Crestron **TPS-IMC**
Interface Module

Operations Guide

CRESTRON
REMOTE CONTROL SYSTEMS

Contents

Interface Module: TPS-IMC

Description

Functional Description

The TPS-IMC is designed specifically to serve as an interface module for the Crestron TPS-5000 and TPS-6000 tilt touchpanels. The sleek design of the touchpanel base left little room for all the connectors that define the touchpanel's versatility. Furthermore, since the panel is not a stationary user interface, it is impractical to have an excessive amount of cable connections directly to the touchpanel. As a result, it was necessary to connect the touchpanel to an interface module that could offer additional space for interconnections.

Physical Description

The TPS-IMC, shown on the next page, is supplied with every TPS- tilt touchpanel. The module is housed in a black enclosure with silk-screened top panel. A network connector and video input connectors are located on one side of the unit. The opposite side offers audio input, microphone output, and audio/network/video connections to the touchpanel. At the shorter sides of the TPS-IMC, the enclosure extends to form feet at a right angle to the side. There are three holes per foot for inserting screws to further stabilize the unit to a mounting surface.

I/O Ports

There are eight I/O ports available on the TPS-IMC. Refer to the diagram on the next page and the following bulleted items for descriptions of each port.

- NTSC/PAL VIDEO – These three ports are made active with the purchase and installation of the TPS-VID, composite and S-video input for TV video card. Consult the latest revision of the TPS-VID Operations & Installation Guide (Doc. 5869) for details. Use either the two BNC connectors or the six-pin connector when connecting to a video source.

NOTE: Except for differential input (balanced) video signal, the six-pin video connector with jumpers should be installed at all times.

Physical Views of the TPS-IMC

NOTE:

The positions of the NET/VIDEO and AUDIO ports on early production models were reversed (compared to the illustration at right). Observe the exact screening on the TPS-IMC before making any connections.
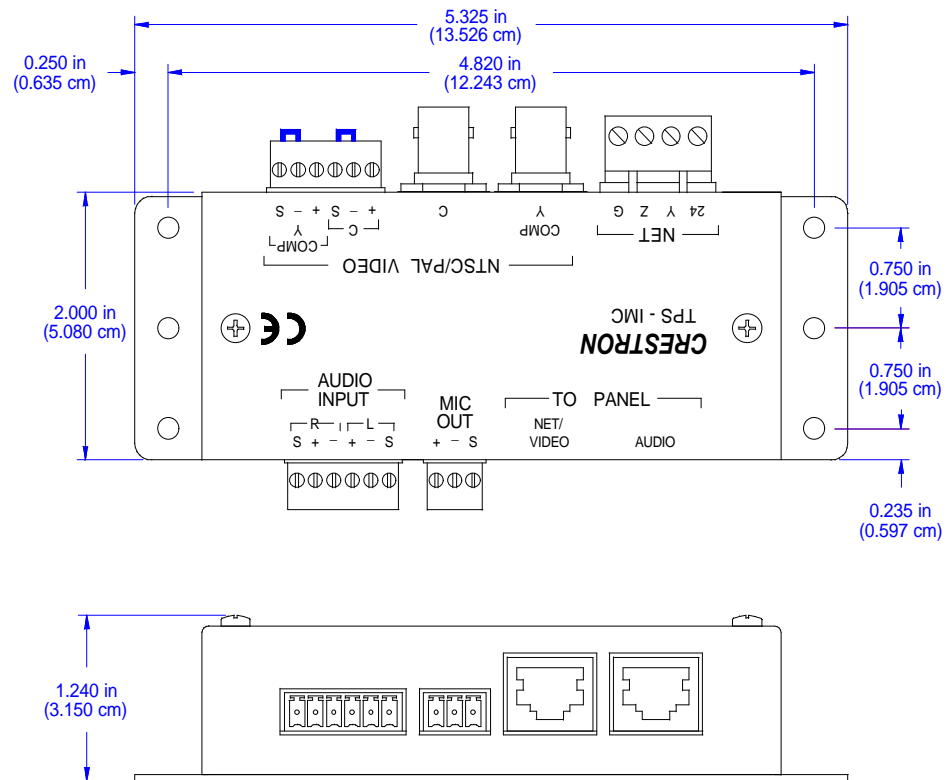
- NET – This four-pin connector is used to connect to other four-wire devices in the Cresnet system. If making network connections to Cresnet peripherals, refer to the latest revision of the Cresnet Network Interconnect Drawing (Doc. 5411). This document can be obtained from the Downloads page (CABLES and MANUAL Libraries) of the Crestron website (www.crestron.com). Search for CRESNET.PDF.

- AUDIO – This 8-position RJ45 mates with the TPS-5000 or TPS-6000 touchpanel. The 8-position audio cable assembly is supplied. Even though it may fit, do not use the 10-position net/video cable.
  This port provides audio input to the touchpanel and mic out from the touchpanel to audio amplifiers. Description of the pinouts is shown in the table after this paragraph.

AUDIO Pinouts

PIN #	DESCRIPTION
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 -

- NET/VIDEO – This 10-position RJ45 mates with the TPS-5000 or TPS-6000 touchpanel and has a dual purpose. Refer to the descriptions and pinout table that follow this paragraph. The 10-position net/video cable assembly is supplied. Even though it may fit, do not use the 8-position audio cable.

  1. This port provides network connection to the touchpanel.

  2. This port also makes available composite and S-video input for TV video card (with the purchase and installation of the TPS-VID). Consult the latest revision of the TPS-VID Operations & Installation Guide (Doc. 5869) for details.

NET/VIDEO Pinouts

PIN #	DESIGNATION	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)

- MIC OUT – The port mates with a three-pin connector, supplied, and produces line level differential output. Description of the pinouts is shown in the table after this paragraph.

MICROPHONE Pinouts

PIN	DESCRIPTION
M+	Positive
M-	Negative
S	Shield

- AUDIO INPUT – The port mates with a six-pin connector, supplied, and provides differential/single ended audio input and output. Description of the pinouts is shown in the table after this paragraph.

AUDIO INPUT Pinouts

PIN	DESCRIPTION
S	Shield
R+	Right Positive
R-	Right Negative
L+	Left Positive
L-	Left Negative
S	Shield

Leading Specifications

The table after this paragraph provides a summary of leading specifications for the TPS-IMC. Dimensions and weight are rounded to the nearest hundredth unit.

Leading Specifications for the TPS-IMC

SPECIFICATION	DETAILS
Dimensions	Height: 2.00 in (5.08 cm)
	Width: 5.33 in (13.53 cm)
	Depth: 1.24 in (3.15 cm)
Weight	0.59 lb (0.27 kg)

As of the date of manufacture, the TPS-IMC has been tested and found to comply with specifications for CE marking.

$$C\hspace{-2pt}\in$$

Setup

Network Wiring

NOTE: When making wire connections, refer to the latest revision of the Cresnet Network Interconnect Drawing (Doc. 5411). The document can be obtained from the Downloads page (CABLES and MANUAL Libraries) of the Crestron website (www. crestron.com). Search for the CRESNET.PDF files.

When calculating the wire gauge for a particular network run, the length of the run and the power factor of each network unit to be connected must be taken into consideration. If network units are to be daisy-chained on the run, the load factor of each network unit to be daisy-chained must be added together to determine the load factor of the entire chain. The length of the run in feet and the load factor of the run should be used in the following resistance equation to calculate the value on the right side of the equation.

Resistance Equation

$$R \ < \ \frac{40,000}{L \times LF}$$

Where: R = Resistance (refer to table below).
      L = Length of run (or chain) in feet.
      LF = Load factor of entire run (or chain).

The required wire gauge should be chosen such that the resistance value is less than the value calculated in the resistance equation. Refer to the table after this paragraph.

Wire Gauge Values

RESISTANCE (R)	WIRE GAUGE
4	16
6	18
10	20
15	22
13	24 (Doubled-CAT 5)

> **NOTE:** All network wiring must consist of two twisted-pairs. One twisted pair is the +24V conductor and the GND conductor and the other twisted pair is the Y conductor and the Z conductor.

> **NOTE:** When daisy chaining network units, always twist the ends of the incoming wire and outgoing wire which share a pin on the network connector. After twisting the ends, tin the twisted connection with solder. Apply solder only to the ends of the twisted wires. Avoid tinning too far up or the tinned end becomes brittle and breaks. After tinning the twisted ends, insert the tinned connection into the network connector and tighten the retaining screw. Repeat the procedure for the other three network conductors.

Hardware Hookup

The TPS-IMC serves as an interface between the touchpanel and the Cresnet system. Refer to the illustration after this paragraph (which continues on next page) for proper connections; apply power last. When making network connections to the CNX Generation control system or Cresnet peripherals, refer to the latest revision of the Cresnet Network Interconnect Drawing (Doc. 5411). This document can be obtained from the Downloads page (CABLES and MANUAL Libraries) of the Crestron website (www.crestron.com). Search for CRESNET.PDF. It is not necessary to make connections to a video source unless the TPS-VID has been installed into the touchpanel and a video window object resides on a page within the uploaded VisionTools™ Pro-e project.

> **NOTE:** The positions of the NET/VIDEO and AUDIO ports on early production models were reversed (compared to the illustration below). Observe the exact screening on the TPS-IMC before making any connections.

Hardware Hookup for the TPS-IMC
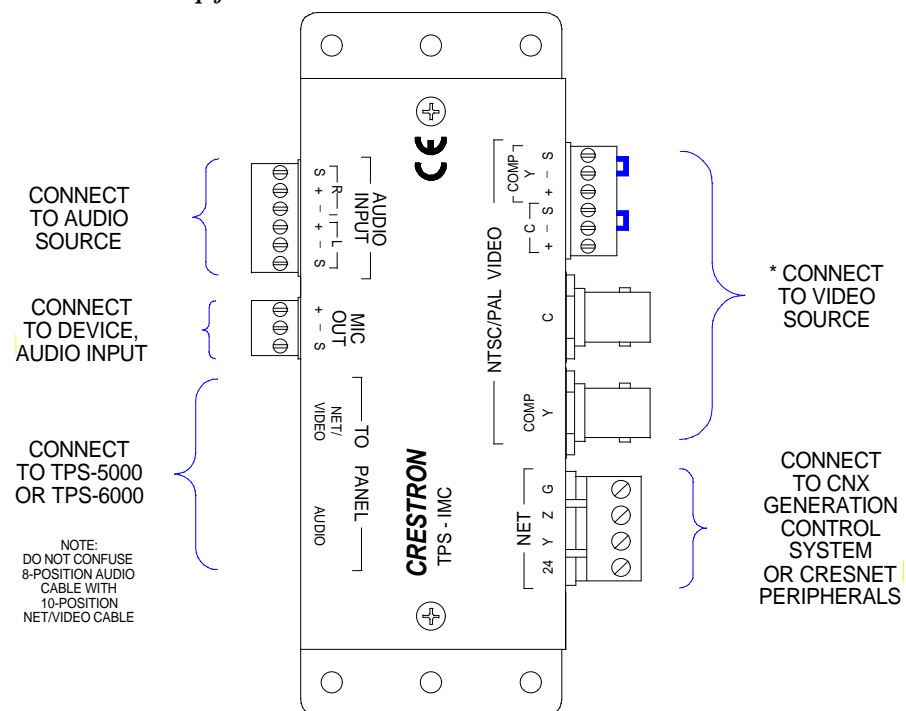
* Connect to a video source only if the TPS-VID expansion card is installed in the touchpanel. The BNC connector and screw terminal mini Phoenix connector is connected in parallel. Possible options are no connection, balance video using twisted pair cable, unbalance video using twisted pair cable, or unbalanced video using coax cable. Depending on the option, the two jumpers on the NTSC/PAL VIDEO six-pin connector remain attached or are removed.
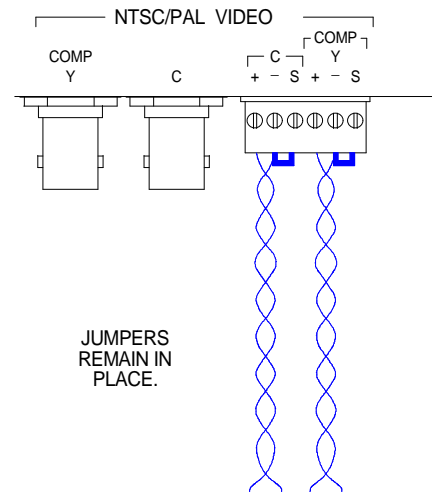
If there is no video, do not make a connection to this port, but leave connector and jumpers attached to the NTSC/PAL VIDEO six-pin connector on the TPS-IMC.

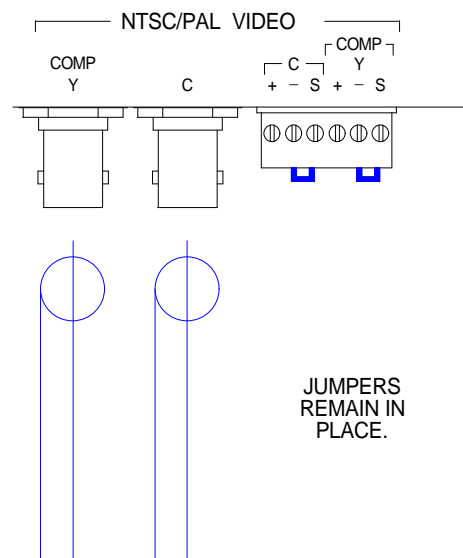Video balance is determined by external connections. Refer to the three diagrams below.
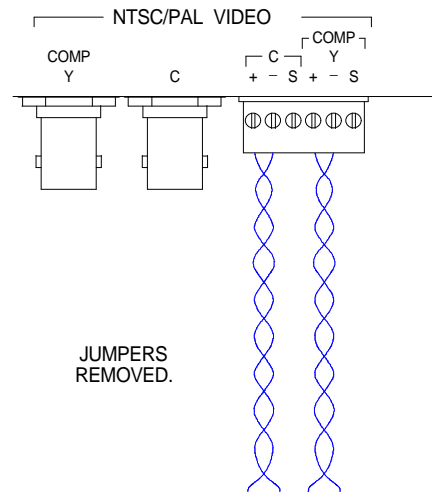
Balanced Using Twisted Pair Cable   *Unbalanced Using Twisted Pair Cable*

Unbalanced Using Coax Cable

Problem Solving

Troubleshooting

The table below provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron technical support representative.

TPS-IMC Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel does not function.	Touchpanel is not communicating to the network.	Use Performance Viewport (via SIMPL Windows or VT Pro-e) to poll the network. Verify network connection to the touchpanel.
	Touchpanel is not receiving network power.	Confirm that power is supplied to the network.
Touchpanel is not responding and screen displays "Network Poll Error" message.	Incorrect network wiring.	Touch screen to remove message and verify correct wiring to all connectors.
No power to the touchpanel.	The 8-position RJ45 audio cable is mistakenly connected to the NET/VIDEO port.	Replace 8-position audio cable with 10-position net/video cable.

Further Inquiries

If after reviewing this Operations Guide for the TPS-IMC, you cannot locate specific information or have questions, please take advantage of Crestron's award winning technical support team by calling:

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876] or 1-201-767-3400.

- In Europe, call Crestron International at +32-15-50-99-50.

- In Asia, call Crestron Asia at +852-2341-2016.

- In Latin America, call Crestron Latin America at +525-574-15-90.

For local support from exclusive Crestron factory-trained personnel call:

- In Australia, call Soundcorp at +613-9488-1555.

- In New Zealand, call Amber Technologies at +649-410-8382.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.

2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, Cresskill, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.

3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its Cresnet products, denoted by a "CN" prefix model number, to be free from manufacturing defects in materials and workmanship for a period of three (3) years from the date of shipment to purchaser. Disk drives and any other moving or rotating mechanical parts are covered for a period of one (1) year. CRESTRON warrants all its other products for a period of one year from the defects mentioned above, excluding touchscreen display components which are covered for 90 days. Incandescent lamps are completely excluded from Crestron's Limited Warranty. CRESTRON shall, at its option, repair or replace any product found defective without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

CRESTRON shall not be liable to honor warranty terms if the product has been used in any application other than that for which it was intended, or if it has been subjected to misuse, accidental damage, modification, or improper installation procedures. Furthermore, this warranty does not cover any product that has had the serial number altered, defaced, or removed.

This warranty shall be the sole and exclusive remedy to the purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON makes no other warranties nor authorizes any other party to offer any warranty, expressed or implied, including warranties of merchantability for this product. This warranty statement supersedes all previous warranties.

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