Crestron Isys® **TPS-3000**
6.4 Inch Tilt Touchpanel
Operations Guide

CRESTRON®

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Contents

6.4 Inch Tilt Touchpanel: Crestron Isys® TPS-3000

Introduction

Features and Functions

The TPS-3000 is a member of the signature family of Crestron® touchpanels. It packs all the power and performance of an Isys® touchpanel in a stylish model that offers amazing ergonomics and one-hand control. Its compact stature makes the TPS-3000 perfect for the home, especially in locations like home theaters, bedrooms and the home office.

Functional Summary

- 6.4" (1.26 cm) active matrix color display
- 65,563 colors
- 640 x 480 screen resolution
- 16-bit non-palette graphics
- 8 Mb of Flash & 8 Mb of DRAM memory
- Built-in time-based correction for stable video and graphics
- Balanced/unbalanced composite video and S-video input; supports NTSC/PAL formats
- Full screen video capability
- Up to 4,000 digital and analog signals; up to 999 serial signals
- Built-in microphone and two speakers (half duplex intercom capable)
- Stores and plays back WAV sound files
- Stereo headphone jack
- Fast graphics performance: import photographs, drawings, and icons
- Support for downloadable fonts – proportional* and non-proportional
- Foreign language text
- Position lock feature provides durable support of panel at any angle of inclination between 30 and 80 degrees
- Includes a TPS-IMPC for system connection

* Proportional fonts: the width of each character differs with the character shape, for example, the letter M is wider than the letter I. All characters in non-proportional fonts are spaced equally.

The TPS-3000 features a 6.4-inch (16.26 cm) active matrix display that provides the finest quality video and graphics available on a screen of its size. The TPS-3000 also features the 65,563-color Isys engine, which produces a graphic display of incredible brightness and depth. Multiple graphics can be displayed on the TPS-3000 without

any shift in color depth or quality. The TPS-3000 also supports real-time video as standard and can accommodate any Crestron balanced video distribution product.

The TPS-3000's audio capabilities include stereo audio speakers that offer built-in volume control, a built-in microphone and built-in WAV sound file capability. Sound can be generated by the panel by using downloaded wave files (.WAV) or can be mixed in from an external line level audio source. The audio amplifiers output 2 Watts per channel. A built-in microphone in the touchpanel is amplified to produce a line level differential output. The microphone amplifier has two modes, AGC or fixed gain. The AGC is selectable using an internal join number, refer to "Reserved Join Numbers" on page 28.

A "Dynamic range" compression feature is provided for the TPS-3000. When enabled, the audio amplifier gain is reduced dynamically for loud signal levels, thus eliminating most distortion at the speakers. For quiet audio signals, the gain is not reduced. When "Dynamic range" compression is turned off (default), the audio amplifier gain remains fixed for all signal levels at the given volume setting.

The "RS-232 Port for Touch Output" operation is similar to TPS-5000/6000. When selected, touch coordinates are transmitted to external devices via RS-232 for processing commands.

Specifications

The following tables provide a summary of specifications for the TPS-3000 touchpanel.

Specifications for the TPS-3000 Touchpanel

SPECIFICATION	DETAILS
Cresnet Power Usage	22 Watts (0.92 Amp @ 24 VDC) Not including TPS-IMPC (1.0 W)
Default Net ID	03
Timeout	Adjustable from 0 to 120 minutes (Default = 10 min.)
Signal Join Maximums	4000 Digital, 4000 Analog, 999 Serial
Control System Update Files[1,2,3]	
2-Series Control System	Version C2-2004.CUZ or later
CEN/CN-TVAV	Version 5.13.12V.UPZ or later
CNMSX-AV/PRO	Version 5.12.63X.UPZ or later
CNRACKX/-DP	Version 5.07.06W.UPZ or later
ST-CP	Version 4.02.04S.UPZ or later

Continued on the following page

Specifications for the TPS-3000 Touchpanel (Continued)

SPECIFICATION	DETAILS

Acceptable File Extensions[4]
 	
SIMPL Windows
 	
  .smw
  .spz
  .bin
  .csz
 	
VT Pro-e
 	
  .vtp
  .vtz
 	
Firmware
  .csf
	
	projectname.smw (source file)
	projectname.spz (compiled file for 2-Series)
	projectname.bin (compiled file for CNX generation)
	projectname.csz
	  (compiled file for CNX generation with SIMPL+)
	
	projectname.vtp (source file)
	projectname.vtz (compiled file)
	
	TPS-3000xxxxxx.csf (panel firmware)

Audio	• Balanced (20 kΩ) & unbalanced (10 kΩ) line level stereo input through TPS-IMPC/IMW • Maximum input level 2Vrms single ended, 4Vrms differential with internal volume control and two speakers. • Balanced line level microphone with AGC output via TPS-IMPC/IMW • Maximum output level 1Vrms single ended, 2Vrms differential • Built-in WAV file (8bit 8kHz mono PCM type & key click capability • Stereo headphone mini-phone jack on rear of unit • Speaker amplification: 2 Watts per channel • Microphone: 600 Ohms balanced and 300 Ohms unbalanced mic out
Video	• Direct Composite/S-video input through TPS-IMPC/IMW, Balanced 100 Ω, Unbalanced 75 Ω. • Built-in time base correction for stable video and graphics • Video can be displayed full screen or in a window • NTSC and PAL supported • De-interlaced (still) and line doubled (motion) modes are supported • Brightness, contrast, hue and saturation adjustments
Memory [5]	8MB internal flash memory (7MB for user display lists), 8MB of DRAM
Screen Dimensions	6.4"/16.3 cm diagonal
Screen Viewing Angles:	Y Dir. (X=0°): +40° (from top), -55° (from bottom) X Dir. (Y=0°): +60° (from right), -60° (from left)
Screen Resolution	640 x 480 pixels
Color	16 Bit non-palette graphics with color key video window capability, 64,000 colors

Continued on the following page

Specifications for the TPS-3000 Touchpanel (Continued)

SPECIFICATION	DETAILS
Display Type	Touch-sensitive active matrix color LCD
Enclosure	Injection-molded plastic faceplate in black and silver
CPU	63MIPs Coldfire processor running Isys generation firmware
Cresnet®	Via TPS-IMPC/IMW
RS-232	RJ-11 connector for console
	Default settings: 115200, 8 bit, parity none, stop bit 1
Operating Temperature and Humidity	50º to 113º F (10º to 45º C),
	10 to 90% Relative Humidity (non-condensing)
Dimensions and Weight	Height: 7.56 in (19.21 cm)
	Width: 8.40 in (21.34 cm)
	Depth: 7.21 in (18.32 cm)
	Weight: 3.44 Lbs. (1.56 kg) without IMPC unit
	4.02 Lbs. (1.82 kg) with IMPC unit
Additional Options	• HBK-3000 cable management hatchback also ensures that unauthorized users cannot disconnect the cables
	• SMK-3000 rotating base kit (330 degrees) also reduces the chance of theft and includes the HBK-3000 hatchback

1. The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website. Refer to NOTE after last footnote.

2. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.

3. CNX update files are required for either CNMSX-AV/PRO or CNRACKX/-DP. Filenames for CNX update files have a UPZ extension and ST-CP files are in one EXE or zipped UPZ file. To avoid program problems, make certain you are using the update file with the correct suffix letter (e.g., S, V, W, X).

4. Extension requires a prefix specific to the touchpanel type. In DETAILS, *projectname* represents the assigned project name, and xxxxxx represents a version number.

5. The memory in a TPS-3000 is not upgradeable.

NOTE: Crestron software and any files on the website are for Authorized Crestron dealers only. New users are required to register to obtain access to certain areas of the site (including the FTP site).

Physical Description

The 6.4-inch (16.26 cm) touch sensitive viewing screen is located on the front of the TPS-3000 touchpanel. The electronic hardware is housed in a black and silver molded plastic enclosure, shown after this paragraph. This touchpanel is designed for placement on a tabletop or other flat surface. It possesses a hinged base, which can tilt from 30 to 80 degrees. All audio, RS-232, video, network, and power connections are made at the rear panel on the base of the unit. A grille located on the base of the unit conceals two speakers and the microphone is located at the top center of the touchscreen.
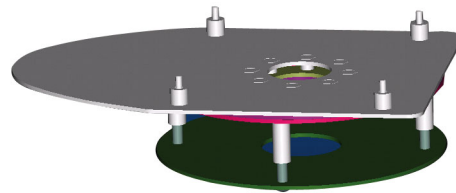
Front View

Back View with HBK-3000 (Hatchback Option Sold Separately)

Optional Hatchback
HBK-3000

Optional SMK-3000 (Rotating Base Accessory Sold Separately and Includes HBK-3000)

Physical View of the TPS-3000 Touchpanel (Front)

8.40 in
(21.34 cm)

6.06 in
(15.40 cm)

Physical View of the TPS-3000 Touchpanel (Side)

6.05 in
(15.37 cm)

7.56 in
(19.21 cm)

Tilt Angle
30 to 80 degrees

1.20 in
(3.05 cm)

1.40 in
(2.65 cm)
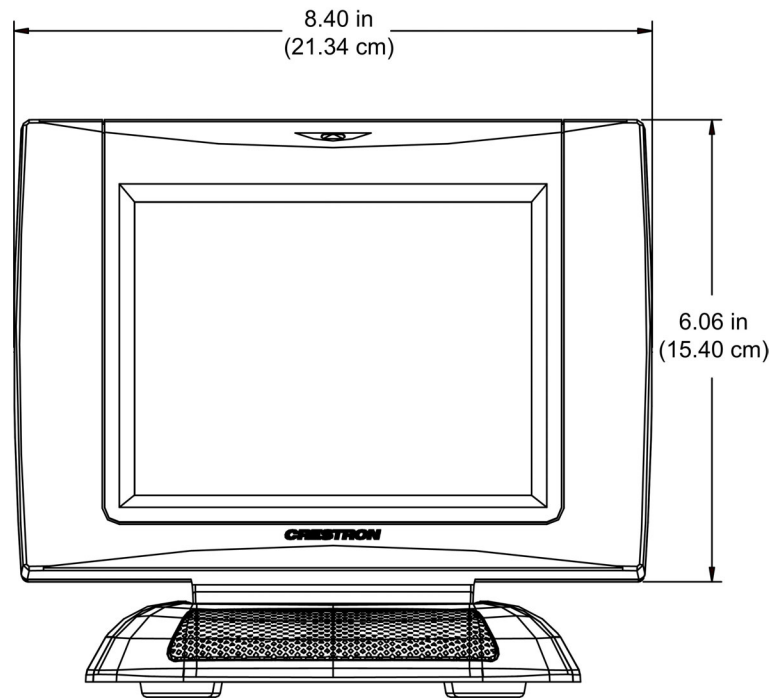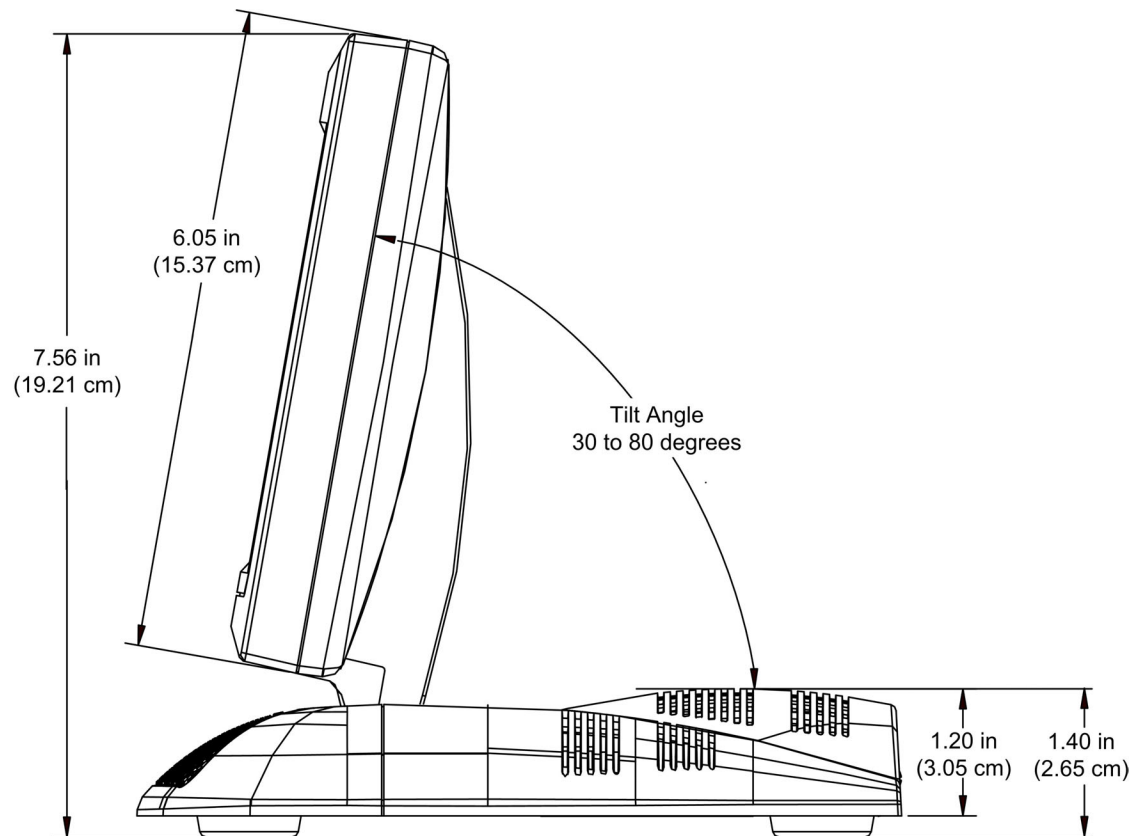
Physical View of the TPS-3000 Touchpanel (Bottom)
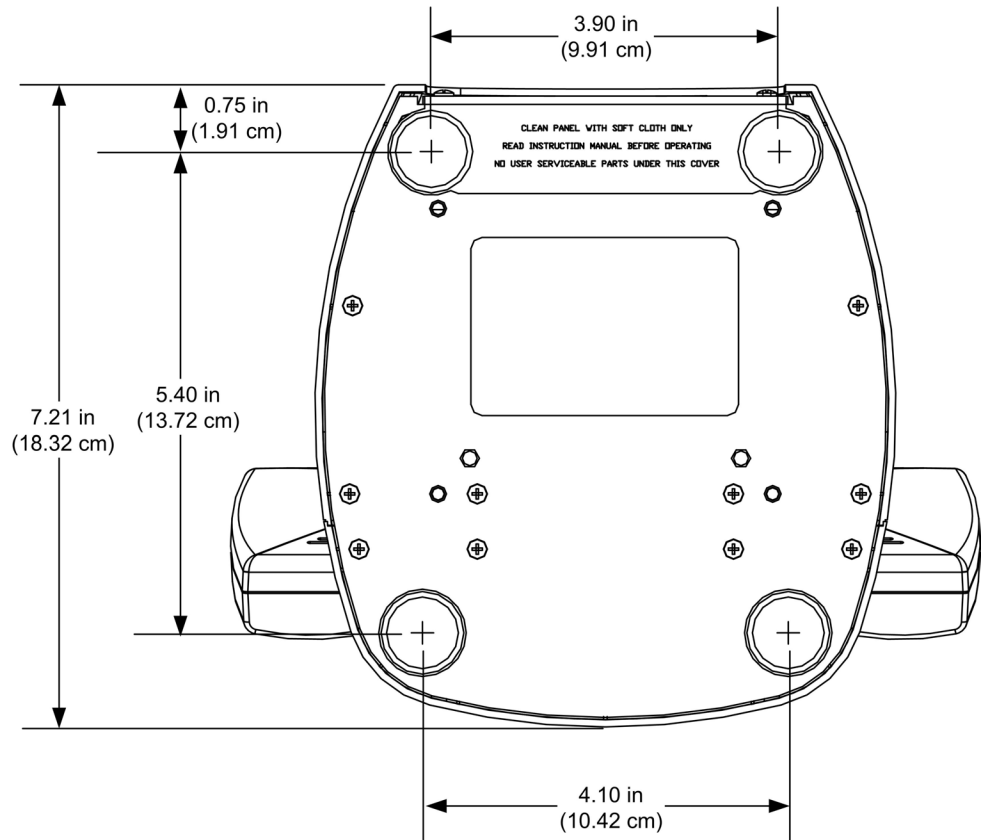
Physical Views of the TPS-3000 Touchpanel (Back)
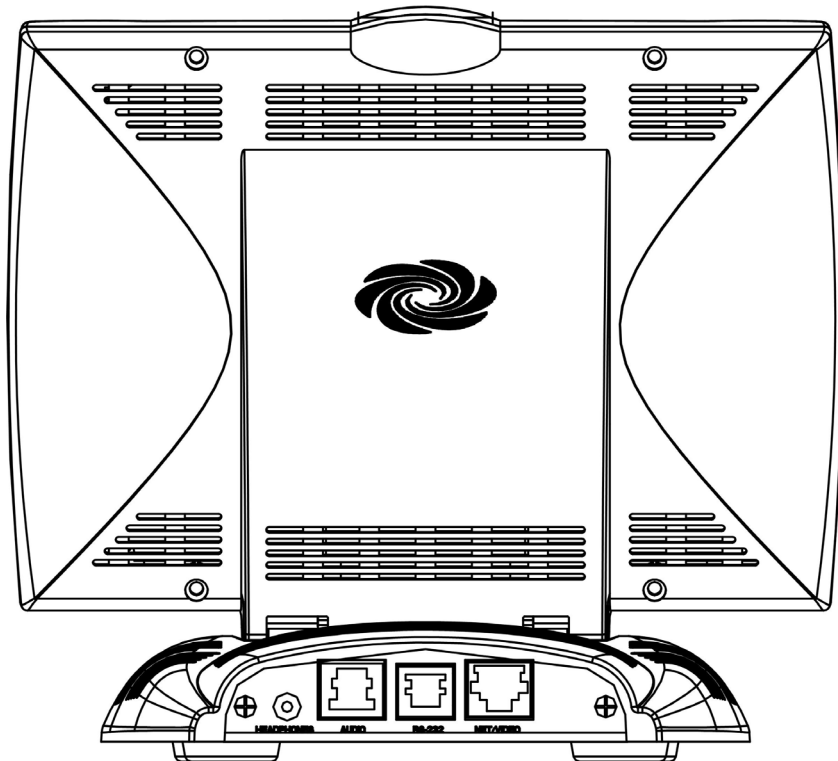
Industry Compliance

As of the date of manufacture, the TPS-3000 has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

CE C

NOTE: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Setup

Network Wiring

CAUTION: In order to ensure optimum performance over the full range of your installation topology, Crestron Certified Wire, and only Crestron Certified Wire, should be used. Failure to do so, may incur additional charges if support is required to identify performance deficiencies as a result of using improper wire.

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator to help calculate how much power is needed for the system (http://www.crestron.com/calculators).

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

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the Crestron website.

When calculating the wire gauge for a particular Cresnet® run, the length of the run and the Cresnet power usage of each network unit to be connected must be taken into consideration. If Cresnet units are to be daisy-chained on the run, the Cresnet power usage of each unit to be daisy-chained must be added together to determine the Cresnet power usage of the entire chain. If the unit is a home-run from a Crestron system power supply network port, the Cresnet power usage of that unit is the Cresnet power usage of the entire run. The length of the run in feet and the Cresnet power usage of the run should be used in the resistance equation below to calculate the value on the right side of the equation.

Resistance Equation

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

Where: R = Resistance (refer to the following table).
L = Length of run (or chain) in feet.
P = Cresnet power usage 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	WIRE GAUGE
4	16
6	18
10	20
15	22
13	Doubled CAT5
8.7	Tripled CAT5

NOTE: All Cresnet 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 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.

NOTE: For additional general information on video connections over CAT5, refer to the latest version of the Crestron CAT5 Wiring Reference Guide (Doc. 6137) which is available from Crestron website.

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.

Identity Code

Every equipment and user interface within the network requires a unique Cresnet Identity code (Net ID). These codes are assigned a two-digit hexadecimal number from 03 to FE. Refer to "Interface Menu" on page 12 for instructions on setting the unit's Net ID. The Net ID of the unit must match the Net ID specified in the SIMPL Windows program. Refer to "Setting the Net ID in Device Settings" on page 24 for an example of a SIMPL Windows program.

Configuring the Touchpanel

NOTE: The only connection required to configure the touchpanel is power (supplied via Cresnet). Refer to "Hardware Hookup" on page 17 for details.

To configure the unit, it may be necessary to access a series of setup screens prior to viewing run-time screens that are loaded into the touchpanel for normal operation. The MAIN MENU for configuring the touchpanel appears when a finger is held to

the touchscreen as power is applied. Remove your finger when the message "SETUP MODE" appears on the touchscreen.

Upon entering SETUP MODE, the MAIN MENU, shown below, displays four buttons: **Touch Screen Calibration**, **Exit and Run Program**, **Setup**, and **Diagnostics**.

The **Exit and Run Program** button verifies that all of the setup information has been saved to the EEPROM and displays the main page that has been programmed into your system. The remaining buttons on the MAIN MENU open other menus, which are discussed in subsequent paragraphs.

MAIN MENU

MAIN MENU	
	Exit and Run Program
Touch Screen Calibration	Setup
	Diagnostics
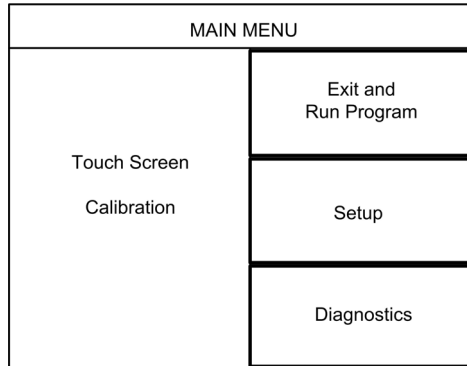
This menu can also be obtained via digital reserved join number 17242.

Calibration Menu

Calibration of the touchscreen is required if the active touch area of a button does not coincide with the button's image. Select the **Touch Screen Calibration** button to display the CALIBRATION MENU, shown below. The CALIBRATION MENU offers the choice to initiate calibration with the **Perform Calibration** button or return to the previous screen with the **Return** button. Choose an option by touching the correct button.

If you proceed to calibrate the touchpanel, the screen displays the message "Touch Upper Left" centered on the panel with a cross hair in the corner. Touch the cross hair in the corner of the screen to initiate calibration. Another message, "Touch Upper Right", appears with a cross hair in the correct corner. Touch the corner of the screen. A final message, "Touch Lower Right", appears with a cross hair in the correct corner. Touch the corner of the screen to conclude calibration and return to the MAIN MENU.

CALIBRATION MENU

| CALIBRATION MENU	
Perform Calibration	
	Return
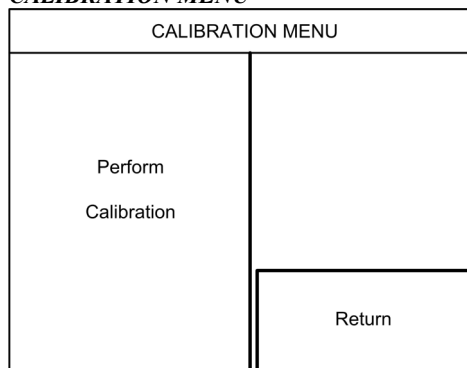
NOTE: When touching the screen during calibration, be as accurate as possible. Use the tip of a capped pen or the eraser end of a pencil. To cancel calibration and return to the CALIBRATION MENU without saving calibration data, create a calibration error by touching the screen in the same spot three times.

Setup Menu

To obtain the SETUP MENU, shown below, press the **Setup** button from the MAIN MENU. The SETUP MENU offers a series of buttons, which opens additional menus and displays, which are detailed in subsequent paragraphs. After setup parameters have been set, select the **Return** button to return to the MAIN MENU.

SETUP MENU

	SETUP MENU	
Interface	Audio	Video
Screen Settings	RS-232	Timeout xxx
CRESNET ID: 03		Return
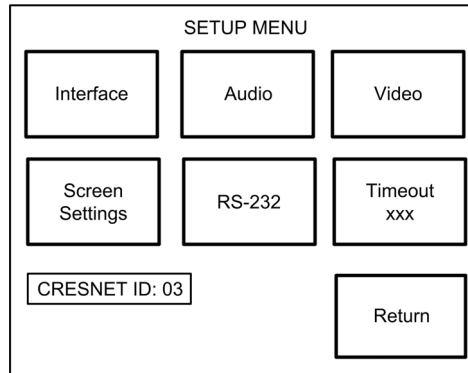
NOTE: For convenience, the current CRESNET ID setting is displayed in the lower left corner.

NOTE: All touchpanel settings are automatically saved in non-volatile memory.

Interface Menu

The touchpanel communicates with a control system to activate commands or to display feedback from components within the system. The communication interface must be correctly specified or communication will not occur. To set communication parameters select the **Interface** button located on the SETUP MENU and display the INTERFACE MENU, shown below.

The Cresnet network identity number (CRESNET ID) is displayed on the INTERFACE MENU. CRESNET ID is the two-digit hexadecimal number. The hexadecimal number can range from 03 to FE and must correspond to the Net ID set in the SIMPL Windows program of the Cresnet system. Matching IDs between touchpanel and SIMPL Windows program is required if data is to be successfully transferred. Net ID for the TPS-3000 is factory set to 03 and no two devices in the same system can have the same ID.

INTERFACE MENU

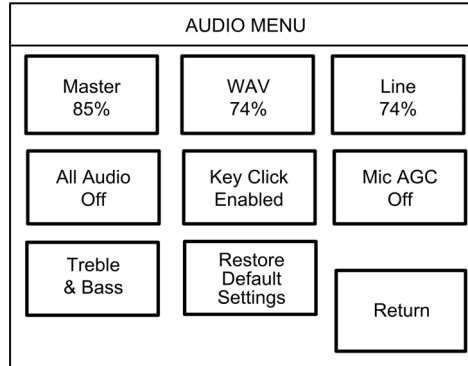| INTERFACE MENU		
CRESNET ID		
UP	03	
DOWN		
		Return
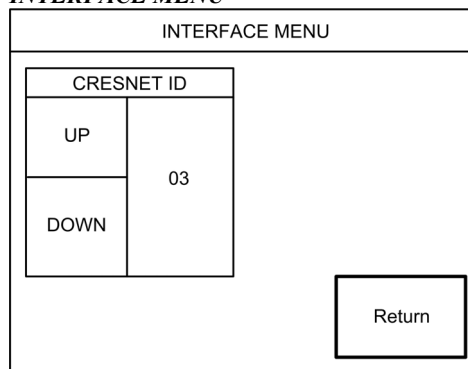
Two buttons adjacent to the hexadecimal display, **UP** and **DOWN**, increase and decrease the CRESNET ID by one, respectively.

Select the **Return** button located on the INTERFACE MENU to return to the SETUP MENU.

Audio Menu

Audio is a useful feedback tool and it can be used to enhance a custom interface. To obtain the AUDIO MENU, shown below, press the **Audio** button from the SETUP MENU. The AUDIO MENU offers a series of buttons, which opens additional screens and each is detailed in a table after this paragraph. Two of the buttons on the AUDIO MENU perform a function directly. The **Restore Default Settings** button returns all audio parameters to their default settings when the button is selected. After audio parameters have been set, select the **Return** button to return to the SETUP MENU.

AUDIO MENU

```
┌─────────────────────────────────────────┐
│              AUDIO MENU                   │
│                                           │
│  ┌─────────┐  ┌─────────┐  ┌─────────┐   │
│  │ Master  │  │  WAV    │  │  Line   │   │
│  │  85%    │  │  74%    │  │  74%    │   │
│  └─────────┘  └─────────┘  └─────────┘   │
│                                           │
│  ┌─────────┐  ┌─────────┐  ┌─────────┐   │
│  │All Audio│  │Key Click│  │ Mic AGC │   │
│  │  Off    │  │ Enabled │  │   Off   │   │
│  └─────────┘  └─────────┘  └─────────┘   │
│                                           │
│  ┌─────────┐  ┌─────────┐  ┌─────────┐   │
│  │ Treble  │  │ Restore │  │         │   │
│  │ & Bass  │  │ Default │  │ Return  │   │
│  │         │  │ Settings│  │         │   │
│  └─────────┘  └─────────┘  └─────────┘   │
│                                           │
└─────────────────────────────────────────┘
```

Audio Setup Details

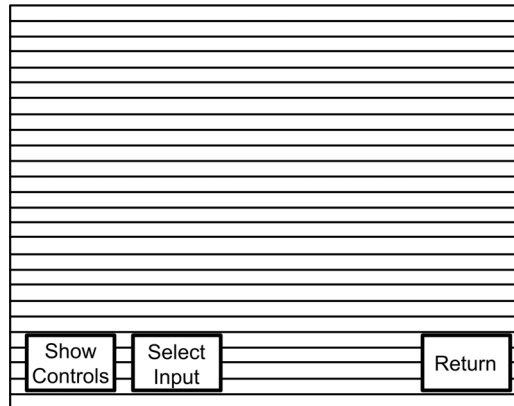| AUDIO MENU BUTTON [1]	AUDIO SETUP SCREEN	DESCRIPTION [2]
Master 88%	Master Volume	The volume of all audio types (WAV, line, and key click) is affected by the Master Volume control. If the Master Volume control is set to 100%, the volume for any type of audio is at maximum. If the Master Volume is set to 0%, the value of all audio types is overridden and the touchpanel is silent. If Master Volume is a percentage (say 50%), then all audio types can only achieve half their value.
WAV 88% (On)	WAV	Enable WAV files with the **WAV On** button. **WAV Off** disables this feature. Adjust the volume with the **UP** and **DOWN** buttons. Select the **Play WAV File** to sample and adjust the volume as a pre-loaded WAV file plays.
Line 88% (On)	Line	Enable line level audio with the **Line On** button. **Line Off** disables this feature. Adjust the volume with the **UP** and **DOWN** buttons.
All Audio (On)	All Audio Control	All types of audio may be disabled with a single button press. **All Audio Off** activates global muting. **All Audio On** enables all audio.
Key Click Enabled (Vol. 83%)	Key Click	**Click On** enables the key click sound, **Click Off** disables the key click. Adjust the volume with the **UP** and **DOWN** buttons.
Mic AGC On	AGC[3]	The built-in microphone AGC (Automatic Gain Control) is enabled by the **Mic Audio AGC On** button and disabled with the **Mic Audio AGC Off** button.
Treble & Bass (49%)	Treble & Bass	Two **UP** and **DOWN** buttons allow independent treble and bass adjustment.

1. The button text shown demonstrates the default audio setting for a given button. The items in parenthesis are also default values, but are seen in subsequent screens.

2. Each screen has its own Return button to revert to the AUDIO MENU. Selected buttons are shown in red on the touchpanel.

3. AGC is a means of automatically controlling the gain of the amplifier in order to maintain a constant level over a limited range.

Video Menu

The TPS-3000 can display balanced and unbalanced composite video and S-video input supporting both NTSC/PAL formats from any Crestron video distribution system. Select the **Video** button from the SETUP MENU to display the video screen, shown below. Selecting **Select Input** specifies the type of video source signal. The touchpanel can be configured to auto-detect (S-video or composite) or can be set to a specific connection type (S-video or composite). Select the appropriate input mode.

The **Show Controls** button on the video screen offers another screen with a series of buttons, each is detailed in a table after this paragraph. After video parameters have been set, select the **Return** button to return to the SETUP MENU.

VIDEO SCREEN

Video Setup Details

| VIDEO SCREEN BUTTONS[1]	DESCRIPTION [2]
Brightness	**UP** button increases video image brightness, **DOWN** button decreases video image brightness.
Contrast	**UP** button increases video image contrast, **DOWN** button decreases video image contrast.
Saturation	**UP** button increases video image saturation, **DOWN** button decreases video image saturation.
Hue	**UP** button increases video image hue, **DOWN** button decreases video image hue.
Still/Motion (toggle)	The **Motion** setting eliminates the motion artifacts caused by the difference between first and second halves of a video frame field. The **Still** setting yields a much sharper image, however, motion artifacts may occur if fast moving objects are displayed.
Hide Controls	This button returns the display to the video screen.
Default	Returns you to the default settings. You are prompted with "Are you sure?" Answering **YES** to the prompt returns you to default settings. Answering **NO** to the prompt returns you to the previous screen.
Return	Reverts to the SETUP MENU

1. Video default is 50% for each of the video parameters (brightness, contrast, saturation, and hue).

2. Each screen has its own **Return** button to revert to the SETUP MENU**.**

Timeout Menu

The touchpanel display can be turned off (standby mode) when not in active use. Select the **Timeout** button on the SETUP MENU to reveal the TIMEOUT SETTINGS display, shown below. This setting turns the display off when the touchpanel is inactive for a specified time. Touch the screen to awaken the touchpanel and the last screen to be displayed reappears. The time value, represented by XXX in the illustration, can range from 0 (disables the timeout) to 120 (minutes). Two buttons, **UP** and **DOWN**, increase and decrease the timeout, respectively. Select the **Return** button to save the timeout setting and return to the SETUP MENU.

TIMEOUT SETTINGS

TIMEOUT SETTINGS

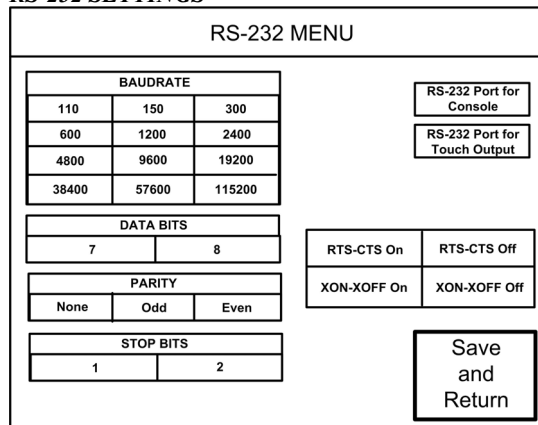| STANDBY	
UP	XXX
DOWN	

Return
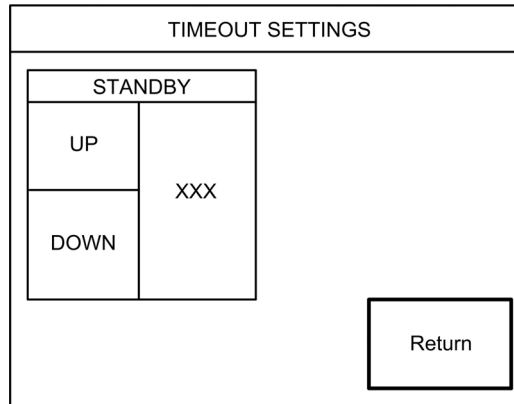
RS-232 Menu

The touchpanel allows for one of four RS-232 communication modes: console (i.e. loading programs) control (i.e. non-Crestron device), touch output (communication of touch coordinates to an external device) or external touch screen input.

For convenience, the RS-232 Menu also permits the selection of the RS-232 communication options, RTS-CTS On, RTS-CTS Off, XON-XOFF On, XON-XOFF Off, Baud Rate, Data Bits, Parity, and Stop Bits.

Touch the communication option to select communication parameters and then select **Save and Return** to save the RS-232 settings and return to the SETUP MENU.

Default settings: Console mode, Baud rate: 115200, data bits: 8 bit, parity: none, stop bit: 1, XON/XOFF on, RTS/CTS off.
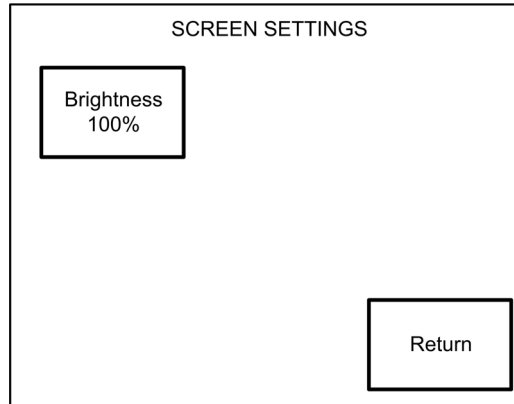
RS-232 SETTINGS

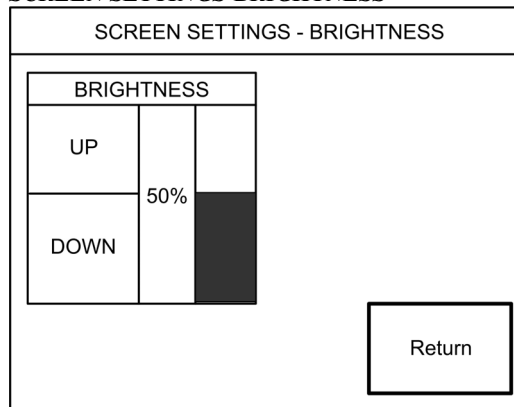| RS-232 MENU				
BAUDRATE			**RS-232 Port for Console**	
110	150	300	**RS-232 Port for Touch Output**	
600	1200	2400		
4800	9600	19200		
38400	57600	115200		
DATA BITS				
7		8	RTS-CTS On	RTS-CTS Off
PARITY			XON-XOFF On	XON-XOFF Off
None	Odd	Even		
STOP BITS			Save and Return	
1		2		

Screen Settings

The touchpanel screen brightness may require adjustment because of ambient light conditions or personal preference. The brightness can be set via programming or altered manually from the SCREEN SETTINGS display, shown below. Press the **Screen Settings** button from the SETUP MENU to access this screen. To return to the SETUP MENU and save screen settings, select the **Return** button on the SCREEN SETTINGS display. The current screen brightness setting is shown on this page. The screen brightness is factory set to 100%. Changes to the brightness level are performed on a subsequent screen after selecting the **Brightness** button.

SCREEN SETTINGS

```
┌─────────────────────────────────────────┐
│              SCREEN SETTINGS             │
│                                          │
│  ┌──────────────┐                        │
│  │  Brightness  │                        │
│  │    100%      │                        │
│  └──────────────┘                        │
│                                          │
│                                          │
│                          ┌────────────┐  │
│                          │            │  │
│                          │   Return   │  │
│                          └────────────┘  │
└─────────────────────────────────────────┘
```

Press the **Brightness** button to open the SCREEN SETTINGS – BRIGHTNESS display. Manual changes to the screen brightness are made with the **UP** and **DOWN** buttons. To return to the SCREEN SETTINGS display and save the brightness settings, press **Return**.
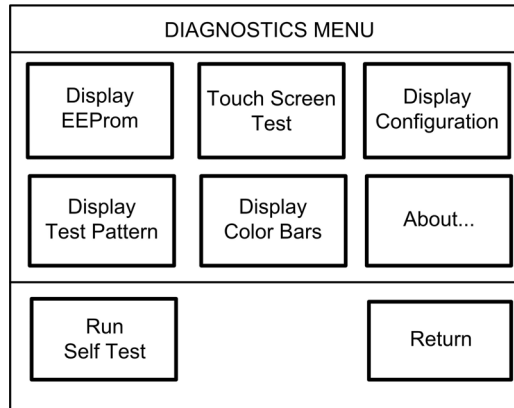
SCREEN SETTINGS-BRIGHTNESS

```
┌─────────────────────────────────────────┐
│        SCREEN SETTINGS - BRIGHTNESS      │
│  ┌───────────────────┐                   │
│  │     BRIGHTNESS     │                  │
│  ├──────────┬────┬────┤                  │
│  │          │    │    │                  │
│  │    UP    │    │    │                  │
│  │          │    │    │                  │
│  ├──────────┤50% ├────┤                  │
│  │          │    │████│                  │
│  │   DOWN   │    │████│                  │
│  │          │    │████│                  │
│  └──────────┴────┴────┘   ┌────────────┐ │
│                           │            │ │
│                           │   Return   │ │
│                           └────────────┘ │
└─────────────────────────────────────────┘
```

Diagnostics Menu

The **Diagnostics** button from the MAIN MENU should only be used under supervision from a Crestron customer service representative during telephone support. The options available from the DIAGNOSTICS MENU, shown below, are numeric in nature and their interpretation is beyond the scope of this manual.
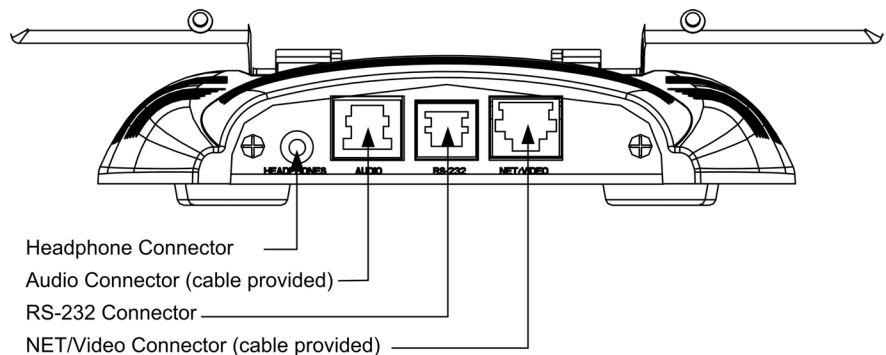
DIAGNOSTICS MENU

DIAGNOSTICS MENU		
Display EEProm	Touch Screen Test	Display Configuration
Display Test Pattern	Display Color Bars	About...
Run Self Test		Return

Hardware Hookup

CAUTION: Do not apply excessive pressure to the touchscreen display during handling. Doing so can crack the screen and damage the touchpanel.

The TPS-3000 touchpanel has rubber pads on the underside of its base so that it can rest on a horizontal surface. Make the required connections as shown and described in the following sections.

Hardware connections for the TPS-3000 (Back of the base is shown)

Headphone Connector
Audio Connector (cable provided)
RS-232 Connector
NET/Video Connector (cable provided)

NOTE: TPS-3000 includes a TPS-IMPC Interface Module for system connection.

NOTE: The audio connectors are color-coded blue.

HEADPHONES

Connect this standard mini phone jack (12 mW, 32 ohms load) to the plug of an external headphone set, not supplied. The headphone output is for WAV and Line only. It does not send out the microphone signal. Use the MIC OUT on the TPS-IMPC for the microphone signal.


Tip
Ring
Ground
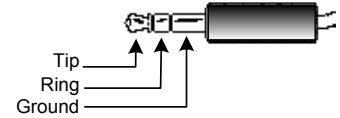
NOTE: The headphone jack is unavailable after the HBK-3000 Hatchback option is installed.

AUDIO

This 8-position, RJ-45 connector (color coded blue) mates with the TPS-IMPC interface module and provides differential/single ended audio input and output. It also produces line level differential output. Pinout description is shown in the table after this paragraph.

AUDIO Pinouts

PIN #	DESIGNATION	DESCRIPTION
1	L+	Left Input (Positive)
2	L-	Left Input (Negative)
3	GND	Ground
4	R+	Right Input (Positive)
5	R-	Right Input (Negative)
6	S	Shield
7	M+	Mic Output (Positive)
8	M-	Mic Output (Negative)
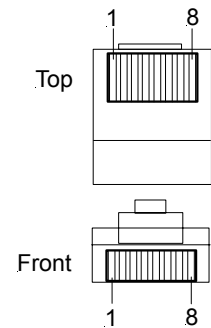
To determine the location of pin 1, hold the connector so that the cable is down and the clip is facing away from you. The copper connector on the far left is pin 1.

RS-232

This 6-position RJ-11 mates with a serial port of a PC; connecting cable is not supplied. Use this port for direct connection to the PC to load files to a touchpanel without a network connection. In the event that modular cables or an RJ-11 to DB9F adapter is not available, the diagram and table that follows provide information so that the cable can be fabricated on site.

PC to TPS-3000 Cable Specifications
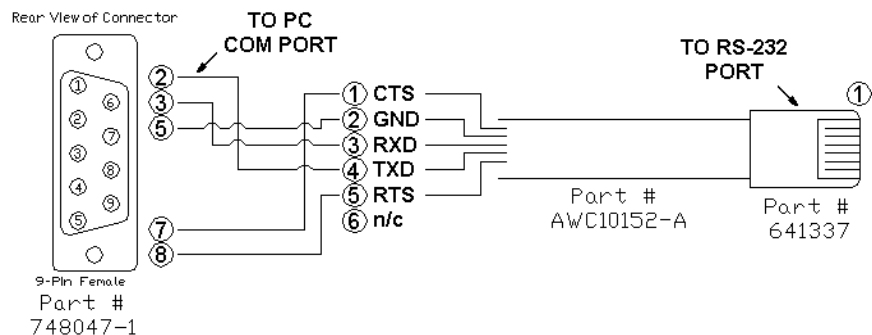
RS-232 Pinouts

PIN #	DESCRIPTION
1	CTS
2	GND
3	RXD
4	TXD
5	RTS
6	N/C (Not connected)

Top

Front

1   6

1   6
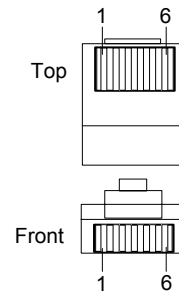
**NOTE:** This cable is the Crestron STCP-502, and is included in the ST-PK programming cable kit.

NET/VIDEO

This 10-position RJ-45 mates with the TPS-IMPC interface module and has a dual purpose. Refer to the descriptions and pinout table that follow this paragraph.

CAUTION: The 10-pin RJ-45 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.

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)

Pin 1   Pin 1

Shield on Connector

RJ-45 10-pin Connector
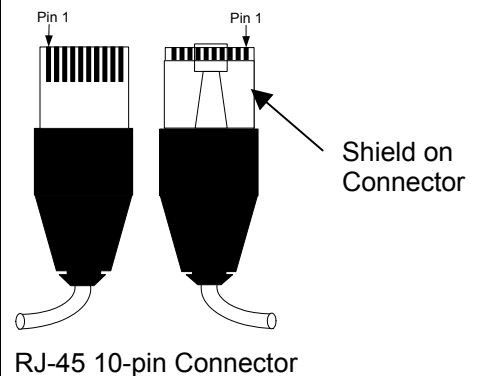
This 10-position RJ-45 port provides network connection from the touchpanel to the interface module and network power to the touchpanel. This port also contains the composite and S-video inputs.

TPS-IMPC

The TPS-IMPC is designed specifically to serve as an interface module for the Crestron TPS-3000 tilt touchpanel. It is supplied with every Isys®-tilt touchpanel that includes audio capability. A network connector and video input connectors are located on one side of the unit. The opposite side offers audio input, microphone output (600 Ohms balanced and 300 Ohms unbalanced MIC OUT), and audio and network/video connections to the touchpanel.

Cresnet Power Usage: <1 Watt @ 24 Volts DC – not including touchpanel. If power is applied to the 24 VDC jack and the NET port simultaneously, power will be drawn from whichever is highest.

For additional information, refer to the latest version of the TPS-IMPC Operations Guide (Doc. 6162), which is available from the Crestron website (http://www.crestron.com/manuals).

TPS-IMPC Hookup
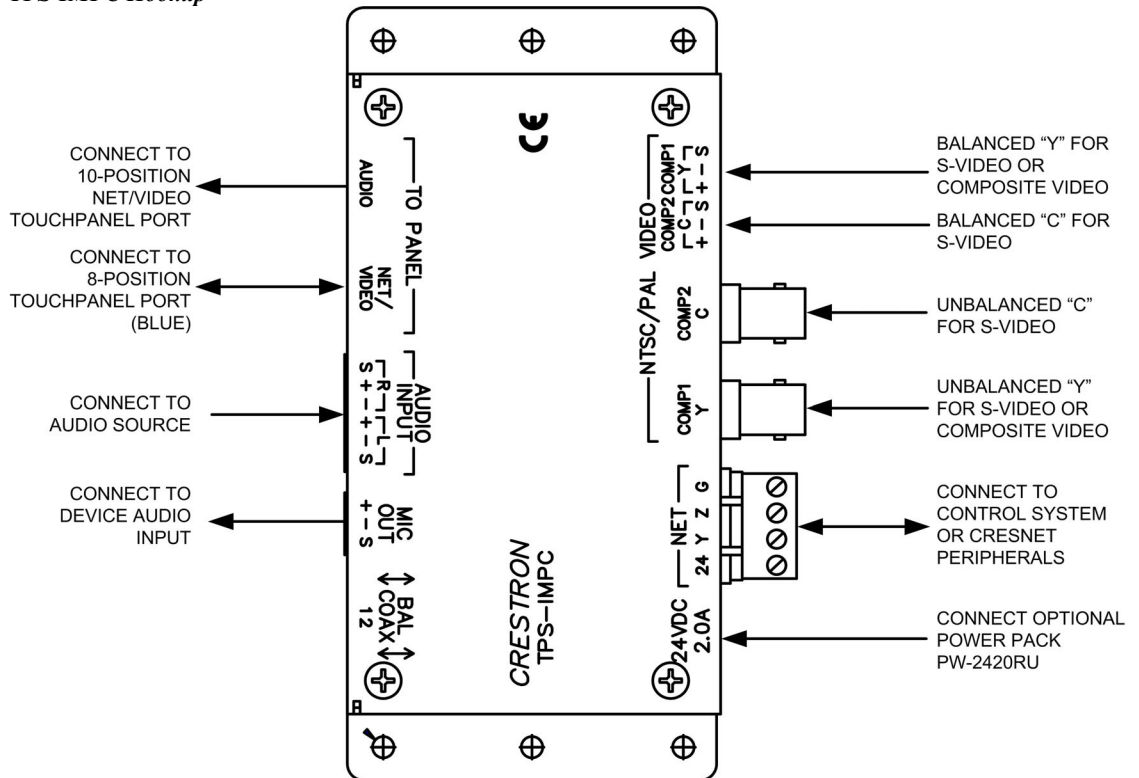
Recommended Touchscreen Cleaning

Keep the surface of the touchscreen free of dirt, dust, or other materials that could degrade optical properties. Long-term contact with abrasive materials can scratch the surface, which may detrimentally affect image quality.

For best cleaning results, use a clean, damp, non-abrasive cloth with any commercially available non-ammonia glass cleaner. Bezels may not provide a complete watertight seal. Therefore, apply cleaning solution to the cloth rather than the surface of the touchscreen. Wipe touchscreen clean and avoid getting moisture beneath the bezels.

Tilt Angle Tension Adjustment
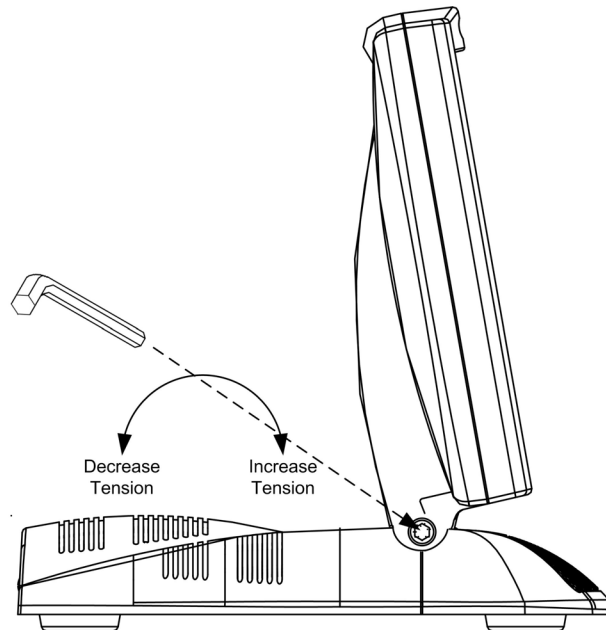
Use a 9/64 in (3.5 mm) hex drive key (Allen wrench) to increase or decrease pivot tension at the base of the touchscreen. Turning the key clockwise increases tension, counterclockwise decreases tension.

Programming Software

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at http://support.crestron.com. First-time users will need to establish a user account.

Configuration is easy thanks to Crestron's Windows®-based programming software. Crestron SystemBuilder™ software creates a complete project, with no special programming required. SystemBuilder completes all necessary programming for a base system including all touchpanel screens and the control system program. The program output of SystemBuilder is a SIMPL Windows program with much of the functionality encapsulated in macros and templates. Once SystemBuilder creates the project, the system interfaces and program logic can be customized in SystemBuilder. Modifications are easily accomplished with Crestron development tools (i.e., SIMPL Windows and Crestron VisionTools® Pro-e (VT Pro-e) software packages).

NOTE: Modifications to the program that are made outside of SystemBuilder (for example, in VT Pro-e or SIMPL windows) are not preserved when you reenter SystemBuilder.

SystemBuilder comes with templates for all supported interfaces. If a user wishes to create a touchpanel project using templates with a different look-and-feel, this can be accomplished by making a custom template. This custom template can then be used by SystemBuilder to create the final project files to be loaded into the panels.

Alternatively, VT Pro-e can be used to tweak projects created with the SystemBuilder or develop original touchpanel screen designs.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Crestron website.

The following are recommended software version requirements for the PC:

- (Optional but highly recommended) SystemBuilder version 1.0 or later (Requires SIMPL Windows, VT Pro-e and Crestron database).

- SIMPL Windows version 2.02.11 or later. Requires SIMPL+® Cross Compiler version 1.1 and Device Library update 318.

- Crestron Database version 15.7.5 or later. Required by SIMPL Windows and VisionTools Pro-e (VT Pro-e).

- VisionTools Pro-e version 2.4.1.8 or later. Used for graphical touchscreen design.

Digital, analog and serial join numbers are a common thread between VT Pro-e and SIMPL Windows. These numbers define how the objects on a touchpanel page of a VT Pro-e project interface to the outside world, specifically the Cresnet system as defined in the SIMPL Windows program. There are digital join numbers that carry out some predetermined function (a logical high or low); analog join numbers for displaying incremental values, sliders, gauges and bar graphs; and serial join numbers that allow for the display of variable text and transmission/reception of serial commands from other manufacturers. Unjoined objects are not interfaced with the system and thus cannot initiate any functions.
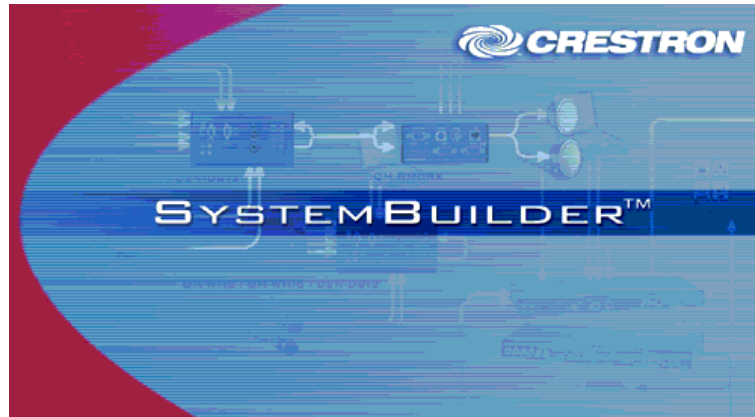
Programming with Crestron System Builder

The easiest method of programming, but does not offer as much flexibility as SIMPL Windows.

Crestron System Builder offers automatic programming for such residential and commercial applications as audio distribution, home theater, video conferencing, and lighting. The interface of this tool guides you through a few basic steps for designating rooms and specifying the control system, touchpanels, devices, and functionality. Crestron System Builder then programs the system, including all touchpanel projects and control system logic.

Crestron System Builder is fully integrated with Crestron's suite of software development tools, including SIMPL Windows, VT Pro-e, Crestron Database, User IR Database, and User Modules Directory. Crestron System Builder accesses these tools behind the scenes, enabling you to easily create robust systems.

SystemBuilder

For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Programming with SIMPL Windows

NOTE: The following assumes that the reader has knowledge of SIMPL Windows. If not, refer to the extensive help information provided with the software.

NOTE: In the following description, the PRO2 control system is used.

SIMPL Windows is Crestron's software for programming Crestron control systems. It provides a well-designed graphical environment with a number of workspaces (i.e., windows) in which a programmer can select, configure, program, test, and monitor a Crestron control system. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

This section describes a sample SIMPL Windows program that includes a TPS-3000 touchpanel.

Configuration Manager is where programmers "build" a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated communication ports is displayed in the *System Views* upper pane.

PRO2 System View
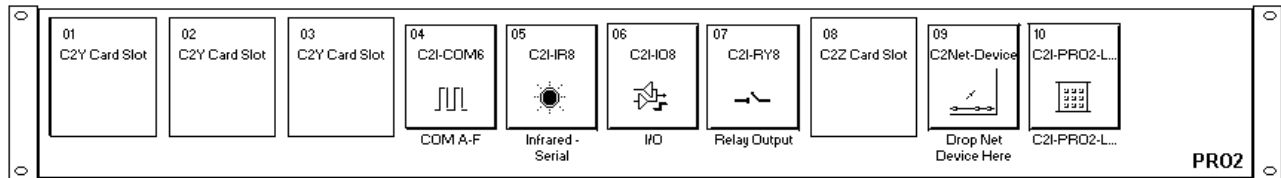
The *System Views* lower pane displays the PRO2 system tree. This tree can be expanded to display and configure the communications ports.

Expanded PRO2 System Tree
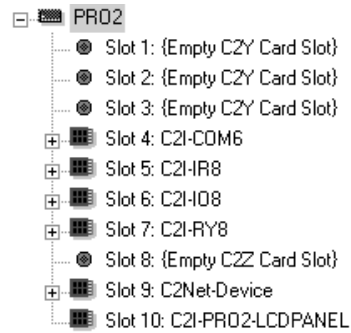
C2Net-Device Slot in Configuration Manager

In Configuration Manager, drag the TPS-3000 from the touchpanels folder of the *Device Library* and drop it on the C2Net-Device Slot. The PRO2 system tree displays the touchpanel in Slot 9, with a default Net ID of 03, as shown in the following illustration.

C2Net Device, Slot 9
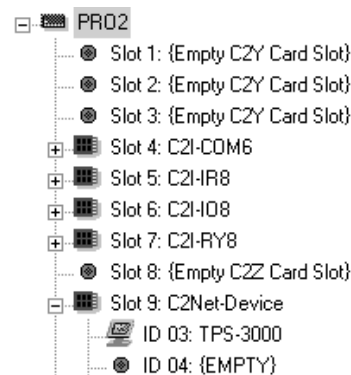
Setting the Net ID in Device Settings

Double-click the TPS-3000 icon in the upper pane to open the "Device Settings" window. This window displays TPS-3000 device information. Select the *Net ID* tab to change the gateway Net ID, as shown in the following figure.

"Device Settings" Window for the TPS-3000
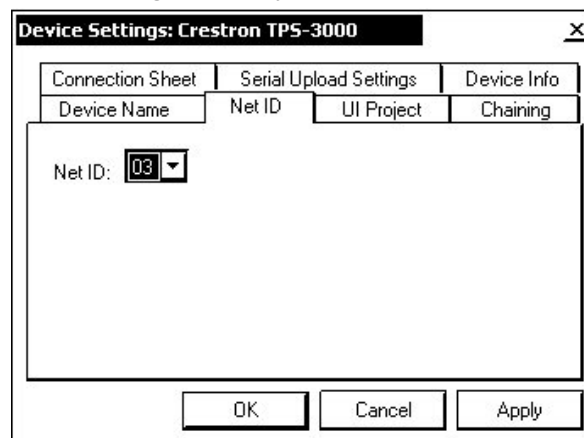
NOTE: This procedure sets the Net ID for the TPS-3000 in the program only. It does not automatically set the Net ID for the TPS-3000 itself. SIMPL Windows automatically changes Net ID values of a device added to a program if a duplicate device or a device with the same Net ID already exists in the program. Always ensure that the hardware and software settings of the Net ID match. For Net ID hardware settings details, refer to "Interface Menu" on page 12.

TPS-3000 Symbol in Programming Manager

Programming Manager is where programmers "program" a Creston control system by assigning signals to symbols. The following diagram shows the TPS-3000 symbol in the SIMPL Windows' Programming Manager.

Detail View of the TPS-3000 in SIMPL Windows' Programming Manager
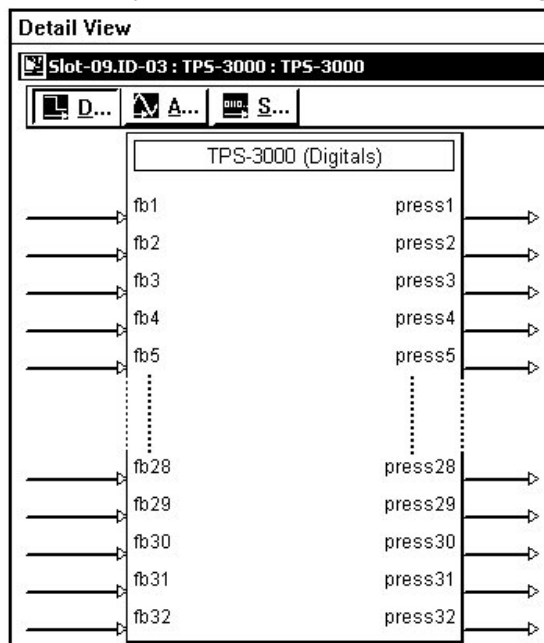
NOTE: Pin numbers are expandable to 4000 Digital, 4000 Analog, and 999 Serial.

Signal Types

Signals interconnect the various devices and logic symbols that comprise a SIMPL program. Signals can be one of three types: digital, analog, or serial. For any given signal, the signal type is determined by its driving source. That is, if the symbol that drives the signal has an analog output, then, by definition, the connecting signal is analog.

In SIMPL Windows, the signal types are color-coded as follows:

> **Digital = Blue**
>
> **Analog = Red**
>
> **Serial = Black**
>
> **Other = Green**

> **NOTE:** Other signals are a combination of the three basic types (e.g., many symbols accept either analog or serial signals where the combination is shown as a green signal). The signal type is displayed on the Status Bar when the signal is highlighted.

For additional information, refer to Doc. 6120, Crestron SIMPL Windows Symbol Guide. It may be downloaded from the Crestron website.

Digital Signals

A digital signal contains one bit of information and usually takes on one of two values: 1 or 0. These two digits can represent the logical values true and false, and they can be represented in an electronic device by the states on/off or high/low, recognized as two voltage levels. (Other common descriptors are active/inactive.)

Analog Signals

Unlike digital signals, analog signals can vary continuously in value, in the same manner as a parameter such as volume, temperature, or pressure. Analog signals contain 16 bits of information, which means that this type of signal can have values ranging from 0 to 65535 (2^{16}-1). This 16-bit property makes analog signals useful for controlling devices that do not have discrete settings, such as volume controllers, pan/tilt head controllers, and lighting dimmers.

Serial Signals

Serial signals are much like analog signals, in that they, too, contain 16 bits of information. However, whereas the value of an analog signal is used directly-to control volume or temperature, for instance–the value of the serial signal is used as a pointer to a location in memory that contains a string of characters. When a serial signal is routed to a symbol, that symbol can identify the signal as serial rather than analog and it will automatically look at the data it points to.

Thus serial signals are used to facilitate the transmission of serial data (strings of characters). These signals can be generated by incoming data on a COM port or by a symbol that has a serial output.

TPS-3000 Input/Output Signals

The TPS-3000 symbol provides up to 4000 digital and/or analog input and output joins, and up to 999 serial input joins. The programmer selects the signal types by clicking on the appropriate button at the top of the S*ymbol Detail* view when programming the panel.

The following tables list and give functional descriptions for the touchpanel outputs and inputs.

Digital Output Signal Descriptions

OUTPUT	DESCRIPTION
press 1 through press 4000	Notifies control system of button press (1 - 4000). High/1 = Button being pressed Low/0 = Button not being pressed

Digital Input Signal Descriptions

INPUT	DESCRIPTION
fb 1 through fb 4000	Notifies panel of button press (1 - 4000). This can represent that the button was pressed, or can be an actual device feedback, e.g., that power was turned on.

Analog Output Signal Descriptions

OUTPUT	DESCRIPTION
an_act 1 through an_act 4000	Notifies control system of an action (1 - 4000). Any value from 0 through 65535

Analog Input Signal Descriptions

INPUT	DESCRIPTION
an_fb 1 through an_fb 4000	Notifies panel of analog action (1 - 4000).

Serial Input Signal Descriptions

INPUT	DESCRIPTION
text-01 through text-999	Notifies panel of text string (1 - 999). Also called indirect text.

Device Extenders

Device extenders provide additional logic and functionality to a device. The Poll Manager and Sleep/Wake Manager symbols are device extenders for touchpanels. Poll Manager takes the touchpanel on and off line during polling by the control system. Sleep/Wake Manager suspends and restores operation of the touchpanel. For additional information about Device Extenders, refer to the latest version of the Crestron SIMPL Windows Symbol Guide (Doc. 6120), or the on-line help included with SIMPL Windows.

Example Program

An example program for the TPS-3000 is available from the "example Program" section of the Crestron website (http://www.crestron.com/exampleprograms). Search for: TPS-3000.zip.

Programming with VisionTools Pro-e

VT Pro-e, a design and programming Windows®-based software, permits the creation of unlimited control screen variations incorporating two and three-dimensional graphics and text. A set of pages, which make up a project, can be designed for each TPS-3000 touchpanel application. Each page contains objects such as custom control graphics, two and three-dimensional buttons, sliders, and digital readouts which allow the user to interface with the control system via join numbers. Unjoined objects are not interfaced with the system and thus cannot initiate any functions. The completed and compiled project is uploaded to the touchpanel and programmed into the flash PROM via the **File | Upload Project** command. The touchpanel uses the programmed project until another set is uploaded from the PC. The PC may be disconnected from the control system or panel except during reprogramming. VT Pro-e also allows users the option to generate projects destined for web browsers rather than for physical touchpanels.

For additional software information, refer to the help file provided with the software. The latest version of VT Pro-e can be obtained from the Downloads | Software Updates section of the Crestron website.

Multi-Mode Objects

Multi-mode objects offer high-performance programming!

The single most-advanced VT Pro-e high-performance programming technique involving the TPS-3000 is the concept of multi-mode objects. A multi-mode object (i.e., button, legend, etc.) is an object drawn on a VT Pro-e page that can have one or more active and inactive visible settings (*modes*).

For examples, refer to the MULT-MOD.ZIP file. It is available from the Crestron FTP site. Select the Examples Folder. This file contains the VT Pro-e touchpanel files and SIMPL Windows files that illustrate the high-performance capabilities of multi-mode objects.

WAV File Audio Messages

The TPS-3000 is capable of playing audio messages as system prompts and responses. These files are recorded as WAV files on a PC using an audio utility such as Sound Recorder that is packaged with Microsoft Windows 95/98/Me/XP/NT/2000™. Files from other sources may also be converted to an acceptable format by using this or a similar utility. Many other audio utilities are available commercially or as shareware. The TPS-3000 touchpanel only accepts the following WAV file format: **PCM, 8KHz, mono, 8-bit**. For more information about how to use Sound Recorder, refer to its User's Guide and extensive help information provided with the software. Also refer to the help file in VT Pro-e to learn how to use its audio tool, Sound Manager, to attach WAV files to a touchpanel project.

Pre-recorded WAV files for voice prompts and responses are available from Crestron. These files can be stored into and programmed for use in the touchpanel directly or may be edited with the Sound Recorder. For example, the individual files can be combined to create custom messages.

NOTE: WAV files (for the TPS-3000 touchpanel) can be obtained from the Wave LC Library of the Crestron FTP site.

Since the CT/LC-1000 touchpanel accepts the same WAV file formats, only use those WAV files designated for the CT/LC-1000, TPS-2000L, or TPS-3000 touchpanels. These WAV files are different than those made available for the CNXTA, Crestron CNX Telephone Audio Interface Card.

Reserved Join Numbers

A reserved join number is a feature of the software that enables a designer to create a button that completes a predetermined function. The tables that follow provide a list of reserved join numbers available within the software.

NOTE: Many touchpanel configuration "shortcuts" are available via the software. A button can be created on a page that either calls up the Preferences Menu, adjusts brightness, etc., via reserved join numbers.

Video Digital Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17101	Video	Video Composite	INPUT
17102	Video	S-Video	INPUT
17103	Video	Auto Detect	INPUT
17107	Video	Still	INPUT

Continued on the following page

Video Digital Reserved Join Numbers for TPS-3000 Touchpanels (continued)

JOIN #	FUNCTION	VALUE	IN/OUT
17108	Video	Motion	INPUT
17111	Video Brightness	Increase	INPUT
17112	Video Brightness	Decrease	INPUT
17113	Video Contrast	Increase	INPUT
17114	Video Contrast	Decrease	INPUT
17115	Video Saturation	Increase	INPUT
17116	Video Saturation	Decrease	INPUT
17117	Video Hue	Increase	INPUT
17118	Video Hue	Decrease	INPUT
17122	Video	Defaults*	INPUT

*Video default is 50% for each of the video parameters (brightness, contrast, saturation, and hue).

Video Analog Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17100	Video	Brightness	INPUT/OUTPUT
17101	Video	Contrast	INPUT/OUTPUT
17102	Video	Saturation	INPUT/OUTPUT
17103	Video	Hue	INPUT/OUTPUT

System Digital Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17214	Cresnet ID	Down	INPUT
17215	Cresnet ID	Up	INPUT
17216	System LCD Brightness	Increase	INPUT
17217	System LCD Brightness	Decrease	INPUT
17218	System LCD Brightness	High	INPUT/OUTPUT
17219	System LCD Brightness	Medium	INPUT/OUTPUT
17220	System LCD Brightness	Low	INPUT/OUTPUT
17231	System Standby Time Out	Increase	INPUT
17232	System Standby Time Out	Decrease	INPUT
17242	System Run	Setup	INPUT

System Analog Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17200	System Cresnet ID	ID	INPUT/OUTPUT
17201	System LCD	Brightness	INPUT/OUTPUT
17203	System Standby	Time Out	INPUT/OUTPUT

Audio Digital Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17300	Audio	On	INPUT/OUTPUT
17301	Audio	Off	INPUT/OUTPUT
17302	Audio Beep	On	INPUT/OUTPUT
17303	Audio Beep	Off	INPUT/OUTPUT
17304	Audio Beep Volume	Increase	INPUT
17305	Audio Beep Volume	Decrease	INPUT
17306	Audio Line	On	INPUT/OUTPUT
17307	Audio Line	Off	INPUT/OUTPUT
17308	Audio Line Volume	Increase	INPUT
17309	Audio Line Volume	Decrease	INPUT
17312	Audio Wave	On	INPUT/OUTPUT
17313	Audio Wave	Off	INPUT/OUTPUT
17314	Audio Wave Volume	Increase	INPUT
17315	Audio Wave Volume	Decrease	INPUT
17318	Audio Mic AGC	On	INPUT/OUTPUT
17319	Audio Mic AGC	Off	INPUT/OUTPUT
17321	Audio	Defaults*	INPUT
17325	Audio Bass	Increase	INPUT
17326	Audio Bass	Decrease	INPUT
17327	Audio Treble	Increase	INPUT
17328	Audio Treble	Decrease	INPUT
17329	Audio Master Volume	Increase	INPUT
17330	Audio Master Volume	Decrease	INPUT
17331	Audio Source	On	INPUT/OUTPUT
17332	Audio Source	Off	INPUT/OUTPUT

* Audio Defaults: Master 88%, Wav 88%, Line 88%, Key Click 29%, Treble & Bass 49%, All Audio On,
  Mic AGC On.

Audio Analog Reserved Join Numbers for TPS-3000 Touchpanels

JOIN #	FUNCTION	VALUE	IN/OUT
17300	Audio Beep	Volume	INPUT/OUTPUT
17301	Audio Line	Volume	INPUT/OUTPUT
17302	Audio Wave	Volume	INPUT/OUTPUT
17305	Audio	Bass	INPUT/OUTPUT
17306	Audio	Treble	INPUT/OUTPUT
17307	Audio	Master Volume	INPUT/OUTPUT

MultiByte International Characters

Most languages use a single byte of 8 bits to represent a character, e.g. English, French, German, Hebrew, Russian, Thai, etc.

Multibyte character fonts require more than the usual 8 bits to specify a character. This occurs when a language has more than 256 characters (2^8) in a font. For example, Chinese fonts contain several thousand characters. Other multibyte languages include Japanese and Korean.

There are two separate issues with multibyte characters – static text on buttons and indirect text on buttons. No Isys touchpanel firmware changes are required in either case.

Static text on a button, entered in the standard way in VT Pro-e, always works under Windows 98. Under Windows XP, you must use VT Pro-e 3.0 or later.

Indirect text on a button is entered in VT Pro-e and the actual string to be displayed is entered in SIMPL Windows. You must use VT Pro-e 3.0 or later to guarantee that the full set of characters in the font is stored on the touchpanel. You must use SIMPL Windows 2.03.11 or later to enter Chinese characters directly. As of this publication date, only completely single byte or completely multibyte strings may be entered or they will not be compiled correctly in SIMPL Windows. In other words, you cannot enter Chinese character interspersed with numbers. You can enter Chinese characters or numbers in separate strings. Crestron is scheduling time to fix this in the near future and the release notes for SIMPL Windows will mention it.

Of course, you can always use the workaround of showing a graphic that displays the string, but it is not dynamic.

Uploading and Upgrading

NOTE: Crestron recommends that you use the latest software and that each device contains the latest firmware to take advantage of the most recently released features. Please check the Crestron website (http://www.crestron.com/updates) for the latest versions of software and firmware. New users are required to register to obtain access to this site.

Assuming a PC is properly connected to the entire system, Crestron programming software allows the programmer to upload programs and projects to the system and touchpanel after their development. However, there are times when the files for the program and projects are compiled and not uploaded. Instead, compiled files may be distributed from programmers to installers, from Crestron to dealers, etc. Even firmware upgrades are available from the Crestron website as new features are developed after product releases. In those instances, one has the option to upload via the programming software or to upload and upgrade via the Crestron Viewport.

NOTE: The Viewport utility accomplishes multiple system tasks, primarily via an RS-232 or TCP/IP connection between the control system and a PC. It is used to observe system processes, upload new operating systems and firmware, change system and network parameters, and communicate with network device consoles and touchpanels, among many other tasks. Viewport can also function as a terminal emulator for generic file transfer. All of these functions are accessed through the commands and options in the Viewport menus. Therefore, for its effectiveness as a support and diagnostic tool, the Crestron Viewport may be preferred over development tools when uploading programs and projects.

Communication Settings

Connection of a PC to the TPS-3000 touchpanel can be direct via the RS-232 port on the touchpanel or through a control system (Cresnet). Both methods of connection provide setup for RS-232 communication. If TCP/IP communication is preferred, consult the latest version of the Crestron e-Control Reference Guide (Doc. 6052) or the respective Operations Guide for the control system. These documents are available from the Downloads | Product Manuals section of the Crestron website.

To prepare the TPS-3000 for uploading or upgrading through a control system, refer to the following figure for a typical communication connection diagram.

Typical Connection Diagram when Uploading a Project
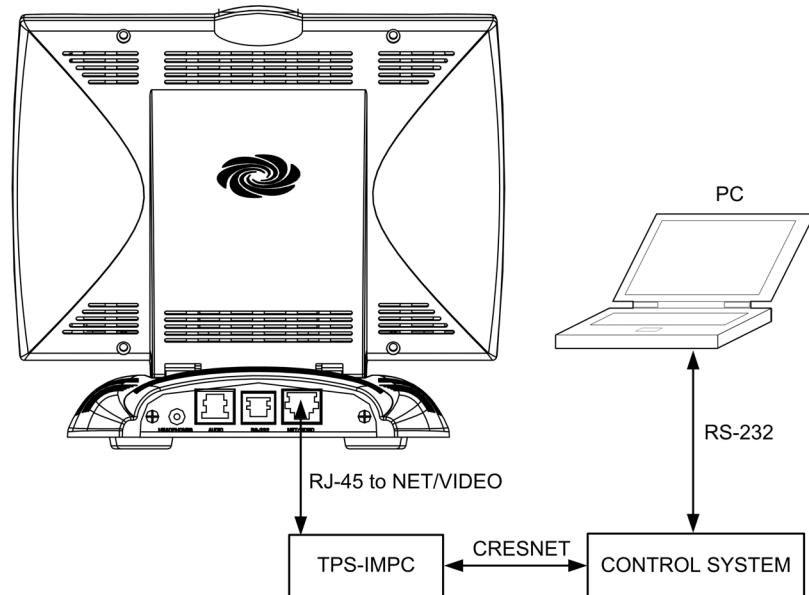
To prepare the TPS-3000 for uploading or upgrading directly from a PC, refer to the following figure. Connect the RS-232 port of the computer directly to the RS-232 port of the touchpanel. Refer to page 18 for RS-232 cable information.

Typical Connection Diagram when Uploading a Project Directly to the Touchpanel
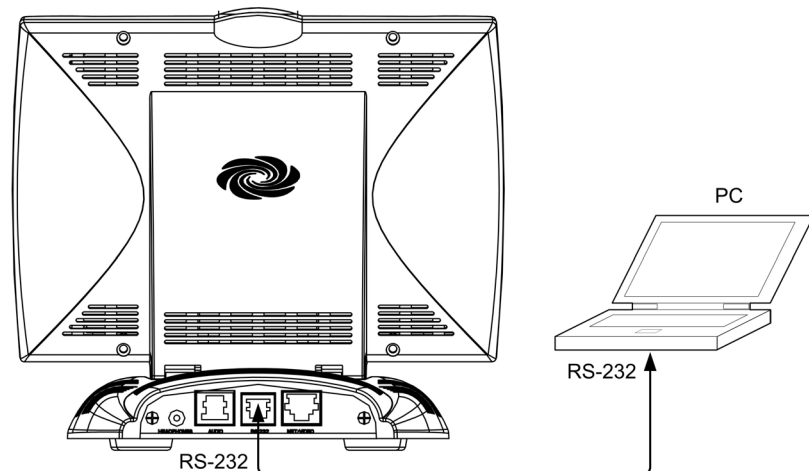
1. Start SIMPL Windows or VT Pro-e.

2. From the menu bar, select **Tools** | **Viewport** to open the Crestron Viewport. (On Viewport, the prompt should be TPS for direct communications).

3. Refer to the following figure. From the Viewport menu, select **Setup | Communications settings** (alternatively, depress **Alt+D**) to open the "Port Settings" window.

Setup | Comunications Settings Command
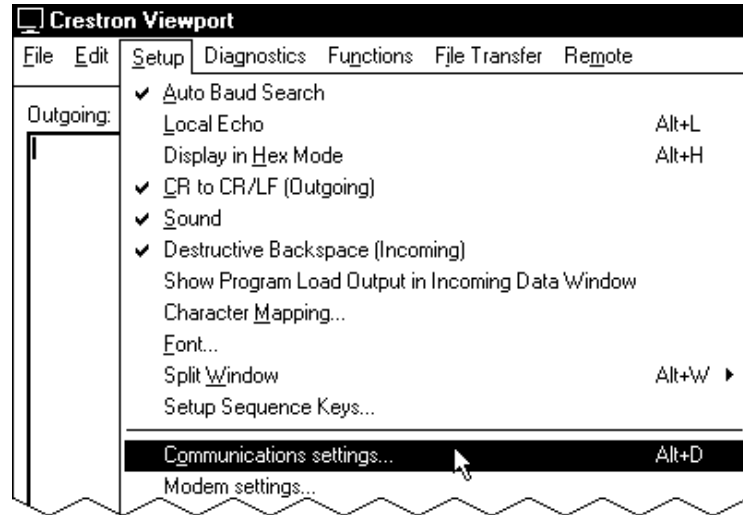
4. Select **RS-232** as the connection type. Verify that an available COM port (COM 1 is shown after this step) is selected, and that all communication parameters and necessary options from the "Port Settings" window are selected as shown after this step. Click the **OK** button to save the settings and close the window.

"Port Settings" Window
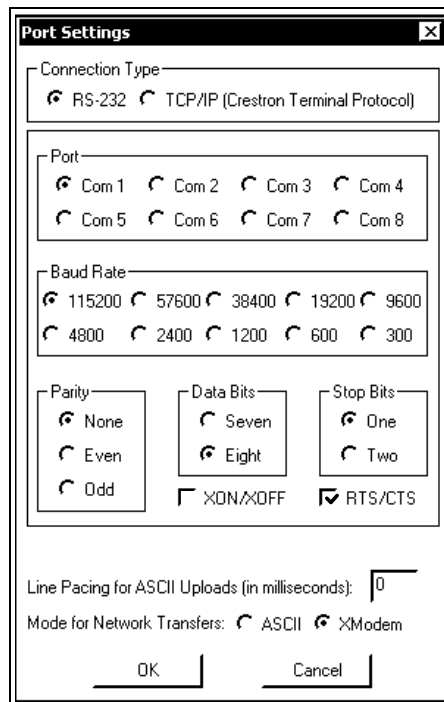
5. To verify communication, select **Diagnostics | Establish Communications (Find Rack)**. This should display a window that gives the COM port and baud rate. If communication cannot be established, refer to the "Troubleshooting Communications" section in the latest version of the 2-Series Control System Reference Guide (Doc. 6256) or the respective Operations Guide for the control system.

Uploading a SIMPL Windows Program to a Control System

The SIMPL Windows file can be uploaded to the control system using SIMPL Windows or via the Crestron Viewport. A control system source file has the extension .smw. A compiled SIMPL Windows file has the extension .spz for a 2-Series control system, .bin for CNX generation, and .csz for CNX generation with SIMPL+.

Upload via SIMPL Windows

1. Start SIMPL Windows.

2. Select **File | Open** to view the "Open" window.

3. Navigate to the SIMPL Window file (.smw), and click **Open**.

4. Select Project | Transfer Program

## *Upload via Crestron Viewport*

1. Verify that the procedure for "Communication Settings" that begins on page 32 has been performed.

2. As shown after this step, select **File Transfer | Send Program** (alternatively, press **Alt+P**) from the Viewport menu.

File Transfer | Send Program Command
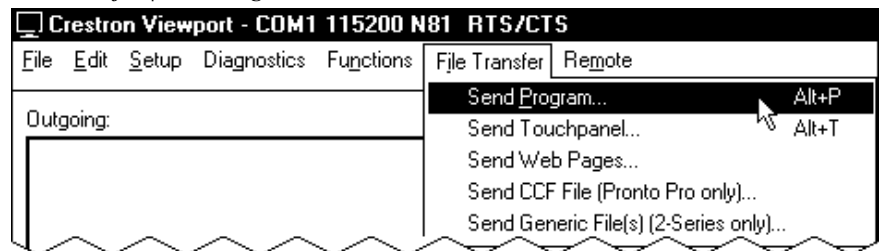
3. The "Send Program" window appears, as shown after this step. Click **Browse**, locate the compiled file (.spz) and click **Open**. This will display the program's header information and enable one or both of the *What to Send* check boxes. If the program does not contain any SIMPL+ modules, only the *SIMPL Program* check box will be enabled. If it does contain SIMPL+ modules, then the *SIMPL+ Program(s)* check box will also be enabled. Select one or both check boxes and then click **Send Program** to begin the transfer.

NOTE: Refer to the respective Operations Guide for the control system for details about the other fields shown on the "Send Program" window.

"Send Program" Window
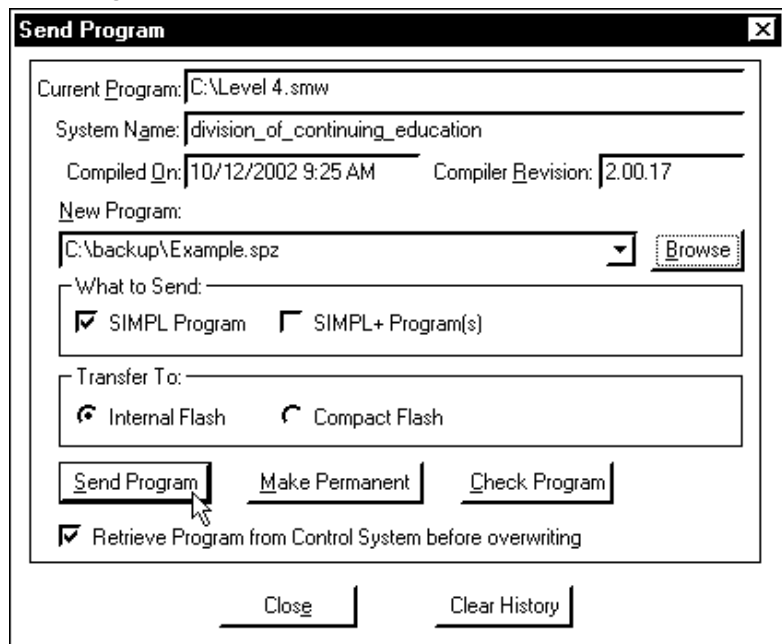
4. To verify that the program has been transferred successfully, select **Diagnostics** | **Report Program Information**. This should display a window that provides details about the current program loaded into the control system.

Uploading a VT Pro-e Project

The VT Pro-e file can be uploaded to the touchpanel using VT Pro-e or via the Crestron Viewport. The TPS-3000 touchpanel source file has the extension .vtp. A compiled VT Pro-e file has the extension .vtz.

Upload via VT Pro-e

1. Start VT Pro-e.

2. Select **File | Open | Project** to view the "Open" window.

3. Navigate to the VT Pro-e file (.vtp), and click **Open**.

3. Select **File | Upload Project**.

Upload via Crestron Viewport

1. Verify that the procedure for "Communications Settings" that begins on page 32 has been performed.

2. As shown after this step, select **File Transfer | Send Touchpanel** (alternatively, press **Alt+T**) from the Viewport menu.

File Transfer | Send Touchpanel Command
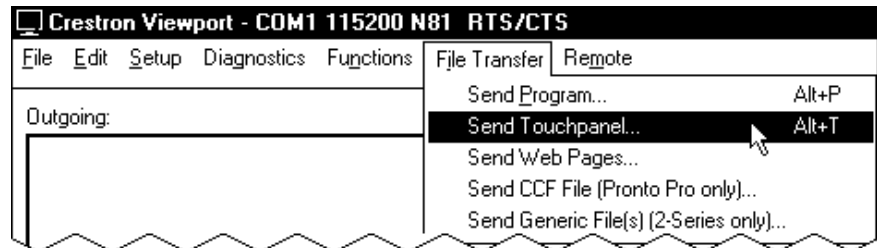
3. As shown after this step, select the Net ID of the TPS-3000 touchpanel and then click **OK**. The "Touch Panel Transfer" window appears (refer to the following graphics).

"Select Network ID" Window
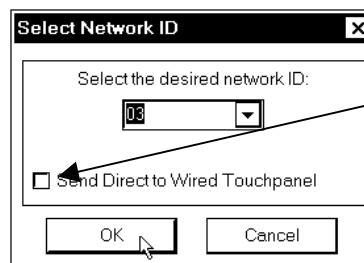
Check *Send Direct to Wired Touchpanel* if connected via RS-232 directly to touchpanel.

NOTE: When transferring any Cresnet file (touchpanel project/firmware), lower the port speed baud rate to 38400 to match the Cresnet bus speed.

"Touch Panel Transfer" Window
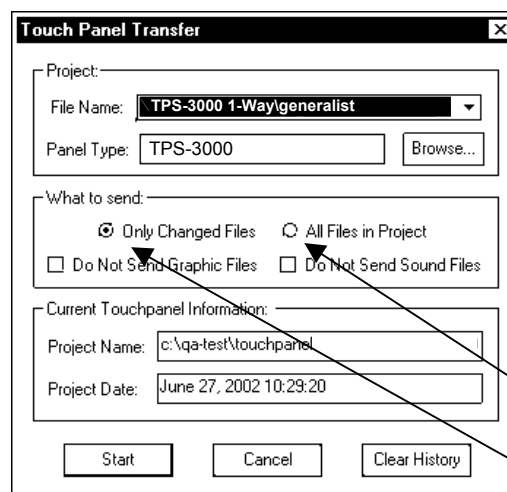
Each time a project is selected using the **Browse** command, that project is added to the **File Name** drop-down list. This makes it convenient to recall projects without need to browse to a directory. To delete the list click **Clear History**.

All Files in Project: sends the entire project.

Only Changed Files: sends only the files that are different from those that are currently stored in the panel. Note that if any pages in the panel are not present in the project, those pages will be deleted from the panel.

Additional choices include **Do not send graphic files** and **Do not send sound files**. These are often very large files that take a long time to load.

4. Click **Browse**. The "Open" window appears as shown in the following illustration.

"Open" Window
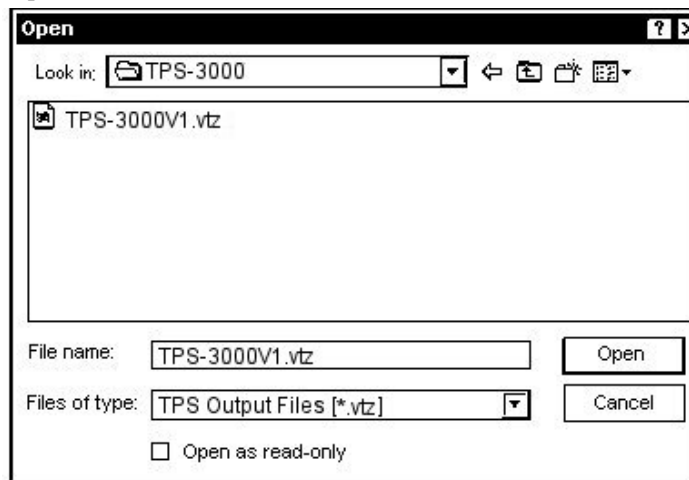
5. Select the VT Pro-e (vtz) file and click **Open**. The transfer will complete automatically.

Firmware Upgrade

*A firmware upgrade file has the extension .csf.*

To take advantage of all the TPS-3000 touchpanel features, it is important that the unit contains the latest firmware. Please check the Crestron website for the latest version of firmware. Not every product has a firmware upgrade, but as Crestron improves functions, adds new features, and extends the capabilities of its products, firmware upgrades are posted. To upgrade the firmware, complete the following steps.

1. Make sure that "Setting Communications" that begins on page 32 has been performed.

2. As shown after this step, select **File Transfer | Update Touchpanel Firmware** from the Viewport menu.

File Transfer | Update Touchpanel Firmware Command
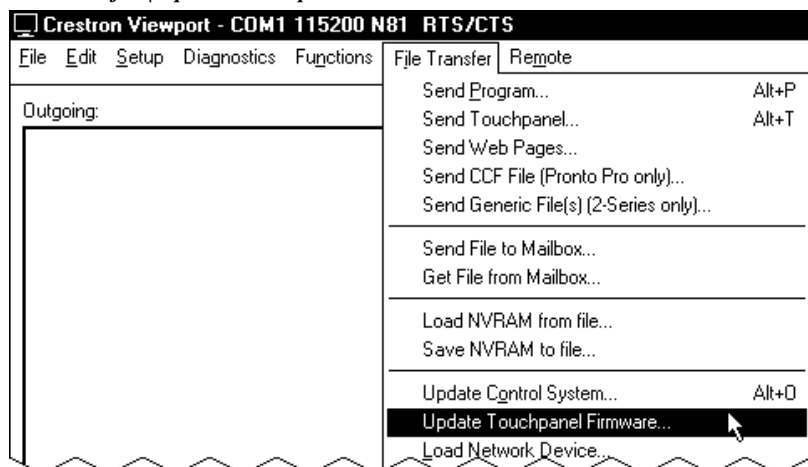
3. As shown after this step, select the Net ID of the TPS-3000 touchpanel and then click **OK**. The "Open" window appears (refer to the subsequent graphic).

"Select Network ID" Window
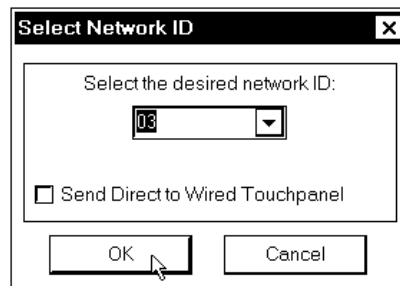
"Open" Window
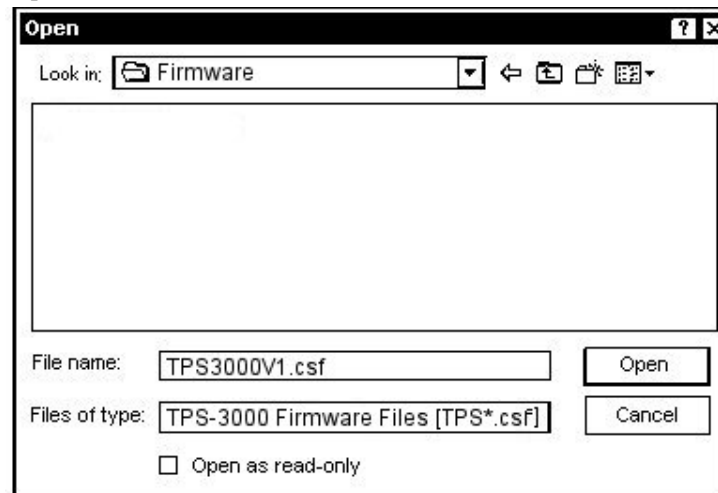
4. Browse to the .csf file and click **Open** to begin the transfer.

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-3000 Touchpanel Toubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel does not function.	Touchpanel is not communicating with the network.	Use Performance Viewport (via SIMPL Windows or VT Pro-e) to poll the network. Verify network connection to the touchpanel.
		Verify touchpanel is in "CRESNET MODE" as defined in the "Interface Menu" on page 12.
	Touchpanel is not receiving network power.	Confirm that power is supplied to the network.
	Incorrect power supply.	Use only Crestron power supplies for Crestron equipment.
	Touchpanel is incorrectly calibrated.	Enter "SETUP MODE" and recalibrate.
Touchpanel is not responding.	Incorrect network wiring.	Verify correct wiring to all connectors.
	Touchpanel Cresnet ID is not set to match the Net ID in the SIMPL program.	Touch the screen to remove the message and enter Performance Viewport (via SIMPL Windows or VT Pro-e) to poll the network. Verify that the Cresnet ID for the touchpanel is properly set to match the Net ID in the SIMPL program.
	Touchpanel Cresnet ID is not unique, two or more units share the same ID.	Enter Performance Viewport (via SIMPL Windows or VT Pro-e) to poll the network and verify that each ID is used only once.
Touchpanel display is dark.	Standby timeout has elapsed.	Touch the screen to reactivate.
	Screen brightness is improperly set.	Enter "SETUP MODE" and alter screen brightness from the setup menu.
Unexpected response from the touchpanel.	Touchpanel is incorrectly calibrated.	Enter "SETUP MODE" and recalibrate.

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]. For assistance in your local time zone, refer to the Crestron website (www.crestron.com) for a listing of Crestron worldwide offices.

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

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the TPS-3000, 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 periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

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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. 07647, 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.

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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.

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