

Crestron **TPS-IMPC** Interface Module

Operations Guide



This document was prepared and written by the Technical Documentation department at:



Crestron Electronics, Inc.

15 Volvo Drive

Rockleigh, NJ 07647

1-888-CRESTRON

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Interface Module: TPS-IMPC

Introduction

Features & Functions

The TPS-IMPC is an interface module designed for, and included with the Crestron® TPS-3000, 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.

Specifications

The following table provides a summary of specifications for the TPS-IMPC.

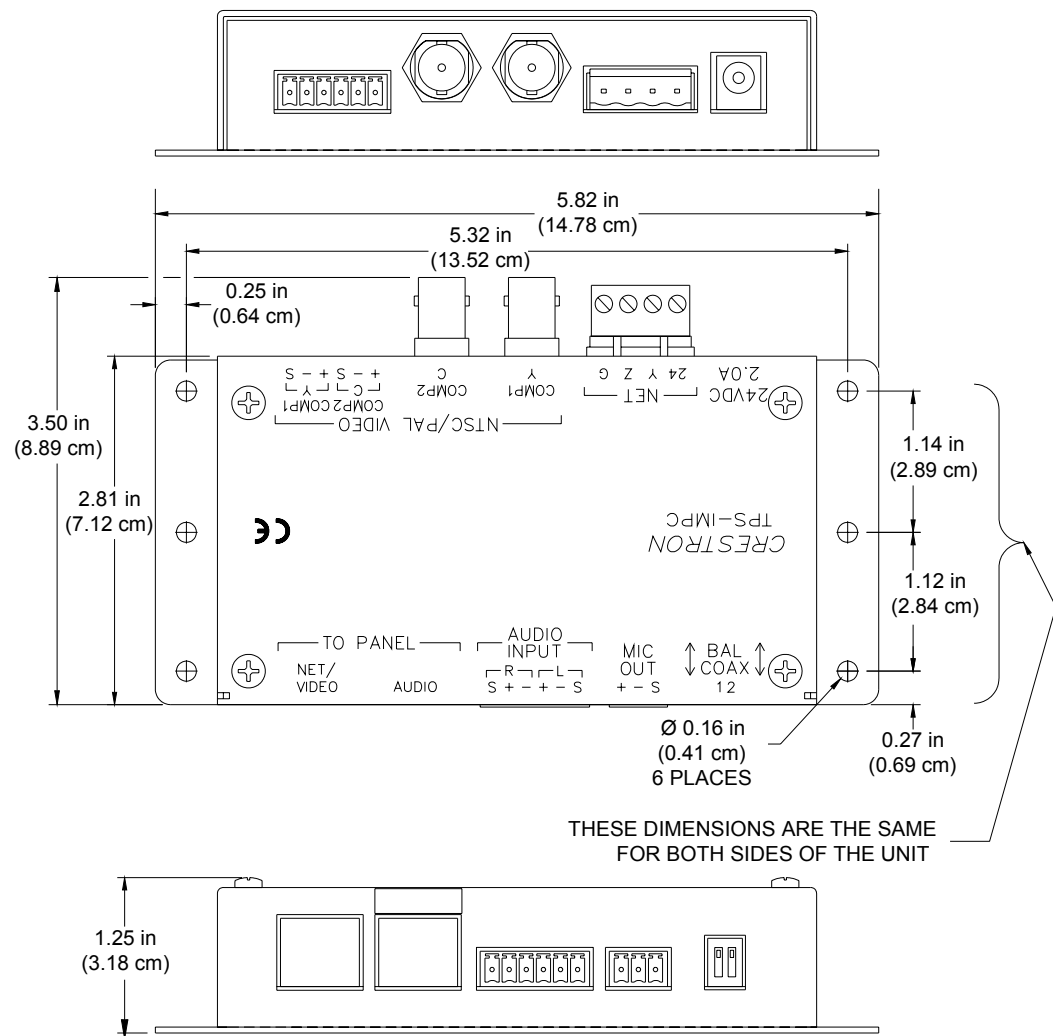
Specifications of the TPS-IMPC

SPECIFICATION	DETAILS
Optional Power Pack	PW-2420RU (PWI-2420RU for international use)
Dimensions & Weight	Height: 1.25 in (3.18 cm) Width: 5.82 in (14.79 cm) Depth: 3.50 in (8.89 cm) Weight: 12.5 oz (0.36 kg)

Physical Description

The TPS-IMPC, shown in the following diagram, is supplied with the TPS-3000, TPS-5000, and TPS-6000 tilt touchpanels. The module is housed in a black enclosure with a silk-screened top panel. An AC adapter port, network connector, and video input connectors are located on one side of the unit. The opposite side provides a video input signal selector switch, audio input connectors, microphone output connectors, and audio/network/video connections to the touchpanel. The TPS-IMPC also has mounting feet to secure the unit to a mounting surface.

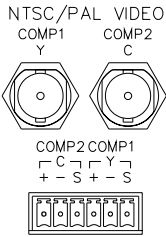
Physical Views of the TPS-IMPC



Ports

There are nine ports that serve various functions on the TPS-IMPC. Refer to the following diagrams and descriptions of each port.

NTSC/PAL VIDEO

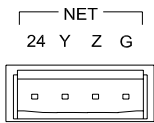


The NTSC/PAL video input consists of three connectors; two BNC connectors for unbalanced video signals and one 6-pin mini-connector for twisted pair wiring of balanced video signals. The video signal is connected to these ports and requires a TPS-3000 or installation of the TPS-VID-1 or TPS-VID-2 video card in a TPS-5000 or TPS-6000 touchpanel to display video. Consult the latest revision of the TPS-3000 Operations Guide (Doc. 6076) or TPS-VID-1/2 Operations & Installation Guide (Doc. 6059) for details. Use either the two BNC connectors or the six-pin connector for twisted pair wiring when connecting a video source.

NOTE: BNC connectors are physically located next to the twisted pair connectors. Image is for illustration purposes only. Refer to the physical view of the TPS-IMPC on page 2 for actual connector positions.

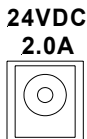
NOTE: The TPS-IMPC allows the use of either balanced or unbalanced signals for video input. To select the signal type to be used, the DIP switches located next to the MIC port must be set in the correct position. Refer to “BAL/COAX” on page 6 for more information.

NET



This four-pin connector is used to connect to other Cresnet® peripherals in a system and provide network power to the touchpanel if an external power pack is not used. If making network connections to a control system or Cresnet peripherals, refer to “Network Wiring” on page 7.

24 VDC, 2.0A (Power Supply)



This female connector is used to supply 24 VDC power to the TPS-IMPC and the touchpanel from an optional power pack (Crestron model PW-2420RU). When power is supplied to the TPS-IMPC through this connector, a Cresnet power connection is not required to display video on the touchpanel.

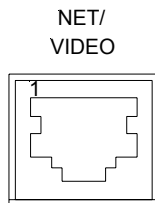
CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: If power is provided to the TPS-IMPC from the +24VDC on a Cresnet connector or the PW-2420RU, power **must not** be applied to the power input on the touchpanel base.

NOTE: When power is supplied through this connector, Crestron recommends disconnecting the +24 VDC on the Cresnet connector (if it is connected).

NOTE: Use care in wiring installations to avoid applying 24 VDC power to Cresnet wiring from multiple sources.

NET/VIDEO (To Panel)



This 10-pin RJ-45 connection mates with the TPS-3000, TPS-5000, or TPS-6000 touchpanel. Refer to the descriptions and pinout table that follow this paragraph. The 10-pin net/video cable assembly to connect the touchpanel to the TPS-IMPC is supplied. Even though the 8-pin audio cable may fit into the port, do not use it.

This port provides the Cresnet connection to the touchpanel. This port also provides composite or S-video input for the built-in video card (with the purchase of a TPS-3000 or installation of the TPS-VID-1/2 in a TPS-5000 or TPS-6000 touchpanel). Consult the latest revision of the TPS-3000 Operations Guide (Doc. 6076) or TPS-VID-1/2 Operations & Installation Guide (Doc. 6059) for details.

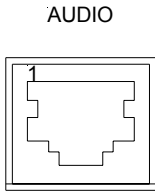
NET/VIDEO Pinouts

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

To determine the location of pin 1, hold the cable so that the end of the 10-pin RJ-45 connector is facing away from you, with the clip side down and the copper side up. The copper connector on the far left is pin 1.

CAUTION: The 10-pin RJ-45 net/video connector cable supplied by Crestron is a custom cable and is the only one that should be used. The end of the cable has a metal shield that is required to protect the equipment. Using non-Crestron cables will result in damage to the product.

AUDIO (To Panel)



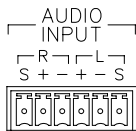
This 8-pin RJ-45 mates with the TPS-3000, TPS-5000, or TPS-6000 touchpanel. The 8-pin audio cable assembly is supplied. Even though the 10-pin net/video cable may fit into the port, do not use it. This port provides audio input to the touchpanel and microphone output from the touchpanel. A description of the pinouts is shown in the following table.

AUDIO Pinouts

TYPE	PIN	DESIGNATION	DESCRIPTION
	1	L+	Left Input (Positive)
	2	L-	Left Input (Negative)
	3	GND/Shield	Audio Input Ground/Shield
	4	R+	Right Input (Positive)
	5	R-	Right Input (Negative)
	6	GND/Shield	Mic Output Ground/Shield
	7	M+	Mic Output (Positive)
	8	M-	Mic Output (Negative)

To determine the location of pin 1, hold the cable so that the end of the 8-pin RJ-45 connector is facing away from you, with the clip side down and the copper side up. The copper connector on the far left is pin 1.

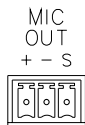
AUDIO INPUT



The port mates with a six-pin connector (supplied) and provides balanced and/or unbalanced audio input. Description of the pinouts is shown in the following table.

AUDIO INPUT Pinouts

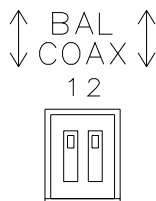
PIN	DESCRIPTION
S	Shield
R +	Right Positive
R -	Right Negative
L +	Left Positive
L-	Left Negative
S	Shield

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 following table.

MIC OUT Pinouts

PIN	DESCRIPTION
+	Positive
-	Negative
S	Shield

BAL/COAX

While not a port, these DIP switches are used to select which video connections (balanced or unbalanced) to use when receiving video signals. When used with a TPS-VID-2, each composite video signal can come in on either the twisted pair (balanced) or coaxial (unbalanced) connector. When used with a TPS-VID-1, the video signal (S-video or composite) can be received over the twisted pair (balanced) or coaxial (unbalanced) connectors. As long as a switch is in the appropriate position, a signal can be connected to either the BNC or twisted-pair connector.

To select the twisted pair connector for balanced video, the DIP switch for the respective video source must be in the “UP” position. To use the coaxial connector(s) for unbalanced video, the DIP switch must be in the “DOWN” position.

Industry Compliance

As of the date of manufacture, the TPS-IMPC has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling (N11785).



Setup

Network Wiring

CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

CAUTION: Possible equipment damage if miswired.

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate to your specific system configuration, available from the Downloads | Product Manuals | Wiring Diagrams section of the Crestron website (www.crestron.com).

NOTE: Do not power up system until all wiring is verified. Care should be taken to ensure data (Y, Z) and power (24, G) connections are not crossed.

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: For larger networks (i.e., greater than 28 network devices), it may be necessary to add a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality throughout the network. Also, for networks with lengthy cable runs or varying types of network devices, it may be desirable to add a hub/repeater after only 20 network devices.

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 power factor of each network unit to be daisy-chained must be added together to determine the power factor of the entire chain. The length of the run in feet and the power 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

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

Where: R = Resistance (refer to table below). L = Length of run (or chain) in feet. PF = Power 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 following table.

Wire Gauge Values

RESISTANCE (R)	WIRE GAUGE
4	16
6	18
10	20
15	22
13	Doubled CAT5
8.7	Tripled CAT5

NOTE: When daisy-chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector, and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle. Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

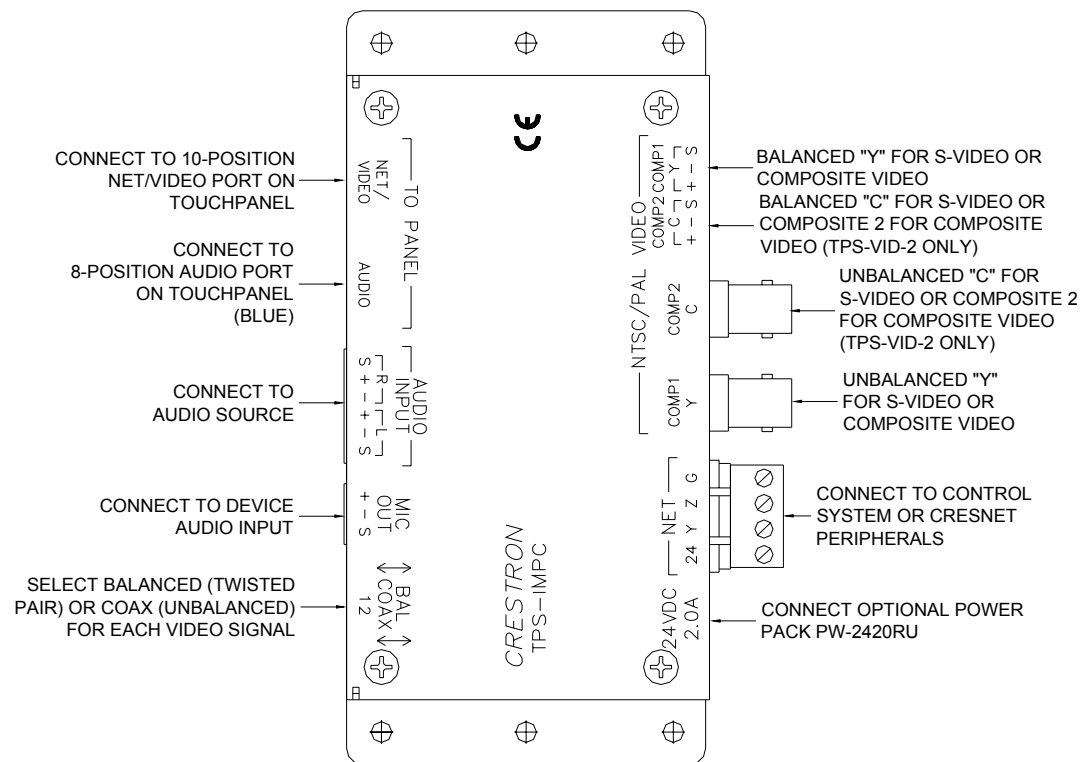
Hardware Hookup

The TPS-IMPC serves as an interface between the touchpanel and the Cresnet system. Refer to the illustration after this paragraph for proper connections; apply power last. When making network connections to a control system or Cresnet peripherals, refer to “Network Wiring” on page 7. It is not necessary to make connections to a video source unless a TPS-3000 touchpanel is used or a TPS-VID-1/2 has been installed into a

TPS-5000 or TPS-6000 touchpanel and a video window object resides on a page within the uploaded Crestron VisionTools® Pro-e (VT Pro-e) project.

NOTE: When connecting the net/video cable from the interface module to the touchpanel, exceeding a cable length of 30 feet will significantly degrade the video signal. To maintain high-quality video, **DO NOT** daisy-chain cables or Crestron TPSBLOCK-10 cables longer than 30 feet. Contact Crestron for the maximum available cable length.

Hardware Hookup for the TPS-IMPC



NOTE: The included AUDIO cable has a connector with a blue cover to match the blue connector on the TPS-IMPC. As older AUDIO cables may not have the blue cover, be sure to insert the AUDIO cable into the AUDIO port.

NOTE: Do not confuse the 8-pin audio cable with the 10-pin net/video cable.

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

TPS-IMPC Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel does not function.	Touchpanel is not receiving power.	Confirm that power is supplied via the power pack or the Cresnet connector (not both).
	Touchpanel is not communicating to the network.	Use Viewport (via SIMPL Windows or VT Pro-e) to poll the network. Verify network connection to the touchpanel.
No power to the touchpanel.	The 8-pin RJ-45 audio cable is mistakenly connected to the NET/VIDEO port.	Replace the 8-pin audio cable with the 10-pin net/video cable.
Video window on touchpanel has no display.	Improper video connection.	Verify proper connections on the touchpanel and TPS-IMPC.
	Incorrect video cable used.	Verify that the 10-pin net/video cable assembly is used to connect the NET/VIDEO port of the touchpanel to the TPS-IMPC.
	Incorrect video format selection.	Check DIP switch settings on TPS-IMPC.
	TPS-VID-1/2 improperly installed.	Follow installation procedures for TPS-VID-1/2.

(continued on next page)

TPS-IMPC Troubleshooting (continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Video window on touchpanel has no display.	Incorrect video format selection.	Select the proper video input configuration in the touchpanel configuration SETUP MENU.
	Incorrect VT Pro-e project file loaded.	Make sure that video window object resides in project, re-compile, and reload.
	Damaged connector pins.	Inspect connector pins. If bent, carefully re-straighten. If broken, contact Crestron customer service.
Video colors are wrong and/or moving	Touchpanel is set to auto-detect or S-video when two composite signals are plugged into the TPS-IMPC.	Switch to "composite" video.

Further Inquiries

If after reviewing this Operations Guide, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team by calling:

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876].
- 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 +5255-5093-2160.
- In Australia and New Zealand, call Crestron Control Solutions at +61-2-9737-8203.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the TPS-IMPC, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

Check the Crestron website (www.crestron.com) periodically for manual update availability and its relevance. Updates are available from the Download | Product Manuals section and are identified as an “Addendum” in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.
2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J., or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

CRESTRON ELECTRONICS, Inc. warrants its products to be free from manufacturing defects in materials and workmanship under normal use for a period of three (3) years from the date of purchase from CRESTRON, with the following exceptions: disk drives and any other moving or rotating mechanical parts, pan/tilt heads and power supplies are covered for a period of one (1) year; touchscreen display and overlay components are covered for 90 days; batteries and incandescent lamps are not covered.

This warranty extends to products purchased directly from CRESTRON or an authorized CRESTRON dealer. Purchasers should inquire of the dealer regarding the nature and extent of the dealer's warranty, if any.

CRESTRON shall not be liable to honor the terms of this warranty 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 original 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 is not liable for any claim made by a third party or made by the purchaser for a third party.

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.

Except as expressly set forth in this warranty, CRESTRON makes no other warranties, expressed or implied, nor authorizes any other party to offer any warranty, including any implied warranties of merchantability or fitness for a particular purpose. Any implied warranties that may be imposed by law are limited to the terms of this limited warranty. This warranty statement supercedes all previous warranties.

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Crestron Electronics, Inc.
15 Volvo Drive Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7576
www.crestron.com

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