

Crestron **STX-1700CXPW**

Wall Mount 2-Way RF Wireless Touchpanel

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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Wall Mount 2-Way RF Wireless Touchpanel: **STX-1700CXPW**

Introduction

Functions and Features

The STX-1700CXPW is a two-way, radio frequency (RF), compact color touchpanel that, when used with the supplied DA-1700CW docking assembly and BB-1700CW back box, is wall mounted and provides a user interface to a Crestron® remote control system (herein referred to as the Cresnet® system). The back box holds the docking assembly, which docks the touchpanel. The docking assembly provides operating power and hard-wire communications with a standard Cresnet system, and recharges the Crestron High Performance Rechargeable Power Pack (ST-BTPN) that is supplied with the touchpanel. Refer to the latest revisions of the BB-1700CW Wall Mount Back Box Installation Guide (Doc. 6105) and the DA-1700CW Docking Assembly Operations and Installation Guide (Doc. 6104).

NOTE: The DA-1700CW and BB-1700CW are also available separately. Contact Crestron customer support for more information.

Functional Summary

- 5.7" (14.48 cm) active color matrix display
- 320 x 240 screen resolution
- 63MIPs ColdFire processor running Crestron Isys®-generation firmware
- 16-bit non-palette graphics
- 64,000-color Crestron Isys engine
- 4 MB of flash memory (approx. 3MB for user display lists)
- 8 MB of SDRAM
- Long-life NiMH battery
 - Fast charging
 - No battery memory
- “Wi-Fi friendly” operating frequency selection to avoid interference
- Compatible with TPS-RFGWX RF gateways that are not Wi-Fi friendly. *

*Refer to “Gateway Compatibility” on page 3 for details.

NOTE: The STX-1700CXP is supplied with an optional bezel, two 5-button switch actuators, and ten black pushbuttons (blank), five for each side of the LCD screen. You can use these buttons to access any frequently used commands. Refer to “Appendix B: Installation of Optional Pushbuttons” for instructions to install the optional switches, buttons, and bezel.

NOTE: Two options, 1700C-BTNB (black buttons) or 1700C-BTNS (silver buttons) can be purchased to provide custom engraved buttons for your touchpanel. Contact Crestron customer support for more information.

When not docked in the DA-1700CW, the “Wi-Fi friendly” touchpanel is a handheld, two-way wireless radio frequency (RF) transceiver that utilizes 2.4 GHz spread spectrum technology to communicate through Crestron’s gateway/transceiver, the TPS-RFGWX (sold separately), to the Cresnet system. (Refer to “Wi-Fi Technology” below and “Gateway Compatibility” on page 3 for more details.) The two-way communications provide control of third party and Cresnet devices and dynamic onscreen feedback for real-time confirmation of commands. Up to 15 touchpanels can communicate with one TPS-RFGWX. RF signals can travel from a minimum of three feet up to a maximum between 100 - 200 feet; the range is dependent on location of the touchpanel, the construction of the building, and obstructions and RF interference from other devices. Location and antenna orientation of the TPS-RFGWX also are important factors in RF reception/transmission.

The touchpanel is also available in an international version, the STXI-1700CXPW.

Wi-Fi Technology

Wi-Fi (wireless fidelity) is the common term for high-frequency wireless local area network (WLAN) technology that is gaining acceptance as an alternative to a wired LAN in commercial as well as home network configurations. Wi-Fi is specified in the 802.11b specification from the Institute of Electrical and Electronics Engineers (IEEE) and is part of a series of wireless specifications together with 802.11, 802.11a, and 802.11g.

The STX-1700CXPW touchpanel is not “Wi-Fi compatible.” It does not comply with the 802.11 specifications, nor can it communicate with 802.11 devices. It is, however, considered “Wi-Fi friendly,” since you can select a communication band (frequency range) that will avoid interference with 802.11 devices. The touchpanel’s transceiver (as well as the gateway’s) allows you to select one of ten possible bands (0 through 9) for communication. The bands define specific frequency ranges within the 2.4 GHz Spectrum. The default band (Band 0) covers almost the entire spectrum and is, therefore, not Wi-Fi friendly. The nine additional bands define narrower ranges, leaving the rest of the frequency spectrum available for other RF devices, thus making it possible to avoid interference. Refer to “ADDITIONAL RF SETUP” illustration on page 15 for details.

As you configure the touchpanel for operation, you select an RF channel to identify the gateway that will communicate with the touchpanel. Up to 16 gateways can be included in one SIMPL program, and up to 15 touchpanels can communicate with each gateway.

You then select one of the ten frequency bands. Selection of a band is based on a number of factors, most importantly the need to avoid interference with nearby RF devices, and compliance with local communication laws. Crestron recommends using Bands 5 (USA comp 1) through 9 (USA comp 5) within the US. Bands 1

through 4 (France, Spain, Japan, and Canada) are intended for use in Cresnet systems outside the US.

If you have two or more Crestron wireless RF devices in the Cresnet system, they should all be set to the same band. If your system includes non-Crestron RF devices, set the Crestron RF devices to a different band than the non-Crestron devices to minimize the possibility of interference between them.

When configuring a Cresnet system that includes Crestron RF wireless devices that broadcast in the 2.4 GHz spectrum, in a facility that also contains one or more 802.11b-compliant RF devices, it is important to bear in mind how each implementation uses the frequency bandwidth, and how they may interact.

The 802.11b spectrum ranges from 2400 MHz to 2497 MHz, and is divided into channels spaced at 5 MHz intervals. Each channel, though, is 22 MHz wide (± 11 MHz around the center frequency), which results in some overlap between channels. For instance: Channel 1 is centered at 2412 MHz, but extends from 2401 MHz to 2423 MHz, overlapping Channels 2 through 5; Channel 6 is centered at 2437 MHz, but extends from 2426 MHz to 2448 MHz, overlapping Channels 2 through 10. In an installation with two or more 802.11b RF devices, the use of Channels 1, 6, and 11 is safest since that choice produces no overlap.

As described earlier, Crestron RF devices make use of bands that define frequency ranges within the same spectrum. For example, Band 5 uses frequencies that correspond to 802.11b Channels 1 through 5, but do not overlap Channels 6 and higher. Band 9 uses frequencies that correspond to Channels 5 through 13, but do not overlap Channels 4 and below. The goal is to select bands for the Crestron RF devices and channels for adjacent 802.11b devices to minimize or eliminate overlap between them. For example, if the Crestron devices are set to Band 5, and nearby 802.11b devices are set to Channels 6 and/or 11, there is no overlap.

Gateway Compatibility

The ability to select frequency bands makes it possible for the STX-1700CXPW to communicate with TPS-RFGWX two-way RF transceivers (gateways) that are Wi-Fi friendly as well as those that are not. TPS-RFGWX gateways that are Wi-Fi friendly (include band selection) have product labels that include a seven-digit number beginning with 600 (e.g., 6002104). Product labels on earlier models of the TPS-RFGWX gateway (fixed band; not Wi-Fi friendly) include seven-digit alphanumeric codes beginning with ZA (e.g., ZA11308). Similarly, Wi-Fi friendly TPS-RFGWX gateways can communicate with touchpanels that are not so enabled as well as those that are. In either case, in order to communicate, the TPS-RFGWX gateway and STX-1700CXPW touchpanel must be set to the same band and have identical identity code settings (refer to “Identity Codes” on page 11 for details).

Specifications

The table below provides a summary of specifications for the STX-1700CXPW.

Specifications of the STX-1700CXPW Touchpanel

SPECIFICATION	DETAILS
Power Options ST-BTPN	Rechargeable NiMH battery pack (included) 4100 mAh capacity after full charge. (Operating time depends on usage.) ¹
AC: Domestic External Adapter	12VDC, 1.5A, 120VAC Input (included) (P/N PW-1215 or equivalent)
AC: International External Adapter	12VDC, 1.5A, 230VAC Input (included with international version touchpanel) (P/N PWI-1215 or equivalent)
RF Specifications ²	Bidirectional Spread Spectrum 2.4 GHz (range approximately 100 - 200 feet). Requires one TPS-RFGWX transceiver per 15 touchpanels.
Default Net ID ³	03 (Net ID used in wired configuration only.)
Default RF ID ³	01 (RF ID used in wireless configuration only.)
Default RF Channel ³	01 (Identifies RF gateway to be used for communication.)
Default RF Band ³	Band 0 (USA Original) Ten frequency bands (ranges) available for selection.
Default Timeouts	10 minutes for standby 30 minutes for power down
Signal Join Maximums	4000 digital, 1024 analog, 127 serial input, 255 serial output
Control System Update Files ^{4, 5, 6} 2-Series Control System CEN/CN-TVAV CNMSX-AV/PRO CNRACKX-DP ST-CP	Version C2-3.044.CUZ or later Version 5.12.63V.UPZ or later Version 5.14.02X.UPZ or later Version 5.14.02W.UPZ or later Version 4.02.02S.UPZ or later
Acceptable file extensions ⁷ .vtz .csf	<i>projectname.vtz</i> (compiled file) STX1700CXPW.vx.xxx.x.csf (panel firmware)
TPS-RFGWX firmware	Version 2.15 or later
Memory	4 MB flash memory (3 Mbytes available for user programming) 8 MB SDRAM
Touchscreen Dimensions	Height: 3.700 in (9.017 cm) Width: 4.700 in (11.938 cm)
Touchscreen Resolution	320 x 240 pixels
Touchscreen Viewing Angles	±65° for X dir, +65°/-40° for Y dir
Touchscreen LCD	Active matrix, 64K colors
Touchscreen Illumination	Backlit fluorescent
Touchscreen Composition	Resistive Membrane
Operating Temperature	50° to 113°F (10° to 45°C)
Humidity	10% to 90% RH (non-condensing)
Overall Dimensions	Width: 8.75 in (22.23 cm) Height: 3.85 in (9.78 cm) Depth: 5.51 in (14.00 cm)
Weight ⁸	1.85 lb (0.84 kg)

1. Battery life is 180 minutes continuous usage with background lighting at full brightness. Actual operating time depends on usage and settings for background brightness and timeouts.
2. Requires Crestron TPS-RFGWX 2-Way RF Gateway/Transceiver. The RF signals can travel from a minimum of three feet up to a maximum between 100 - 200 feet; the range is dependent on construction of the building, obstructions, and RF interference from other devices. The location of the TPS-RFGWX and the orientation of the antenna are also important factors in the RF performance.
3. Refer to "Identity Codes" on page 11 for details.
4. The latest versions can be obtained from the Crestron website. Refer to NOTE after last footnote.
5. 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.
6. CNX update files are required for either CNMSX-AV/PRO or CNRACKX-DP. Filenames for CNX update files have a UPZ extension and 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).
7. In DETAILS, *projectname* represents assigned project name, and *vx.xxx.x* represents a version number.
8. The weight listed for the touchpanel does not include the ST-BTPN.

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

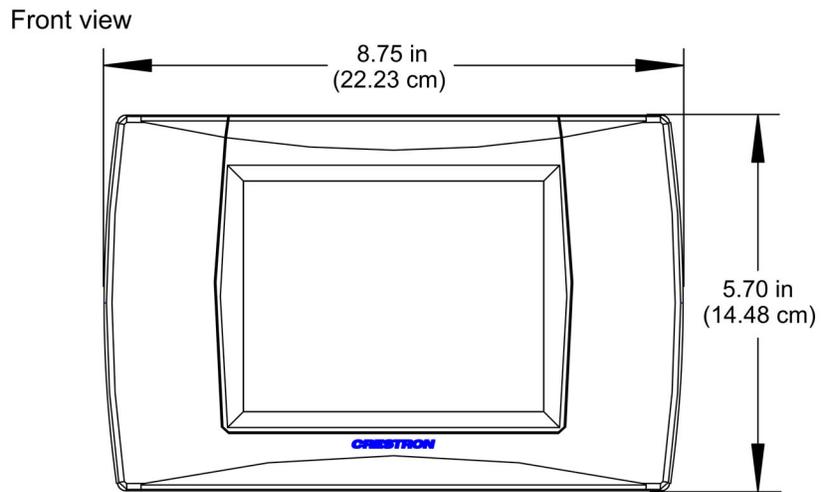
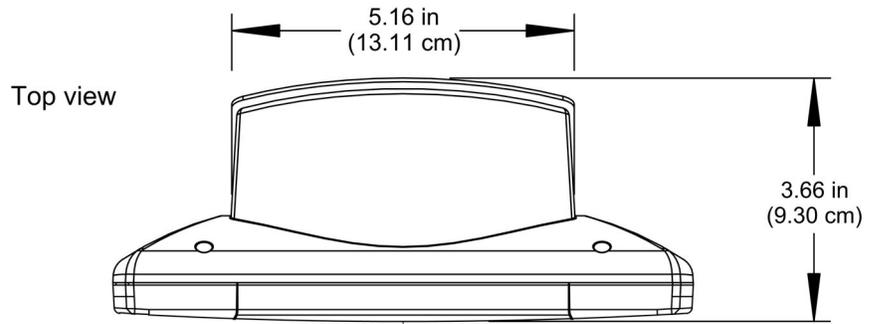
Physical Description

The touch-sensitive display screen is located on the front of the STX-1700CXPW. The electronic hardware is housed in a black and silver molded plastic enclosure. Connectors to upload touchscreen projects via Cresnet, using a PC and Crestron processor, and to power the unit using the external power pack are located on the left and right sides of the unit, respectively. Refer to illustrations below and on the next page.

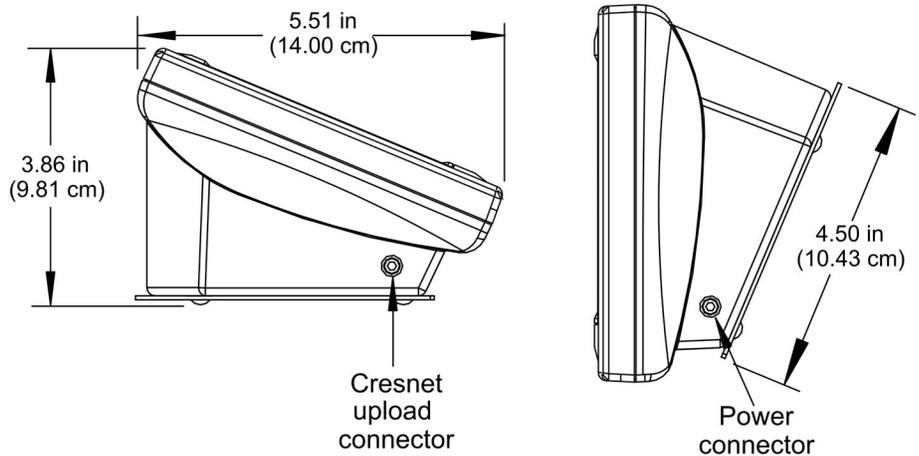
Physical Views of STX-1700CXPW



Physical Views of STX-1700CXPW (continued)



Side views



The underside of the unit contains the battery compartment that holds one ST-BTPN. Contacts for the DA-1700CW are through the ST-BTPN. Four rubber feet on the underside of the unit are for stability and to prevent slippage on flat surfaces.

Refer to “Programming Cable” on page 28 for details and pinouts of the cable used for programming and uploading.

Industry Compliance

As of the date of manufacture, this unit has been tested and found to comply with specifications for CE marking and standards per EMC and Radio Communications Compliance Labeling.



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.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and transceiver.
- Connect the equipment into an outlet on a circuit different from that to which the transceiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Setup

Applying Power

The touchpanel can be powered via the ST-BTPN battery pack, the DA-1700CW docking assembly, or the external power pack. Each of these items has an Operations Guide which details proper usage. Refer to the table below for the required document number.

STX-1700CXPW Power Source Options

POWER SOURCE OPTION	MODEL	DOCUMENT NUMBER*
Battery Pack**	ST-BTPN	6088
Docking Assembly	DA-1700CW	6104
Domestic External Power Pack, or	PW-1215	5764
International External Power Pack	PWI-1215	5765

* The latest revision may have a revision letter after the document number (i.e., 6088A).

** The battery pack does not “trickle” charge when the external power pack is used to power the touchpanel.

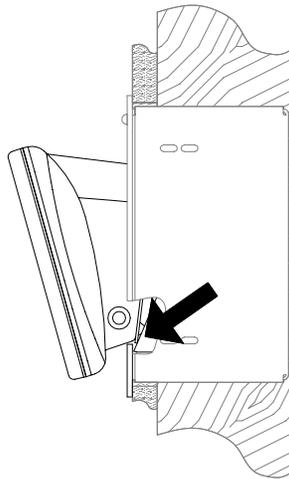
Docking the STX-1700CXPW

To dock the STX-1700CXPW, refer to the procedure below.

NOTE: Do *not* dock the STX-1700CXPW into the DA-1700CW without the ST-BTPN being installed in the touchpanel. Operating power for the DA-1700CW is supplied through the electrical contacts of the ST-BTPN. If the ST-BTPN is not installed, the DA-1700CW will not electrically undock the touchpanel, it would have to be manually undocked (refer to “Manually Undocking of Touchpanel” on page 9).

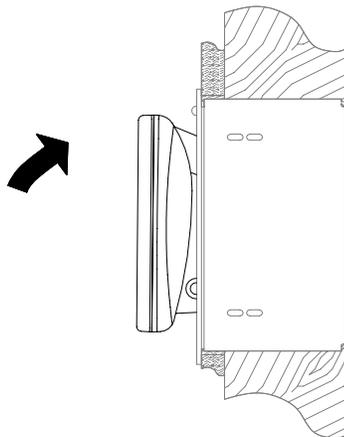
1. Refer to the diagram below. Insert the bottom edge of touchpanel docking plate (located on the rear of the touchpanel) into DA-1700CW directly behind the front panel.

Insert STX-1700CXPW



2. Refer to the diagram below. Make sure that the STX-1700CXPW is **squarely seated** in DA-1700CW, and press upper edge of touchpanel inward to dock the touchpanel. The touchpanel will snap into position.

Dock STX-1700CXPW



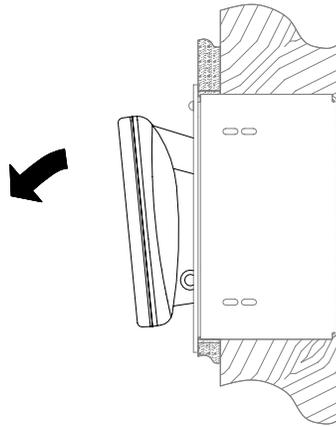
Undocking the STX-1700CXPW

During normal operation, the DA-1700CW unlatches the STX-1700CXPW electrically via the control system program. When the touchpanel is unlatched, it snaps outward slightly, and then may be removed by hand. The control system program defines the method (i.e., touchpanel button) of unlatching.

Electrical Undocking of Touchpanel

1. Via the touchpanel and/or control system program, unlatch the touchpanel.
2. Pull the upper edge of the touchpanel outward and remove the touchpanel.

Remove STX-1700CXPW

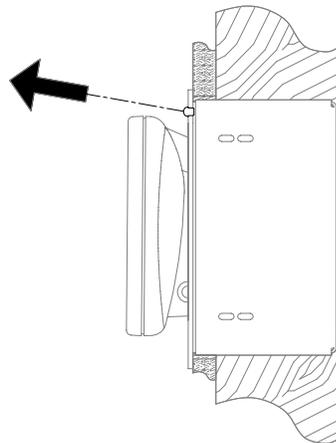


Manual Undocking of Touchpanel

The STX-1700CXPW can be undocked manually. The only tool required is a long-reach (minimum 4-1/2 inches from tip to handle base) #1 flat or Phillips screwdriver.

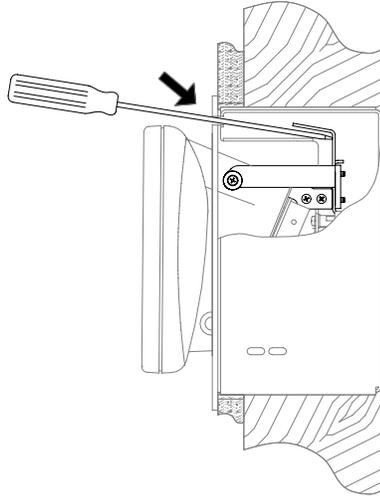
1. Refer to the diagram below. At top-center of the front panel, remove the manual unlatch access plug from the access hole.

Remove Access Hole Plug



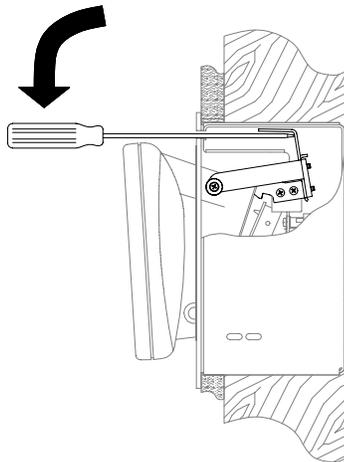
2. As shown below, insert a long-reach screwdriver into the access hole at a downward angle (approximately 10°) until the tip of the screwdriver contacts the manual unlatch tab.

Insert Screwdriver



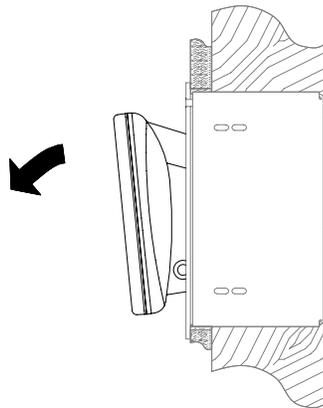
3. As shown below, lower the handle of the screwdriver until the touchpanel unlatches (handle of screwdriver will be approximately level and touchpanel will snap outward slightly).

Lower Screwdriver Handle



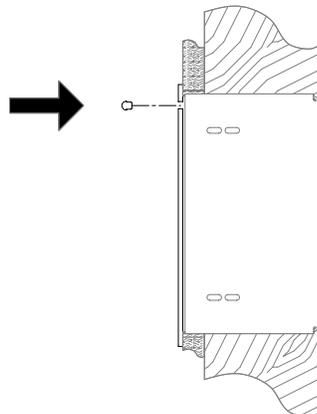
4. Refer to the diagram below. By hand, undock the touchpanel by pulling the upper edge of the touchpanel outward and remove the touchpanel.

Remove STX-1700CXPW



5. Refer to the diagram below. Re-install the access hole plug into the access hole.

Re-Install Access Hole Plug



Identity Codes

The STX-1700CXPW touchpanel uses distinct types of identity (ID) codes for recognition within a Cresnet system: Cresnet identity (Net ID) for instances when the touchpanel is wired to the Cresnet system, and RF ID for those instances when the touchpanel communicates with the Cresnet system via the RF gateway. These codes are assigned to the touchpanel from the SELECT INTERFACE screen when the unit is configured. Refer to “Select Interface” on page 14. These assignments must match assignments made in the SIMPL Windows project.

In addition, it is necessary to specify an RF channel and band in order for the touchpanel and TPS-RFGWX gateway to communicate. These settings, described briefly on the next page, are assigned via the RF SETUP and ADDITIONAL RF SETUP screens, shown on pages 14 and 15, respectively.

Net ID

Every equipment and user interface wired to the Cresnet system requires a unique Net ID. These codes are two-digit hexadecimal numbers from 03 to FE. The Net ID of the unit must match the Net ID specified in the SIMPL Windows program. The Net ID is used during uploading of a Crestron VisionTools® Pro-e (VT Pro-e) project or upgrading the touchpanel firmware.

The Net ID is also used when operating the unit as a wired touchpanel.

RF ID

Every STX-1700CXPW touchpanel communicating with a Cresnet control system via a TPS-RFGWX requires a unique RF ID to identify it to the gateway to secure RF communications. There are 15 useable codes, ranging from 1 to F (hexadecimal number), to allow for up to 15 touchpanels communicating via a given gateway. The RF ID of the touchpanel must match the RF ID specified in the SIMPL Windows program.

NOTE: The RF channel and band selection of the touchpanel must match the channel ID and band selection of the gateway to have communication. Refer to the latest version of the TPS-RFGWX Operations Guide (DOC. 5847) for gateway assignment details.

RF CHANNEL

Each STX-1700CXPW touchpanel communicating to the TPS-RFGWX transceiver must have an RF channel that matches the channel ID of the TPS-RFGWX. There are 16 possible RF channels ranging from 0 to F (hexadecimal number). Having multiple channels available allows for multiple gateways, and therefore many multiple touchpanels, to be used in a given project without signal interference.

The channel ID assignment of the TPS-RFGWX is viewed/changed in the Crestron Viewport software utility.

Band

The ability to specify one of the ten bands (frequency ranges) designated for communication within the 2.4 GHz spectrum makes it possible to minimize interference with other RF devices that may be operating near the Cresnet system. Refer to the “ADDITIONAL RF SETUP” illustration on page 15 for details.

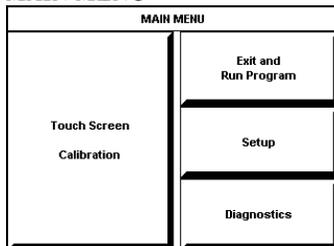
Configuring the Touchpanel

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 screen as power is applied. Remove your finger when the message “SETUP MODE” appears.

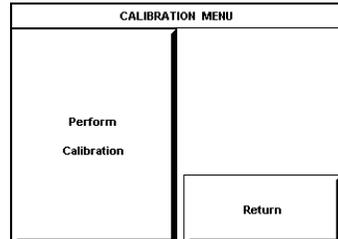
Upon entering SETUP MODE, the MAIN MENU, shown to the left, displays four buttons: **Touch Screen Calibration**, **Exit and Run Program**, **Setup**, and **Diagnostics**.

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

MAIN MENU



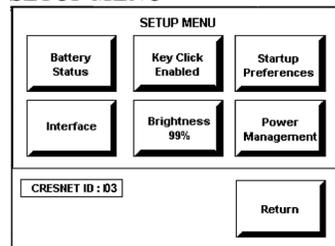
This menu can also be obtained via digital reserved join number, 17242.

CALIBRATION MENU**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, as shown to the left. 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 appropriate button.

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

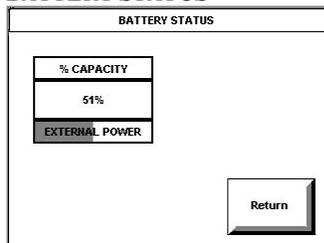
NOTE: When touching each crosshair during calibration, be as accurate as possible. Use the tip of a capped pen or the eraser end of a pencil.

SETUP MENU**Setup Menu**

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

NOTE: For convenience, the current CRESNET ID setting is displayed in the lower left corner.

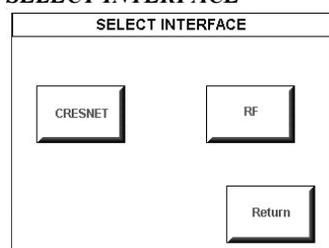
NOTE: All touchpanel settings are automatically saved in non-volatile memory.

BATTERY STATUS**Battery Status**

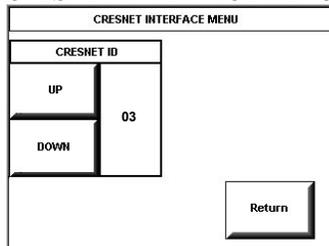
To access the Battery Status screen, shown to the left, press the **Battery Status** button on the SETUP MENU.

This screen indicates the amount of charge (or life) remaining in the battery as a percentage of full capacity, if the battery is installed. An analog bar is provided below the percentage amount as a quick visual reference to the approximate level of charge remaining. The EXTERNAL POWER label appears if external power is applied either through the docking assembly or via the optional power pack. Note that battery recharging takes place only through the docking assembly. Touch the **Return** button to display the SETUP MENU.

NOTE: When charging the battery, the battery status screen is not an accurate indicator of battery level. The battery status screen will indicate a full charge (100%) before the docking assembly indicates that charging is complete (RDY illuminates).

SELECT INTERFACE**Select Interface**

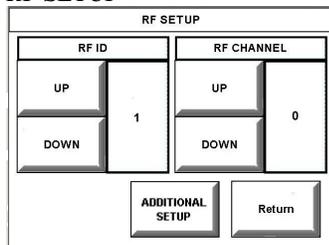
The touchpanel communicates with a control system to activate commands or to display feedback from components within the system. The communication interface must be correctly specified or communication will not occur. To set communication parameters, first select the **Interface** button on the SETUP MENU to display the SELECT INTERFACE screen, shown to the left. Then, select either the **CRESNET** or the **RF** button to display the CRESNET INTERFACE MENU or the RF SETUP screen, respectively. Use these screens to set the Cresnet network identity (CRESNET ID) and the RF ID numbers. (Refer to “Identity Codes” on page 11.)

CRESNET INTERFACE MENU**Cresnet Interface Menu**

CRESNET ID is a two-digit hexadecimal number that can range from 03 to FE. Note that if the panel is to be used in a wired mode, this number and the Net ID set in the SIMPL Windows program of the Cresnet system must match. Net ID for the STX-1700CXPW is factory set to 03.

The **UP** and **DOWN** buttons increase and decrease the CRESNET ID by one digit (i.e., 03, 04, 05, . . . FE).

Select the **Return** button to return to the SELECT INTERFACE menu.

RF Setup**RF SETUP**

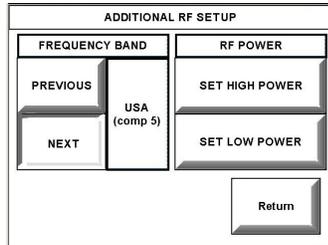
The RF ID identifies the gateway port that the touchpanel will use for communication. The RF ID consists of a one-digit hexadecimal number. The touchpanel can be set to one of fifteen numbers; “1” is shown as an example in the illustration and is the default. The RF ID setting should match the value assigned to the STX-1700CXPW touchpanel definition in the SIMPL Windows program. Refer to page 19 for information about SIMPL programming/setup for this touchpanel.

The **UP** and **DOWN** buttons increase/decrease the RF ID by one, respectively (i.e., 1, 2, 3, . . . F).

The radio frequency channel setting (RF CHANNEL) identifies the particular TPS-RFGWX gateway used for communication with the touchpanel. (Up to sixteen TPS-RFGWX gateways can exist in a SIMPL program.) The RF CHANNEL setting consists of a one-digit hexadecimal number; “0” is shown as an example in the illustration on the left and is the default. The UP and DOWN buttons increase and decrease the RF CHANNEL by one, respectively (i.e., 1, 2, 3, . . . F). The RF CHANNEL setting must match the gateway RF CHANNEL setting assigned via Viewport.

Refer to the latest revision of the TPS-RFGWX Operation Guide (Doc. 5847) for more information on setting up the RF CHANNEL for the RF gateway.

ADDITIONAL RF SETUP



Press the **ADDITIONAL SETUP** button to display the ADDITIONAL RF SETUP screen. In situations where two or more touchpanels are in close proximity and could conflict with each other, press the **SET LOW POWER** button to reduce the touchpanel’s power and minimize the possibility of interference. The factory default setting is **SET HIGH POWER**.

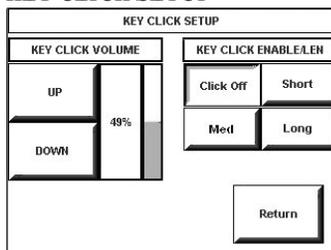
Use the **PREVIOUS** and **NEXT** buttons to choose the desired frequency band. The choices correspond with the names shown in the following table. The table shows the 802.11b channels within each band that are occupied by the STX-1700CXPW. Selection of a band is based on a number of factors, including the need to avoid interference with nearby RF devices, and compliance with local communication laws. In the US, Crestron recommends using Bands 5 (USA comp 1) through 9 (USA comp 5). Bands 1 through 4 (France, Spain, Japan, and Canada) are intended for use in Cresnet systems outside the US. The default setting is Band 0, USA (original), which is *not* Wi-Fi friendly. At this setting, the touchpanel can communicate with a TPS-RFGWX gateway whether it is Wi-Fi friendly or not, since Band 0 is the default for both versions of the gateway. Note that the touchpanel and gateway must be set to the same band in order to communicate. Refer to the latest revision of the TPS-RFGWX Operation Guide (Doc. 5847) for more information on setting up the band for the RF gateway.

Band #	Freq. Range (MHz)	Band Name	Occupied 802.11b Channels														
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	
0	2400-2474	USA (original)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
1	2448-2474	France															
2	2448-2474	Spain															
3	2471-2497	Japan															
4	2452-2477	Canada															
5	2400-2425	USA (comp 1)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
6	2409-2435	USA (comp 2)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
7	2419-2445	USA (comp 3)		•	•	•	•	•	•	•	•	•	•	•	•	•	•
8	2430-2455	USA (comp 4)			•	•	•	•	•	•	•	•	•	•	•	•	•
9	2440-2465	USA (comp 5)															

In the table, a bullet (•) indicates channels that are used by the STX-1700CXPW. The unmarked channels can be used by other devices communicating near the Cresnet system, thus minimizing interference.

After the Cresnet ID, RF ID, RF CHANNEL, and Band settings have been verified, touch the **Return** button at the bottom of the screen to save settings and display the SELECT INTERFACE screen. Touch **Return** again to display the SETUP MENU.

KEY CLICK SETUP

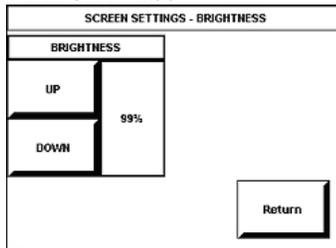


Key Click Setup

From the SETUP MENU, press the **Key Click Enabled** button to open KEY CLICK SETUP screen. (If the function is currently disabled, the button legend is “**Key Click Disabled.**”) To enable an audible tone (beep) when the touchpanel buttons are pressed, select among the **Short**, **Med**, or **Long** KEY CLICK ENABLE/LEN buttons to set the duration of the tone. The touchpanel responds with a corresponding signal. To disable the feature, select **Click Off**.

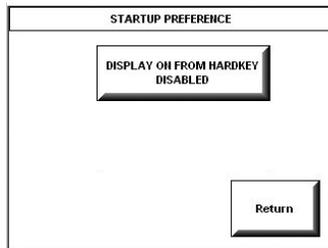
Use the KEY CLICK VOLUME **UP** and **DOWN** buttons to increase and decrease the volume of the signal. The area to the right of the buttons shows the relative volume from 0% to 100%, both as a numeric value and, for a quick visual reference, as an analog bar.

Select the **Return** button to return to the SETUP MENU.

**SCREEN SETTINGS
- BRIGHTNESS****Brightness**

From the SETUP MENU, press the **Brightness** button to open the SCREEN SETTINGS – BRIGHTNESS screen. The **UP** and **DOWN** buttons increase and decrease screen brightness, respectively. The area to the right of the buttons shows the relative brightness from 0% to 100%. Note that the 0% setting will not completely darken the LCD screen; it will still be faintly visible.

Select the **Return** button to return to the SETUP MENU.

STARTUP PREFERENCE**Startup Preference**

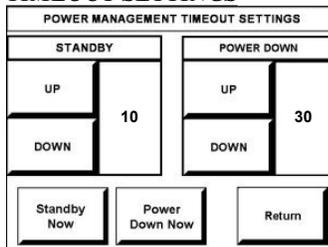
NOTE: This feature applies only to units with the optional pushbuttons installed. Refer to “Appendix B: Installation of Optional Pushbuttons” for details.

The Startup Preference feature allows (when the touchpanel is off or in standby) the display to come on or stay off when a “quick” pushbutton is pressed. From the SETUP MENU, press the **Startup Preferences** button to open the STARTUP PREFERENCE screen.

When pressed, the **DISPLAY ON FROM HARDKEY** button toggles between ENABLED and DISABLED. With ENABLED selected, the display comes on when one of the “quick” pushbuttons is pressed. With DISABLED selected, the display stays off when a “quick” pushbutton is pressed (it goes to standby). The default is DISABLED. Note that the button signal will be sent to the RF gateway if the touchpanel is in standby mode.

NOTE: To successfully send a pushbutton command when the touchpanel display is dark, the user may have to press the pushbutton twice, with a minimum two-second interval between presses. This method is preferred because when a panel display is inactive, the user cannot discern whether the panel is in a standby or power down state. Furthermore, a single pushbutton press may not be transmitted, depending on the state of the unit. For example, the DISPLAY ON FROM HARDKEY DISABLED command in startup preferences ensures that the panel display remains inactive.

Select the **Return** button to return to the SETUP MENU.

**POWER MANAGEMENT
TIMEOUT SETTINGS****Power Management Timeout Settings**

The Power Management feature is intended to conserve energy, and to extend the service life of the battery. From the SETUP MENU, press the **Power Management** button to display the POWER MANAGEMENT TIMEOUT SETTINGS screen. Use the STANDBY and POWER DOWN **UP** and **DOWN** buttons to set the respective timeouts from 0 through 120 minutes, where 0 disables the timeout. It adjusts in one-minute increments from 1 to 10, in ten-minute increments from 20-120.

Use the **Standby Now** and **Power Down Now** buttons to immediately enter the respective mode.

STANDBY timeout turns the display and backlight off when the touchpanel is inactive for the specified time. When the touchpanel is reactivated, the last screen to be displayed reappears. The specified time is displayed in minutes. The default STANDBY timeout is 10 minutes.

POWER DOWN timeout turns off all power when the touchpanel is inactive for the specified time. When the touchpanel is activated, the first page of the project appears. The specified time is displayed in minutes. The default POWER DOWN

timeout is 30 minutes. It adjusts in one-minute increments from 1 to 10, in ten-minute increments from 20-120.

NOTE: Power Down Timeout should be set low to maximize battery life. However, Power Down Timeout should be set greater than Standby Timeout. Otherwise, the Standby Timeout is meaningless.

NOTE: When the panel is powered down, it will take about 1.5 seconds to power up and respond to a button press. There is no delay from Standby mode.

NOTE: This touchpanel does not include a built-in option to power up on the last page viewed prior to power down. To power up on the last page viewed, you must give the pages discrete join numbers and track them with SIMPL Windows logic.

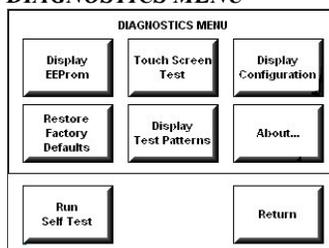
NOTE: If the external AC power pack is attached to the touchpanel and plugged into an active AC receptacle or if the touchpanel is docked in the docking assembly (DA-1700CW), the panel does not power down when the power down timeout is achieved. Recall that the purpose of this timeout is to maximize battery life. Standby timeout still functions.

Press **Return** to save the settings and return to the SETUP MENU.

DIAGNOSTICS Menu

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

DIAGNOSTICS MENU



General Use and Safety

WARNING: To avoid shock hazard and possible damage to the unit, do not use the touchpanel in the rain or expose it to unnecessary moisture.

Recommended Touchpanel 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. The surrounding plastic enclosure may not provide a completely watertight seal. Therefore, apply cleaning solution to the cloth rather than the surface of the touchscreen. Wipe touchscreen clean and avoid leakage of moisture beneath panels.

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.

You can create a program that allows you to set up the STX-1700CXPW to operate a Crestron control system using the Crestron programming tools Crestron SystemBuilder™ and SIMPL Windows. These tools are intended for users with different levels of programming knowledge. The flexibility of each tool is proportional to the degree of programming expertise (i.e., the more flexible, the more a programmer needs to know and account for). Of course, one can initiate programming using the easiest method (SystemBuilder) and use advanced techniques that are available from SIMPL Windows to customize the job.

VT Pro-e is a Windows® compatible software package for creating Crestron touchpanel screen designs. Refer to “Programming with VT Pro-e” on page 24 for additional details regarding VT Pro-e.

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:

- SystemBuilder version 1.02 or later. Requires SIMPL Windows and Crestron Engraver. Requires SystemBuilder templates 1.01 or later.
- SIMPL Windows version 2.05.22 or later. Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 16.2.1 or later. Required by SIMPL Windows.
- VisionTools Pro-e version 3.2.1.8 or later. Used for graphical touchscreen design.
- (Optional) Crestron Engraver version 2.3.0.0 (only required if using SystemBuilder or if optional hard buttons and bezel are installed, and 1700C-BTNB or 1700C-BTNS engraveable button kits are purchased).

Programming with the Crestron SystemBuilder

The Crestron SystemBuilder 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. The Crestron SystemBuilder then programs the system, including all touchpanel projects and control system logic.

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

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

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.

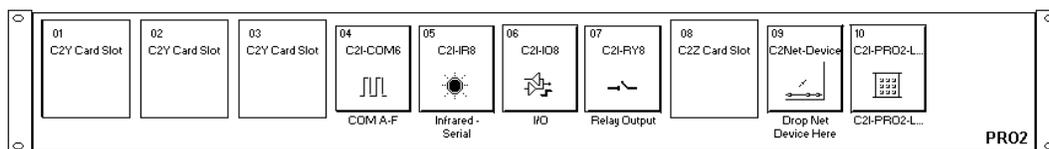
NOTE: The STX-1700CXPW can operate as a wired panel when set correctly in the SIMPL program. This is recommended to troubleshoot the program code and to eliminate wireless/RF configuration issues before running the program in wireless mode.

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 an STX-1700CXPW.

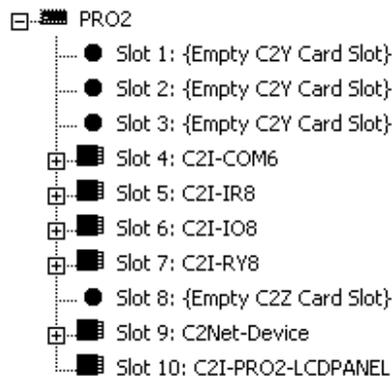
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

PRO2 System View



The *System Views* lower pane displays the PRO2 system tree (refer to following graphic). This tree can be expanded to display and configure the communications ports.

Expanded PRO2 System Tree



C2Net-Device Slot in Configuration Manager

To incorporate an STX-1700CXPW into the system and have it operate either as a wired Cresnet device (in the wall-mount docking assembly) or as a wireless RF device (when undocked), the program needs to be designed for a dual configuration:

- For a wired configuration, a back box/docking assembly (BB/DA-1700CW) is required in addition to the touchpanel, to allow for the electronic docking functions, touchpanel power, and Cresnet communication.
- For a wireless configuration, a gateway device (TPS-RFGWX) is required to allow Cresnet communication between the touchpanel and the control system. Once the gateway is configured in the C2Net-Device Slot, the slot allows Cresnet communication.

NOTE: SIMPL Windows distinguishes between the STX-1700CXP (Cresnet) wired version, and the STX-1700CXP wireless version of the touchpanel for programming purposes. Although functionally identical, they are not interchangeable.

In Configuration Manager, drag the STX-1700CXP (Cresnet) icon from the Touchpanels (Cresnet) folder of the *Device Library* and drop it in the upper pane of the *System Views*. The *System Views* upper pane displays the STX-1700CXP device icon below the PRO2 graphic.

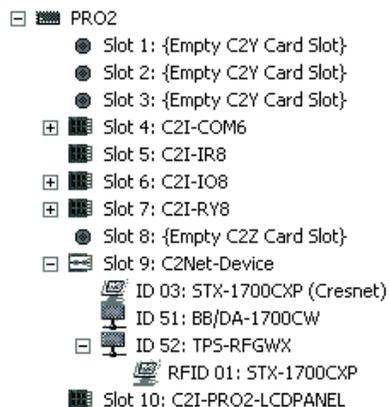
Drag the BB/DA-1700CW from the Cresnet Control Modules | Cresnet I/O Control & Other Modules folder and drop it in the upper pane of the *System Views*. The *System Views* upper pane displays the BB/DA-1700CW device icon below the PRO2 graphic.

Drag the TPS-RFGWX from the Wireless Receivers (RF) folder of the *Device Library* and drop it in the upper pane of the *System Views*. The *System Views* upper pane displays the TPS-RFGWX device icon below the PRO2 graphic.

Drag the STX-1700CXP from the Touchpanels (Wireless | Wireless Two-Way) folder of the *Device Library* and drop it on the TPS-RFGWX symbol in *System Views*.

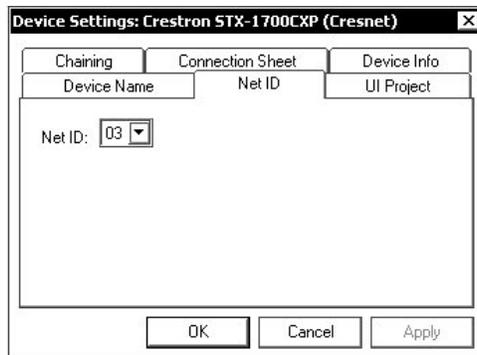
The PRO2 system tree displays the STX-1700CXP (Cresnet) in Slot 9 with a default Net ID of 03, the BB/DA-1700CW in Slot 9 with a default Net ID of 51, the TPS-RFGWX gateway in Slot 9, with a default Net ID of 52, and the TPS-RFGWX displays the touchpanel at the touchpanel's default RF ID location, "01," as shown in the following graphic.

C2Net Device, Slot 9



Double-click the STX-1700 (Cresnet) icon in the upper pane to open the “Device Settings” window. This window displays STX-1700 (Cresnet) device information. Select the *Net ID* tab to change the touchpanel Net ID, as shown in the following graphic.

“Device Settings” Window for the STX-1700CXP (Cresnet)



Similarly, double-click the BB/DA-1700CW and STX-RFGWX icons in the upper pane to open their respective “Device Settings” windows. Select the *Net ID* tabs as necessary to change the Net IDs.

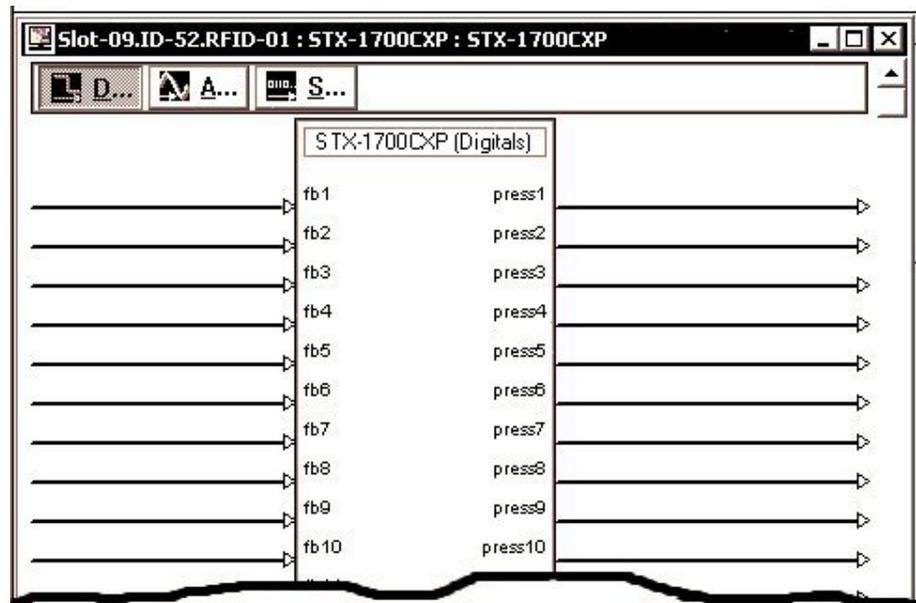
Expand the system tree in the lower pane and double-click the STX-1700CXP icon to open its “Device Settings” window. Select the *RF/IR ID* tab to change the touchpanel RF ID. For more information on setting the RF/IR ID, refer to “RF Setup” shown on page 14.

NOTE: SIMPL Windows automatically changes NET ID values of a device added to a program if a duplicate device or a device with the same default NET ID already exists in the program. Always ensure that the network device NET IDs set via Viewport match the ones in your SIMPL Windows program.

STX-1700CXPW Symbol in Programming Manager

Programming Manager is where programmers “program” a Crestron control system by assigning signals to symbols. The illustration on the next page shows the STX-1700CXPW symbol in the SIMPL Windows’ Programming Manager.

NOTE: SIMPL Windows uses essentially the same symbol for both the wired and the wireless versions of the touchpanel, adding (Cresnet) to the name of the wireless version to distinguish between them. In the following sections, the signal names and definitions apply to both touchpanels. Except for instances where the touchpanel is to perform certain functions in one configuration and not the other, copy the logic from one symbol and paste it into the other.

Detail View of the STX-1700CXPW in SIMPL Windows' Programming Manager

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 signal connected there will be an analog signal.

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 (<http://www.crestron.com/manuals>).

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 to which it points.

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.

STX-1700CXPW Input/Output Signals

The STX-1700CXPW symbol provides up to 4000 digital joins, up to 1024 analog joins, and up to 127 serial output joins and 255 serial input joins. The programmer selects the signal types by clicking on the appropriate button at the top of the *Symbol Detail* view when programming the panel.

The following tables list functional descriptions for 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 = press On Low/0 = press Off

Digital Input Signal Descriptions

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

Analog Output Signal Descriptions

OUTPUT	DESCRIPTION
an_act 1 through an_act 1024	Notifies control system of an analog action (1 – 1024). Any value from 0 through 65535

Analog Input Signal Descriptions

INPUT	DESCRIPTION
an_fb 1 through an_fb 1024	Notifies panel of analog feedback (1 – 1024). Any value from 0 through 65535

Serial Output Signal Descriptions

OUTPUT	DESCRIPTION
text-I1 through text-I127	Internal text (1 – 127) that can be remapped to system reserved joins.

Serial Input Signal Descriptions

INPUT	DESCRIPTION
text-o1 through text-o255	Notifies panel to display text string (1 – 255). 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. For the STX-1700CXPW in wired mode only, the Poll Manager takes the touchpanel on and off line during polling by the control system. In wireless mode, Sleep/Wake Manager suspends and restores operation of the touchpanel. To add device extenders, right-click the device symbol in *Program View*, select **Insert Device Extender**, and select the desired device extender. 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.

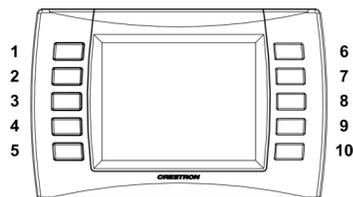
Programming with VT Pro-e

Control screen variations incorporating two- and three-dimensional graphics and text are possible and can be created with VT Pro-e, a design and programming Windows®-based software program. A set of pages, which make up a project, can be designed for each application. Each touchpanel can be organized with the ideal, color-oriented control environment with custom control graphics: icons, two and three-dimensional buttons, and floor plans. The project is uploaded to the touchpanel's flash PROM. The touchpanel uses the project until another is uploaded from the PC. The PC may be disconnected from the control processor except when uploading a project.

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 Crestron website.

Optional Pushbuttons

Pushbutton Layout and Join Number Assignment



If the optional ten “hard” pushbuttons are installed, you can use these buttons to access any frequently used commands (refer to “Appendix B: Installation of Optional Pushbuttons”). Each button has a permanently fixed digital join number; refer to the illustration shown to the left. The sequence of digital join numbers is (top to bottom) 1 through 5 on the left side and 6 through 10 on the right side.

NOTE: A user may not want the display to come on after a pushbutton is pressed when the unit is off. The Startup Preference option allows the user to select whether the touchpanel's display comes on or stays off after a pushbutton is pressed. For more information, refer to “Startup Preference” on page 16.

NOTE: To program a quick pushbutton to flip a page (change a screen) on the STX-1700CXPW, go to the *Hard Keys* tab of the “Project Properties” window in VT Pro-e. Select a button from the *Button* drop-down list, and then select the desired page from the *Page Flip* drop-down list. When the button is pressed, the page is displayed.

The quick pushbuttons can also be programmed to do a page flip via SIMPL Windows.

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 on the next page provide lists of reserved join numbers available within the VT Pro-e software.

NOTE: Many touchpanel configuration “shortcuts” are available via the software. A button can be created on a page that adjusts brightness, etc., via reserved join numbers.

Digital Reserved Join Numbers STX-1700CXPW

JOIN NUMBER	FUNCTION	VALUE	DIRECTION ²
17200	Power	Off	I
17216	Brightness	Up	I
17217	Brightness	Down	I
17218	Brightness	High	I
17219	Brightness	Medium (Default)	I
17220	Brightness	Low	I
17230	Standby	On	I/O
17231	Standby Timeout	Up	I
17232	Standby Timeout	Down	I
17233	Power Timeout	Up	I
17234	Power Timeout	Down	I
17242	Setup	N/A	I
17302	Keyclick	On	I/O
17303	Keyclick	Off	I/O
17304	Key Click Volume	Up	I
17305	Key Click Volume	Down	I
17322	Key Click Short	Short (Default)	I
17323	Key Click Medium	Medium	I
17324	Key Click Long	Long	I
17509	Out of Range ¹	N/A	O
17532	Send Update Request	N/A	O

1. Assigning 17509 (Out of Range) to a page, sub page or button activates the page, subpage or button when the STX-1700CXPW goes out of range.
2. "I" indicates that pressing a button with this join number commands the touchpanel to perform the function. "O" indicates feedback to the display (all actions are local to the touchpanel, no information is transmitted).

Analog Reserved Join Numbers for STX-1700CXPW

JOIN NUMBER	FUNCTION	VALUE	DIRECTION ²
17201	LCD Brightness ¹	1-100%	I/O
17202	Power Timeout ¹	0-120 minutes	I/O
17203	Standby Timeout ¹	0-120 minutes	I/O
17300	Key Click Volume ¹	1-100%	I/O
17507	Battery Level	0-100%	O

1. Defaults:
 LCD Brightness – 50% Standby Timeout – 10 minutes
 Power Timeout – 30 minutes Key Click Volume – 50%
2. "I" indicates that pressing a button with this join number commands the touchpanel to perform the function. "O" indicates feedback to the display (all actions are local to the touchpanel, no information is transmitted).

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 after their development to the system and network devices. 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 Crestron Viewport utility performs 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.

The following sections define how one would upload a VT Pro-e project or upgrade the firmware of the STX-1700CXPW. However, before attempting to upload or upgrade, it is necessary to establish communications.

Communication Settings

NOTE: For laptops and other PCs without a built-in RS-232 port, Crestron recommends the use of PCMCIA cards, rather than USB-to-serial adapters. If a USB-to-serial adapter must be used, Crestron has tested the following devices with good results:

Belkin (large model) F5U103
I/O Gear GUC232A (discontinued)
Keyspan USA-19QW (discontinued)

Other models, even from the same manufacturer, may not yield the same results.

The procedure in this section provides details for RS-232 communication between the PC and the control system. 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 Crestron website. Refer to the figure on the next page for a typical connection diagram when uploading files.

NOTE: Use a standard DB9 male to female “straight-through” cable.

NOTE: You can also dock the STX-1700CXPW in the DA-1700CW to upload or upgrade the panel. However, Crestron recommends that you use the connections for uploading or upgrading that are described on the next page.

Typical Connection Diagram when Uploading



NOTE: If the control system in use has a 4-pin network connector rather than a modular (RJ-11-type) NET connector, use an ST-CBL interface cable (sold separately).

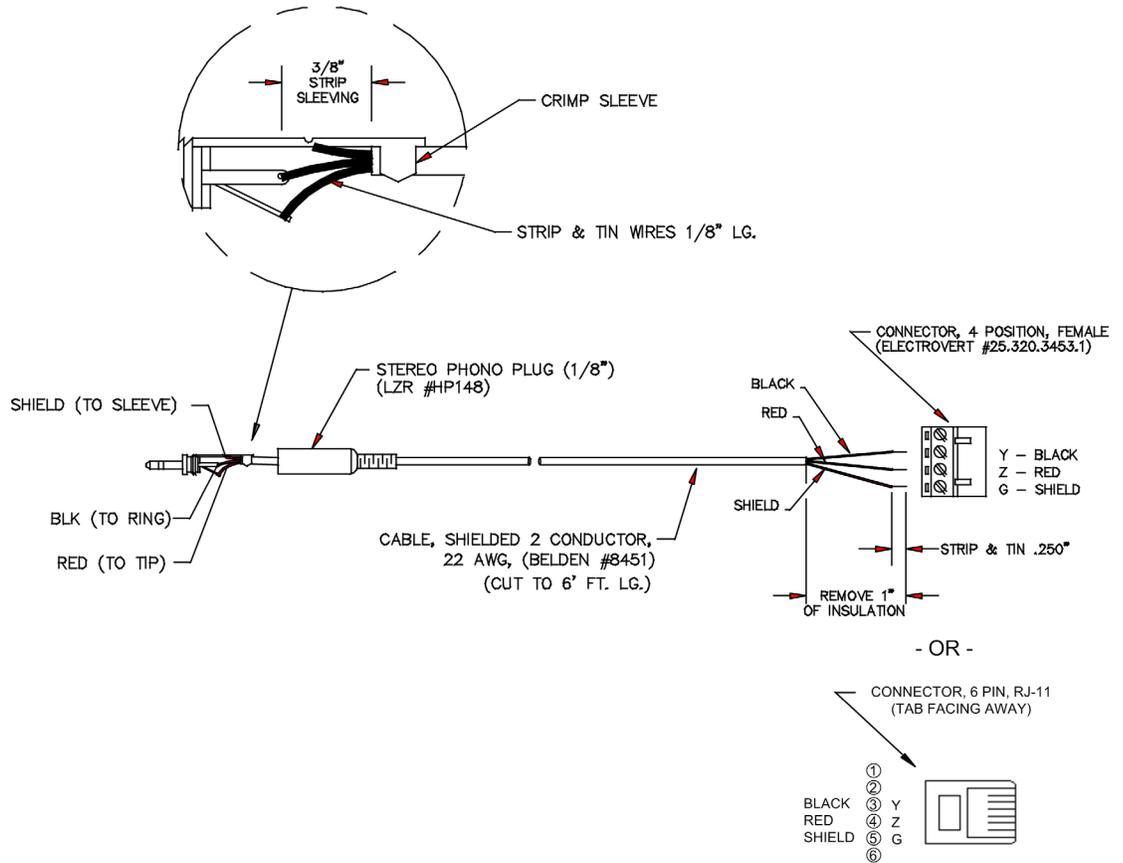
NOTE: To make a cable for either configuration, refer to the “Programming Cable Specifications” diagram after these notes.

NOTE: An adapter such as a CN-RJ11 (sold separately) is required when using the RJ-11 cable.

NOTE: The RJ-11 (part of ST-PK) and ST-CBL cables can also be found as part numbers CNSP-585 and CNSP-586, respectively, in the Crestron cable database. The database can be downloaded from the Crestron website.

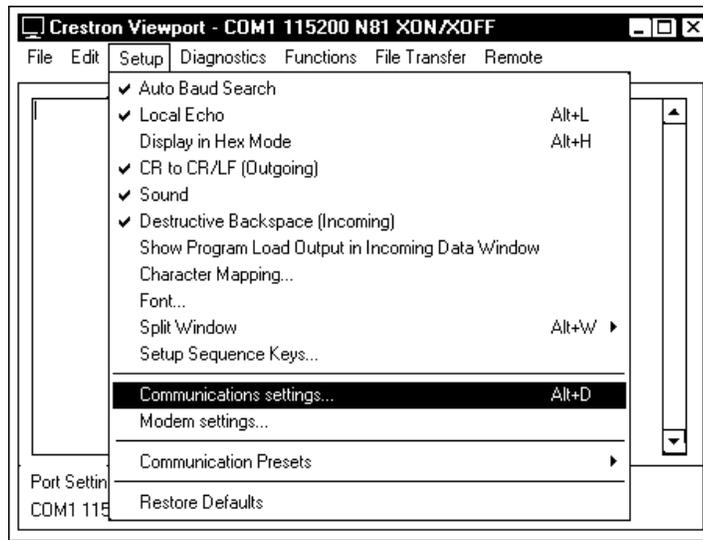
NOTE: The procedure on the next page uses the ST-CBL.

Programming Cable Specifications



1. Before making any connections to the touchpanel, verify that the control system is properly connected to the PC (using an RS-232 DB9 straight-through cable, Crestron P/N CNSP-587) and powered on.
2. Attach the stereo connector end of the ST-CBL to the touchpanel.
3. Attach the network connector end of the ST-CBL to the connector labeled NET on the control system.
4. Attach the appropriate Crestron external power pack to the touchpanel and plug it into an outlet. At the PC, make sure that no programs accessing the COM port of the PC are running.
5. Open the Crestron Viewport.
Either launch the stand-alone version of Viewport, or start SIMPL Windows or VT Pro-e, and from the menu bar, select **Tools | Viewport**.
6. From the Viewport menu, select **Setup | Communications settings** (alternatively, press **Alt+D**) to open the “Port Settings” window. Refer to the figures on the next page.

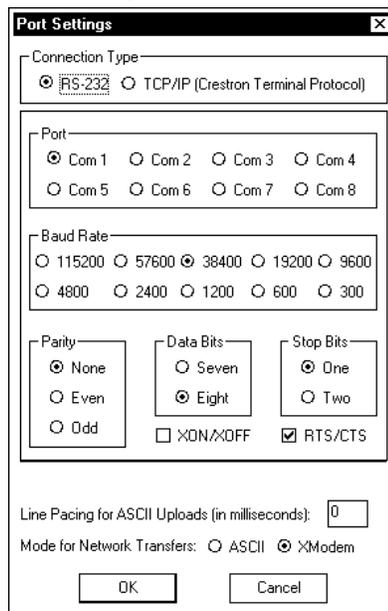
Accessing the “Port Settings” Window



7. Select the **RS-232** connection type. Verify the available COM is selected. Verify that the baud rate is set to **115200** (PRO 2 default), the parity is **None**, the data bits is **Eight**, the stop bits is **One**, **XON/XOFF** is not selected, and **RTS/CTS** is selected. Click the **OK** button to save the settings and close the window.

NOTE: If problems occur when transferring any Cresnet file (touchpanel project/firmware), lower the port speed baud rate to 38400 to match the Cresnet bus speed when transferring through a control system. Make sure **XModem** is selected from *Mode for Network Transfers*.

“Port Settings” Window



8. Proceed to “Uploading a VT Pro-e Project” on the next page or “Firmware Upgrade” that begins on page 31, as appropriate.

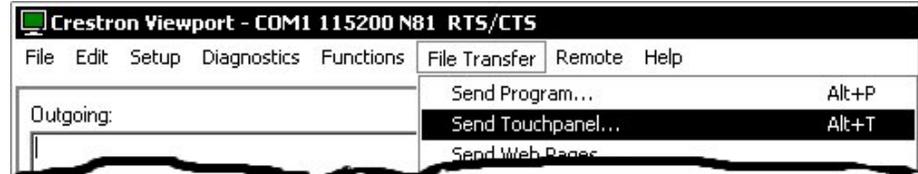
Uploading a VT Pro-e Project

A compiled VT Pro-e file has the extension .vtz

To upload a compiled VT Pro-e project to the STX-1700CXPW, complete the following steps.

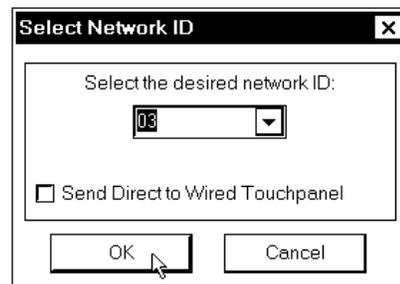
1. Make sure that “Communication Settings” which begins on page 26 has been performed.
2. As shown below, select **File Transfer | Send Touchpanel** (alternatively, depress **Alt+T**) from the Viewport menu.

Select Send Touchpanel

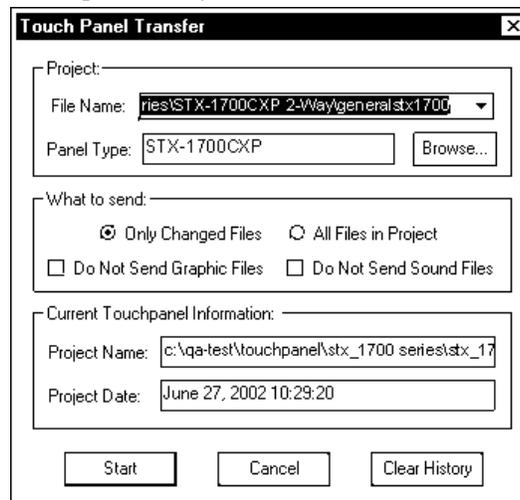


3. As shown below, select the Net ID of the STX-1700CXPW and then click **OK**. The “Touchpanel Transfer” window appears (refer to graphic below).

“Select Network ID” Window

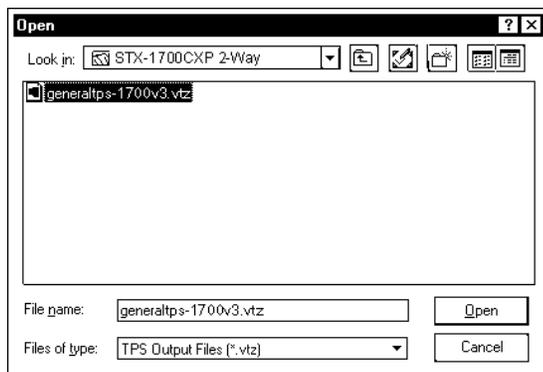


“Touchpanel Transfer” Window



4. Click Browse. The “Open” window appears as shown on the next page.
5. Select the VT Pro-e (.vtz) file and click **Open**. The transfer completes automatically.

Select VTZ File



6. Disconnect the programming cable and the external power pack from the touchpanel.
7. Close the Viewport, exit VT Pro-e, and disconnect the programming cable from the PC and the control system.

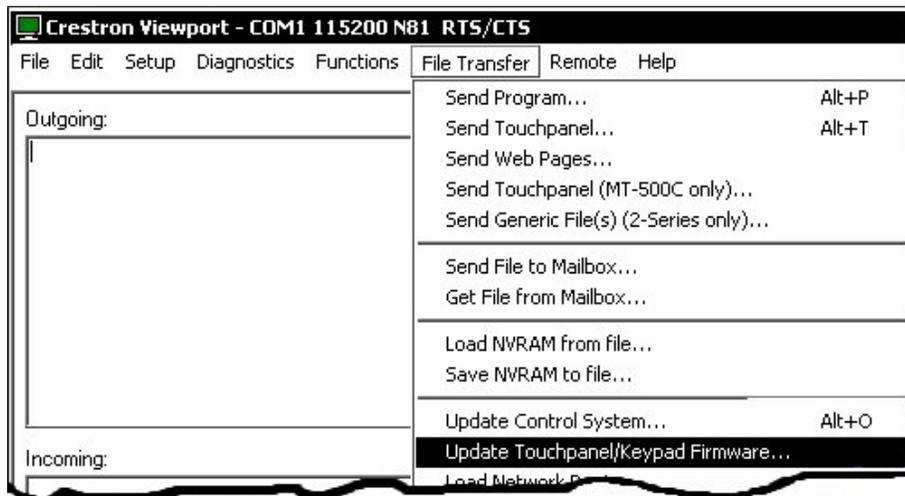
Firmware Upgrade

A firmware upgrade file has the extension .csf

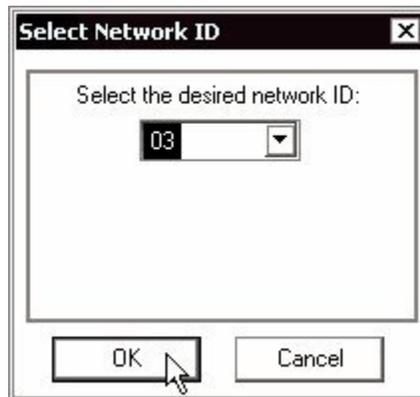
To take advantage of all the available features, it is important that the unit contains the latest firmware. Please check the Crestron website for the latest version of firmware. Not every product has a firmware upgrade, but as Crestron improves functions, adds new features, and extends the capabilities of its products, firmware upgrades are posted. To upgrade the STX-1700CXPW firmware, complete the following steps..

1. Make sure that “Communication Settings” that begins on page 26 has been performed. Suggested baud rate is 38400.
2. As shown below, select **File Transfer | Update Touchpanel/Keypad Firmware** from the Viewport menu.

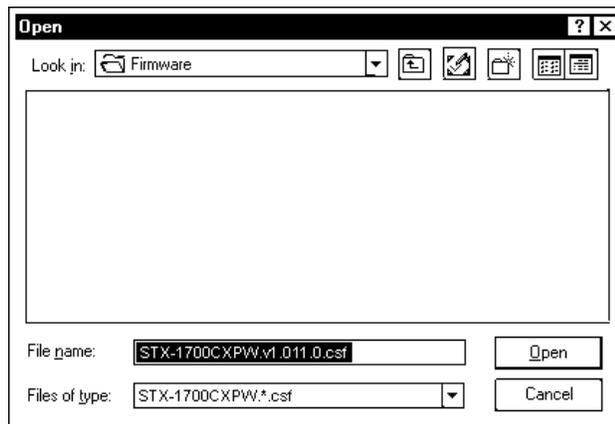
Select Update Touchpanel Firmware



3. As shown on the next page, select the Net ID of the STX-1700CXPW and then click **OK**.

“Select Network ID” Window

4. As shown below, select the firmware (CSF) file and click **Open**. The transfer will complete automatically.

Select CSF File

5. Disconnect the programming cable and the external power pack from the touchpanel.

Problem Solving

Troubleshooting

The table below and on the next page provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

NOTE: To minimize system diagnostics and troubleshooting, Crestron recommends defining the touchpanel as a wired unit in SIMPL Windows, then test functionality as a wired network device prior to testing the TPS-RFGWX transceiver operations. This will help in determining whether there is a programming problem, an RF setting conflict, or RF interference in the environment.

NOTE: The diagram shown on page 27 is a typical “wired” hookup.

STX-1700CXPW Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel does not function.	No power to the touchpanel.	Confirm that battery pack is installed or external adapter is connected.
	Touchpanel is not communicating to the control system.	Poll the network (F4 in Viewport, VT Pro-e or SIMPL Windows) to verify communication.
Touchpanel does not report as Cresnet device to control system when mounted in DA-1700CW.	Touchpanel not making connection.	Check that rubber feet on bottom of touchpanel are mounted correctly.
Project cannot be uploaded to touchpanel.	Touchpanel is not powered up.	Touch the touchpanel to display a screen. Verify that the panel has power supplied to it, either battery or power pack.
	Communications error between PC and control system.	Verify upload preferences is set to the COM port being used to communicate to the control system.
	Incorrect Net ID setting.	Verify that panel Net ID matches the Net ID specified during upload. Refer to "Select Interface Menu."
	Problem with cable between control system and touchpanel.	Check the cable for damage or bad connections.
Wrong screens appear on touchpanel.	Wrong screens uploaded.	Upload correct screens. Refer to "Uploading a VT Pro-e Project".
Active area does not coincide with button on screen.	Touchpanel is incorrectly calibrated.	Remove power and then reapply power while holding finger to touchscreen (for about five seconds). The Main Menu appears. Select Touch Screen Calibration . The Calibration Menu appears. Select Perform Calibration and follow prompts. *

* You can also use the **caltouch** command in Viewport to access the Calibration option.

(continued on next page)

STX-1700CXPW Troubleshooting (continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel display is dark or too light.	Screen brightness is improperly set.	Hold a finger to the touchscreen for more than five seconds from power off. Set brightness using Setup menu.
Touchpanel exhibits slow operation.	Compressed graphics take time to decompress.	If there are no memory problems, decompressed graphics decrease the drawing time of panel pages.
Touchpanel display is dark.	Standby or power down timeout has elapsed.	Touch screen to reactivate.
	No power to the touchpanel.	Verify the power is properly applied and all connections are made.
Touchpanel operation appears unreliable.	Touchpanel is out of range. Refer to "Out of Range Feature" below.	Bring unit within range. Refer to "Specifications" for details. Use reserved join number 17509 in SIMPL Windows program to indicate when touchpanel is out of range.
	RF Interference	Test as wired unit. If unit tests OK as wired touchpanel, and fails as wireless touchpanel, call Crestron Customer Support.
	Code related issues.	Test as wired unit. If unit tests OK as wired touchpanel, and fails as wireless touchpanel, call Crestron Customer Support.
Touchpanel does not function and SIG LED on STRFGWX illuminates, but Rx or Tx LEDs do not.	Touchpanel RF ID is not set to match the RF ID assigned in the control system program.	Verify that RF IDs match. Refer to "Select Interface" on page 14 for details and RF ID parameters assigned in the program.
Sig LED on TPS-RFGWX does not illuminate.	RF channel of Touchpanel and ID of TPS-RFGWX receiver do not match.	Verify that RF channel matches channel ID of TPS-RFGWX. Refer to "Select Interface" on page 14 for details and RF ID parameters assigned in the program.
Touchpanel screen changes without touching the screen.	Touchpanel went out and then in range while control system changed a screen.	Use reserved join number 17509 in SIMPL Windows program to indicate when touchpanel is out of range.

Out of Range Feature

The out of range feature is always active. It is up to the programmer to provide an indication on the touchpanel.

When the STX-1700CXPW is out of range, it displays an out of range indication of your choice (refer to "Reserved Join Numbers" on page 25), and the touchpanel does not respond. Also, the TPS-RFGWX's Tx (transmit) LED will flash every four to five seconds for approximately 30 seconds and then the LED stops flashing (the unit stops transmitting if the touchpanel does not come into range in the allotted time). If the touchpanel comes into range *before* the TPS-RFGWX stops transmitting, the display reverts to whatever screen the control system has active. If the touchpanel comes into range *after* the TPS-RFGWX stops transmitting, the user must touch the screen to activate the gateway and leave the out of range screen.

The screen may change if the control system sent a change to the touchpanel during the time it was out of range.

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 (<http://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 STX-1700CXPW, additional information and programming examples 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.”

Appendix A: Optimum RF Reception Guidelines

Many factors can affect the reliability of RF communication between an RF gateway and an RF touchpanel. While an effort has been made to determine operating specifications, some specifications are not constant. RF Communication can be limited by several factors including but not limited to EMI (electromagnetic interference), intervening objects, antenna orientation, and receiver placement. To obtain maximum reliability and performance, some basic rules for installing RF transceivers are listed below.

Minimize Interference

RF reception range can be hindered by spurious EMI noise that may interfere with or mask the desired frequency thereby reducing useable range. EMI is generated by any electrical device at various RF noise levels depending on the device. Sources of EMI include computers, video equipment, digital processors, lighting dimmers, lighting ballasts, motors or any large AC source. Every effort should be made to separate any RF transceiver from these sources of RF noise including Audio Visual equipment in racks. If a gateway must be installed in an equipment rack, make sure you have ample separation between the equipment and the gateway.

NOTE: Check any 802.11b equipment operating near the Cresnet system to see that it is using only channels that are not being used by the STX-1700CXPW touchpanel. If necessary, change the touchpanel's band setting to avoid interference. Refer to "ADDITIONAL RF SETUP" on page 15 for details.

Gateway Placement

Optimum reception for any RF transceiver is obtained by installing the gateway transceiver in an open area or shelf with a clear line of sight (no obstructions between gateway and receiver). Crestron recommends that the gateway is at least five to six feet high for best results. Avoid placing transceivers or transmitters at a low height or on the ground. Placing RF equipment near metal objects, walls, corners or metal enclosures will compromise RF propagation and reception. Try to avoid installing gateways in equipment racks, service rooms, electrical closets or in rooms other than that which the panel or transmitter is located.

Antenna Orientation

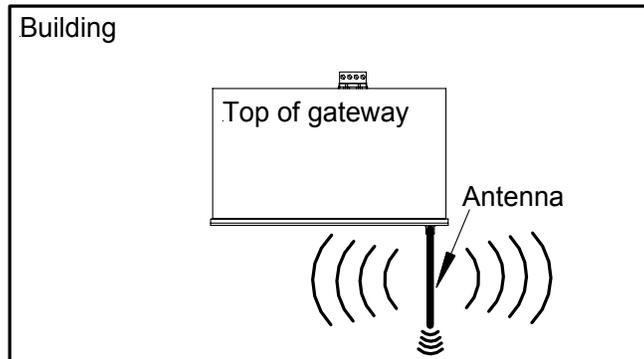
The antenna orientation on Crestron gateways has considerable effect on range and reliability. Optimum performance is obtained by setting the antenna horizontally (parallel to the ground). When absolutely necessary, two alternate orientations are possible – each will be less effective than the horizontal orientation:

- Point the antenna vertically
- Point the antenna at a right angle to the gateway.

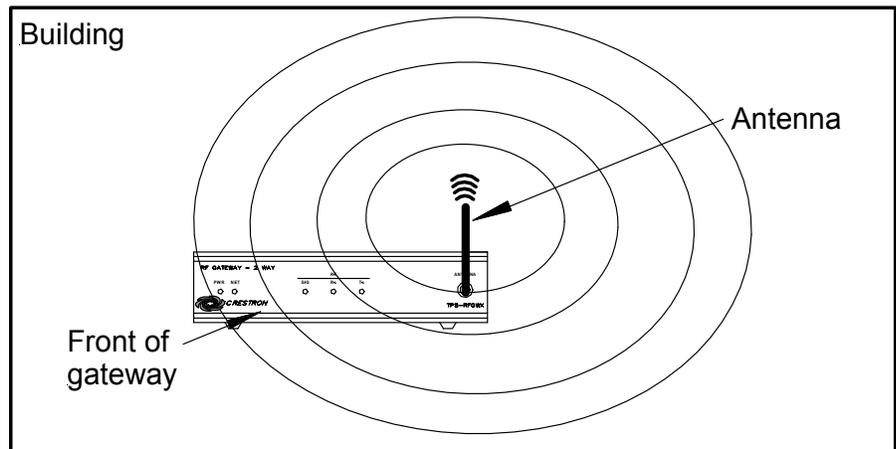
These may allow for rack or equipment closet doors to be shut but these orientations may also compromise reception. Never point the antenna downward or directly parallel to the front panel, this will decrease range and reliability. Refer to illustrations on the next page for examples of the different antenna orientations.

NOTE: RF propagation is best from the sides of the antenna.

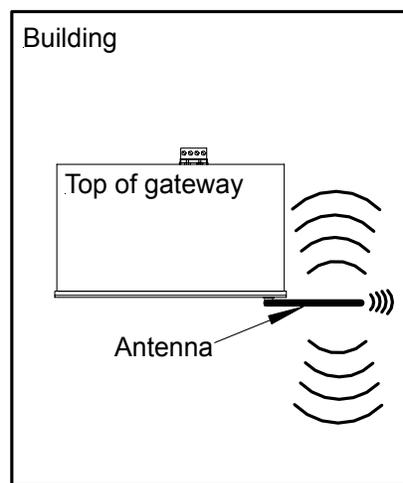
Horizontal Orientation



Vertical Orientation



Right Angle Orientation



Appendix B: Installation of Optional Pushbuttons

The STX-1700CXPW is supplied with ten optional pushbutton switches, blank buttons, and a bezel to accommodate the switches. As a further option, custom engraved black buttons (1700C-BTNB) or silver buttons (1700C-BTNS) can be designed and purchased via the Crestron Engraver software. Version 2.3.0.0 or later is available from the Crestron website.

Perform the following to install pushbuttons on the STX-1700CXPW. Follow these same basic procedures to replace the blank buttons with the optional engraved buttons. A #1 Phillips screwdriver is required. Refer to the illustration below.

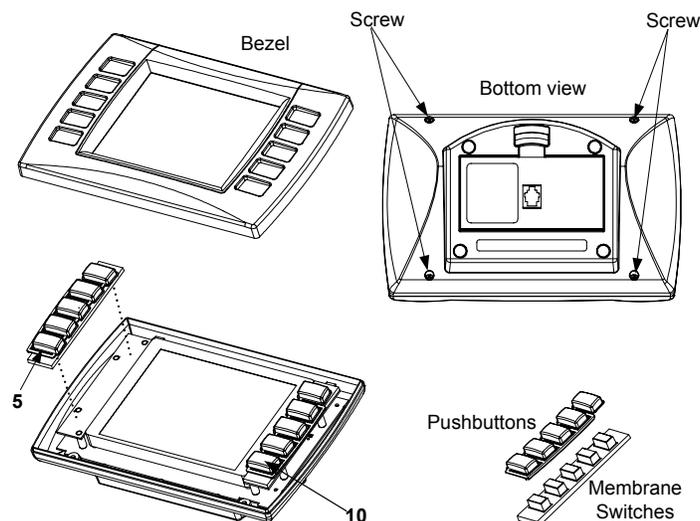
1. Place the touchpanel face down on a clean work surface.
2. Remove the four screws securing the front bezel to the base. Holding the bezel to the base, return the unit to its normal position and lift the bezel from the base.
3. Assemble the supplied membrane switches to the pushbutton sets. Notice that the pushbutton sets fit snugly on the membrane switches. (Refer to the following Notes.)
4. Put the assembled pushbuttons and switches in place (refer to the following Notes), and place the new bezel in position.

NOTE: The rear of the pushbuttons are marked 1-5 TOP and 6-10 TOP to ensure correct orientation when installed. Do not remove the plastic frame connecting the buttons together.

NOTE: Carefully position the switch/pushbutton assemblies on the printed circuit boards—edges should be aligned—and place the bezel over the pushbuttons to hold them in place.

5. Hold the bezel in position and turn the unit over on its face.
6. Reinstall the four screws to secure the bezel to the base. Tighten the screws, being careful not to strip the threads.
7. Verify that the pushbuttons function properly.

Optional Pushbutton Installation Diagram



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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., 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

Operations Guide - DOC. 6249A
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Specifications subject to
change without notice.