

Crestron **STX-1550C**
Two-Way RF Compact Color Touchpanel

Operations Guide



CRESTRON

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2-Way RF Compact Color Touchpanel: STX-1550C

Description

Functional Description

The STX-1550C is a 2-way radio frequency (RF) compact color SmarTouch™ touchpanel that provides a user interface to a Crestron remote control system (herein referred to as the Cresnet system). The touchpanel is a handheld, long range, RF, 2-way wireless transceiver that communicates through a RF gateway/transceiver, STRFGWX (sold separately) to the Cresnet system. The 2-way communications provide the control of the Cresnet devices 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 - 75 feet. Additional range can be obtained by using multiple STRFGWX units distributed throughout any particular area or installation. The location and the antenna position of the STRFGWX are important factors in the RF performance. The range of the touchpanel is also dependent on its placement and the construction of the building in which it is used.

The STX-1550C touchpanel offers:

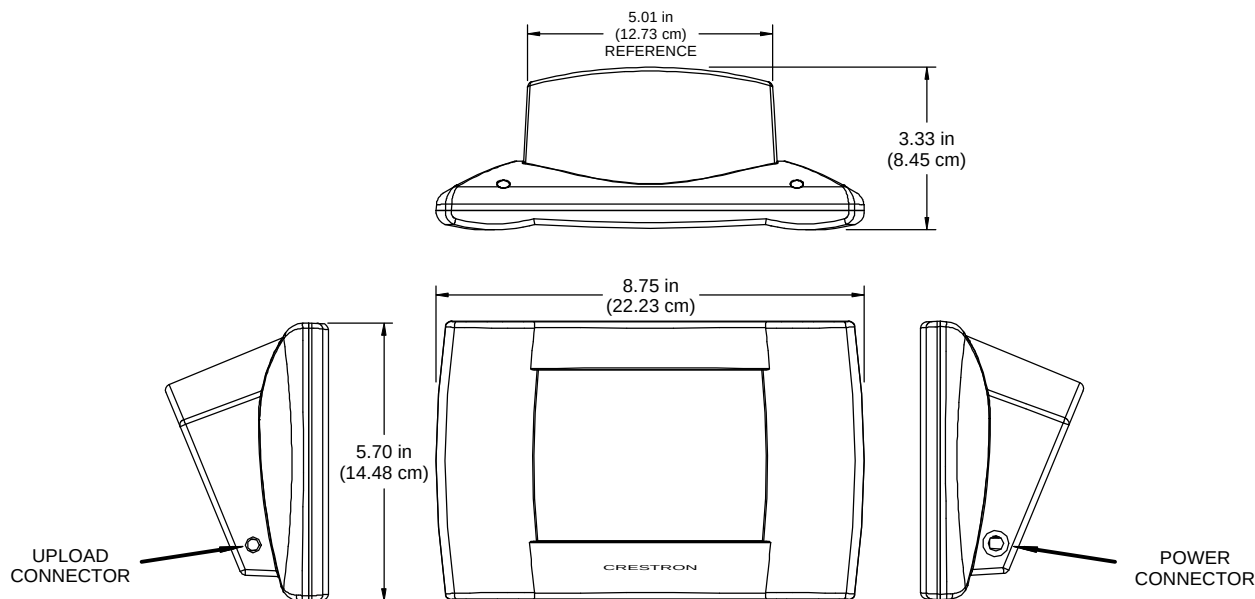
- 256 color display
- Pop-up sub panels to reduce memory requirements, providing optimal speed and performance
- Multiple button, slider control, and icon configurations
- Up to 999 functions and 96 screens
- Imported photographs, drawings, and icons
- Support for downloadable fonts - proportional and non-proportional
- Foreign language text

Included with the STX-1550C is a Crestron High Performance Rechargeable Battery Pack (ST-BTP) and a SmarTouch Docking Station (ST-DS) that docks the touchpanel and/or recharges the ST-BTP. An external power pack (PW-1215 for domestic use or PWI-1215 for international use) is also provided to power the touchpanel and simultaneously trickle-charge the ST-BTP. Refer to the documentation supplied with these items for descriptions and details.

Physical Description

The touch-sensitive viewing screen is located on the top of each touchpanel. 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.

Physical Views of STX-1550C



At the underside of the unit is the battery compartment that holds one ST-BTP. Contacts for the ST-DS are through the ST-BTP. There are also four rubber feet on the underside of the unit for stability and to prevent slippage.

Software

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 23 for assistance.

When part of a SmarTouch system, the STX-1550C is supported by the VisionTools™ Pro-e (VT Pro-e) SmarTouch Wizard that automatically configures the entire system and the touchpanel pages. VT Pro-e, a design and programming Windows®-based software, permits the creation of unlimited control screen variations incorporating two and three-dimensional graphics and text. A set of pages which make up a project can be designed for each touchpanel application. Each page contains objects such as custom control graphics, two and three-dimensional buttons, sliders, and digital readouts which allow the user to interface with the Cresnet system. The project is uploaded to the touchpanel and programmed into the flash PROM. The touchpanel uses the programmed project until another set is uploaded from the PC. The PC may be disconnected from the rack or panel except during reprogramming. VT Pro-e also allows users the option to generate projects destined for web browsers rather than for physical touchpanels.

For additional software information, refer to the help file provided with the software. A copy of the software can be obtained from the What's New page (VisionTools Pro-e section) or Downloads page (TOUCHPNL Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site. A tutorial is provided as a guide for the novice programmer.

Leading Specifications

The table below provides a summary of leading specifications for the STX-1550C. Dimensions and weight are rounded to the nearest hundredth unit.

Leading Specifications of the STX-1550C Touchpanel

SPECIFICATION	DETAILS
Power Source Options <i>ST-BTP</i> <i>ST-DS</i> <i>Domestic External Power Pack or</i> <i>International External Power Pack</i>	Rechargeable NiCad battery pack. Docking station w/external power pack. PW-1215 or equivalent. PWI-1215 or equivalent.
RF Communications	2-Way, 418MHz, (Requires one STRFGWX per 15 touchpanels.)
Operating Ranges <i>Minimum Distance</i> <i>Maximum Distance Indoor</i> <i>Maximum Distance Outdoor</i>	3 ft ¹ 50 to 75 ft ¹ 150 ft
Default NET ID	03
Default RF ID	01
SIMPL™ Windows®	Version 1.30.01 or later ² with the addition of smwlib70.exe and smwlib70.txt. ²
VisionTools™ Pro-e (VT Pro-e)	Version 2.1.8.2 or later ² for SmarTouch Wizard support or version 2.1.8 or later ² for regular support (use a CT-1600 model).
Crestron Database	Version 12.1.4 or later ² for SmarTouch Wizard support or 12.1.3 later ² for regular support (use a CT-1600 model).
Firmware <i>Touchpanel</i> <i>STRFGWX</i>	Version 5.077.0 or later. ^{3 & 4} Version 2.4.1 or later. ^{3 & 4}
CEN/CN-TVAV Update File	Version 51205V.UPZ or later. ⁵
CNMSX-AV/Pro Update File	Version 51020X.UPZ or later. ⁵
CNRACKX/-DP Update File	Version 51020W.UPZ or later. ⁵
ST-CP Update File	Version 40104S.UPZ or later. ⁵
Default Timeouts	One (1) minute for standby, two (2) minutes for powerdown.
Touchpanel Dimensions & Weight	Height: 5.70 in (14.48 cm) Width: 8.75 in (22.23 cm) Depth: 3.33 in (8.45 cm) Weight: 1.56 lb (0.71 kg) ⁶
Touchpanel Memory	768Kb flash memory for display.
View Screen Dimensions	Height: 3.55 in (9.02 cm) Width: 4.70 in (11.94 cm) Diagonal: 5.70 in (14.50 cm)
Screen Viewing Angles	+/-50° for X dir, +40/-50° for Y dir
View Screen Resolution	320 x 240 pixels
View Screen Display	Passive Matrix Color LCD
View Screen Illumination	Backlit fluorescent
View Screen Touchscreen	Resistive Membrane

- 1 The location of the STRFGWX and the orientation of the antenna are important factors in the RF performance. Locate the unit outside of any metal enclosures and position the antenna horizontally, pointing straight out of the unit. Adjust the antenna to achieve the best range. The range of the unit is also dependent on its placement and the construction of the building in which it is used.

Installers can run multiple STRFGWX units which have built-in intelligence so that if both (or several) gateways receive a button press from the touchpanel, only the strongest signals produce an action in the control system. Crestron recommends that the latest firmware be loaded into the touchpanel and STRFGWX. If the firmware of the STX-1550C is upgraded, the associated STRFGWX(s) must also be upgraded at the same time.
- 2 The latest software version can be obtained from the What's New page (SIMPL Windows, VisionTools Pro-e and Crestron Database sections) or Downloads page (SIMPLWIN, VTPRO-E, and CRESDB Libraries) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.
- 3 Touchpanels and STRFGWXs with later versions of firmware may include features not mentioned in this guide. Newer versions of this guide can be obtained from the Downloads page (MANUAL Library) of Crestron's website.
- 4 Firmware upgrade files can be obtained from the What's New page (Touchpanels section) or the Downloads page (TOUCHPNL and UPGRADES Libraries) of Crestron's website. If the firmware of the STX-1550C is upgraded, the associated STRFGWX(s) must also be upgraded at the same time.
- 5 CNX update files are required for either CNMSX-AV/Pro or CNRACKX-DP. Filenames for CNX update files have a UPZ extension and ST-CP files are in one EXE or zipped UPZ file. All can be obtained from the What's New page (Control Systems Update Files section) or Downloads page (OPSYS Library) of Crestron's website.
- 6 The weight listed is for the touchpanel and does not include the ST-BTP, ST-DS, or external power pack.

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



NOTE: 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 receiver.
 - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
 - Consult the dealer or an experienced radio/TV technician for help.
-

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 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. Surrounding plastic enclosure may not provide a complete water-tight 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.

Applying Power

The touchpanel can be powered via the ST-BTP, while docked in the ST-DS, or via the external power pack. Each of these items has their own Operations Guides which details proper usage. Refer to the table below for the required document number.

STX-1550C Power Source Options

POWER SOURCE OPTION	NOMENCLATURE	DOCUMENT NUMBER *
Battery Pack	ST-BTP	5746
Docking Station	ST-DS	5738
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., 5746A).

Identity Codes

The STX-1550C 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 Interface Submenu when the unit is configured. Refer to “Setup Menu” on page 7. For the touchpanel to be identified within the Cresnet system, these assignments must match assignments made in the SIMPL Windows program. The RF CHANNEL assignment made for the STRFGWX is made in the Crestron Viewport via SIMPL Windows or VT Pro-e. Refer to “SIMPL Windows” on page 13.

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. 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 CHANNEL

Each STX-1550C 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). The RF CHANNEL of the touchpanel must match the RF CHANNEL assigned to the STRFGWX.

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. Refer to the latest revision of STRFGWX Operations Guide (Doc. 5811) for further information. The latest version can be obtained from the Downloads page (MANUAL Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

RF ID

Every STX-1550C 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 01 to 0F (hexadecimal number). The RF ID of the unit must match the RF ID specified in the SIMPL Windows program.

NOTE: Do not set the RF ID to "0"; it is not supported in SIMPL Windows.

Configuring the Touchpanel

To configure the touchpanel, it is necessary to access a series of setup screens prior to viewing run-time screens that are loaded into the touchpanel for normal operation. The Main Menu for configuring the touchpanel appears when a finger is held to the touchscreen as power is applied. Remove your finger when the message "SETUP MODE" appears on the touchscreen. Holding a finger to the touchscreen for five seconds after the "SETUP MODE" message is displayed sets the brightness to high.

Upon entering SETUP MODE, the Main Menu, shown to the left, displays four buttons: **TOUCH SCREEN CALIBRATION**, **DIAGNOSTICS**, **SETUP**, and **SAVE SETUP AND RUN PROGRAM**.

The **Save Setup and Run Program** button, located at the upper right corner of the Main Menu, saves all of the setup information to EEPROM and displays the main page that has been programmed into the system. The remaining buttons on the Main Menu open other menus, which are discussed in subsequent paragraphs.

Main Menu

TOUCH SCREEN CALIBRATION	SAVE SETUP AND RUN PROGRAM
	SETUP
	DIAGNOSTICS

Calibration Menu

Perform Calibration	Return to Main Menu

Touchscreen 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 on the Main Menu to display the Calibration Menu, 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 to Main Menu** button. Choose an option by touching the correct button.

If you proceed to calibrate the touchpanel, the screen prompts you with the message “Touch Screen Calibration Menu” nearly centered on the display. Another message, “Touch Upper Left Corner”, appears in the upper left corner. Touch the corner of the screen to initiate calibration. Another message, “Touch Lower Right Corner”, appears in the lower right corner. Touch the corner of the screen to return to the Main Menu and terminate calibration.

NOTE: When touching the screen during calibration, be as accurate as possible.

Diagnostics Menu

DISPLAY EEPROM	DISPLAY PALETTE
DISPLAY TOUCH DATA	SELF TEST
ABOUT...	RETURN

Diagnostics Menu

The **DIAGNOSTICS** button from the Main Menu should only be used under supervision from a Crestron customer service representative during telephone support. Most of the options available from the Diagnostics Menu, shown to the left, are numeric in nature and their interpretation is beyond the scope of this guide. Select the **Return** button to return to the Main Menu.

Setup Menu

MANAGE POWER	INTERFACE	SOUND
CONT <<	CONT >>	
BRT LOW	BRT MED	BRT HI
RETURN		

Setup Menu

To obtain the Setup Menu, shown to the left, select the **SETUP** button from the Main Menu. Many touchpanel options (i.e., contrast and brightness) are available directly from the Setup Menu and are explained in the following paragraphs. Other setup parameters (i.e., **Manage Power**, **Interface**, and **Sound**) use additional menus and are detailed in subsequent paragraphs as well. After setup parameters have been set, select the **Return** button to return to the Main Menu.

Contrast Buttons

Screen contrast may need to be altered because of ambient light conditions, panel temperature, or personal preference. Two contrast buttons, **Cont <<** and **Cont >>**, on the Setup Menu may be held down for continuous adjustment of the screen.

Brightness Buttons

Screen brightness may need to be altered because of ambient light conditions or personal preference. Three brightness buttons, **BRT LOW**, **BRT MED**, and **BRT HI**, on the Setup Menu may be selected to assign the backlight setting.

Return Button

Select the **RETURN** button, located at the lower right corner of the Setup Menu, after setup parameters have been set.

Timeout Screen

BACKLIGHT TIMEOUT 2 MIN.	POWER DOWN TIMEOUT 10 MIN.
DOWN	UP
DOWN	UP
SAVE TIMEOUTS	RETURN

Manage Power Submenu

NOTE: Display backlight requires warm-up time. A display reaches 80% of its final level in five minutes and full brightness in 20 minutes.

The touchpanel display hardware life can be lengthened by turning off the backlight when the touchpanel is inactive. The **MANAGE POWER** button on the Setup Menu reveals the Timeout screen, shown to the left. The length of touchpanel inactivity can be specified to minimize power utilization.

BACKLIGHT TIMEOUT is displayed on the Timeout screen. This setting turns the backlight off when the touchpanel is inactive for the specified time (shown in minutes). When the touchpanel is activated, the last screen to be displayed reappears. A two minute **BACKLIGHT TIMEOUT** is shown in the diagram. Minutes can vary from 0 to 120, where 0 disables the timeout. The **DOWN** and **UP** buttons decrease and increase the timeout, respectively.

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 never reached.

NOTE: The purpose of the Power Down Timeout is to maximize battery life. If the external power pack is attached to the touchpanel and plugged into an active AC receptacle or if the touchpanel is resting in the docking station (ST-DS) and plugged into an active AC receptacle, the panel does not power down when the power down timeout is achieved. Standby timeout still functions.

After timeout parameters have been set, touch the **SAVE TIMEOUTS** button in the lower left corner of the screen to save the new settings. Touch the **RETURN** button, located in the bottom right corner of the screen, to display the Setup Menu.

Interface Screen

ID# #	< CRESNET ID	CRESNET > ID
	CRESNET II	LOCAL
	RS-232 ON	RS-232 OFF
	RF SETTINGS	
RETURN		

Interface Submenu

The touchpanel communicates with a control system to activate other controls or to display feedback from components within the system. The communication interface must be correctly specified or communication will not occur. To set communication parameters select the **INTERFACE** button located in the upper left corner of the Setup Menu to display the Interface Menu, shown to the left.

The NET **ID** is represented by # # for illustrative purposes on the Interface Menu. NET ID is the two-digit hexadecimal number that can range from 03 to FE and must correspond to the NET ID set in the Crestron Viewport via SIMPL Windows or VT Pro-e software. Matching NET IDs between the STX-1550C touchpanel and a VT Pro-e program is required if new touchpanel screens are to be loaded. Matching NET IDs between touchpanels and a SIMPL Windows program is required if data is to be successfully transferred. The NET ID of each STX-1550C is factory set to **03**.

Two side-by-side buttons, < **CRESNET ID** and **CRESNET ID** >, decrease and increase the NET ID by one, respectively.

The touchpanel usually communicates with a Cresnet system. Occasionally the touchpanel can be used in a local demo mode where it merely displays various menus, but does not communicate with the Cresnet system. In local mode, the directory buttons change pages, but buttons requiring feedback do not work. Two buttons on the Interface Menu, **CRESNET II** and **LOCAL**, determine communication mode. Select **CRESNET II** for normal Cresnet communication mode or **LOCAL** to set the touchpanel into demo mode. Text within the selected button changes color from black to red and the communication mode is factory set to **CRESNET II**.

RF Settings Screen

RF ID 01	DOWN	UP
RF CHANNEL F	DOWN	UP
		TEST
RETURN		

NOTE: Do not set the RF ID to “0”; it is not supported in SIMPL Windows.

The **RF SETTINGS** button opens the RF SETTINGS screen, shown to the left. The **RF ID** is displayed in the RF SETTINGS screen. The RF ID must match the identity code in the SIMPL Windows program and is identified by a hexadecimal number in the range from 0 to F. In the diagram, the RF ID is shown with a setting of “01”. The DOWN and UP buttons associated with the RF ID field decrease and increase the RF ID by one, respectively.

NOTE: Due to network traffic, the STX-1550C may not respond to a network upload. To compensate, access the setup screens (refer to “Configuring the Touchpanel” on page 6) to provide exclusive upload communication between the touchpanel and the control system.

The RF CHANNEL of the touchpanel must be identical to the RF CHANNEL of the STRFGWX(s) to which it communicates. The same channel may be used for more than one STRFGWX when used to expand the roaming capabilities of a touchpanel within any particular area(s) or installation.

The **RF CHANNEL** is displayed in the RF SETTINGS screen. The RF CHANNEL is identified by a hexadecimal number in the range from 0 to F. In the diagram, the RF CHANNEL is shown with a setting of “F”. The **DOWN** and **UP** buttons associated with the RF ID field decrease and increase the RF ID by one, respectively.

The **TEST** button should only be used under supervision from a Crestron customer service representative during telephone support. The options available from the TEST Menu are beyond the scope of this guide.

Select the **RETURN** button after interface parameters have been set.

Sound Screen

KEYCLICK ON	VOLUME UP
KEYCLICK OFF	VOLUME DOWN
RETURN	

Sound Submenu

The **SOUND** button, located at the top right corner of the Setup Menu, is used to display the Sound Menu, shown to the left. Use this screen to activate audible key clicks. This feature is a useful feedback tool. Confirmation of a button press on a touchpanel is acknowledged by an audible click assuming this feature is enabled. To enable this feature, verify that the **KEYCLICK ON** button is active (red). An active **KEYCLICK OFF** button disables the feature. Volume of the audible click is controlled with the **VOLUME UP** and **VOLUME DOWN** buttons. The unit is factory set with the sound on.

Uploading and Upgrading

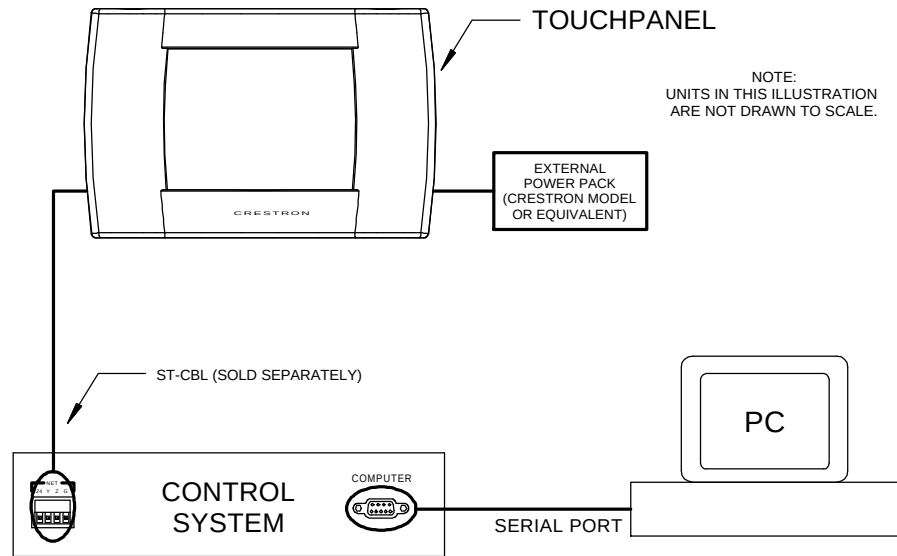
To upload a VT Pro-e project or upgrade the firmware of the STX-1550C, a local PC that contains the Crestron Viewport (available in SIMPL Windows or VT Pro-e) is required. Refer to the following sections.

Hookup and Preparation

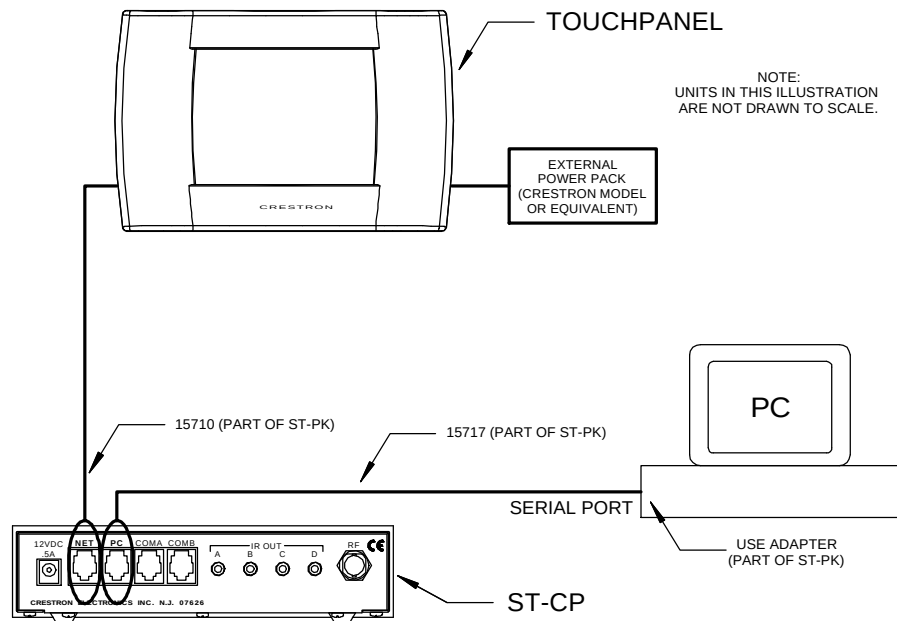
To prepare the STX-1550C for uploading or upgrading, refer to the figures shown on the next page for typical connection diagrams. Complete the following steps provided to ensure proper connection to the system.

NOTE: The components in the second figure on the next page are part of the SmarTouch Programming Kit (ST-PK). If available, use these components.

Typical Connection Diagram when Loading a Program from an MSX Generation Control System

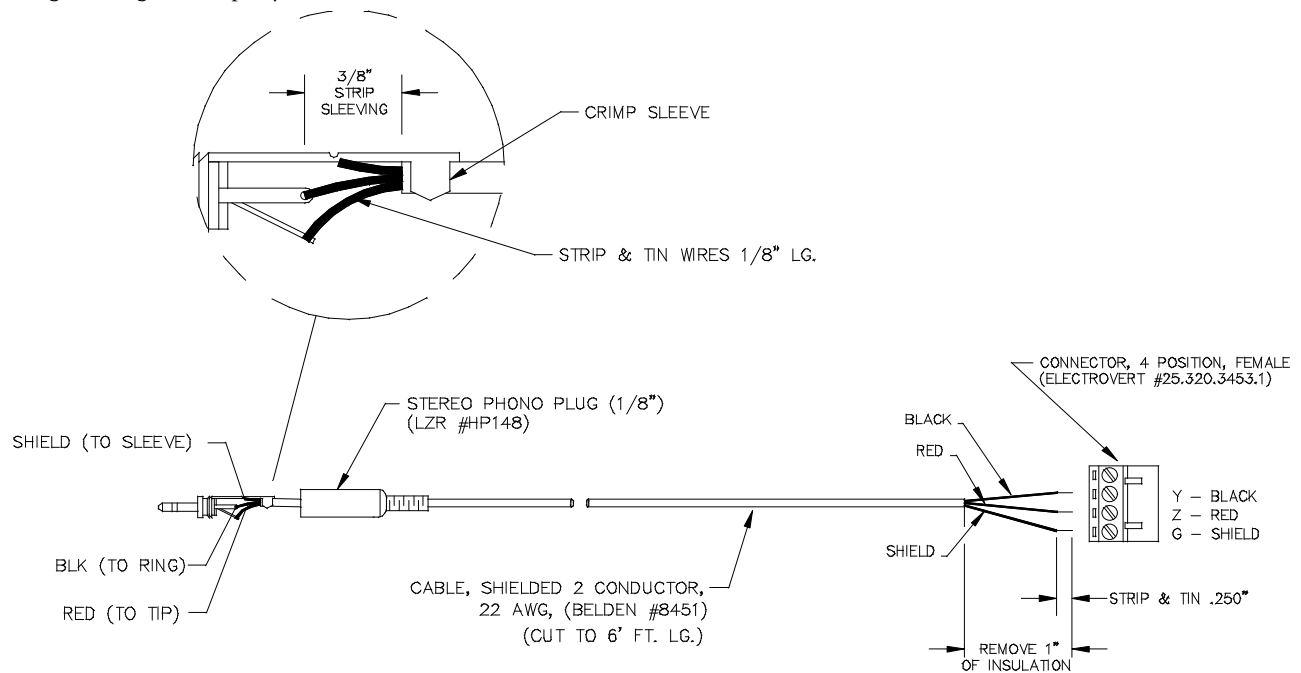


Typical Connection Diagram when Loading a Program from the ST-CP



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) or make a cable. Refer to the “Programming Cable Specifications” diagram on the next page.

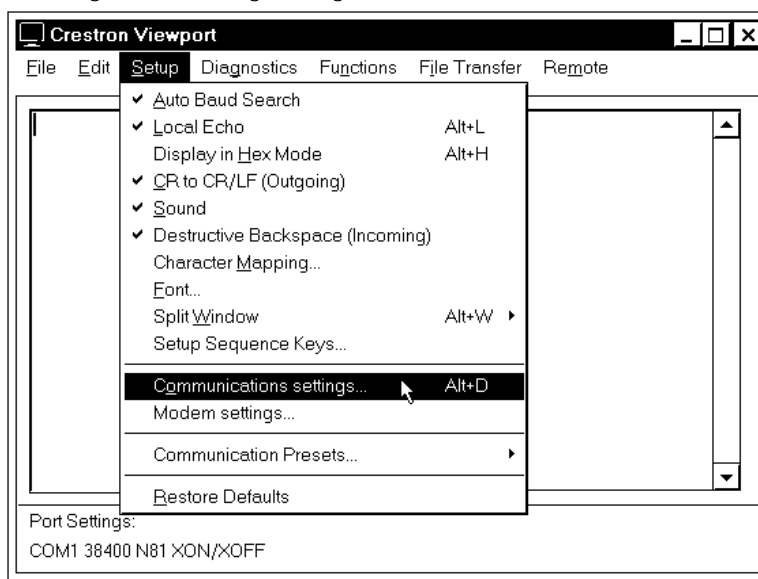
Programming Cable Specifications



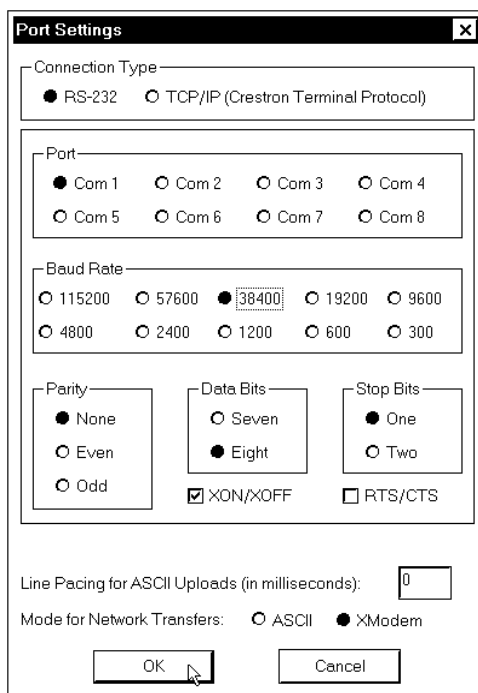
1. Before making any connections to the touchpanel, verify that control system is properly connected to the PC (using cable 15717 and adapter) and powered on.
2. Attach the stereo connector end of the programming cable, part number 15710, to the touchpanel.
3. Attach the RJ11 connector end of the programming cable, part number 15710, 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 SIMPL Windows or VT Pro-e.
6. From the SIMPL Windows or VT Pro-e menu bar, select **Tools | Viewport** to open the Crestron Viewport.

NOTE: SIMPL Windows may open with an opening splash screen and may display the "What do you want to do?" dialog box. If so, close the dialog box 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 dialog box.

Accessing the Port Settings Dialog Box

8. Select the appropriate connection type. Verify that an available COM port (COM 1 is shown below) is selected. Set the baud rate to **38400**, the parity to **None**, the data bits to **Eight**, and the stop bits to **One**. Refer to the dialog box shown for the remaining settings and click the **OK** button to save the settings and close the box.

Port Settings Dialog Box

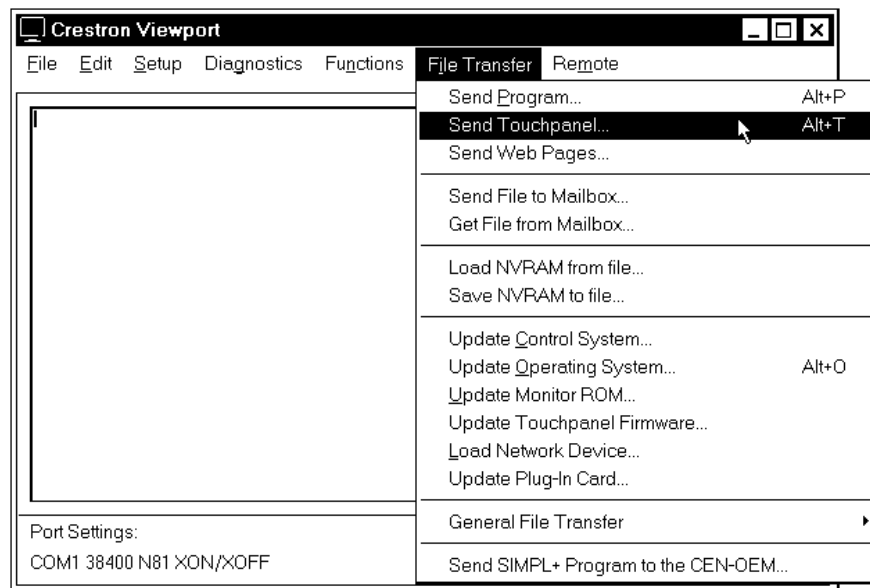
9. Proceed to “Uploading a VT Pro-e Project” on the next page or “Firmware Upgrade” that begins on page 14 as appropriate.

Uploading a VT Pro-e Project

VT Pro-e is a Windows compatible software package for creating Crestron touchpanel screen designs. Refer to “Software” on page 2 for additional details. To upload a VT Pro-e project to the STX-1550C, complete the following steps.

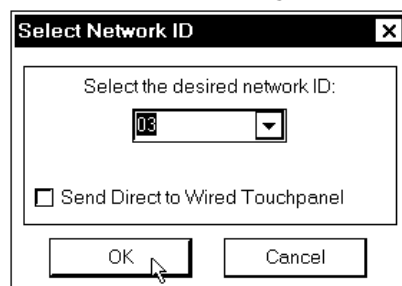
1. Make sure that “Hookup and Preparation” that begins on page 9 has been performed.
2. As shown below, select **File Transfer | Send Touchpanel** (alternatively, depress **Alt+T**) from the Viewport menu.

Select Send Touchpanel



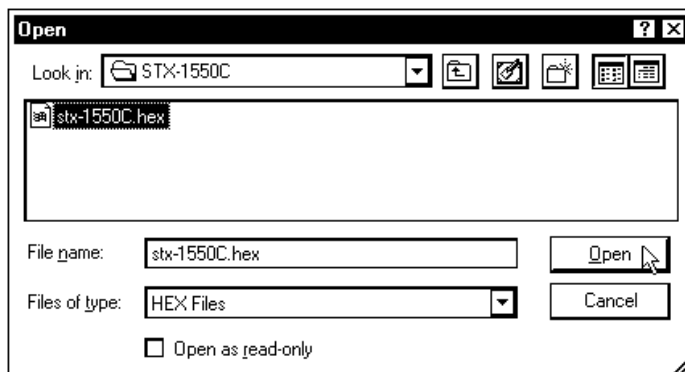
3. As shown below, select the NET ID of the STX-1550C and then click **OK**.

“Select Network ID” Dialog Box



- As shown below, select the VT Pro-e (HEX) file and click **Open**. The transfer will complete automatically.

Select HEX File



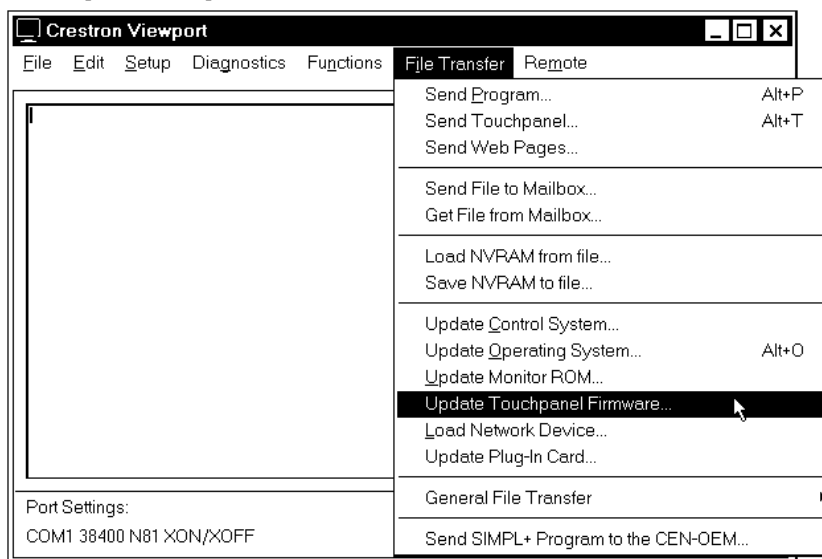
- Disconnect the programming cable and the external power pack from the touchpanel.
- Close the Viewport, exit SIMPL Windows or VT Pro-e, and disconnect the programming cable from the PC and the control system.

Firmware Upgrade

Firmware upgrade files are obtained from the What's New page (Touchpanels section) or the Downloads page (TOUCHPNL and UPGRADES Libraries) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site. To upgrade the STX-1550C firmware, complete the following steps.

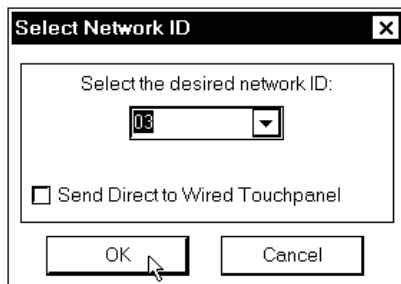
- Make sure that "Hookup and Preparation" that begins on page 9 has been performed.
- As shown below, select **File Transfer | Update Touchpanel Firmware** from the Viewport menu.

Select Update Touchpanel Firmware



- As shown below, select the NET ID of the STX-1550C and then click **OK**.

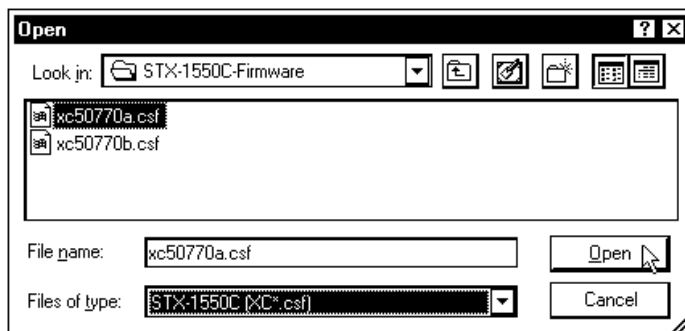
“Select Network ID” Dialog Box



NOTE: Firmware upgrades for touchpanels contain two files, xc[version]**a** file and xc[version]**b** file. When selecting a firmware file, select the **a** file which will automatically execute the **b** file.

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

Select CSF File



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

NOTE: When the firmware of the STX-1550C is upgraded, the associated STRFGWX(s) must also be upgraded. The units will not function properly if not upgraded with compatible firmware.

- If the STRFGWX firmware upgrade **HAS** been completed, close the Viewport, exit SIMPL Windows or VT Pro-e, and disconnect the programming cable from the PC and the control system.

If **NOT** completed, perform the STRFGWX firmware upgrade utilizing the firmware (UPG) file included with the download. Refer to the latest revision of the Operations Guide (Doc. 5811) for the STRFGWX for the firmware upgrade procedure. The latest version of the Operations Guide can be obtained from the Downloads page (MANUAL Library) of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

Programming with SIMPL™ Windows®

SIMPL (Symbol Intensive Master Programming Language) is an easy-to-use programming language that is completely integrated and compatible with all Crestron system hardware. The objects that are used in SIMPL are called symbols. SIMPL Windows offers drag and drop functionality in a familiar Windows® environment.

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.

The next three sections describe a STX-1550C within SIMPL Windows. The first section provides initial configuration information, the second section describes an example SIMPL Windows program that utilizes a STX-1550C and a STRFGWX (sold separately), and the third section provides the location of the example program.

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

NOTE: Although the STX-1550C and STRFGWX use RF formats different from an STX-1600 and CNRFGWX, they are programmed the same way. You may substitute an STX-1600 and CNRFGWX for an STX-1550C and STRFGWX in the SMW program. The units cannot be physically substituted for each other.

Configure STX-1550C Program

To create a program with a STX-1550C, refer to the table below for initial configuration information.

Configure STX-1550C Program

SYMBOL FOLDER	SYMBOL REQUIRED	DROP WHERE	ADDITIONAL SETUP
Device Library, Control Systems	Desired control system	System Views	Refer to the documentation supplied with the specific control system.
Device Library, Wireless Receivers (RF)	STRFGWX	System Views, Cresnet Units	CHANGE NET ID (OPTIONAL) - Double-click on STRFGWX (or single-click then right mouse-click) on STRFGWX. Select Configure. Select NET ID then select desired hexadecimal ID.
Device Library, Touchpanels (Wireless)	STX-1550C (also used for STX-1550CW)	System Views, STRFGWX	CHANGE RF ID (OPTIONAL) - Single-click on STRFGWX. In the System Views Detail Window, double-click (or single-click then right mouse-click, select Configure) on name of STX-1550C in STRF Address text window. Select Configure. Select RF ID then select desired ID.

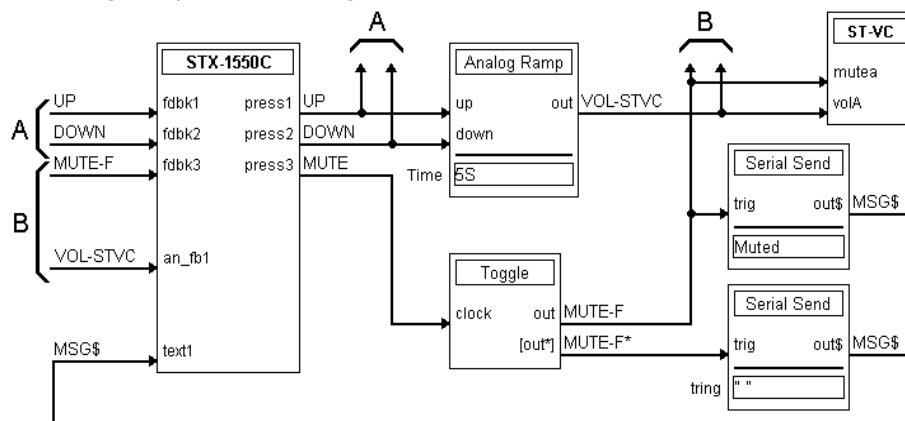
Example Program

The STX-1550C or STX-1550CW touchpanel (sold separately) communicates to a STRFGWX that resides on the Cresnet system. The program is available from the Downloads page (EXAMPLES Library) of Crestron's website (www.crestron.com). Search for STX1550C.SMW. New users are required to register in order to obtain access to the FTP site.

How the Example Program Works

The example STX-1550C SIMPL program is shown below in block diagram form. (The SIMPL Windows symbol for the STRFGWX is not shown.) For this example, the touchpanel in a volume control application where **UP** and **DOWN** presses ramp a slider to a volume/tone control module (ST-VC), with a time interval of five seconds. It also shows digital (signals **A**), analog (signals **B**), and serial (signal **MSG\$**) feedback to the panel. When the touchpanel buttons are pressed, the buttons are highlighted and the bargraph on the touchpanel moves up or down. When **MUTE** is pressed, Channel A of the ST-VC is muted and the text "MUTED" is sent to the touchpanel. When the ST-VC is unmuted, a blank space is sent to the touchpanel.

Block Diagram of STX-1550C Program



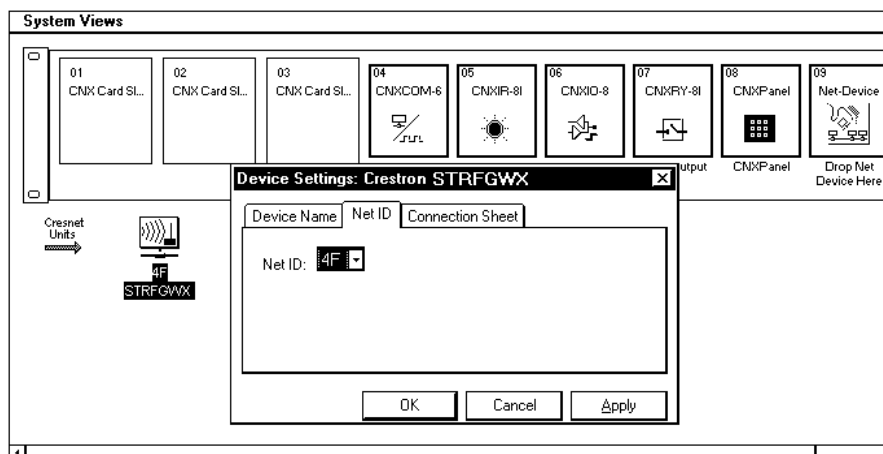
How to Create the Example Program

Configuration Manager

Use the Configuration Manager workspace (**Project | Configure System**) in SIMPL Windows to select and configure all the devices that need to be included into the system. For this example, add a STRFGWX to the system then drop a STX-1550C onto the STRFGWX. Verify the NET ID as shown on the next page.

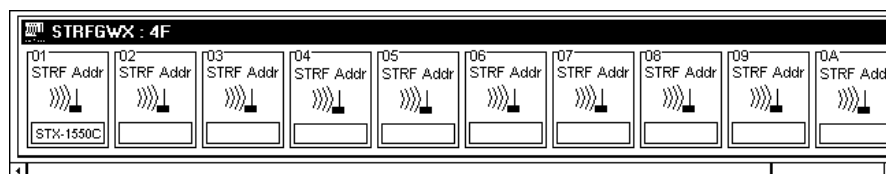
CAUTION: The STX-1550C, SIMPL program, and the STRFGWX must be set to the same NET ID. If changing the default NET ID, do **NOT** set the NET ID of the STRFGWX to 1B or the unit will have to be returned to the factory.

System View of STRFGWX NET ID Assignment in SIMPL Windows' Configuration Manager



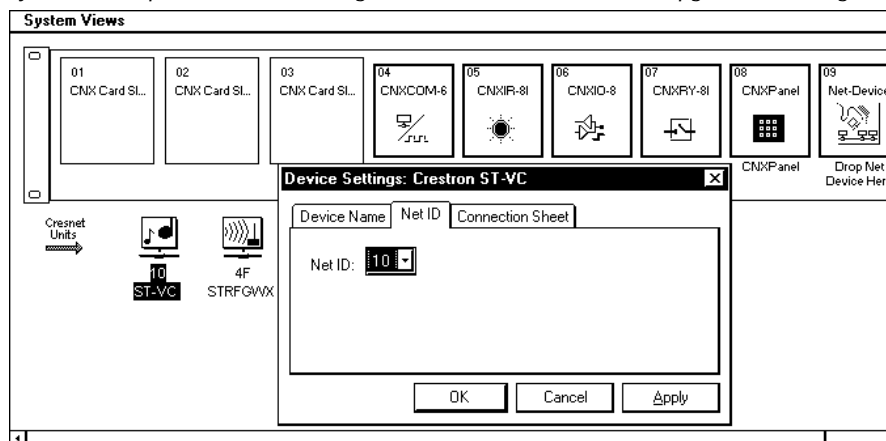
When the STX-1550C is dropped onto the STRFGWX, the first available RF ID default address (01 as shown below) is automatically assigned. Verify or drag to reassign the address in the Detail System View.

“STRF Address” Window



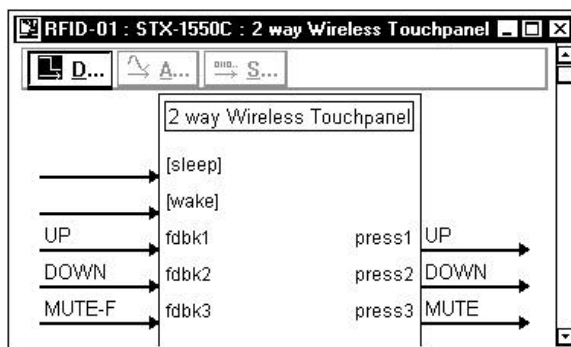
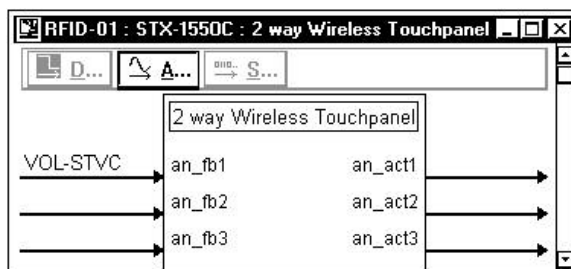
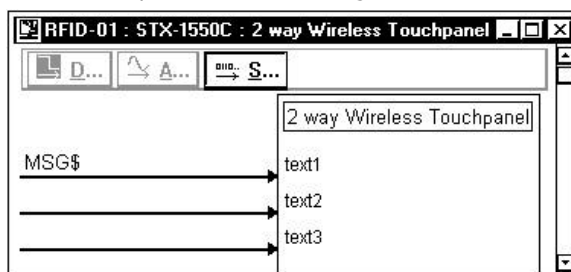
Next, add a ST-VC to the system and verify the NET ID as shown below.

System View of ST-VC NET ID Assignment in SIMPL Windows' Configuration Manager

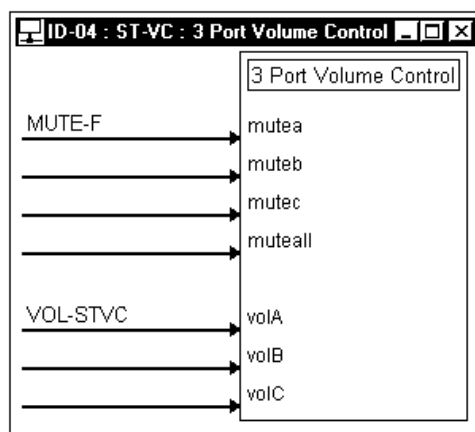


Programming Manager

Use the Programming Manager workspace (**Project | Program System**) in SIMPL Windows to select symbols and assign their respective signals. For this example, a STX-1550C touchpanel and ST-VC symbol were added automatically when the devices were added to the system in the Configuration Manager workspace. Expand the Network Modules folder and double-click on the STRFGWX and then on the touchpanel for a detail view (alternatively CTRL+D or drag and drop into *Detail View*). Assign digital, analog, and serial signals to the touchpanel as shown on the next page.

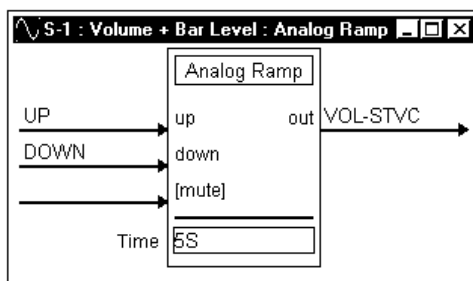
Detail View of STX-1550C Digital Signals in SIMPL Windows' Programming Manager*Detail View of STX-1550C Analog Signals in SIMPL Windows' Programming Manager**Detail View of STX-1550C Serial Signals in SIMPL Windows' Programming Manager*

From the expanded Network Modules folder, double-click on the ST-VC (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown on the next page.

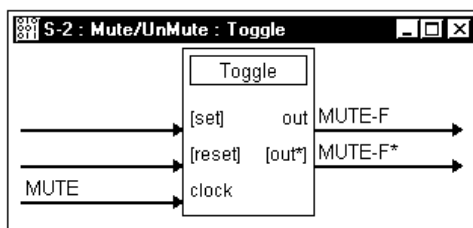
Detail View of ST-VC in SIMPL Windows' Programming Manager

Expand the Logic folder to display a number of symbols integrated into this program. View each of the four symbols in detail view (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown below.

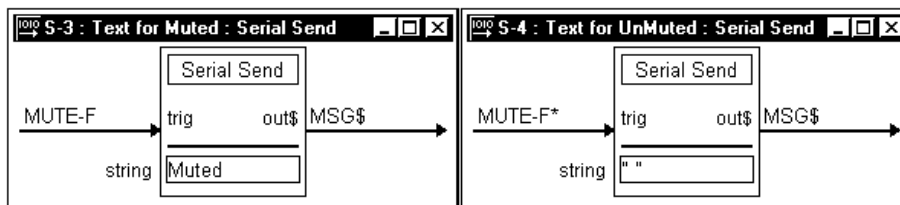
Detail View of an Analog Ramp (S-1) in SIMPL Windows' Programming Manager



Detail View of a Toggle (S-2) in SIMPL Windows' Programming Manager



Detail View of Serial Sends (S-3 and S-4) in SIMPL Windows' Programming Manager



Reserved Join Numbers

A reserved join number is a feature of the software that enables a designer to create a button on a touchpanel page that either calls up the Preferences Menu, ramps contrast, adjusts brightness, etc. These numbers also allow the control system to trigger touchpanel functions (i.e., adjust brightness). The table shown on the next page provides a list of reserved join numbers available within the software.

Reserve Join Numbers for STX-1550C

JOIN NUMBER	FUNCTION	VALUE
1015	Power	Off
1016	Stand by	On
1017	Brightness	Low
1018	Brightness	Medium
1019	Brightness	High
1023	Contrast	Up
1024	Contrast	Down
1035	Reboots the System	N/A
1036	Discharges ST-BTP	N/A
1120 - 1123	Digital Battery Bargraph	Gauge Bottom (1120) to Gauge Top (1123)
1160	Keyclick Volume	Up
1161	Keyclick Volume	Down
1172	Keyclick	On
1173	Keyclick	Off
1210	Update Request	N/A
1213	Out of Range *	N/A

* Touchpanel RF channel no longer communicating with STRFGWX.

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-1550C Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Project can not be uploaded to touchpanel.	Touchpanel has powered down.	Power touchpanel with power pack when programming and uploading project.
	NET ID on touchpanel is improperly set.	Verify that NET IDs match. Refer to the Interface Submenu of "Setup Menu" that begins on page 7 for details and NET ID parameters assigned in the program.
Project can not be uploaded: 1. Screen is blank. 2. Checking communications error.	Touchpanel is in standby or powered down.	Touch the touchpanel to display a screen. Verify that the panel has power supplied to it, either battery or power pack.
	Incorrect COM port specified.	Verify upload preferences is set to COM port being used.
		Verify upload preferences specifies RACK (not the PANEL) as target of the upload.
Screens are wrong.	Screens were not uploaded.	Upload screens as described in the help files found in VT Pro-e.

STX-1550C Troubleshooting (continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
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 does not function.	No power to the touchpanel.	Confirm that battery is installed or power pack is attached.
	Touchpanel is not calibrated.	Select the Calibration button from the Preferences and Settings Menu to enter "calibration mode". If the Calibration button cannot be reached, complete these steps. 1. Remove power (battery and/or power pack). 2. Reapply power while holding finger to the touchscreen for approximately 10 (During this short period, the words "SETUP MODE" appear as does the Opening Screen.) 3. Touch the Opening Screen and select the Calibration button from the Preferences and Settings Menu to enter "calibration mode".
	Touchpanel is not communicating to the control system.	Poll the network (F4 in either VT Pro-e or SIMPL Windows) to verify communication.
Touchpanel display is too dark or too light.	Screen brightness or contrast is improperly set.	Hold a finger to the touchscreen for more than 10 seconds as power is applied. The display sets the brightness and contrast to a safe value.
Touchpanel graphics garbled.	RF signal may have been lost.	Press "Update Request" button (designed into users screen via VT Pro-e) to resynchronize logic with control system.
Touchpanel operation appears unreliable.	Touchpanel is out of range.	Position touchpanel to within operating range. Refer to "Leading Specifications" on page 3 for details.
		Use reserved join number 1213 in SIMPL program to indicate when touchpanel becomes out of range.
		Install an additional STRFGWX near the area of use to accommodate roaming.
Touchpanel display is blank.	Standby or power down timeout has elapsed.	Touch the screen to reactivate the touchpanel.
	Power is not applied to the touchpanel.	Verify that power is properly applied and all connections are made.
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 Interface Submenu of "Setup Menu" that begins on page 7 for details and RF ID parameters assigned in the program.

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 America at +525-260-4336.

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

- In Australia, call Soundcorp at +613-9488-1555.
- In New Zealand, call Amber Technologies at +649-410-8382.

Future Updates

As Crestron improves functions, adds new features, and extends the capabilities of the STX-1550C, 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.

The Downloads page of the Crestron website (www.crestron.com) directs the reader to the location and description of each update. Check the site periodically for update availability and its subjective value.

Future Firmware Upgrades

As Crestron improves functions, adds new features, and extends the capabilities of the STX-1550C, firmware upgrades may be made available. The upgrade files can be obtained from the What's New page (Touchpanels section) or the Downloads page (TOUCHPNL and UPGRADES Libraries) of Crestron's website. If the firmware of the STX-1550C is upgraded, the associated STRFGWX(s) must also be upgraded.

Appendix

The purpose of this Appendix is to provide a programming solution for those that prefer the last screen to be displayed when the touchpanel turns on after encountering a POWER DOWN TIMEOUT. Stated simply, an INTERLOCK symbol needs to be incorporated so that the control system flips to the last page rather than the page marked as first. The information in this Appendix is not meant for everyone; only those who wish to adopt this feature.

Overview

This Appendix offers a simple example of a control system that has three devices to control: TV, VCR, and projector. As such, the VT Pro-e project includes three pages, one for each device. Particular settings must be made on each device page to ensure proper functionality. To support the goal of having the last page appear, the program needs to be adjusted via SIMPL Windows. This Appendix provides a SIMPL block diagram and description to characterize the details of the adjustment.

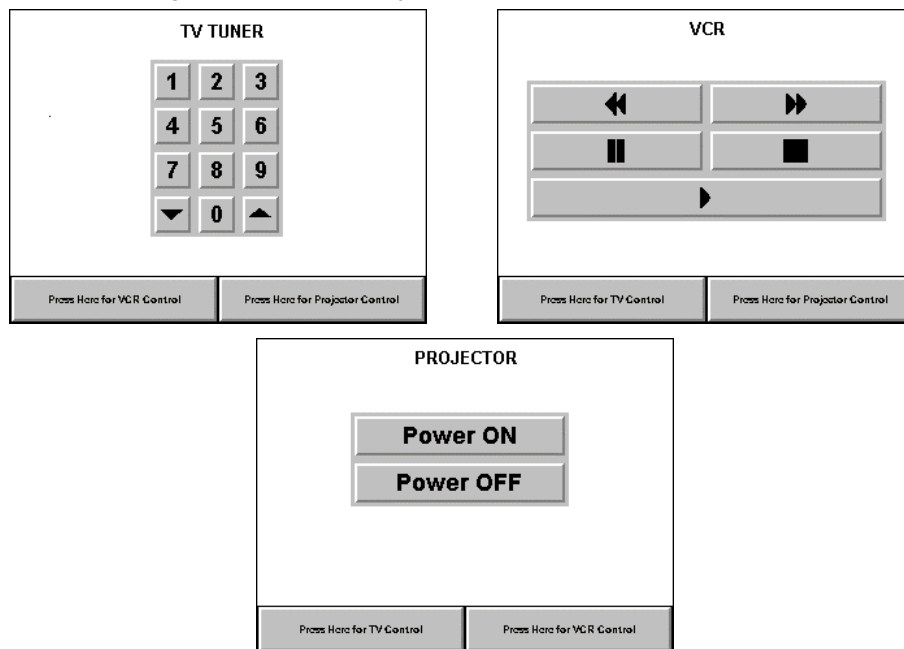
VT Pro-e Project

NOTE: The control logic for these devices is omitted for the sake of clarity.

NOTE: It is assumed that the reader has a working knowledge of VT Pro-e. If any of the terms in this discussion are unfamiliar, please review VT Pro-e's on-line help contents.

The VT Pro-e project in this example contains three device pages: TV, VCR, and PROJECTOR, shown below.

Three Device Pages in the VT Pro-e Project



Button Assignment

In this system, the buttons labeled **Press Here for VCR Control** on the TV and PROJECTOR pages are assigned a page flip to the VCR page and command the projector to switch to its first video input. The buttons labeled **Press Here for TV Control** on the VCR and PROJECTOR pages are assigned a page flip to the TV page and command the projector to switch to its second video input. The buttons labeled **Press Here for Projector Control** on the TV and VCR pages are assigned a page flip to the PROJECTOR page. No other action is assigned.

All buttons on the device pages that cause page flips must be joined. This setting permits the control system to keep track of every page flip and determine which page is currently being displayed. That information is useful if the last page to be displayed appears after a POWER DOWN TIMEOUT.

Join Number Assignment

In this example, **Press Here for TV Control** (Join # 6) and **Press Here for VCR Control** (Join # 9) already have join numbers assigned because they perform a function. Only **Press Here for Projector Control** requires a new join number assignment (Join # 22).

Each device page that is a destination of a page flip must be assigned a join number. For this example, the page join numbers shown in the table below are assigned to the device pages.

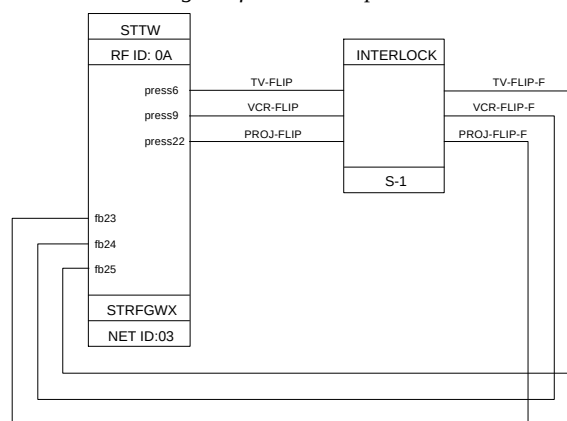
Page Join Number Assignments

DEVICE PAGE NAME	PAGE JOIN NUMBER
PROJECTOR	23
VCR	24
TV	25

SIMPL Program

In the SIMPL program, a signal must be assigned to Join # 22, so that the system knows when a page is flipped to the PROJECTOR page. The name *PROJ-FLIP* is assigned and placed on the button press side. There is no reason to have feedback on the button since it flips the page immediately. For this example, assume Join # 6 is assigned the signal name of *TV-FLIP* and Join # 9 has the signal name of *VCR-FLIP*. Refer to the block diagram shown below.

SIMPL Block Diagram for the Example



These three signal names should drive an INTERLOCK symbol so that the system can “remember” which page was shown last on the touchpanel. The outputs of the INTERLOCK are assigned unique names: *TV-FLIP-F*, *VCR-FLIP-F*, and *PROJ-FLIP-F*.

Finally, the corresponding feedback signals from the INTERLOCK must match the appropriate page join number. For this example, the page join numbers shown in the table below correlate to the INTERLOCK output signals.

Feedback Signal Name with Join Number Assignments

FEEDBACK SIGNAL NAME	JOIN NUMBER
PROJ-FLIP-F	23
VCR-FLIP-F	24
TV-FLIP-F	25

Conclusion: How the Example Works

NOTE: Since the control system is controlling the page flips on the touchpanel, the page flip setting on the buttons shown on the device pages can be removed via VT Pro-e.

To illustrate how the example works, consider the following actions taken by the user operating a STX touchpanel.

1. While viewing the TV page of the VT Pro-e project on the touchpanel, the user touches the **Press Here for Projector Control** button.
2. Join # 22 feedback is activated which forces *PROJ-FLIP* to logic “1”.
3. The INTERLOCK symbol outputs *PROJ-FLIP-F* as logic “1”; all other outputs from the symbol are logic “0”.
4. Join # 23 feedback is activated which forces the touchpanel to flip to the PROJECTOR page of the project.
5. Let the POWER DOWN TIMEOUT period expire so that the touchpanel turns off (or turn off the unit) while the PROJECTOR page is displayed.
6. When the touchpanel is reactivated, the control system provides the current state of all the analog and digital feedback signals. A logic “1” for Join # 23 is one of the signals resynced and therefore, the touchpanel flips to the PROJECTOR page rather than the page marked as first.

Return and Warranty Policies

Merchandise Returns / Repair Service

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

Crestron Limited Warranty

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

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

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

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Operations Guide – DOC. 5812A
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