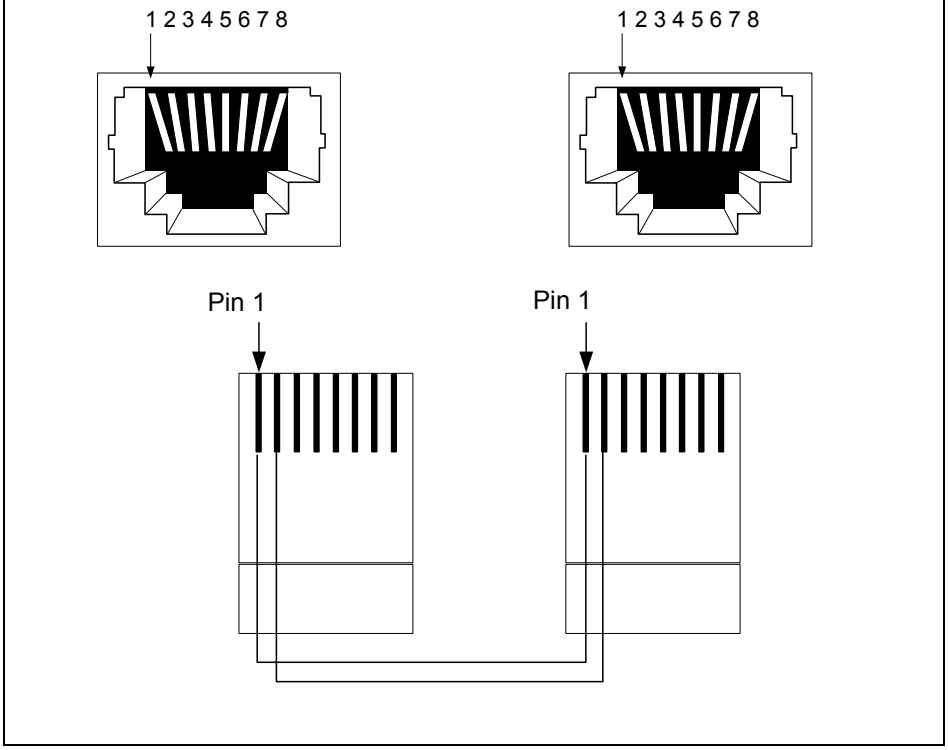
FROM PIN #	C2N-IIF AUDIO IN/OUT RJ-45 CONNECTOR	TO PIN #	C2N-IADS REMOTE AUDIO IN/OUT RJ-45 CONNECTOR
1	Line Level MIC OUT +	1	Audio IN L +
2	Line Level MIC OUT -	2	Audio IN L -
3	Not Connected	3	Not Connected
4	Line Level Audio IN +	4	Audio OUT L +
5	Line Level Audio IN -	5	Audio OUT L -
6	Not Connected	6	Not Connected
7	Not Connected	7	Not Connected
8	Not Connected	8	Not Connected



Video Connections from C2N-IIF to C2N-IVDS24X24 Intercom Video Distribution System

C2N-IIF Video (OUT) RJ-45 Connector to C2N-IVDS24X24 Video (IN) RJ-45 Connector

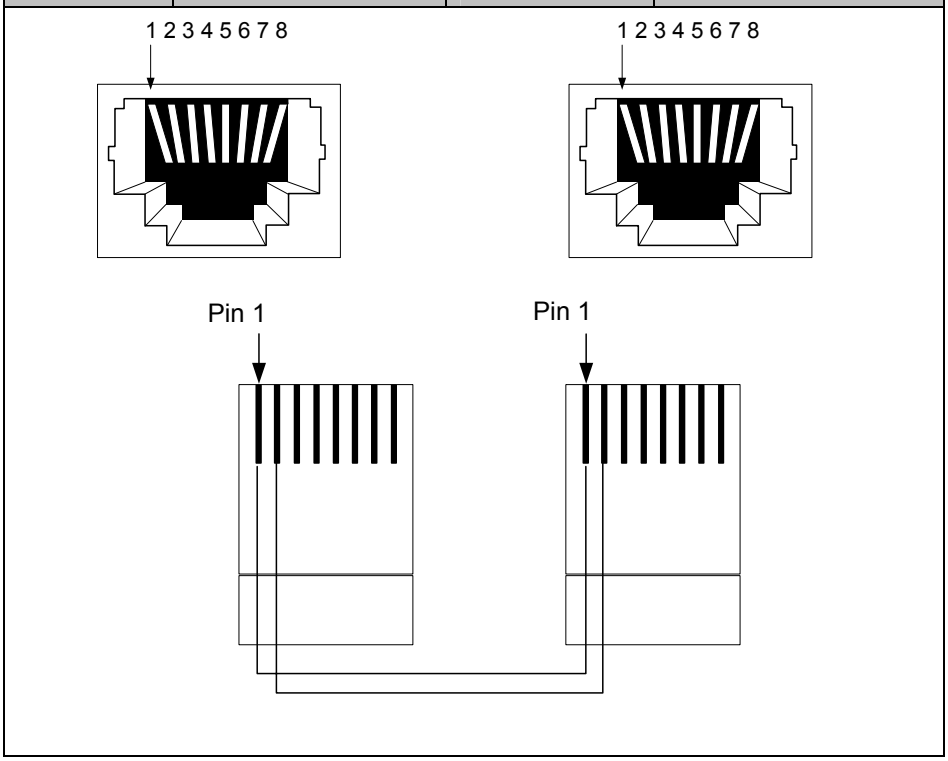
FROM PIN #	C2N-IIF VIDEO OUT RJ-45 CONNECTOR	TO PIN #	C2N-IVDS24X24 VIDEO IN RJ-45 CONNECTOR
1	Video +	1	Video +
2	Video -	2	Video -
3	Not Connected	3	Not Connected
4	Not Connected	4	Not Connected
5	Not Connected	5	Not Connected
6	Not Connected	6	Not Connected
7	Not Connected	7	Not Connected
8	Not Connected	8	Not Connected



Video Connections from C2N-IIF to CNX-PBVR4 Professional Balanced Video Receiver

C2N-IIF Video (OUT) RJ-45 Connector to CNX-PBVR4 Video (I/O) RJ-45 Connector

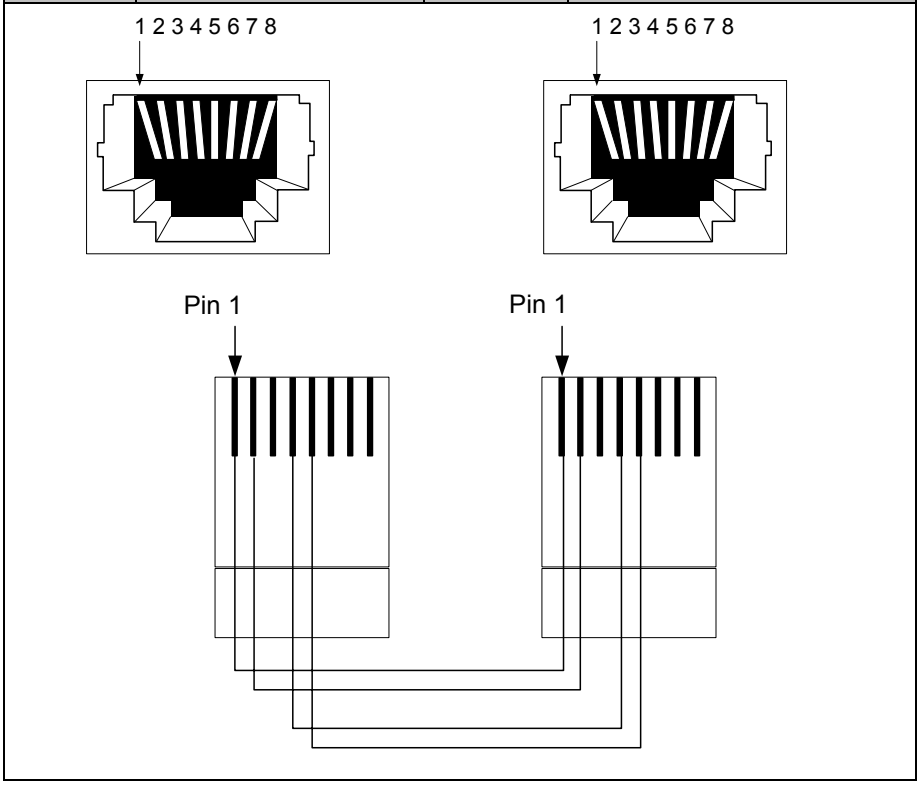
FROM PIN #	C2N-IIF VIDEO OUT RJ-45 CONNECTOR	TO PIN #	CNX-PBVR4 VIDEO I/O RJ-45 CONNECTOR
1	Video +	1	Video +
2	Video -	2	Video -
3	Not Connected	3	Not Connected
4	Not Connected	4	Not Connected
5	Not Connected	5	Not Connected
6	Not Connected	6	Not Connected
7	Not Connected	7	Not Connected
8	Not Connected	8	Not Connected



Audio Connections from C2N-IIF to CNX-PBAR4 Professional Balanced Audio Receiver

Audio from C2N-IIF RJ-45 Connector (AUDIO IN/OUT) to CNX-PBAR4 RJ-45 Connector (AUDIO IN)

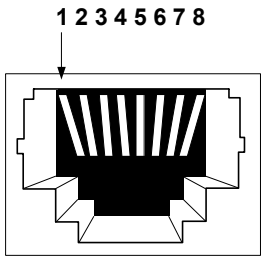
FROM PIN #	C2N-IIF AUDIO IN/OUT RJ-45 CONNECTOR	TO PIN #	CNX-PBAR4 AUDIO IN RJ-45 CONNECTOR
1	Line Level MIC OUT +	1	Audio IN L +
2	Line Level MIC OUT -	2	Audio IN L -
3	Not Connected	3	Audio IN R +
4	Line Level Audio IN +	4	Audio OUT L +
5	Line Level Audio IN -	5	Audio OUT L -
6	Not Connected	6	Audio IN R -
7	Not Connected	7	Audio OUT R +
8	Not Connected	8	Audio OUT R -



C2N-IVDS24X24 Intercom Video Distribution System

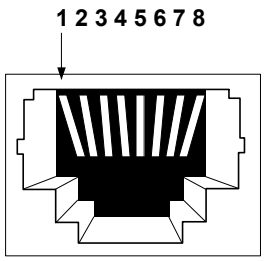
C2N-IVDS Video (IN) RJ-45 Connector (24 Connectors)

PIN #	SIGNAL
1	Video +
2	Video -
3	Not Connected
4	Not Connected
5	Not Connected
6	Not Connected
7	Not Connected
8	Not Connected



C2N-IVDS Video (OUT) RJ-45 Connector (24 Connectors)

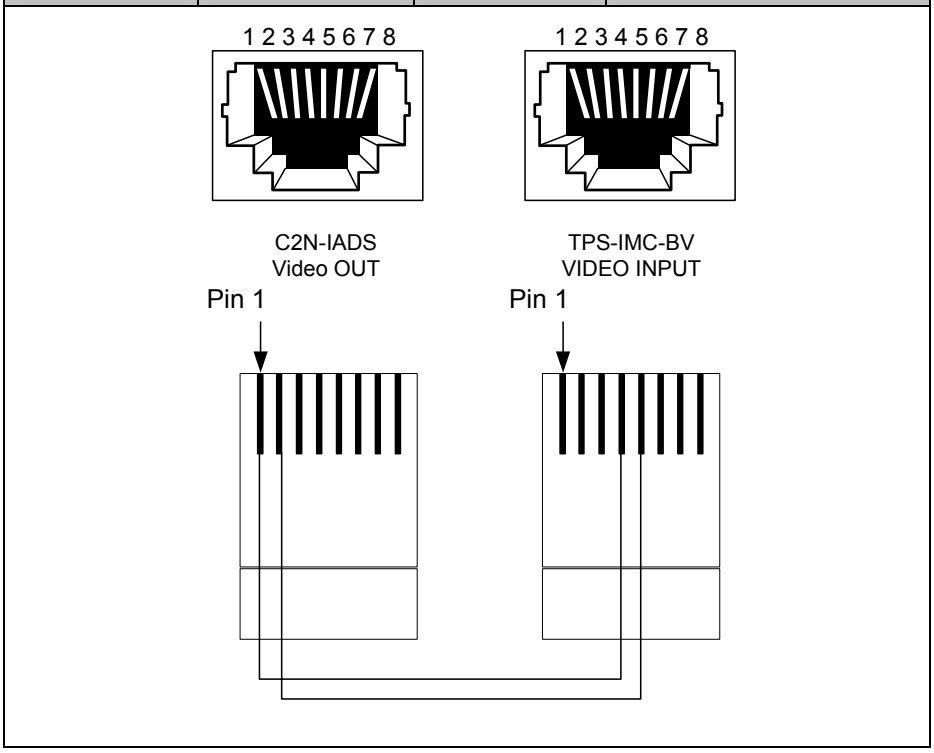
PIN #	SIGNAL
1	Video +
2	Video -
3	Not Connected
4	Not Connected
5	Not Connected
6	Not Connected
7	Not Connected
8	Not Connected



C2N-IVDS Video to TPS-IMC-BV Touchpanel Interface

C2N-IVDS Video (OUT) RJ-45 Connector to TPS-IMC-BV BALANCED VIDEO RJ-45 Connector

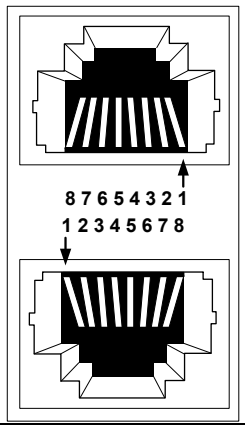
FROM PIN #	SIGNAL	TO PIN #	SIGNAL
1	Video +	4	Luminance + (Composite)
2	Video -	5	Luminance – (Composite)



C2N-IADS30x24 Intercom Audio Distribution System

Audio (OUT) RJ-45 Connector (22 Connectors)

PIN #	SIGNAL
1	Audio In L +
2	Audio In L -
3	Audio In R +
4	Audio Out L -
5	Audio Out L +
6	Audio In R -
7	Audio Out R +
8	Audio Out R -

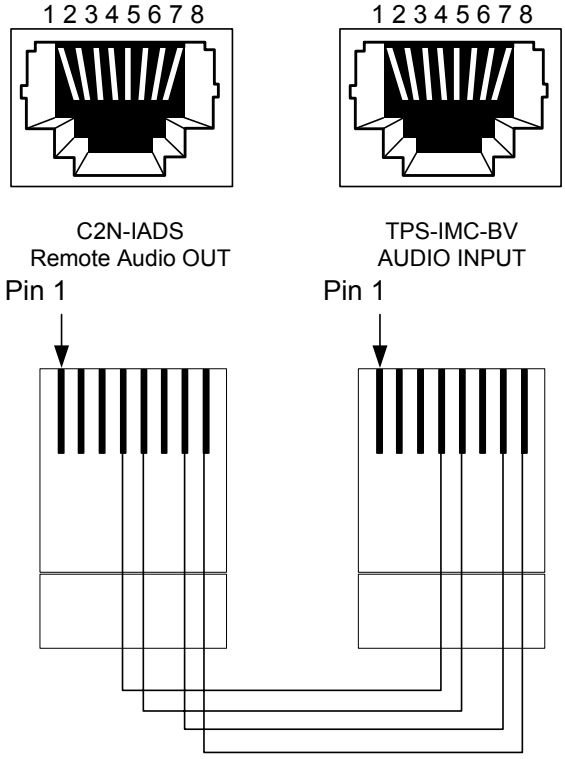


NOTE: When connecting the IADS to a BIPAD8 via CAT5, make sure that the IADS audio out pins are connected to the BIPAD8 audio in pins, and the IADS audio in pins are connected to the BIPAD8 audio out pins.

C2N-IADS Audio to TPS-IMC-BV Touchpanel Interface

Audio Connections from C2N-IADS to TPS Interface Module

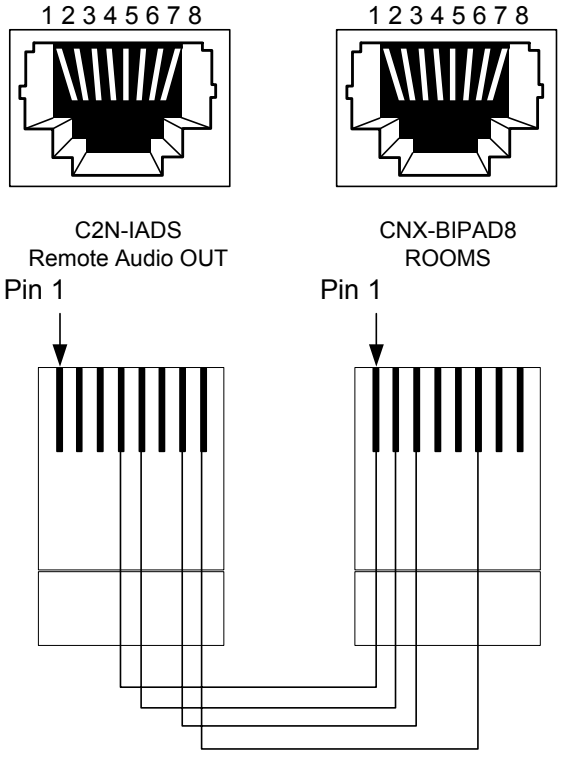
FROM PIN #	C2N-IADS REMOTE AUDIO IN/OUT RJ-45 CONNECTOR	TO PIN #	TPS-IMC-BV AUDIO INPUT SIGNAL RJ-45 CONNECTOR
1	Not Connected	1	Not Connected
2	Not Connected	2	Not Connected
3	Not Connected	3	Not Connected
4	Audio OUT L +	4	Audio In L +
5	Audio OUT L -	5	Audio In L -
6	Not Connected	6	Not Connected
7	Audio OUT R +	7	Audio In R +
8	Audio OUT R -	8	Audio In R -



C2N-IADS Audio to CNX-BIPAD8 Audio Distribution Processor

Audio Connections from C2N-IADS to CNX-BIPAD8

FROM PIN #	C2N-IADS REMOTE AUDIO IN/OUT RJ-45 CONNECTOR	TO PIN #	CNX-BIPAD8 ROOMS RJ-45 CONNECTOR
1	Not Connected		Not Connected
2	Not Connected		Not Connected
3	Not Connected		Not Connected
4	Audio OUT L +	1	Audio In L +
5	Audio OUT L -	2	Audio In L -
6	Not Connected		Not Connected
7	Audio OUT R +	3	Audio In R +
8	Audio OUT R -	6	Audio In R -



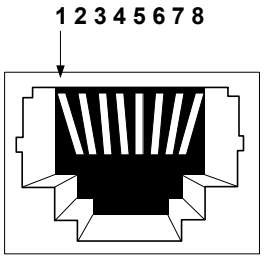
C2N-NPA8 Poll Accelerator LAN Connector

An 8-position RJ45 port is used for an Ethernet connection to a control system with Ethernet capabilities.

NOTE: Only one C2N-NPA8 can be connected to a control system.

LAN RJ-45 Connector

PIN #	SIGNAL
1	TD +
2	TD -
3	RD +
4	Connected to pin 5
5	Connected to pin 4
6	RD -
7	Connected to pin 8
8	Connected to pin 7



The QuickMedia Transport System

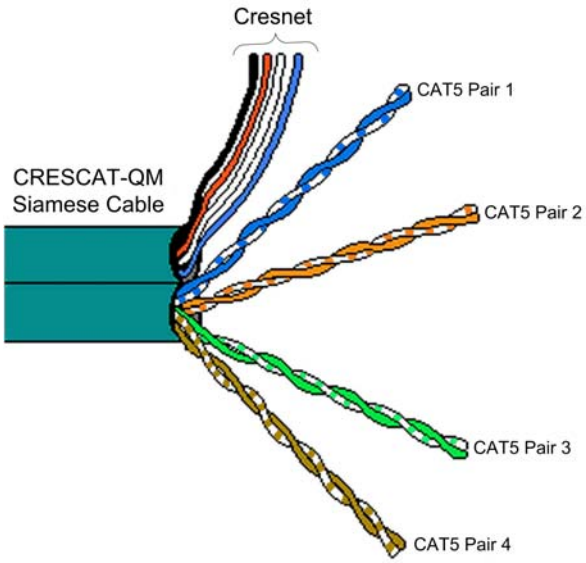
Using a new, proprietary signal routing solution, signals such as composite video, S-video, RGBHV, audio, microphone and control, are all transported using a single cable solution called QuickMedia™ (QM).

The QuickMedia Transport System port is capable of managing computer, video, and audio signals simultaneously through one CAT5E/UTP wire, simplifying MediaManager installations.

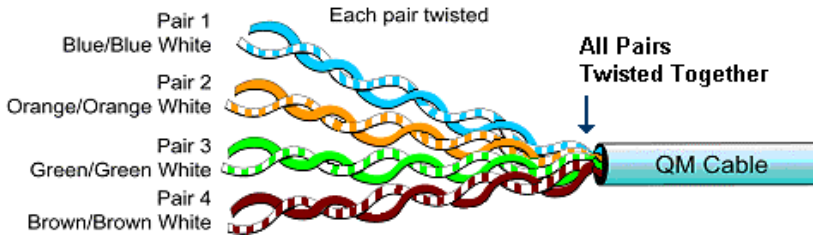
Routing CAT5E/UTP cable is less expensive and much simpler than routing multi-colored, multi-conductor coax cable. All Crestron products using the QuickMedia Transport System are capable of sending and receiving QuickMedia signals via standard CAT5E/UTP cable. Crestron recommends Belden Media-Twist cable, and Crescat-QM. Installation of any QuickMedia device is as simple as installing one set of QuickMedia wires from output to input. Installations are flexible, affordable, and fast.

The Crescat-QM cable contains one CAT5E cable and one Cresnet cable in a siamese jacket.

QuickMedia Cable – CRESCAT-QM



The QuickMedia receiver performs frequency compensation on each video input to compensate for skew. Signal skew occurs when part of the signal is delayed with respect to other signal components. The amount of skew largely depends on the length of the QuickMedia cable. Unequal wire lengths are created because CAT5 consists of twisted pairs that are twisted together in the cable.



The total accumulated skew from QM transmitter to QM receiver must not exceed 22 ns (nanoseconds). Crestron recommends a cable with a rating of less than or equal to 15 ns over its entire length.

NOTE: Do not untwist the two wires in a single pair for more than 1/3-1/2" (0.84-1.27 cm) when making a connection. The twists are critical to canceling out interference between the wires.

NOTE: Zero-skew, or skew-free CAT5 cables should not be used.

The aggregate cable length of a signal path originating at a QM transmitter and terminating at a QM receiver must not exceed 450 feet (137 meters). Video signals may experience a loss of quality over very long lengths of cable. This phenomenon is due to the added resistance and capacitance of longer cable lengths and is not peculiar to either Crestron and/or QuickMedia systems. To ensure sufficient bandwidth, the maximum aggregate cable length should not exceed 450 feet. The use

of lower-resolution signals may allow increased cable length but must be tested by the installer with the sources to be used.

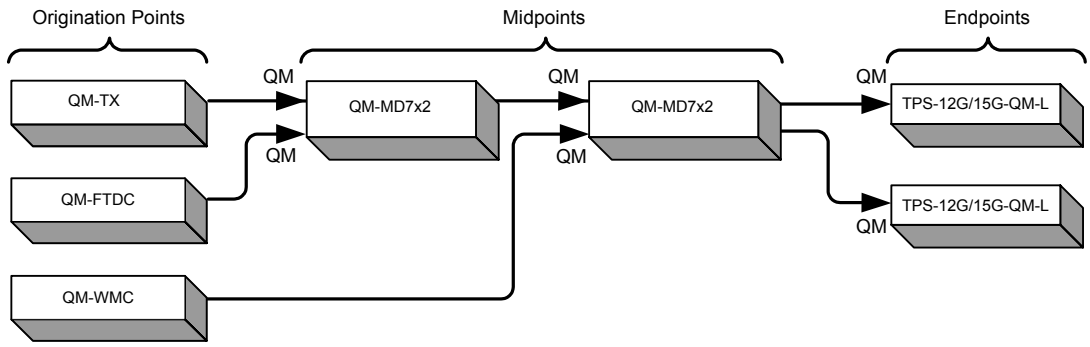
QuickMedia allows composite and S-video resolutions of 800 x 600 to 1600 x 1200 at 60 Hz. Longer lengths of cable may experience a loss of bandwidth when viewing at high video resolutions.

NOTE: When transmitting S-video, luminance uses the green video pathway and chrominance uses the red video pathway. When transmitting composite video, the signal is carried on the blue video pathway.

NOTE: When using CresCAT-QM wiring, four additional wires are included for making Cresnet connections.

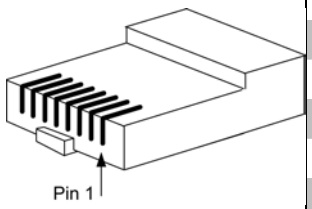
When connecting multiple QM devices, the route between a QM origination point (transmitter) and a QM endpoint (receiver) cannot have more than two midpoints (e.g. QM-MD7x2 or other QM switchers). Refer to the following diagram of an example QM system when configuring a QM network.

QM Network Topology



The pin assignment is based on the EIA/TIA 568B RJ-45 Jack standard.

QuickMedia Pin and Pair Assignment

RJ-45 MALE CONNECTOR	RJ-45 PIN NUMBER	CAT5E PAIR NUMBER	WIRE COLORS	QM ASSIGNMENT RGB AND AUDIO	QM ASSIGNMENT COMPOSITE, S-VIDEO AND AUDIO
	1	2	White/Orange	RGB Red -	Chrominance -
			Orange	RGB Red +	Chrominance +
	3	3	White/Green	RGB Green -	Luminance -
			Blue	Audio +	Audio +
	5	1	White/Blue	Audio -	Audio -
			Green	RGB Green +	Luminance +
	7	4	White/Brown	RGB Blue -	Composite -
	8	4	Brown	RGB Blue +	Composite +

The iMedia Transport System

Using a proprietary signal routing solution, RGBHV, audio, power and control signals are all transported using a single cable solution called iMedia.

The iMedia transport system port is capable of managing computer RGB and audio signals simultaneously through one CresCAT-IM cable, simplifying installations.

Routing CresCAT-IM cable (low-skew CAT5e) is less expensive and a much simpler solution for wiring iMedia systems than routing multi-colored, multi-conductor coax cable. All Crestron products using the iMedia transport system are capable of sending and receiving iMedia signals via CresCAT-IM cable. Installation of any iMedia device is as simple as installing one iMedia cable from output to input. Installations are affordable and fast.

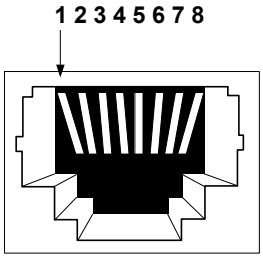
The receiver can accomplish frequency compensation on each input to achieve correct operation. This compensation scheme is effective for CresCAT-IM cables and for other cables, as long as the maximum skew of 15 ns per 100 meters is not exceeded.

NOTE: For proper operation and performance of every iMedia system, always use CresCAT-IM cable.

NOTE: Zero-scew, or skew-free CAT5 cables should not be used.

iMedia (IM) RJ-45 Audio Video Connector

PIN #	SIGNAL
1	RGB Red -
2	RGB Red +
3	RGB Green -
4	Audio/Power +
5	Audio/Power -
6	RGB Green +
7	RGB Blue/Composite -
8	RGB Blue/Composite +

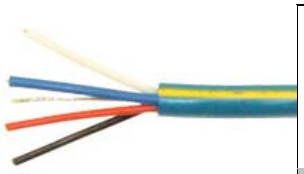


Crestron Certified Wire and Cable

NOTE: Crestron wire may be purchased directly from Crestron (www.crestron.com).

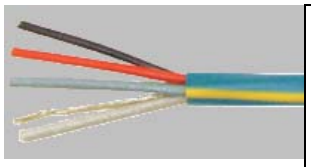
CRESNET - Cresnet Control Cable: Basic cable for interconnecting the Crestron Control Network.

CRESNET – Cresnet Control Cable – Non-Plenum



Construction	Pair 1 – 22 AWG Twisted (four turns per foot), Shielded, Low-capacitance. Pair Color: Blue and white Pair 2 – 18 AWG Parallel (wrapped around the shield of pair 1). Pair Color: Red and black
Outer Jacket Material	Flame Retardant PVC
Outer Jacket Color	Teal with Yellow Stripe
Overall Diameter	Nominal 0.250 in (0.635 cm)

CRESNET – Cresnet Control Cable – Plenum



Construction	Pair 1 – 22 AWG Twisted (four turns per foot), Shielded, Low-capacitance. Pair Color: Blue and white Pair 2 – 18 AWG Parallel (wrapped around the shield of pair 1). Pair Color: Red and black
Outer Jacket Material	Plenum, Flexible, Low Smoke
Outer Jacket Color	Teal
Overall Diameter	Nominal 0.250 in (0.635 cm)

CRESNET-HP - Cresnet High Power Control Cable: High power cable featuring larger 12 AWG conductors for interconnecting Crestron touchpanels and other Cresnet devices on the Crestron Control Network..

CRESNET-HP-NP – Cresnet High Power Control Cable – Non-Plenum

Construction	Pair 1 – 22 AWG Twisted (four turns per foot), Shielded, Low-capacitance. Pair Color: Blue and white Pair 2 – 12 AWG Parallel (wrapped around the shield of pair 1). Pair Color: Red and black
Outer Jacket Material	Flame Retardant PVC
Outer Jacket Color	Teal with Brown Stripe
Overall Diameter	Nominal 0.330 in (0.839 cm)

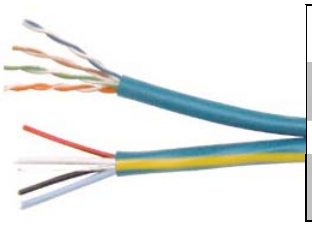
CRESNET-DM: A special version of Cresnet control cable designed specifically for use with Crestron CLW-series wall box dimmers and switches.

CRESNET-DM-NP – Cresnet-DM– Non-Plenum

Construction	Shielded, 22 AWG Twisted (four turns per foot), Low-capacitance. Pair Color: Blue and white
Outer Jacket Material	Flame Retardant PVC
Outer Jacket Color	Teal with Purple Stripe
Overall Diameter	Nominal 0.224 in (0.569 cm)

CRESCAT: Basic Crestron Control Cable combined with a single CAT5E cable.

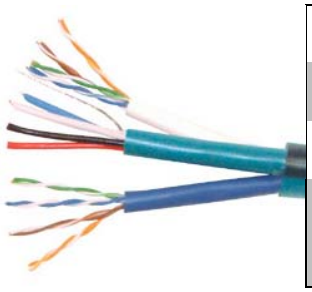
CRESCAT – CAT5E plus Cresnet Control Cable



Construction	Shielded, Low Capacitance Cresnet cable + one CAT5E cable
Outer Jacket Material	Flame Retardant PVC
Color	Teal with co-extruded Red Stripe
Overall Diameter	Nominal 0.530 in (1.346 cm)

CRESCAT-D: Basic Crestron Control Cable combined with a two CAT5E cables, for use with Isys® TPS-6000, TPS-5000 and TPS-2000L touchpanels.

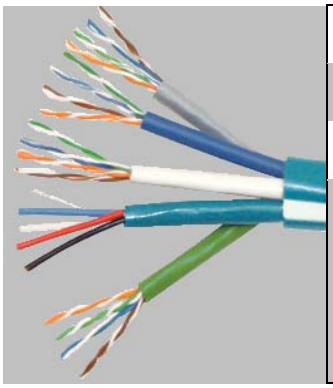
CRESCAT-D – 2 CAT5E plus Cresnet Control Cable



Construction	Shielded, Low Capacitance Cresnet cable + two CAT5E cables
Outer Jacket Material	Flame Retardant PVC
Outer Jacket Color	Teal with co-extruded Black Stripe
Overall Diameter	Nominal 0.560 in (1.422 cm)

CRESCAT-Q: Basic Crestron Control Cable combined with a four CAT5E cables, for use with fully implemented media distribution systems. Applications include bi-directional balanced audio and video home automation and control, and Ethernet data network.

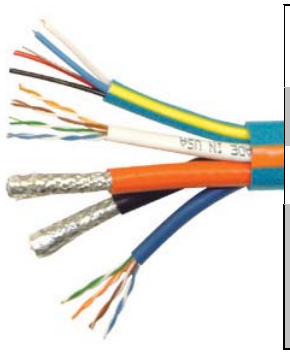
CRESCAT-Q – 4 CAT5E plus Cresnet Control Cable



Construction	Shielded, Low Capacitance Cresnet cable + four CAT5E cables
Material	Flame Retardant PVC
Outer Jacket Color	Teal with co-extruded White Stripe
Overall Diameter	Nominal 0.680 in (1.727 cm)

CRESCAT-DC: Basic Crestron Control Cable combined with a two CAT5E cables and two RG6 Quad Shield cables, for use with balanced audio/video, composite or S-video over coax, Broadband dual-DSS distribution, and home automation and control.

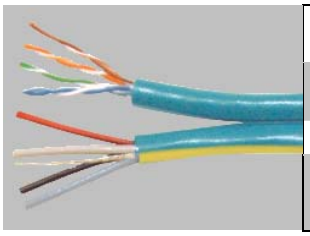
CRESCAT-DC – 2 CAT5E plus 2 RG6 Quad Shield plus Cresnet Control Cable



Construction	Shielded, Low Capacitance Cresnet cable + two CAT5E cables + two RG6 Quad cables
Outer Jacket Material	Flame Retardant PVC
Outer Jacket Color	Teal with co-extruded Orange Stripe
Overall Diameter	Nominal 0.800 in (2.032 cm)

CRESCAT-QM: The Crescat-QM cable contains one CAT5E cable and one Cresnet cable in a siamese jacket.

CRESCAT-QM – One CAT5E Cable plus One Cresnet Control Cable



Construction	Shielded, Siamese, Low Capacitance Cresnet cable + one CAT5E cable
Outer Jacket Material	Flame Retardant PVC
Color	Teal
Overall Diameter	Nominal 0.530 in (1.346 cm)

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 the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876].

You can also log onto the online help section of the Crestron website (www.crestron.com) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Glossary

A

ACR: Attenuation to Crosstalk Ratio.

Attenuation: The decrease, or loss, of signal power, measured in decibels (the opposite of gain).

AWG: American Wire Gauge is a standard measuring gauge for non-ferrous conductors (i.e., aluminum and copper). AWG is a measure of conductor diameter. Increasing the gauge number decreases the wire diameter.

C

Chrominance: The color portion of a video signal carrying the saturation and tint (hue) information for any given point in the image.

Composite Video: Video information carried in a single signal that combines color (chrominance) and brightness (luminance) information, plus horizontal and vertical sync.

Crosstalk: See Near-End Crosstalk.

D

dB (Decibel): A dB is a unit of signal strength measurement, usually the relation between a transmitted signal and the signal source.

Delay Skew: The difference between the pair with the least delay and the pair with the most delay, as measured in nanoseconds.

E

Electromagnetic Interference (EMI): The interference in signal transmission or reception caused by the radiation of electrical and magnetic fields.

Equal Level Far-End Crosstalk (ELFEXT): Calculated by subtracting attenuation from the far-end crosstalk loss.

F

Far End Crosstalk Loss (FEXT): Pair-to-pair far end crosstalk is the quantity of undesired signal coupling at the receiving end of a pair of wires.

I

IEEE: Institute of Electrical and Electronic Engineers, a publishing and standards-making organization.

J

Jack: A receptacle used in conjunction with a plug to make electrical contact between communication circuits. A jack is the female component of a plug/jack connector system.

L

Luminance: The black and white portion of a video signal which carries the information for brightness, darkness and contrast, plus the horizontal and vertical sync.

M

Mbps, MegaBits Per Second: One million bits per second.

MHz, MegaHertz: A unit of frequency denoting one million Hertz (i.e., 1,000,000 cycles per second).

N

Near-End Crosstalk (NEXT): Electrical noise coupled from one pair of wires to another within a multi-pair cable.

P

Power Sum: The combined performance of all cable pair combinations to ensure enough headroom to handle crosstalk.

Propagation Delay: The time between when a signal is transmitted and received on the other end, measured in nanoseconds.

R

RG6: Coaxial 75 ohm cable.

S

Standards: Agreed principles of protocol. Committees working under various trade and international organizations set industry standards.

S-video: Method of transmitting video signals by separating out the chrominance (color) and luminance (brightness) portions of the video signal resulting in superior picture quality versus composite video.

T

T1: A standard for digital transmission in North America. A digital transmission link with a capacity of 1.544 Mbps (1,544,000 bits per second.) T1 lines are used for connecting networks across remote distances. Bridges and routers are used to connect LANs over T1 networks.

Twisted Pair: Two insulated copper wires twisted around each other to reduce induction (thus interference) from one wire to the other.

U

UTP: Unshielded Twisted Pair.

Numeric

100BASE-T: The IEEE standard that defines the requirement for sending information at 100 Mbps on unshielded twisted-pair cabling.

References

Category 5E information courtesy of:

- The Siemon Company
- Southwire Cyber Technologies, Inc.
- Hubbell-Premise.com
- Microtest
- LANshack.com
- Acteon.net

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