

Crestron **STX-1700CW**

Wall Mount 2-Way Compact Color Touchpanel Operations Guide



CRESTRON

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Wall Mount 2-Way RF Compact Color Touchpanel: STX-1700CW

Introduction

Functions and Features

The STX-1700CW is a 2-way radio frequency (RF) compact color touchpanel that, when used with the 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 STX-1700CW is also available in a kit that includes the DA-1700CW and BB-1700CW. Contact Crestron customer support for more information.

Functional Summary

- 5.7" (14.78 cm) Active Color Matrix Display
- 320x240 Screen Resolution
- 63MIPs ColdFire Processor Running Isys Generation Firmware
- 16 Bit Non-Palette Graphics
- 64,000-color Isys engine
- 4 MB of Flash (approx. 3MB For User Display Lists)
- 8 MB of Synchronous Dynamic RAM (SDRAM)
- Built-in 10 "quick" Pushbuttons
 - Engraveable*
 - Operate Without Waking Display
- Long-Life NiMH Battery
 - Fast Charging
 - No Battery Memory
- Compatible with Existing STRFGWX RF Gateway
- Roaming capability with additional RF Gateways

* Supplied with standard legends. Customizable Engraving Button Kit sold separately. See Appendix A on page 32 for details.

When not docked in the DA-1700CW, the touchpanel is a handheld, RF, 2-way wireless transceiver that communicates through a RF transceiver/gateway, STRFGWX (sold separately) to the Cresnet system. The 2-way communications provide delivery of commands to the Cresnet system and provide dynamic onscreen feedback for real-time confirmation of commands. Up to 15 touchpanels can communicate with one STRFGWX. The RF signals can travel from a minimum of three feet up to a maximum of 50 feet indoors (150 feet outdoors). The location of the STRFGWX and the orientation of the antenna are important factors in the RF performance.

Roaming Feature

This feature allows an STX-1700CW to extend its range from room to room by using multiple STRFGWX RF gateways. For proper communication, the RF Channel (refer to Cresnet Interface Menu on page 13) must be the same for the touchpanel with respect to all gateways in the system. For information on modifying a SIMPL™ Windows program for roaming, refer to page 26. For information on optimum RF reception, refer to “Appendix B: Optimum RF Reception Guidelines” on page 33.

NOTE: Minimum distance between multiple gateways for roaming is 3 feet; the maximum is 80 feet. Crestron recommends placing gateways 60 feet apart for optimum roaming.

Specifications

The table on the next page provides a summary of specifications for the STX-1700CW.

SPECIFICATION	DETAILS
Power Options <i>ST-BTPN</i>	Rechargeable NiMH battery pack (included) 4100 mAh capacity after full charge. (Operating time depends on usage.) ¹
<i>AC: Domestic External Adapter</i>	12VDC, 1.5A, 120VAC Input (included) (P/N PW-1215 or equivalent)
<i>AC: International External Adapter</i>	12VDC, 1.5A, 230VAC Input (included with international version touchpanel) (P/N PWI-1215 or equivalent)
Default NET ID	03
Default RF ID/RF Channel	1/0
Default Timeouts	10 minute for standby 30 minutes for power down
Signal Join Maximums	999 (digital), 256 (analog), 127 (serial)
Control System Update Files ^{2, 3, 4}	
2-Series Control System Update	Version C2-2004.CUZ or later
CEN/CN-TVAV Update File	Version 5.10.13V.UPZ or later
CNMSX-AV/Pro Update File	Version 5.10.11X.UPZ or later
CNRACKX/-DP Update File	Version 5.10.11W.UPZ or later
ST-CP Update File	Version 4.02.02-S.UPZ or later
Acceptable file extensions ⁵	
.vtz	<i>projectname.vtz</i> (compiled file)
.csf	STX1700C.vx.xxx.x.csf (panel firmware)
STRFGWX firmware	Version 2.4.1 (2843.upg) or later
RF Specifications	2-Way Wireless RF at 418 MHz, approx.50 ft. indoor and 150 ft. outdoor ranges ⁶
Memory	4 MB flash memory (3 Mbytes available for user programming) 8 MB SDRAM (for firmware)
Touchscreen Dimensions	Height: 3.700 in (9.017 cm) Width: 4.700 in (11.938 cm)
Touchscreen Resolution	320 x 240 pixels
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: 3.86 in (9.81 cm) Depth: 5.43 in (13.80 cm)
Weight ⁷	1.85 lb (0.84 kg)

- 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.
- The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website (www.crestron.com). Refer to NOTE after last footnote.
- Crestron 2-Series control systems include the AV2, PAC2, PRO2, and RACK2.
- 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).

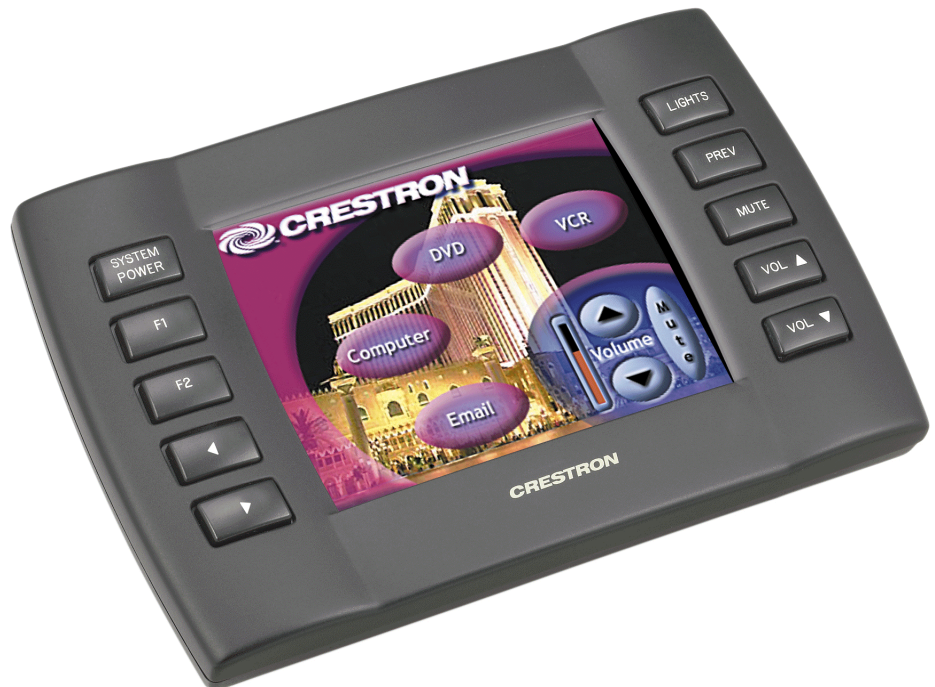
5. Extension requires a prefix specific to the touchpanel type. In DETAILS, *projectname* represents the assigned project name, and vx.xxx.x represents a version number.
6. Requires Crestron STRFGWX 2-Way RF Transceiver.
7. The weight listed is for the touchpanel and does not include the ST-BTPN.

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

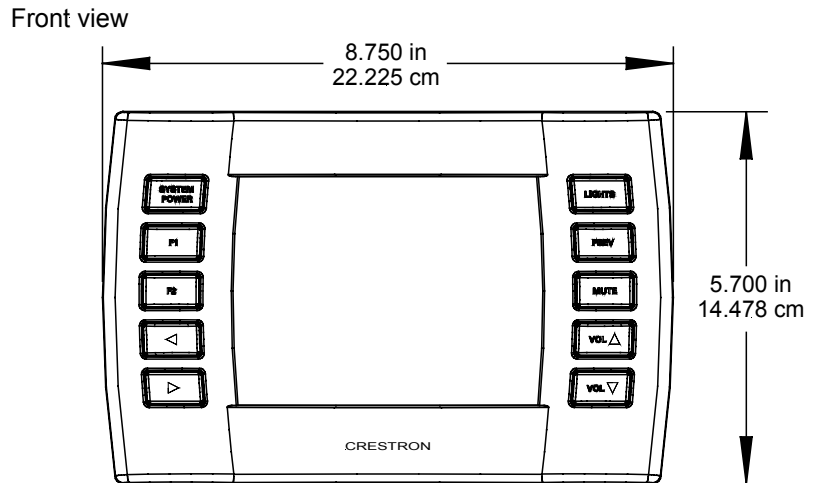
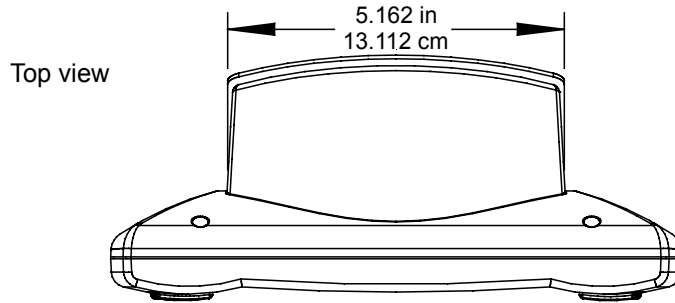
Physical Description

The touch-sensitive viewing screen and “quick” pushbuttons are located on the front of the STX-1700CW. The electronic hardware is housed in a high impact, black molded plastic enclosure, shown below. Connectors to upload touchscreen projects via a personal computer (PC) 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 on next page.

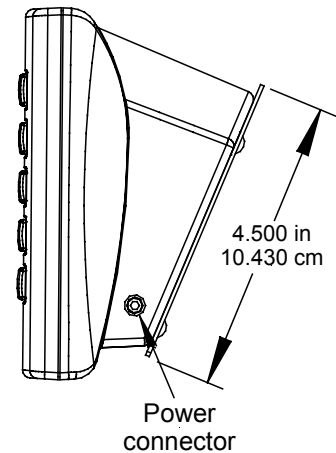
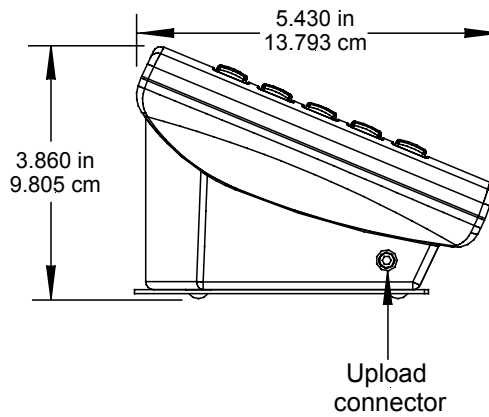
Physical View of STX-1700CW



Physical Views (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.

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 (N11785).



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, while docked in the DA-1700CW, or via the external power pack. Each of these items has their own Guides which details proper usage. Refer to the table below for the required document number.

STX-1700CW 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	5762
International External Power Pack	PWI-1215	5763

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

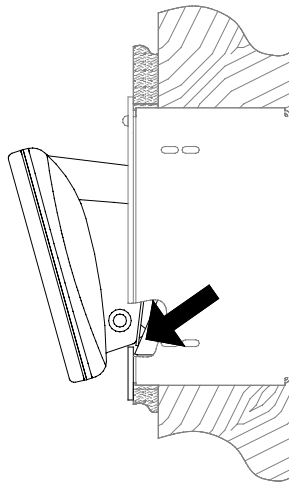
Docking the STX-1700CW

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

NOTE: Do *not* dock the STX-1700CW 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 8).

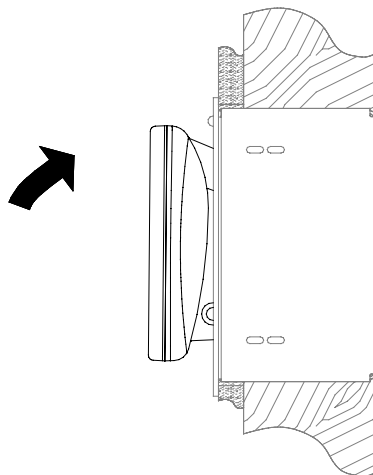
1. Refer to the diagram below. Insert the bottom edge of touchpanel docking plate (located on the rear of the touchpanel) into DA-1700CW directly behind the front panel.

Insert STX-1700CW



2. Refer to the diagram below. Make sure that the STX-1700CW 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-1700CW



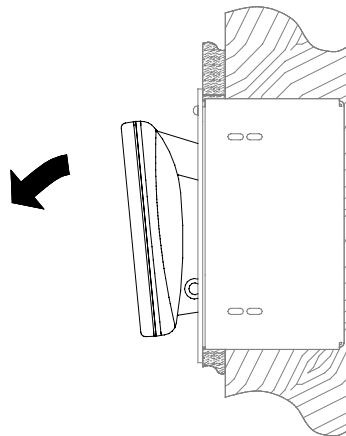
Undocking the STX-1700CW

During normal operation, the DA-1700CW unlatches the STX-1700CW 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-1700CW

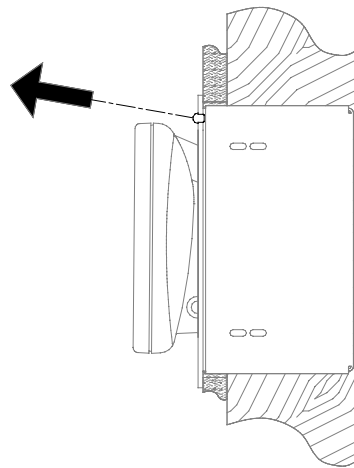


Manual Undocking of Touchpanel

The STX-1700CW 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.

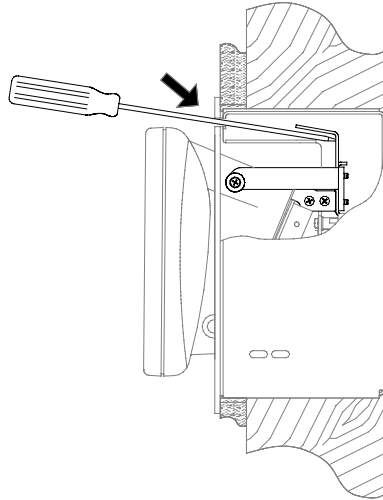
1. Refer to the diagram below. At top-center of the front panel, remove the manual unlatch access plug from the access hole.

Remove Access Hole Plug



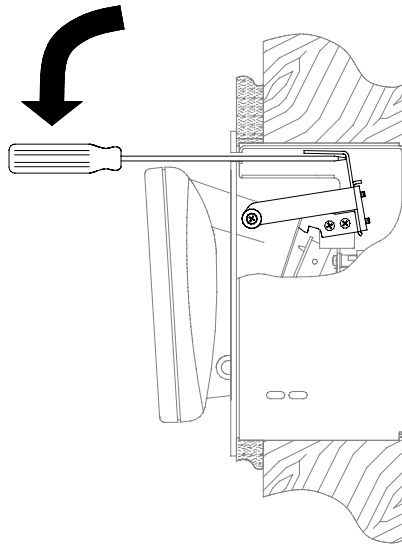
2. As shown below, insert a long-reach screwdriver into the access hole at a downward angle (approximately 10°) until the tip of the screwdriver contacts the manual unlatch tab.

Insert Screwdriver



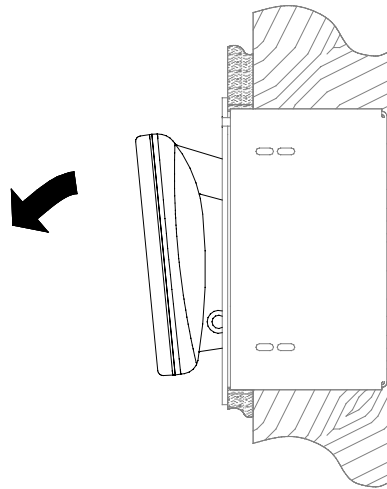
3. As shown below, lower the handle of the screwdriver until the touchpanel unlatches (handle of screwdriver will be approximately level and touchpanel will snap outward slightly).

Lower Screwdriver Handle



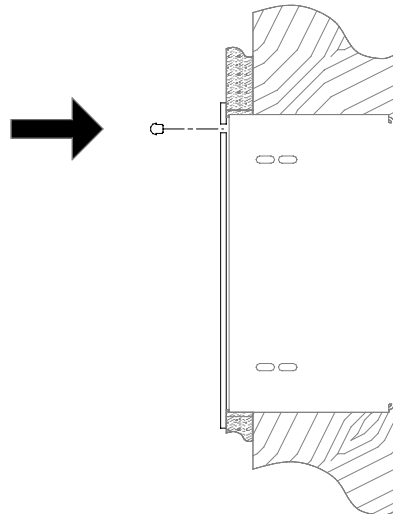
4. Refer to the diagram below. By hand, undock the touchpanel by pulling the upper edge of the touchpanel outward and remove the touchpanel.

Remove STX-1700CW



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-1700CW touchpanel uses three distinct types of identity (ID) codes: Cresnet identity (NET ID), RF ID, and RF CHANNEL. These codes are assigned to the touchpanel from the Cresnet Interface menu when the unit is configured. Refer to “Setup Menu” on page 12. For the touchpanel to be identified within the Cresnet system, these assignments must match assignments made in the SIMPL Windows project.

NET ID

Every equipment and user interface within the Cresnet system requires a unique NET ID. These codes are recognized by a two-digit hexadecimal number from 03 to FE. The NET ID of the unit must match the NET ID specified in the SIMPL Windows program when operating as a wired touchpanel (optional, recommended for testing). The NET ID is used when the touchpanel is wired directly to the control system during uploading a VT Pro-e project or upgrading the touchpanel firmware.

RF ID

Every STX-1700CW touchpanel communicating with a Cresnet control system via a STRFGWX requires a unique RF ID to secure RF communications. There are 15 useable codes for multiple touchpanel(s) ranging from 1 to F (hexadecimal number). The RF ID of the unit must match the RF ID specified in the SIMPL Windows program. For roaming details, refer to “Modifying a SIMPL Windows Program for Roaming” on page 26.

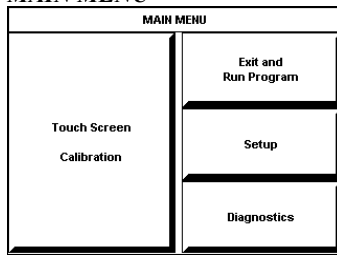
RF CHANNEL

Each STX-1700CW touchpanel communicating to the STRFGWX transceiver must have a RF CHANNEL that matches the RF CHANNEL of the STRFGWX. There are 16 possible RF CHANNELS ranging from 0 to F (hexadecimal number).

NOTE: A single RF CHANNEL may be used by more than one STRFGWX when multiple transceivers are used to expand the roaming capabilities of a touchpanel. For more information, refer to the latest revision of STRFGWX Operations Guide (Doc. 5811) available from the Downloads | Product Manuals section of Crestron’s website (www.crestron.com).

Configuring the Touchpanel

MAIN MENU



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

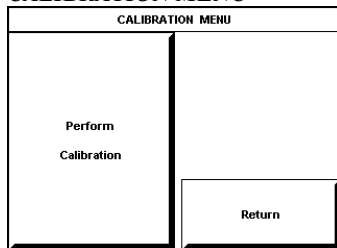
To configure the unit, it may be necessary to access a series of setup screens prior to viewing run-time screens that are loaded into the touchpanel for normal operation. The MAIN MENU for configuring the touchpanel appears when a finger is held for about 5 seconds from the power off state.

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.

Calibration Menu

CALIBRATION MENU



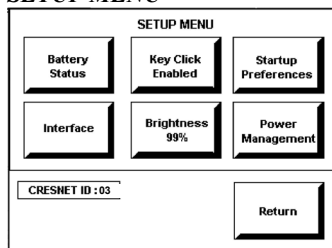
Calibration of the touchscreen is required if the active touch area of a button does not coincide with the button's image. Select the **Touch Screen Calibration** button to display the CALIBRATION MENU, as shown to the left. The CALIBRATION MENU offers the choice to initiate calibration with the **Perform 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

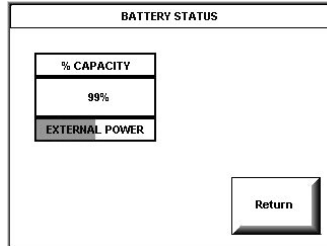
SETUP MENU



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.

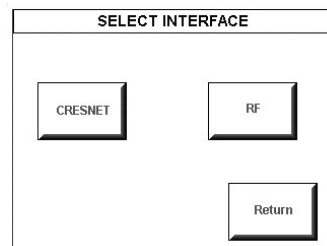
NOTE: All touchpanel settings are automatically saved in non-volatile memory.

BATTERY STATUS**Battery Status**

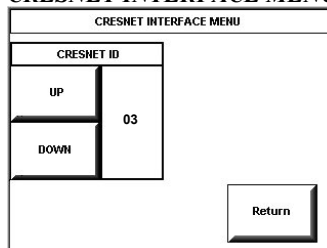
To access the Battery Status screen, shown to the left, press the **Battery Status** button on the SETUP MENU.

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 station or via the optional power pack. Note that battery recharging takes place only through the docking station. 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 station indicates that charging is complete (RDY illuminates).

SELECT INTERFACE**Select Interface**

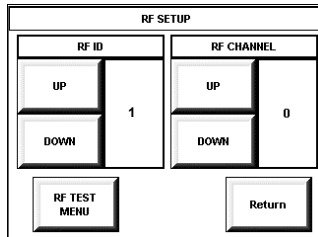
The touchpanel communicates with a control system to activate commands or to display feedback from components within the system. The communication interface must be correctly specified or communication will not occur. To set communication parameters, first select the **Interface** button on the SETUP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

CRESNET INTERFACE MENU

CRESNET ID is a two-digit hexadecimal number that can range from 03 to FE. Note that this number and the NET ID set in the SIMPL Windows program of the Cresnet system must match when operating as a wired touchpanel and for file transfers. NET ID for the STX-1700CW 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 screen.

RF SETUP

The radio frequency identity number (RF ID) is necessary to secure RF communications such that controls can be activated from the touchpanel. 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.

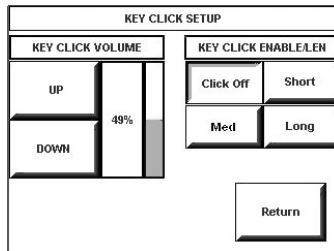
The **UP** and **DOWN** buttons increase and decrease the RF ID most significant digit by one, respectively (i.e., 1, 2, 3, . . . F).

The radio frequency channel setting (RF Channel) is necessary for two-way communication between the touchpanel and the STRFGWX. The RF channel consists of a one-digit hexadecimal number. "0" is shown as an example in the illustration on the left and is the default. The down an up arrow buttons increase and decrease the most significant digit by one, respectively (i.e., 1, 2, 3, . . . F). Refer to the latest revision of the STRFGWX Operation Guide (Doc. 5811) for more information on setting up the RF Channel for the RF gateway.

NOTE: The **RF TEST MENU** button should only be used under supervision from a Crestron customer service representative during telephone support.

After the Cresnet ID, RF ID and RF Channel settings have been verified, touch the **Return** button at the bottom of the screen to save settings and display the SELECT INTERFACE screen.

KEY CLICK SETUP



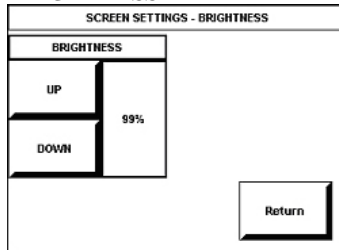
Key Click Setup

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

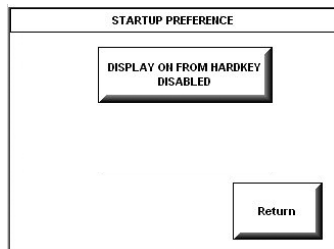


Brightness

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%.

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

STARTUP PREFERENCE



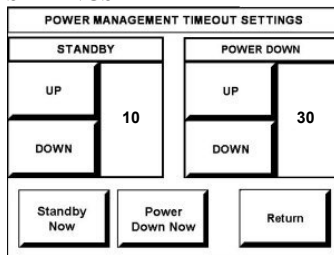
Startup Preference

The Startup Preference option 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 Preference** 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 (if touchpanel was off, it goes to standby). The default is DISABLED.

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 STARTUP screen, 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. 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. 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.

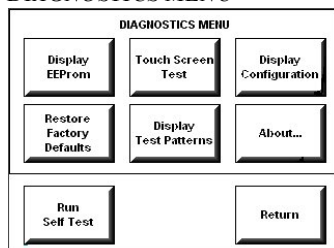
NOTE: When the panel is powered down, it will take about 1.5 seconds to power up and respond to a button press. There is no delay from Standby mode.

NOTE: If the touchpanel is plugged into an active AC receptacle or 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

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.

Uploading and Upgrading

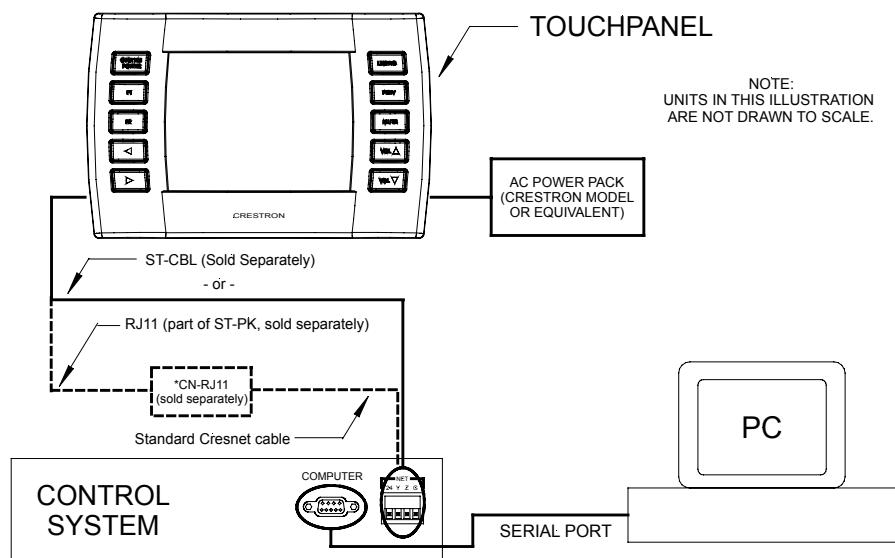
VisionTools™ Pro-e (VT-Pro-) is a Windows compatible software package for creating Crestron touchpanel screen designs. Refer to “Programming with VTPro-e” on page 27 for additional details. To upload a VT Pro-e project (.vtz file) or upgrade the firmware (.csf file) of the STX-1700CW, a local PC that contains the Crestron Viewport (available via VT Pro-e) is required. Refer to the following sections.

Hookup and Preparation

To prepare the STX-1700CW for uploading or upgrading, refer to the figure shown below. Complete the steps provided on pages 17 and 18 to ensure proper connection to the system.

NOTE: You can also dock the STX-1700CW 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 below and on the next page.

Typical Connection Diagram when Uploading a Project from the PRO2 or equivalent



NOTE: If the control system in use has a 4-pin network connector rather than a modular (RJ11-type) NET connector, use a ST-CBL (sold separately).

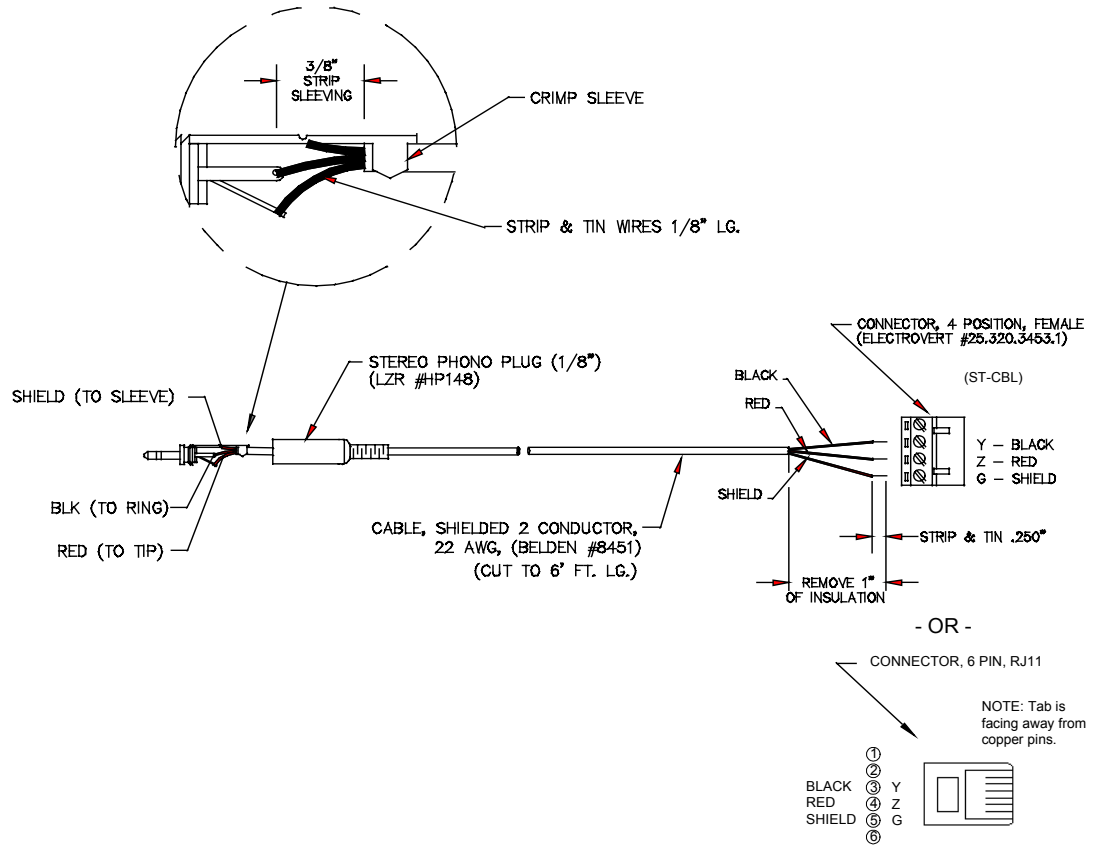
NOTE: To make a cable for either configuration, refer to the “Programming Cable Specifications” diagram after these notes.

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

NOTE: The RJ11 (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 Downloads | Software Updates | Cables section of the Crestron website (www.crestron.com).

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

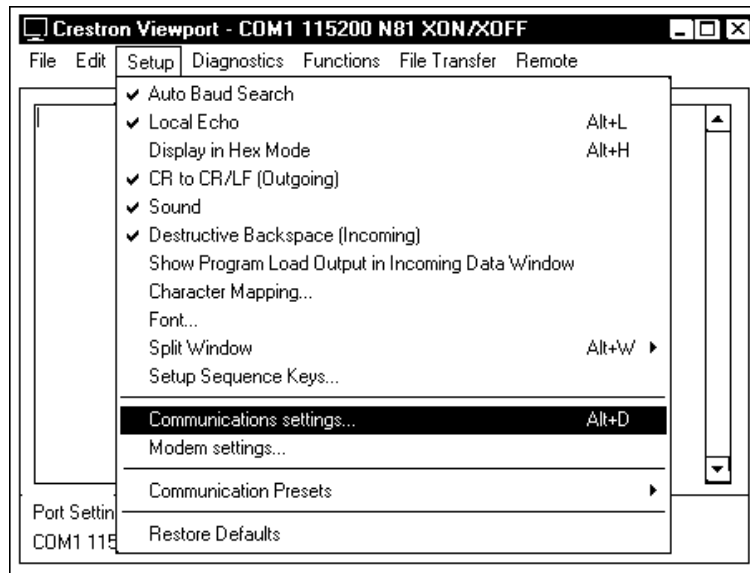
Programming Cable Specifications



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 external power pack or equivalent to touchpanel and plug into outlet. At the PC, make sure that no programs accessing the COM port of the PC are running.
5. Start VT Pro-e.
6. From the menu bar, select **Tools | Viewport** to open the Crestron Viewport.

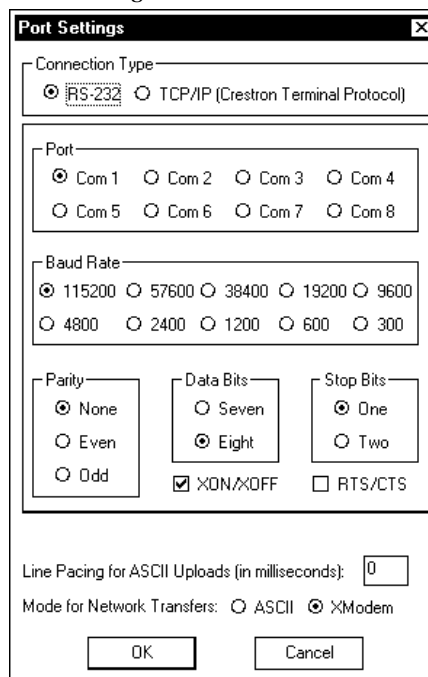
NOTE: SIMPL Windows may open with a splash screen and may display the “What do you want to do?” window. If so, close the window and continue.

7. Refer to figure on the next page. From the Viewport menu, select **Setup | Communications settings** (alternatively, depress **Alt+D**) to open the “Port Settings” window. Refer to graphics on next page.

Accessing the Port Settings Window

8. 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**, and the stop bits is **One**. Click the **OK** button to save the settings and close the window.

NOTE: You may need to select a lower baud rate for larger files (38,400 is recommended). Make sure **XModem** is selected from “Mode for Network Transfers.”

“Port Settings” Window

- Proceed to “Uploading a VT Pro-e Project” below or “Firmware Upgrade” that begins on page 20 as appropriate.

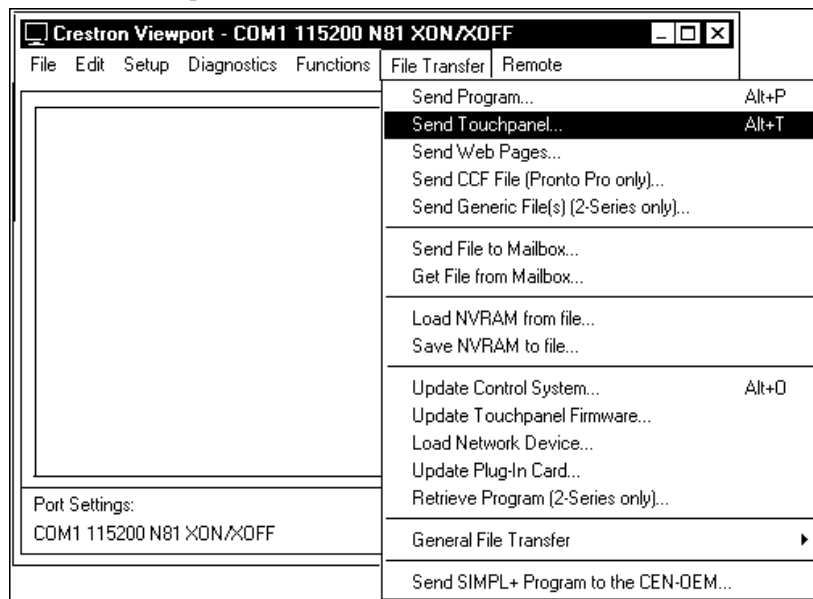
Uploading a VT Pro-e Project

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

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

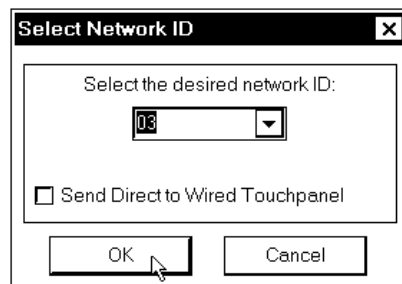
- Make sure that “Hookup and Preparation” that begins on page 16 has been performed.
- As shown below, select **File Transfer | Send Touchpanel** (alternatively, depress **Alt+T**) from the Viewport menu.

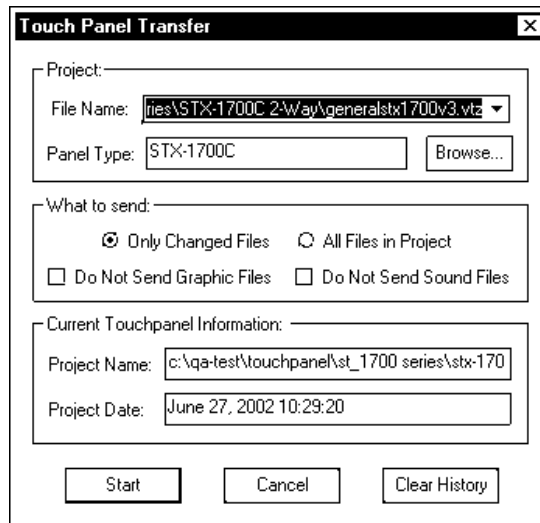
Select Send Touchpanel



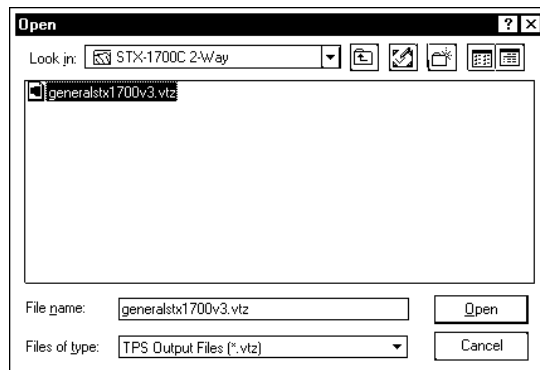
- As shown below, select the NET ID of the STX-1700CW and then click **OK**. The “Touchpanel Transfer” window appears (refer to graphic on next page).

“Select Network ID” Window



“Touchpanel Transfer” Window

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

Select VTZ File

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

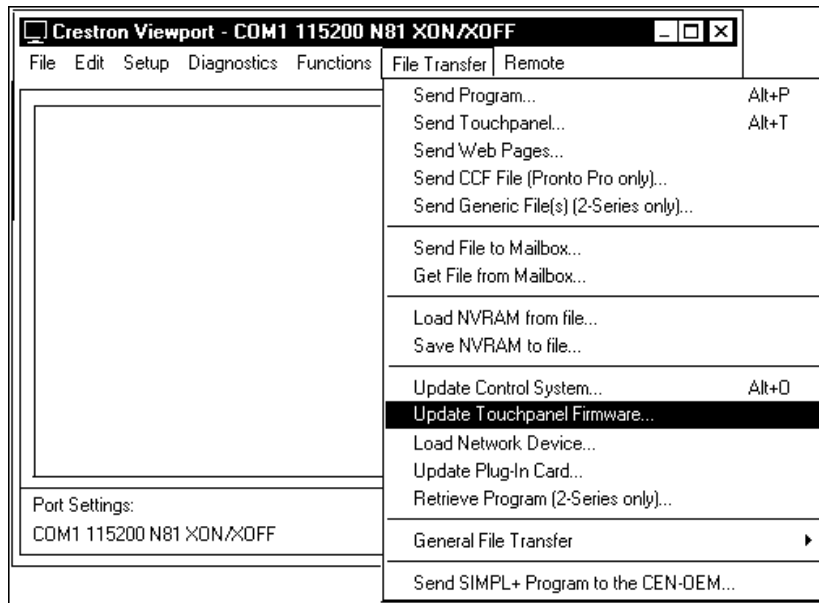
Firmware Upgrade

A firmware upgrade file has the extension .csf

Firmware upgrade files can be obtained from the Downloads | Software Updates | Touchpanels section of Crestron’s website (www.crestron.com). To upgrade the STX-1700CW firmware, complete the following steps.

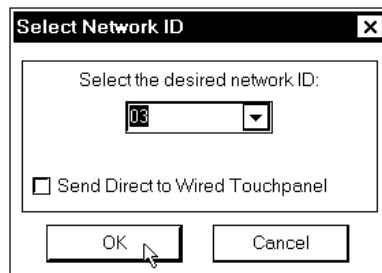
1. Make sure that “Hookup and Preparation” that begins on page 16 has been performed.
2. As shown on next page, select **File Transfer | Update Touchpanel Firmware** from the Viewport menu.

Select Update Touchpanel Firmware



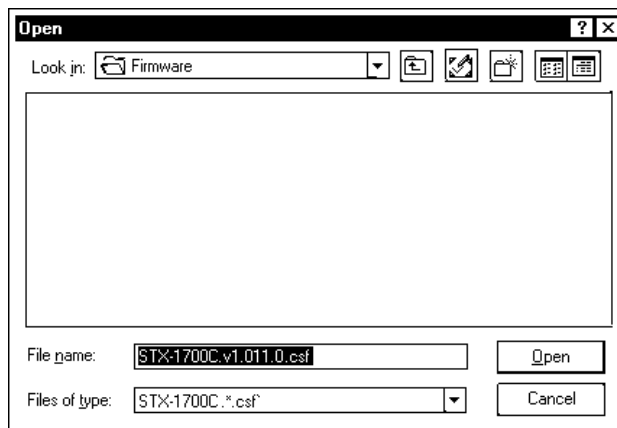
3. As shown below, select the NET ID of the STX-1700CW and then click **OK**.

“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.

General Use and Safety

WARNING: To avoid shock hazard and possible damage to the unit, do not use touchpanel in 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 that may detrimentally affect image quality.

For best cleaning results, use a clean, damp, non-abrasive cloth with any commercially available non-ammonia glass cleaner. Surrounding plastic enclosure 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 ingress of moisture beneath panels.

Programming

Have a comment about Crestron software?

Direct software related suggestions and/or complaints to Crestron via email (software@crestron.com). Do not forward any queries to this address. Instead refer to “Further Inquiries” on page 31 for assistance.

The STX-1700CW provides wireless RF user interface in either a Cresnet control system or a SmarTouch control system.

You can create a program that allows you to set up the STX-1700CW to operate a Crestron control system using the Crestron programming tools Crestron Application Builder™ (AppBuilder) 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 (Crestron AppBuilder) 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 26 for additional details regarding VT Pro-e.

The following are recommended software version requirements for the PC:

- SIMPL Windows version 2.02.11 or later. Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 15.7.5 or later.
- Application Builder version 1.1.6 or later. Requires SIMPL Windows.
- VisionTools™ Pro-e version 2.4.1.6. Used for graphical touchscreen design

Programming with the Crestron AppBuilder

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

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

The Crestron AppBuilder 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. The Crestron AppBuilder 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.

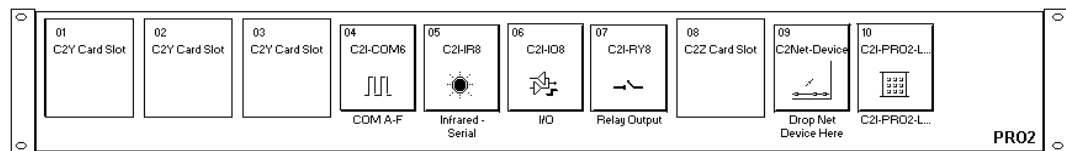
NOTE: In the following description, the PRO2 control system is used. Also, the STX-1700CW is dragged and dropped in the SIMPL project as a RF wireless device. Refer to the latest revision of the DA-1700CW Operations and Installation Guide (Doc. 6104) for an example of the touchpanel being used as a wired Cresnet device.

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-1700CW.

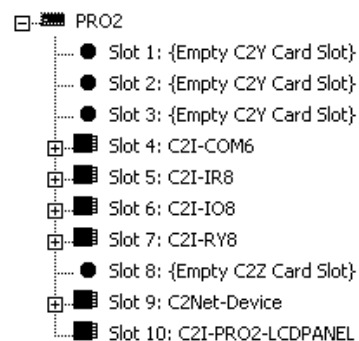
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

To incorporate an STX-1700CW into the system, a gateway device is required. The C2Net-Device Slot can accept a gateway such as the STRFGWX. Once a gateway is

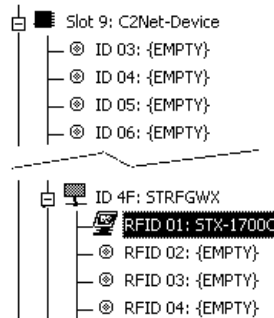
configured in a C2Net-Device Slot, the slot allows Cresnet communication between the touchpanel and the control system.

In Configuration Manager, drag the STRFGWX gateway 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 STRFGWX device icon below the PRO2 graphic.

Drag the STX-1700C from the Touchpanels (Wireless | Wireless Two-Way) folder of the *Device Library* and drop it on the STRFGWX symbol in *System Views*. The PRO2 system tree displays the STRFGWX gateway in Slot 9, with a default NET ID of 4F. The STRFGWX displays the touchpanel at the touchpanel's default RF ID location, "01," as shown in the graphic below.

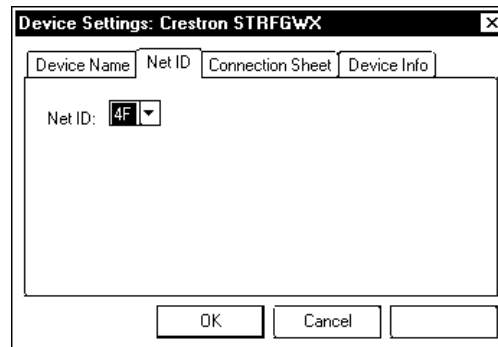
NOTE: SIMPL Windows uses the name STX-1700C for both the wireless and wired touchpanels. The wired touchpanel is in the Touchpanels (Cresnet) folder.

C2Net Device, Slot 9



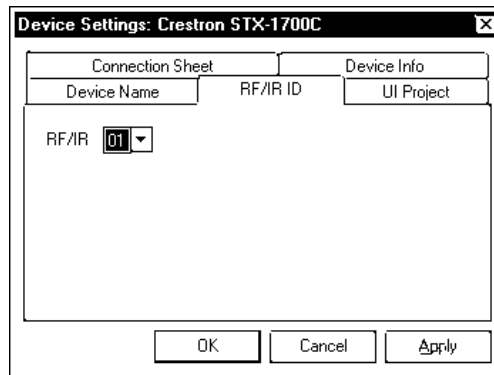
Double-click the STRFGWX icon in the upper pane to open the "Device Settings" window. This window displays STRFGWX device information. Select the Net ID tab to change the gateway Net ID, as shown in the following graphic.

"Device Settings" Window for the STRFGWX



Similarly, expand the system tree in the lower pane and double-click the STX-1700C icon to open the "Device Settings" window for the touchpanel. Select the RF/IR ID tab to change the touchpanel RF ID, as shown on the next page. For more information on setting the RF/IR ID, refer to "RF SETUP" screen shown on page 13.

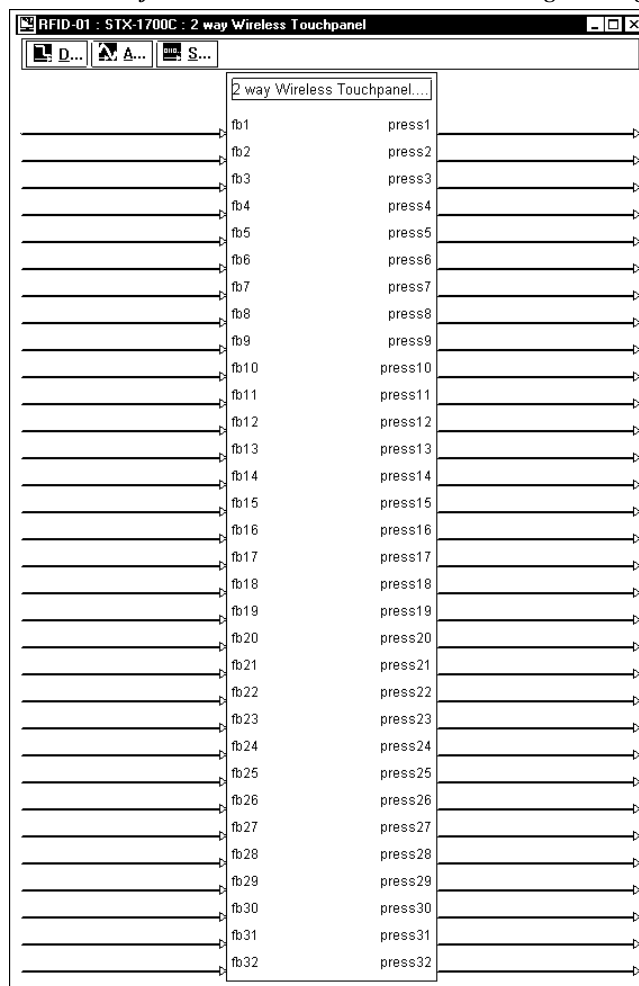
Touchpanel Device Settings Window



STX-1700C Symbol in Programming Manager

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

Detail View of the ST-1700C in SIMPL Windows’ Programming Manager



NOTE: Join numbers are expandable to 999 (digital), 256 (analog) and 127 (serial).

The table below lists and gives functional descriptions for the touchpanel digital inputs and outputs.

Symbol Output Signal Descriptions

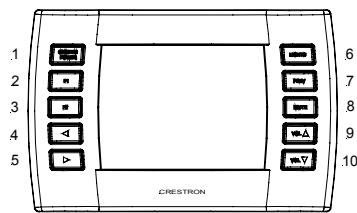
OUTPUT	DESCRIPTION
press 1 through press 999	Notifies control system of button press (1 – 999). High/1 = press On Low/0 = press Off

Symbol Input Signal Descriptions

INPUT	DESCRIPTION
fb 1 through fb 999	Notifies panel of button press (1 – 999).

Modifying a SIMPL Windows Project for Roaming

To implement roaming in a system that originally had two STX-1700Cs and one gateway, you would need to add a STRFGWX RF gateway to your SIMPL Windows project and add two STX-1700Cs under the new gateway in *System Views*. For simplicity, in this example we assigned the original gateway a Cresnet ID of 03 and the original touchpanels RF IDs of 01 and 02. To extend the range, we will assign the new gateway a Cresnet ID of 04 and add two new touchpanel symbols in the system. These touchpanels will have the same RF IDs (01 and 02) as the original touchpanels mentioned above. Additionally, in *Program View*, you will need to duplicate the logic for each touchpanel communicating with the original gateway and paste it in the touchpanel symbol associated with the added gateway. For example, the logic in the original STX-1700C symbol at RF ID 01 must be copied and pasted in the new STX-1700C symbol at RF ID 01. The logic in the original STX-1700C symbol at RF ID 02 must be copied and pasted in the new STX-1700C symbol at RF ID 02. To do this for RF ID 01 (in *Program View*), place the arrow cursor on the original touchpanel at RF ID 01. Right click and hold the mouse button to select RF ID 01. Drag and drop this RF ID 01 selection on the new touchpanel at RF ID 01 and release the mouse button (a pulldown menu appears). Select **Copy All Signals/ Parameters** from the pulldown menu.

Pushbutton Layout and Join Number Assignment**“Quick” Pushbuttons**

The STX-1700CW has ten “quick” pushbuttons, five on each side of the LCD display. You can use these buttons to access any frequently used commands. 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 LCD 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 “Start Preference” on page 10.

NOTE: To use a quick pushbutton to flip a page (change a screen) on the STX-1700CW, you would assign the desired button’s digital join number to the page (Crestron recommends this method) and enable the corresponding feedback from the control system. Using button 10 as an example, in VT Pro-e you would assign digital join number 10 to a page using Page Properties. In the SIMPL Windows’ Programming Manager view, you would connect the signal at press10 (output) to the fb10 (input) of the STX-1700C symbol.

NOTE: Assuming that the touchpanel is powered down, pressing a “quick” pushbutton once “wakes up” the touchpanel but no command is sent. A second button press sends the command (holding down the button initially for a minimum of 2 seconds also sends the command). However, if the touchpanel is actually in standby mode, the panel is “awake” and the initial button press sends the command.

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 Downloads | Software Updates section of the Crestron website (www.crestron.com).

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 below and 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 either calls up the Preferences Menu, adjusts brightness, etc., via reserved join numbers.

Problem Solving

Troubleshooting

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

STX-1700CW 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 can not 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	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 5 seconds). The Main Menu appears. Select "Touchscreen Calibration". The Calibration Menu appears. Select "Perform Calibration" and follow prompts. *
Touchpanel display is dark or too light.	Screen brightness is improperly set.	Hold a finger to the touchscreen for more than 5 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.

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

STX-1700CW Troubleshooting (continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
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 Install an additional STRFGWX near the area of use to accommodate roaming.
	RF Interference	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 the "Select Interface" on page 8 for details and RF ID parameters assigned in the program.
Touchpanel screen changes without touching screen or buttons.	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.
One or more "quick" pushbuttons do not function as expected.	Unit out of range. Refer to "Out of Range Feature" below.	Bring unit in range.
	Wrong SIMPL Windows program uploaded.	Upload correct SIMPL Windows program. Refer to the SIMPL Window help file for more information.

Out of Range Feature

The following describes touchpanel operation when the out of range feature is active or not active. Crestron recommends that you use the out of range feature.

Out of Range Feature Active

When the STX-1700CW is out of range, it displays an out of range indication of your choice (refer to Reserved Join Numbers on page 27), and the touchpanel does not respond. Also the STRFGWX's TXD (transmit) LCD will flash every 4 to 5 seconds for approximately 30 seconds and then the LCD 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 STRFGWX stops transmitting, the display reverts to whatever screen the control system has active. If the touchpanel comes into range AFTER the STRFGWX stops transmitting, the user must touch the screen to activate the gateway and leave the out of range screen.

Out of Range Feature Not Active

When the STX-1700CW is out of range, there is no out of range indication displayed. The only noticeable symptom on the touchpanel is that it does not respond. The STRFGWX's TXD LCD will flash every 4 to 5 seconds for approximately 30 seconds, and then the LCD stops flashing (the unit stops transmitting if the touchpanel does not come in range in the allotted time). If the touchpanel comes into range BEFORE the STRFGWX stops transmitting, the touchpanel will start responding and the display reverts to whatever screen the control system has active. If the touchpanel comes into range AFTER the STRFGWX stops transmitting, the user must touch the screen to activate the gateway. 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 after reviewing this Operations Guide, you cannot locate specific information or have questions, please take advantage of Crestron's award winning customer service team by calling:

- In the US and Canada, call Crestron's corporate headquarters at 1-888-CRESTRON [1-888-273-7876] or 1-201-767-3400.
- In Europe, call Crestron International at +32-15-50-99-50.
- In Asia, call Crestron Asia at +852-2341-2016.
- In Latin America, call Crestron Latin America at +5255-5093-2160.
- In Australia and New Zealand, call Creston Pacific at +613-9480-2999

Firmware Upgrades

To take advantage of all the ST-1700CW's features, it is important that the unit contains the latest firmware available. Therefore, please check Crestron's website (http://www.crestron.com/downloads/software_updates.asp) 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. If you have questions regarding upgrades procedures, contact Crestron customer service.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the ST-1700CW, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

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

Appendix A: Engraveable Pushbutton Installation

Custom-engraved pushbuttons can be obtained by ordering the Customizable Engraving Button Kit 1700C-BTBN. You can submit the engraving layout in two ways:

- Engraving Sheet, Doc. 6069.
- Engraving Software package, Version 1.1.1.6, available from the Downloads | Software Updates section of the Crestron website (www.crestron.com).

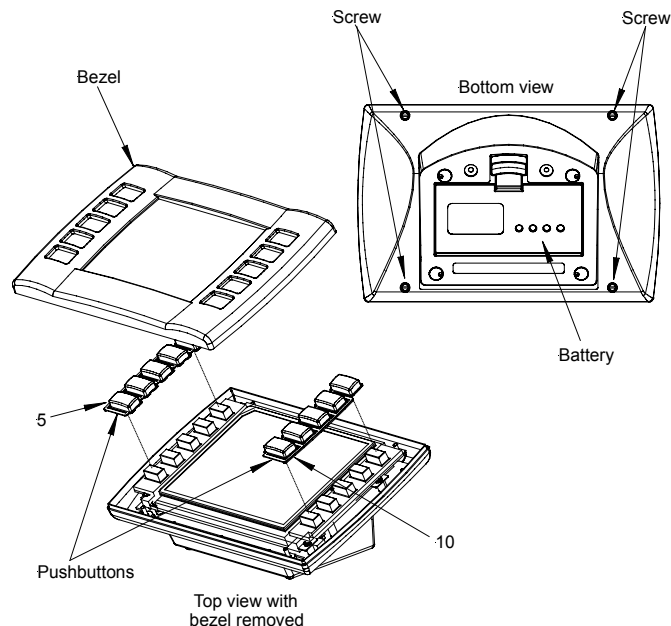
Perform the following to install engraveable pushbuttons on the ST-1700CW. A #1 Phillips screwdriver is required. Refer to the illustrations below.

1. Remove the battery, and place the touchpanel face down on a clean work surface.
2. Remove the four screws securing the front bezel to the base, and return the unit to its normal position (use care to prevent the bezel from dropping and becoming damaged).
3. Lift the bezel from the touchpanel, and remove the pushbuttons being replaced. Note that the pushbutton sets fit snugly.
4. Put the new pushbuttons in place (see following Note), press firmly to ensure they are seated, and place the bezel back in position.

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

5. Hold the bezel in place 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. Reinstall the battery and verify that the pushbuttons function properly.

Engraveable Pushbutton Installation



Appendix B: 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.

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 5 to 6 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

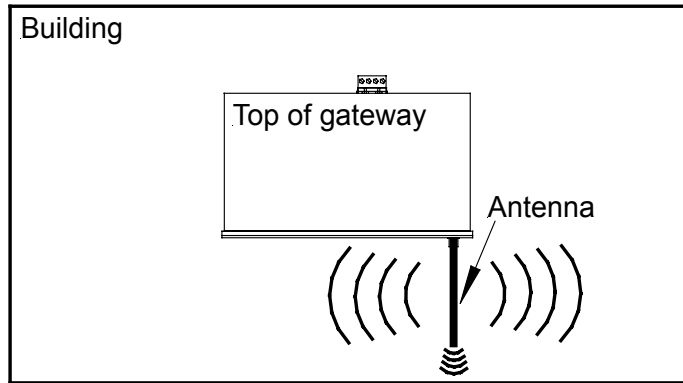
The antenna orientation on Crestron gateways has considerable effect on range and reliability. Optimum performance is obtained by setting the antenna horizontally (parallel to the ground). When absolutely necessary, two alternate orientations are possible – each will be less effective than the horizontal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

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

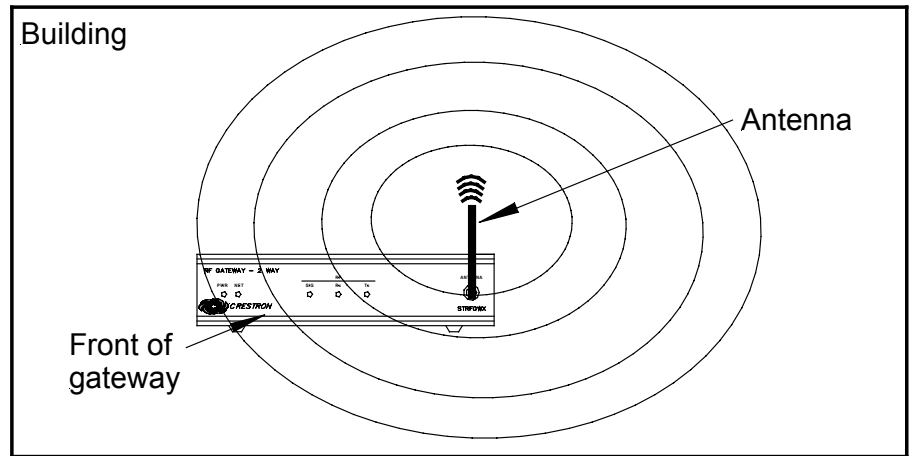
These may allow for rack or equipment closet doors to be shut but these orientations may also compromise reception. Never point the antenna downward or directly parallel to the front panel, this will decrease range and reliability. Refer to illustrations on the next page for examples of the different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

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

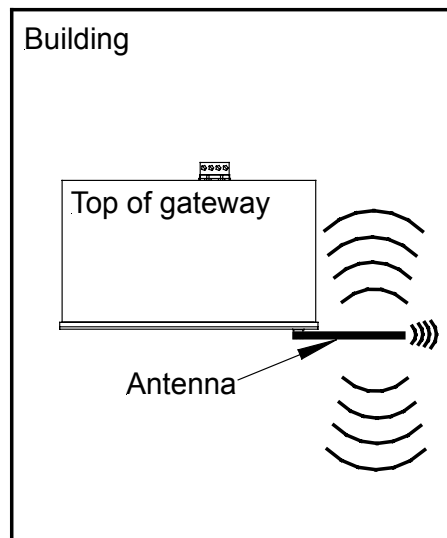
Horizontal Orientation



Vertical Orientation



Right Angle Orientation



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