Crestron **Series STX**
Touchpanels

Operations Guide

CRESTRON
REMOTE CONTROL SYSTEMS

Contents

Series STX Touchpanels

Description

Functional Description

The Series STX touchpanels, also known as Spectrum touchpanels, are touchscreen control panels of various sizes for the CRESNET remote control system (herein referred to as the CRESNET system). The Spectrum family of touchpanels act as a transceiver that offers long range, radio frequency (RF), two-way communication with the CNRFGWX, to provide dynamic onscreen feedback for real-time confirmation of commands. Up to 15 Spectrum touchpanels can communicate with one CNRFGWX.

Crestron's exclusive RF engineering permits transmission over extended ranges and utilizes spread spectrum technology. Signals can travel up to 1000 feet to and from the transceiver, even through walls. Spread spectrum eliminates the risk of signal 'drop-out' by automatically scanning for the best frequency.

There is no need to concern yourself about loss of power; all STX touchpanels offer multiple power options. Two extra-long life, rechargeable nickel-cadmium (NiCad) battery packs slip into the unit to handle any situation from anywhere in the range without wires. Power backup is available from a supplied power pack that plugs into the base of the unit. STX touchpanels also have a network port to provide power backup via the network. Simply plug the CRESNET network wire into the port to bypass RF transmission and communicate via a hardwire on the fly. Enjoy uninterrupted control while simultaneously recharging the battery packs.

Have a comment about Crestron's 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.

Software

VisionTools™ Pro (VT Pro), 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 STX touchpanel application. Each page contains objects such as custom control graphics, two and three-dimensional buttons, sliders, and digital readouts which allow the user to interface with the control system. 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. For additional software information, consult the VT Pro help file.

Position Lock Button

The position lock button is centrally located at the front of the STX touchpanel base. These touchpanels permit incremental angle positions indicated by audible clicks. Range of motion is adjustable for user comfort and can vary depending on the STX configuration. Thus the user can position the touchscreen to a comfortable angle, just as a microphone can be repositioned for each speaker. The comfortable angle is herein referred to as user position. The position lock guarantees that once a user position is established or locked, the angle will not degrade from repeated presses on the touchscreen.

The touchscreen is free to move up from the horizontal to an incremental angle. Grasp the touchscreen with a hand at each side and gently tilt up to a comfortable position. To activate position lock, slightly reverse the motion until the touchpanel stops moving. Correct hand placement is shown below. The touchscreen is now set into user position.

Hand Position for Tilting Touchpanel to Vertical
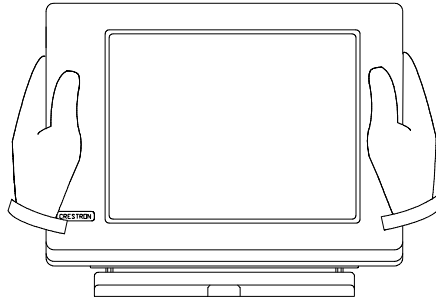
Once in user position, position lock is activated which means the touchscreen can not be forced to the horizontal position without depressing the position lock button. The touchscreen is still free to tilt up; a new user position is established at each increment or audible click.

The position lock button needs to be depressed before the touchscreen can be returned to the horizontal position. To depress the button, slightly position the touchscreen in the vertical direction with two hands, avoiding any tilting. The position lock button can be depressed with one hand; the touchscreen can be tilted down to the horizontal position with the other, shown below.

Hand Position for Tilting Touchpanel to Horizontal
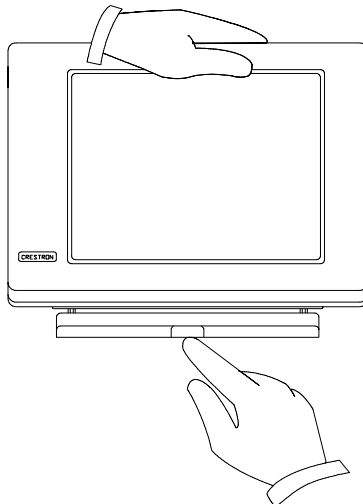
Physical Description

The touch sensitive viewing screen is located on the front of each STX touchpanel. The electronic hardware is housed in a high impact, black molded plastic enclosure. These touchpanels are designed to be placed on a counter and possess a hinged base which can tilt (angle depends on STX configuration). Depress the position lock button located at the front of the base when pivoting the touchpanel to the horizontal position. The size of the base, shown below, is exactly the same for all STX configurations; only the distance between the two hinges is smaller for the smaller touchscreen.

Physical View of STX Touchpanel Base
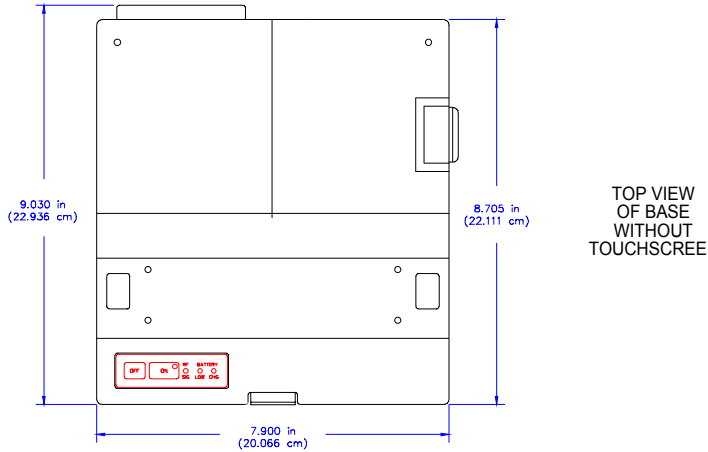
Two battery packs must be inserted into the base of the touchpanel for wireless operation. The battery compartment door is located on the right side (when facing the touchscreen) of the base, shown below. Two connectors are located on the left side (when facing the touchscreen) of the base. The DC power socket connector is used to supply external power via the supplied 24 VDC power pack. The network connector is a 6-pin, 6-position RJ11 modular jack. A network wire must be attached to the touchpanel when uploading a program. The network wire provides power.

Side Views of STX Touchpanel Base
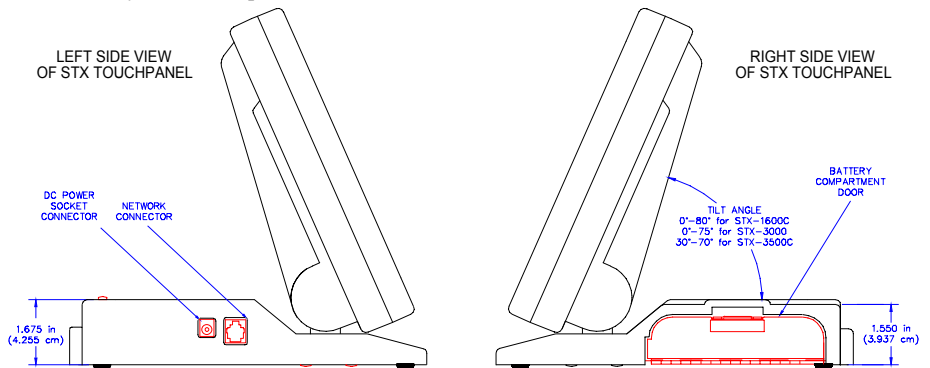
NOTE: Most 4-conductor phone cables are wired in a crisscross fashion and are not compatible with Crestron equipment.

NOTE: If the power pack and the network wire is attached at the same time, power is drawn from the power pack. The touchpanel does not load the network power.

Power buttons and LED indicators, shown below, are located on the touchpanel base just left of the position lock button. Two membrane buttons, OFF and ON, can be used to deactivate and activate the touchpanel when needed. The ON button has a LED behind the membrane. It illuminates when the touchpanel is active. Three other LEDs are positioned to the right of the membrane buttons: RF SIG, BATTERY LOW, and BATTERY CHG. RF SIG illuminates when the touchpanel communicates with the CNRFGWX transceiver. BATTERY LOW illuminates when the battery packs in the touchpanel have a low charge. BATTERY CHG illuminates while the low or discharged battery packs inserted in the touchpanel are slow charged; assuming the touchpanel is powered from the external power pack or the network.

Power Switch and Indicators (Close-Up)

Configuration Differences

There are three Series STX configurations available and selection depends on color versus grayscale display, display size, and memory. A configuration is defined by an alphanumeric suffix after STX. Refer to the table shown below for a concise listing of each Series STX configuration. Following the table, front views of each STX touchpanel are shown.

Series STX Touchpanel Configurations

CONFIGURATION	DISPLAY	DIAGONAL VIEW SCREEN	MEMORY
STX-1600C	256 Color	5.7 in (14.5 cm)	768 Kbytes
STX-3000	256 Grayscale	9.4 in (23.9 cm)	256 Kbytes
STX-3500C	256 Color	9.4 in (23.9 cm)	1 Mbyte

Front View of the STX-1600C

Front View of the STX-3000

11.214 in
(28.484 cm)

7.804 in
(19.822 cm)

Front View of the STX-3500C

11.287 in
(28.669 cm)

8.554 in
(21.727 cm)
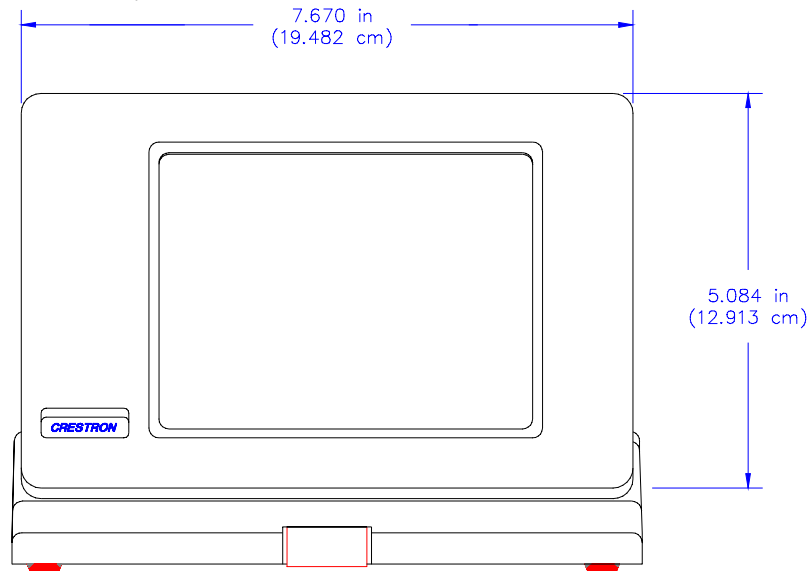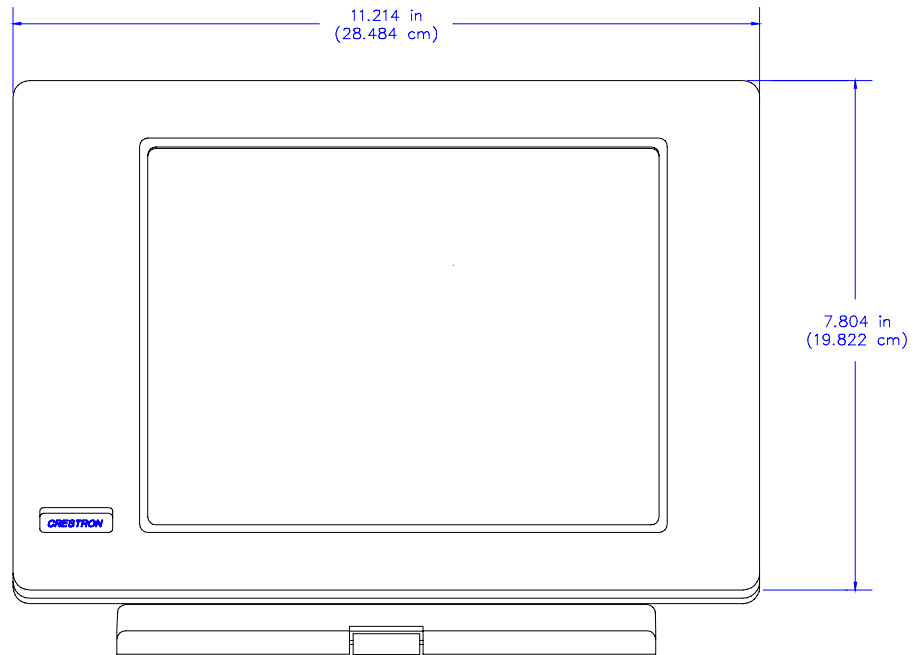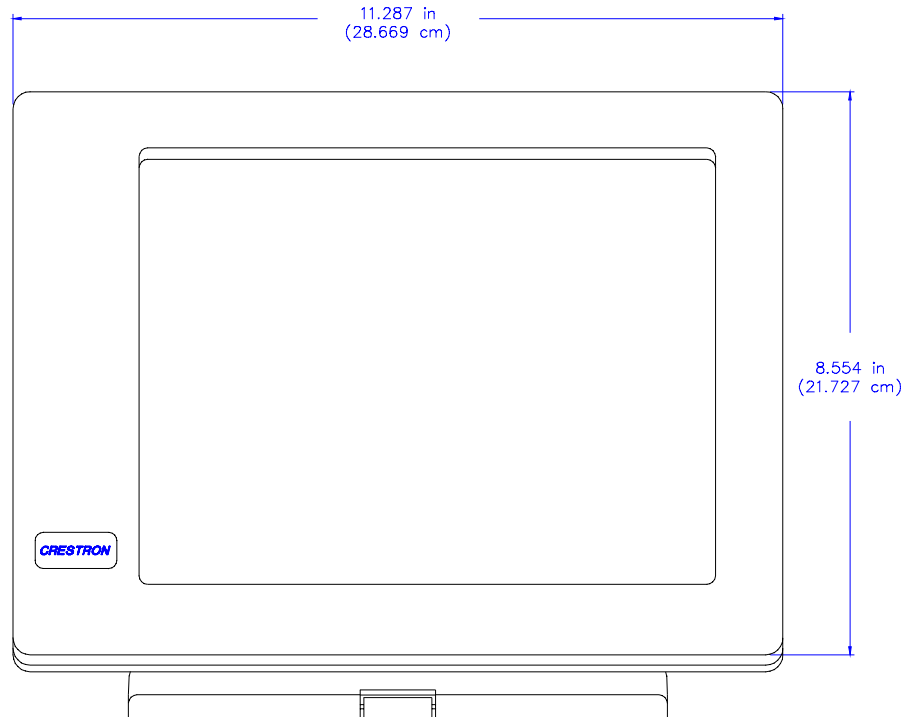
Leading Specifications

The table below and on the next page provides a summary of leading specifications for the STX touchpanels. Dimensions and weight are rounded to the nearest hundredth unit.

Leading Specifications of the STX Touchpanels

SPECIFICATION	DETAILS
Power Requirements	
STX-1600C & STX-3000	12 Watts, 24 VDC 0.5 Amp
STX-3500C	24 Watts, 24 VDC 1.0 Amp
Power Options	2 Rechargeable NiCd Battery Packs
	CRESNET Network Power
	AC Adapter (power pack - supplied)
Communications	*RF:* Bidirectional Spread Spectrum 2.4 GHz (1000-foot range). Requires one CNRFGWX transceiver per 15 STX series touchpanels.
	CRESNET: 6-wire, RJ-type connectors; allows wired network interface in addition to wireless operation. Only 4 wires are required; pins 1 and 6 are not connected.
SIMPL Windows	Version 1.21.04 or later*
CNX Operating System	Version 5.01.09x or later
CNX Monitor	Version 2.00 or later
CNMS, CNRACK, CNLCOMP Operating System	Version 3.16.08 or later
ST-CP Operating System	Version 4.00.29 or later
ST-CP Monitor	Version 1.29 or later
VisionTools Pro (VT Pro)	Version 1.1.3 or later*
Memory	
STX-1600C	768 Kbytes flash memory for display
STX-3000	256 Kbytes flash memory for display
STX-3500C	1 Mbyte flash memory for display
Dimensions & Weight for STX-1600C (without battery packs)	Height: 6.14 in (15.59 cm) - with 80 degree tilt
	Width: 7.90 in (20.07 cm)
	Depth: 9.03 in (22.94 cm)
	Weight: 4.94 lb (2.54 kg)
Dimensions & Weight for STX-3000 (without battery packs)	Height: 8.70 in (22.09 cm) - with 75 degree tilt
	Width: 11.21 in (28.48 cm)
	Depth: 9.03 in (22.94 cm)
	Weight: TBD lb (TBD kg)
Dimensions & Weight for STX-3500C (without battery packs)	Height: 9.29 in (23.59 cm) - with 70 degree tilt
	Width: 11.29 in (28.67 cm)
	Depth: 9.03 in (22.94 cm)
	Weight: 7.40 lb (3.36 kg)
View Screen Dimensions	Height x Width
STX-1600C	3.50 in (9.00 cm) x 4.70 in (11.90 cm)
STX-3000	5.80 in (14.70 cm) x 7.70 in (19.60 cm)
STX-3500C	6.20 in (15.75 cm) x 8.30 in (21.08 cm)

*   The latest software versions can be obtained from the Software Downloads page of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

Leading Specifications of the STX Touchpanels (Continued)

SPECIFICATION	DETAILS
View Screen Resolution	
STX-1600C	320 x 240 pixels
STX-3000 & STX-3500C	640 x 480 pixels
View Screen Display	
STX-1600C	Passive Matrix Color LCD
STX-3000	Passive Matrix LCD
STX-3500C	Active Matrix Color LCD
View Screen Illumination	Edgelit Fluorescent
View Screen Touch Screen	Resistive Membrane

As of the date of manufacture, the Series STX touchpanels have been tested and found to comply with specifications for CE marking.

$$C \in$$

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.

Setup

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.
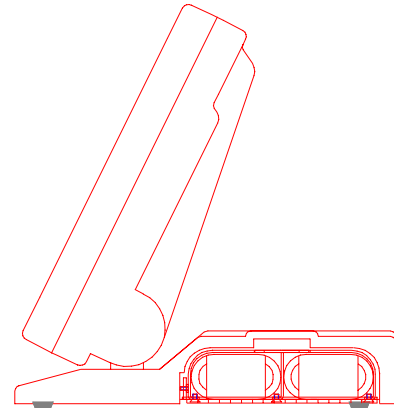
Battery Usage

The touchpanel can be powered via the supplied power pack or two battery packs, ST-BP. Location and orientation of the ST-BP are shown below. Complete the following steps in the order provided to insure proper installation.

Battery Polarity
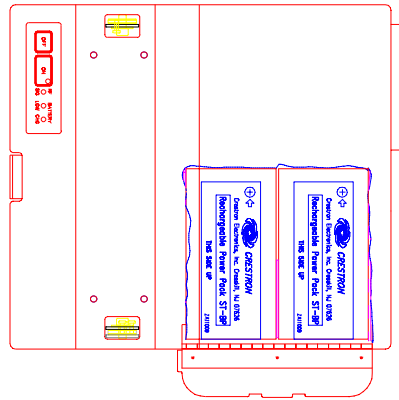
TOP VIEW OF BASE WITHOUT TOUCHSCREEN
(CUT-AWAY VIEW OF BATTERY COMPARTMENT
WITH DOOR OPEN)

RIGHT SIDE VIEW OF STX TOUCHPANEL WITH
BATTERY COMPARTMENT DOOR OPEN

CAUTION: Installing battery packs with the wrong polarity does not damage the touchpanel, but may result in damage to the battery packs if left in the battery compartment for extended periods.

NOTE: Crestron's ST-BP can be slow charged while in the battery compartment as long as the power pack is attached and plugged into an outlet or network power is supplied. It takes approximately 20 hours to slow charge a fully discharged ST-BP. There is no danger of over charging the ST-BP, so the power packs can be installed at all times. It only takes 2 hours to charge the ST-BP in Crestron's battery charger, ST-BC (sold separately).

1. Verify that the touchpanel is resting on a level surface and there are no obstacles in front of the battery compartment door.

2. Lift the lever on the battery compartment door; the spring-loaded door pops open slightly on its hinge.

3. Fully open the battery compartment door and insert battery packs; observe polarity (as illustrated).

4. Close battery compartment door.

Identity Codes

The STX touchpanels possess three distinct types of identity codes: NET ID, RF ID, and RF CHANNEL. These codes are assigned to the unit from the Interface Menu and RF SETTINGS screen when you *configure* the touchpanel. Refer to "Interface" on page 12. For the touchpanel to be identified within the CRESNET system, these assignments must match assignments made in the SIMPL Windows program (for NET ID and RF ID) and the assignment made for the CNRFGWX in the Performance Viewport via VT Pro or SIMPL Windows (for RF CHANNEL). Refer to "Programming with SIMPL™ Windows®" on page 16.

NET ID

All network equipment and user interface within the CRESNET system requires a unique network identity code (NET ID). This code is vital to ensure proper communication when uploading VT Pro projects to the wired touchpanel. 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.

RF ID

Every wireless STX touchpanel communicating with a CNRFGWX requires a unique RF identity code (RF ID). This code is necessary to secure RF communications such that controls can be activated from the touchpanel when it is no longer hardwired to the system. There are 15 useable codes for STX touchpanels ranging from 1 to F (hexadecimal number). The RF ID of the unit must match the RF ID specified in the SIMPL Windows program.

RF CHANNEL

Every wireless STX touchpanel communicating to the network via a specific CNRFGWX transceiver must have a RF CHANNEL that matches the RF CHANNEL of the CNRFGWX. Each CNRFGWX in a system requires a unique RF CHANNEL. There are 16 possible RF CHANNELS ranging from 0 to F (hexadecimal number). The RF CHANNEL of the unit must match the RF CHANNEL assigned to the CNRFGWX via the Performance Viewport in VT Pro or SIMPL Windows.

## Hardware Hookup

The extent of hooking up a STX touchpanel only involves connecting the unit to the network when uploading a project to the touchpanel. Depending on the control system, the hookup may implement the CN-RJ11 (supplied); refer to the hardware hookup diagrams below for proper connections when uploading the project.

STX Touchpanel Hardware Hook-Up Diagram (Implementing the CN-RJ11)
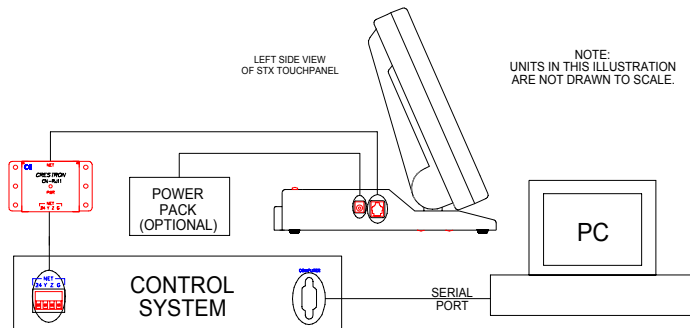
STX Touchpanel Hardware Hook-Up Diagram (No CN-RJ11)
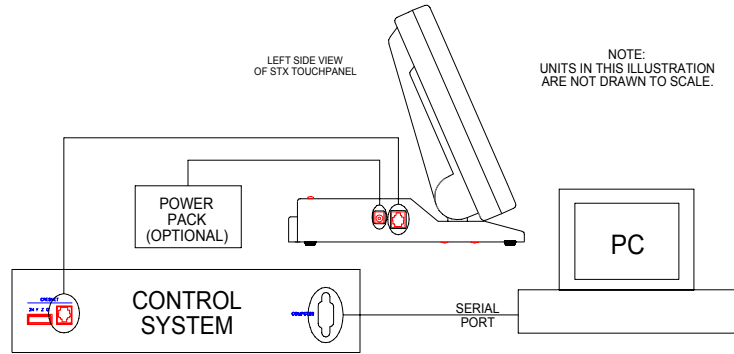
Configuring the Touchpanel

It may be necessary to make adjustments or *configure* the touchpanel due to utilization or a particular appearance chosen by the user. To configure STX touchpanels, 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 and the contrast to a safe value (STX-3500C does not offer contrast adjustment).

NOTE: The firmware (required for configuring the touchpanels) is identical for the STX-3000 and STX-3500C. Therefore, all screens, except for one (contrast adjustment on the Setup Menu), are identical. Firmware for the STX-1600C differs completely, except for the Main and Calibration Menus. In this guide, differing screens are shown side-by-side with STX-1600C screens on the left and the STX-3000 and STX-3500C screens on the right.

The Main Menu, shown after this paragraph, displays four buttons: **TOUCH SCREEN CALIBRATION**, **SAVE SETUP AND RUN PROGRAM**, **SETUP**, and **DIAGNOSTICS**.

Main Menu
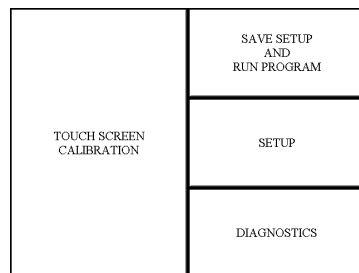
Calibration Menu

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 on the Main Menu to display the Calibration Menu, shown on the next page. 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. When touching the screen, be as accurate as possible.

Calibration Menu

Perform Calibration	Return to Main Menu

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.

Diagnostics Menu

The **DIAGNOSTICS** button from the Main Menu should only be used under supervision from a Crestron technical support representative during telephone support. The options available from the Diagnostics Menu, shown after this paragraph, are numeric in nature and their interpretation is beyond the scope of this guide. Select the **RETURN** button, located at the lower right corner, to get back to the Main Menu.

Diagnostics Menu

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

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

Setup Menu

To obtain the Setup Menu, shown after this paragraph, select the **SETUP** button from the Main Menu. Many options for setting touchpanel parameters are available from the Setup Menu and are explained in the following paragraphs. After setup parameters have been set, select the **RETURN** button, located at the lower right corner of the Setup Menu.

Setup Menu

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

| INTERFACE	RS-232	PANEL TRACKING	
CONTRAST <<	CONTRAST >>	BACKLIGHT TIMEOUT	SAVE SETUP
BRIGHTNESS LOW	BRIGHTNESS MED	BRIGHTNESS HI	RETURN

NOTE: Since the same Setup Menu used for the STX-3000 and STX-3500C is used for Crestron's wired panels as well, the RS-232 button - although shown, is not functional when configuring STX touchpanels.

Interface

The touchpanel communicates with a CRESNET 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 from the Setup Menu to display the Interface Menu, shown below.

Interface Menu

ID # #	< CRESNET ID	CRESNET > ID
	CRESNET II	LOCAL
	RS-232 ON	RS-232 OFF
	RF SETTINGS	RS232 SETTINGS
RETURN		

# #
< CRESNET ID | CRESNET ID >
LOCAL
CRESNET II
RS-232 ON | RS-232 OFF
RF SETTINGS
RETURN
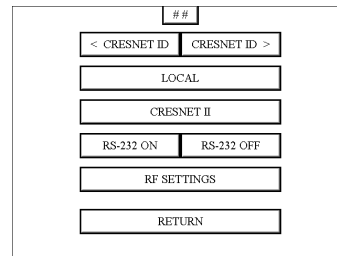
NOTE: Since the same Interface Menu used for the STX-1600C is used for Crestron's wired panels as well, the RS232 SETTINGS button - although shown, is not functional when configuring the STX-1600C touchpanel.

The CRESNET network identity number (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 Performance Viewport via VT Pro or SIMPL Windows software. Matching NET IDs between STX touchpanels and a VT Pro program is required if new touchpanel screens are to be loaded. Matching NET IDs between STX touchpanels and a SIMPL Windows program is required if data is to be successfully transferred during wired operation. The NET ID of each STX touchpanel 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 II system. In local mode, the directory buttons change pages, but buttons requiring feedback do not work. Two buttons on the Interface Menu, **LOCAL** and **CRESNET II**, determine communication mode. Select **LOCAL** to set the touchpanel into demo mode and
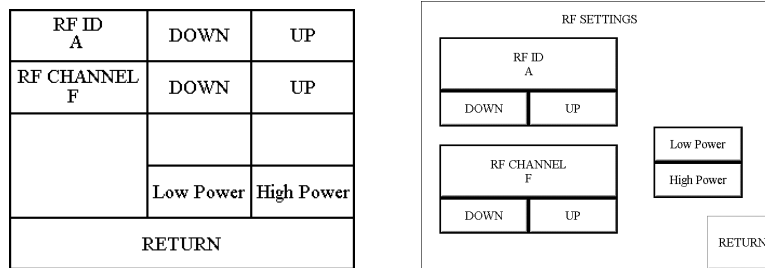
CRESNET II for normal CRESENT communication mode. Text within the selected button changes color from black to red (for STX-1600C) or light gray (for STX-3000 and STX-3500C). Communication mode is factory set to **CRESNET II**.

Two side-by-side buttons on the Interface Menu (for STX-3000 and STX-3500C), **RS-232 ON** and **RS-232 OFF**, located just above the **RETURN** button. Text within the selected button changes color from black to light gray. Since there is no RS-232 port on STX touchpanels, verify that the **RS-232 OFF** button is selected.

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 below. The radio frequency identity number (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 illustration, the RF ID is shown with a setting of "A". The DOWN and UP buttons associated with the RF ID field decrease and increase the RF ID by one, respectively.

RF Settings Screen

RF ID A	DOWN	UP
RF CHANNEL F	DOWN	UP
	Low Power	High Power
RETURN		

RF SETTINGS

| RF ID
A |
| DOWN | UP |

| RF CHANNEL
F |
| DOWN | UP |

Low Power

High Power

RETURN

NOTE: Due to network traffic, the STX touchpanel may not respond to a network upload. To compensate, access the setup screens (refer to "Configuring the Touchpanel" on page 10) to provide exclusive upload communication between the STX touchpanel and the control system.

The RF CHANNEL of the STX touchpanel must be identical to the RF CHANNEL of the CNRFGWX to which it communicates.

The radio frequency channel (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 illustration, 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.

"Many" refers to using more than 16 CNRFGWXs in the same building. Channels may be reused if the CNRFGWXs are placed several floors apart and low power is selected.

Two buttons, **Low Power** and **High Power**, determine the radio's power. It is recommended that the **High Power** button be enabled; indicated with red text (for STX-1600C) or light gray text (for STX-3000 and STX-3500C). This recommendation is acceptable in all cases, except in an environment where there are many CNRFGWXs installed or when the touchpanel is operating within five feet of the CNRFGWX.

NOTE: The power setting of the CNRFGWX is separate from the power setting of the STX touchpanel. The two settings do not have to match. Selection depends on operation in a given environment.

NOTE: After a change is made to the RF SETTINGS screen, save setup and cycle power (turn unit off and on again) for settings to become effective.

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

Contrast

NOTE: Contrast adjustment is not available on the STX-3500C configuration.

Screen contrast may need to be altered because of ambient light conditions, panel temperature, or personal preference. Two contrast buttons, **Contrast <<** and **Contrast >>** (**Cont <<** and **Cont >>** for the STX-1600C), on the Setup Menu may be held down for continuous and smooth adjustment of the screen.

Brightness

Screen brightness may need to be altered because of ambient light conditions or personal preference. Three brightness buttons, **BRIGHTNESS LOW** (**BRT LOW** for the STX-1600C), **BRIGHTNESS MED** (**BRT MED** for the STX-1600C), and **BRIGHTNESS HI** (**BRT HI** for the STX-1600C), on the Setup Menu may be selected to assign the backlight setting.

Panel Tracking

NOTE: The panel tracking feature works best when the touchpanel is wired to the CRESNET system. Crestron does not recommend use of this feature when the touchpanel communicates via RF.
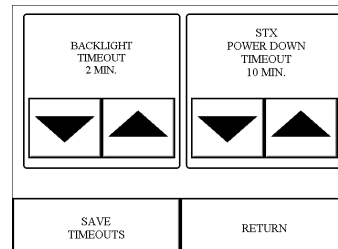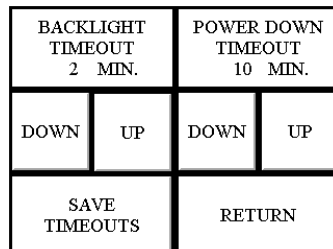
Panel tracking is a useful communication feature between touchpanels when more than one touchpanel exists on the network. Panel tracking is enabled when the **PANEL TRACKING** button on the Setup Menu, is selected. Selection is indicated with red text (for STX-1600C) or light gray text (for STX-3000 and STX-3500C). When enabled, a given touchpanel maintains communication in such a way that a page change to any touchpanel on the network forces the same page change to all enabled touchpanels. Panel tracking is disabled when the **PANEL TRACKING** button is deselected (shown in black text). When disabled a given touchpanel does not respond to page changes made to other touchpanels on the network. Panel tracking is factory set with the **PANEL TRACKING** button deselected.

Backlight Timeout Menu

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 **BACKLIGHT TIMEOUT** button (on the STX-3000 and STX-3500C configurations) and **MANAGE POWER** button (on the STX-1600C configuration) on the Setup Menu reveals the Timeout screen, shown below. The length of touchpanel inactivity can be specified to minimize power utilization.

Timeout Screen

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

BACKLIGHT TIMEOUT 2 MIN.	STX POWER DOWN TIMEOUT 10 MIN.
▼ ▲	▼ ▲
SAVE TIMEOUTS	RETURN

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 illustration. Minutes can vary from 0 to 120, where 0 disables the timeout. Down and up arrow buttons (worded buttons, DOWN and UP, appear on the STX-1600C configuration) decrease and increase the timeout, respectively.

To have the touchpanel return to the last screen displayed after the touchpanel encounters a POWER DOWN TIMEOUT, refer to the "Appendix" on page 24 for a programming remedy.

STX POWER DOWN TIMEOUT is displayed on the Timeout screen. This setting turns off all power when the touchpanel is inactive for the specified time (shown in minutes). When the touchpanel is activated, the first page of the project appears. A 10 minute STX POWER DOWN TIMEOUT is shown in the illustration. Minutes can vary from 0 to 120, where 0 disables the timeout. Down and up arrow buttons (worded buttons, DOWN and UP, appear on the STX-1600C configuration) decrease and increase the timeout, respectively.

NOTE: BACKLIGHT TIMEOUT should be set low to maximize battery pack life. However, STX POWER DOWN TIMEOUT should be set greater than BACKLIGHT TIMEOUT. Otherwise, the BACKLIGHT TIMEOUT is meaningless.

NOTE: If network power is supplied to the touchpanel, the panel is capable of detecting network activity and does not power down when the STX POWER DOWN TIMEOUT is achieved. Recall that the purpose of the timeout is to maximize battery pack life. BACKLIGHT TIMEOUT is still functional.

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.

Sound (for STX-1600C only)

The SOUND button, located at the top right corner of the Setup Menu, is used to display the Sound Menu, shown below. 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.

Sound Menu

KEYCLICK ON	VOLUME UP
KEYCLICK OFF	VOLUME DOWN
RETURN	
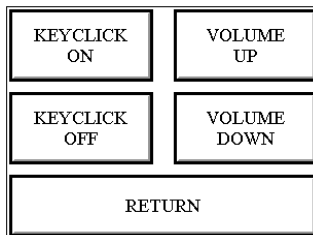
Save Setup

It is advisable to regularly save setup parameters if the user is satisfied with the settings. If parameters are saved, the settings are restored in the event of a power failure. The SAVE SETUP button located on the Setup Menu (STX-3000 and STX-

3500C configurations only) may be selected at any time to save setup parameters. The button text changes color from black to light gray while in save mode. For STX-1600C, use the **SAVE SETUP AND RUN PROGRAM** button on the Main Menu.

Return

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

Programming with SIMPL™ Windows®

> **NOTE:** VisionTools Pro (VT Pro) is a Windows compatible software package for creating Crestron touchpanel screen designs. Refer to "Software" on page 1 for additional details regarding VT Pro.

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 two subsections describe a sample SIMPL Windows program that utilizes a STX touchpanel. The first subsection details how the sample program works with a textual description and block diagram. The second subsection provides a broad description of how to actually create the SIMPL Windows program.

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

> **NOTE:** There is no need to recreate the sample SIMPL Windows program. A copy of this program is available from Crestron's ControlCD (version 5.1 and later). Search for the STX1600C.SMW project in the SIMPL Windows Example Base.

> **NOTE:** The sample in the next two sections utilize the STX-1600C configuration. This is done as an example only. The SIMPL Windows Example Base also contains .SMW projects for the other STX touchpanels (STX-3000.SMW, STX3500C.SMW).
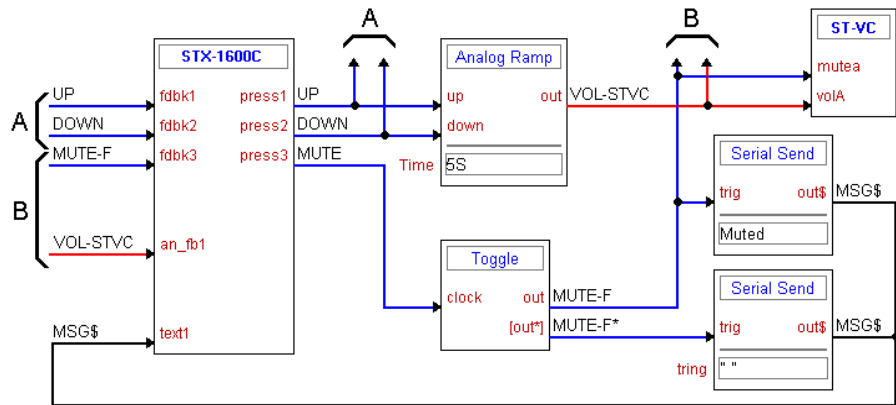
How the Program Works

A basic STX-1600C SIMPL program is shown on the next page in block diagram form. For this example, the STX-1600C in a simple volume control application where **UP** and **DOWN** ramp a bargraph to an ST-VC, volume/tone control module, with a time interval of five seconds. It also shows digital, analog, and serial feedback to the panel. When **UP** or **DOWN** is pressed, the buttons highlight for as long as they are pressed. The bargraph moves up or down as the **UP** or **DOWN** buttons are pressed. Then **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 space is sent to the touchpanel.
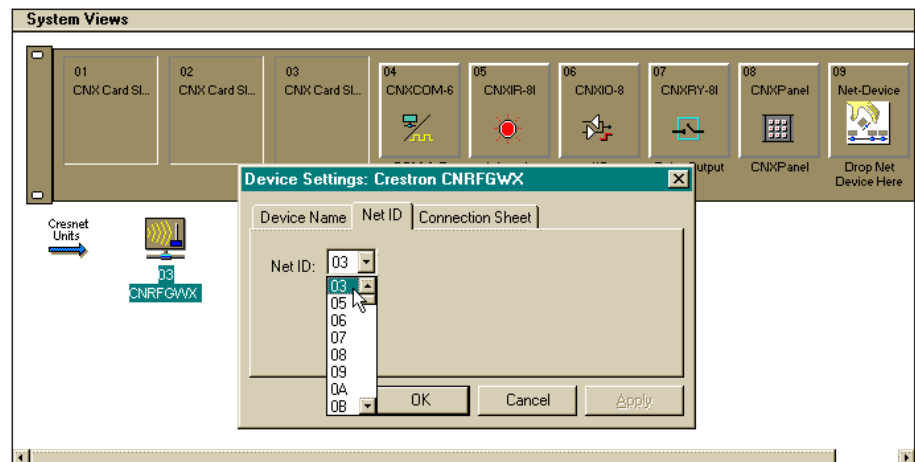
Block Diagram of STX-1600C

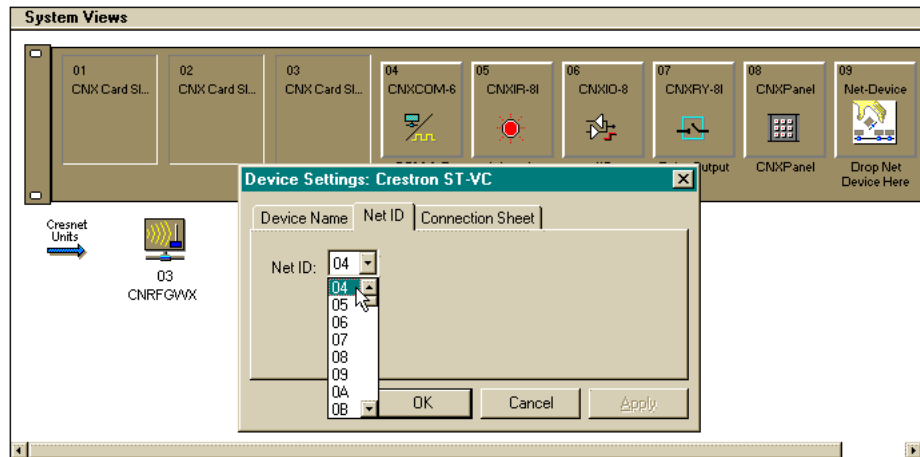# How to Create the Program

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 CNRFGWX and ST-VC to the system. The NET ID of each device must be set as shown below and on the next page.

NOTE: SIMPL Windows v1.21.04 or later is required to program the control system containing a STX-1600C touchpanel. If using an earlier version of SIMPL Windows, Crestron recommends a SIMPL Windows and operating system upgrade. The latest version can be obtained from the Software Downloads page of Crestron's website (www.crestron.com). New users are required to register in order to obtain access to the FTP site.

*Network System View of CNRFGWX in SIMPL Windows' Configuration Manager*

Network System View of ST-VC in SIMPL Windows' Configuration Manager

Next, add the STX-1600C to the system. Click once on the CNRGWX icon in the *Network System View* to add the "RFX Address" window to the *Detail System View*. Drag and drop the STX-1600C icon from the *Device Library* to the desired RFX Address (0A in this example, as shown below).

"RFX Address" Window
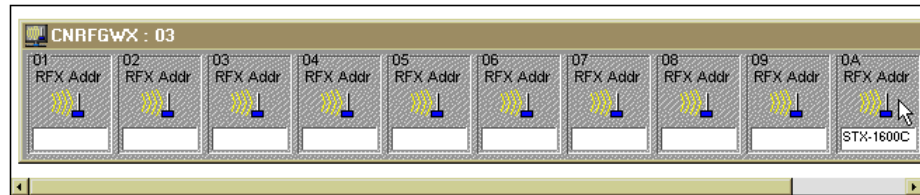
Programming Manager

Use the Programming Manager workspace (**Project | Program System**) in SIMPL Windows to select symbols and assign their respective signals. For this example, a two-way wireless 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 CNRFGWX 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 after this paragraph.

Detail View of Digital Signals for the STX-1600C in SIMPL Windows' Programming Manager
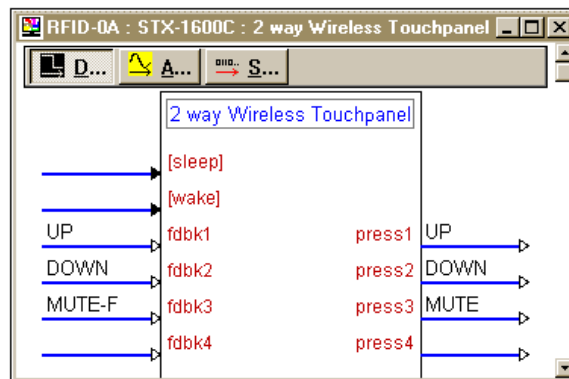
Detail View of Analog Signals for the STX-1600C in SIMPL Windows' Programming Manager
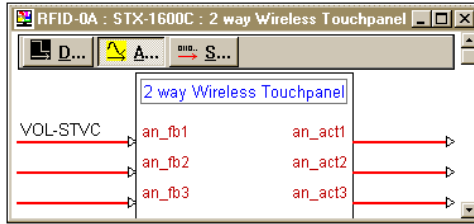
Detail View of Serial Signals for the STX-1600C in SIMPL Windows' Programming Manager
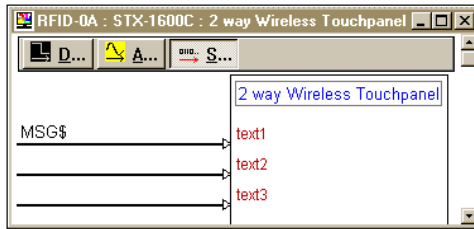
From the expanded Network Modules folder double click on the ST-VC (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown after this paragraph.

Detail View of ST-VC in SIMPL Windows' Programming Manager
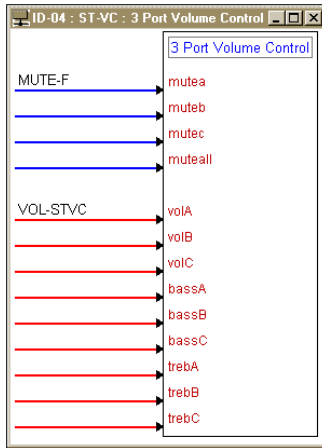
Expand the Logic folder to display a number of symbols integrated into this program. View each of the four symbols in detail view (alternatively CTRL+D or drag and drop into Detail View). Assign signals as shown below and on the next page.

Detail View of an Analog Ramp (S-1) in SIMPL Windows' Programming Manager
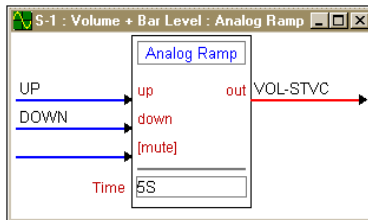
Detail View of a Toggle (S-2) in SIMPL Windows' Programming Manager
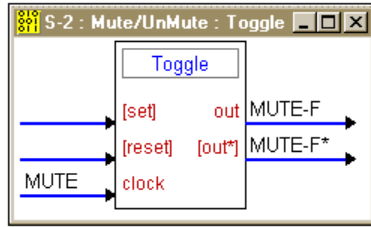
Detail View of Serial Send (S-3 and S-4) in SIMPL Windows' Programming Manager
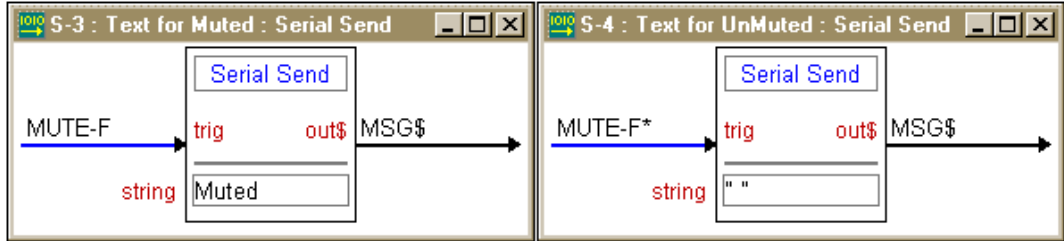
Reserved Join Numbers

A reserved join number is a feature of the touchpanel that enables a designer to create a button on a touchpanel page that either calls up the Setup Menu, ramps brightness, etc. The table shown after this paragraph provides a list of reserved join numbers available within the software.

Reserved Join Numbers for STX Touchpanels

JOIN NUMBER	FUNCTION	VALUE
1016	Brightness	On
1017	Brightness	Low
1018	Brightness	Medium
1019	Brightness	High
1023	Contrast	Up
1024	Contrast	Down
1035	Call up Setup Menu	Not Applicable
1160*	Keyclick volume	Up
1161*	Keyclick volume	Down
1172*	Keyclick volume	On
1173*	Keyclick volume	Off

* Functional for STX-1600 touchpanels only.

Problem Solving

Troubleshooting

The table below and on subsequent pages provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron technical support representative.

STX Touchpanel Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Project can not be uploaded to the touchpanel.	Touchpanel has powered down.	Power panel with power pack when programming and uploading project.
	NET ID on touchpanel is improperly set. NET ID for panel and VT Pro project NET ID do not match.	Verify that panel NET ID matches the NET ID set in the VT Pro program. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide.
	Communication error; incorrect COM port specified.	Verify upload preferences are set to the COM port being used to communicate to the control system.
		Verify upload preferences specifies RACK (not the PANEL) as target of the upload.
	Touchpanel is not switching from RF to network communication.	Place panel into setup mode.
Wrong screens appear on touchpanel.	Screens were not uploaded.	Upload screens as described in the help files found in VT Pro.

STX Touchpanel Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel does not function.	No power to the touchpanel.	Confirm that power pack is attached, batteries are installed, or network power is supplied. Verify that the LED behind the ON membrane button located on the touchpanel base is illuminated.
	Touchpanel is incorrectly calibrated.	Select Perform **Calibration** button from Calibration Menu to enter "calibration mode".
		If the **Perform Calibration** button cannot be reached, complete the following steps. Remove power (battery, power pack, and/or network); press the OFF membrane button on the touchpanel base. Reapply power (press the ON membrane button) while holding finger to the touchscreen for approximately 10 seconds. During this short period, the words "SETUP MODE" appear as does the Opening Screen. Touch the Opening Screen and select the Perform Calibration button from the Calibration Menu to enter "calibration mode". **NOTE:** Alternatively, the Opening Screen can be accessed by depressing the "ALT" and "s" keys within the Performance Viewport of either VT Pro or SIMPL Windows. Refer to the help screen in the Performance Viewport for additional information.
	Touchpanel is not communicating to the control system.	From the Tools command in VT Pro, enter Viewport. Poll the network (F4) to verify communication.
	Touchpanel RF ID is not set to match the RF ID assigned in the software.	Verify that RF IDs match. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide (specifically the RF SETTINGS screen) and compare it to the RF ID parameters assigned via the software.
	Touchpanel RF CHANNEL does not match the CNRFGWX RF CHANNEL; RF SIG LED does not illuminate.	Verify that RF CHANNELs match. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide (specifically the RF SETTINGS screen) and compare it to the RF CHANNEL parameters assigned via the software.
	Touchpanel configured to operate at low power; RF SIG LED does not illuminate or is intermittent.	Reconfigure the touchpanel to operate at high power. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide (specifically the RF SETTINGS screen) to change setting.

STX Touchpanel Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Touchpanel exhibits improper functionality (i.e., wrong screens).	Touchpanel configured to operate at high power	Reconfigure the touchpanel to operate at low power. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide (specifically the RF SETTINGS screen) to change setting.
	Touchpanel operating within five feet of CNRFGWX.	Relocate units so that the STX touchpanels do not operate within five feet of the CNRFGWX.
Touchpanel signal not reaching CNRFGWX (RX LED on CNRFGWX is extin-guished during STX trans-mission).	Touchpanel operating within five feet of CNRFGWX.	Relocate units so that the STX touchpanels do not operate within five feet of the CNRFGWX.
Touchpanel display is dark.	Standby or power down timeout has elapsed.	Touch screen to reactivate or turn on.
	Screen brightness is improperly set.	Alter screen brightness from the Setup Menu.
	Battery packs have discharged.	Charge battery packs or use alternative power supply such as power pack or network power.
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 configured to operate at low power; RF SIG LED is intermittent.	Reconfigure the touchpanel to operate at high power. Refer to "Interface" a subsection of "Setup Menu" in this Operations Guide (specifically the RF SETTINGS screen) to change setting.

Further Inquiries

If after reviewing this Operations Guide for the Series STX touchpanels, you cannot locate specific information or have questions, please take advantage of Crestron's award winning technical support 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.

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- In Australia, call Crestron Pacific at +613-9480-2999.

For local support from exclusive Crestron factory-trained personnel in New Zealand call Amber Technologies at +649-410-8382.

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 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 SIMPL-I 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 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. If any of the terms in this discussion are unfamiliar, please review VT Pro's on-line help contents.

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

Three Device Pages in the VT Pro Project
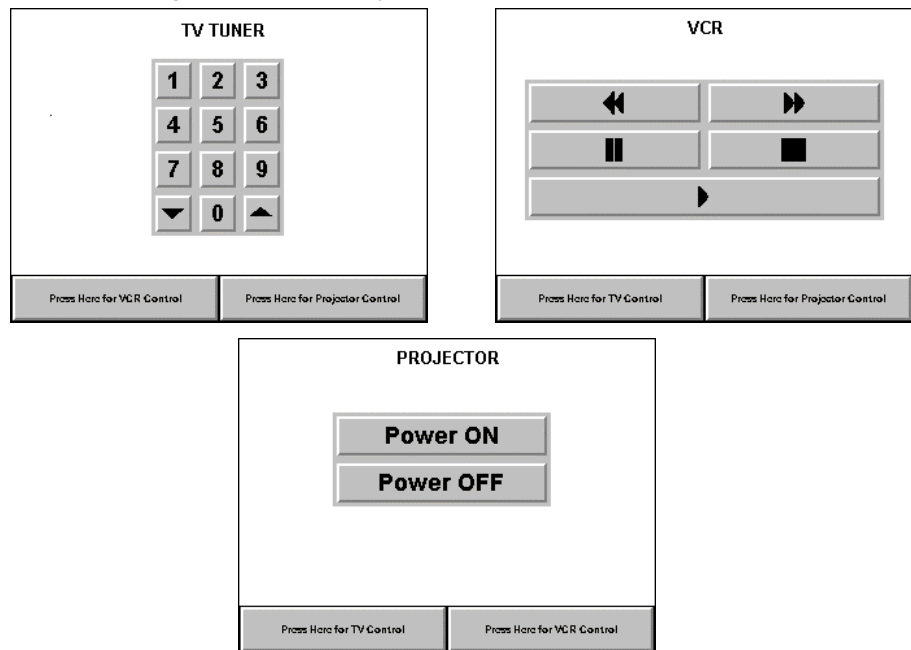
Button Assignment

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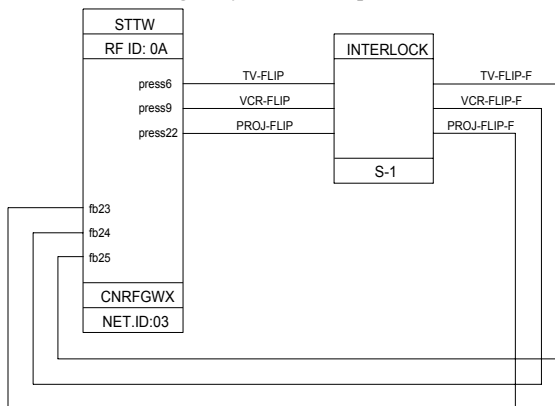
These three signal names should drive an INTERLOCK symbol so that the system can "remember" which page was shown last on the touchpanel. The outputs of the INTERLOCK are assigned unique names: *TV-FLIP-F*, *VCR-FLIP-F*, and *PROJ-FLIP-F*.

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.

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 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.

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

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

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

This warranty shall be the sole and exclusive remedy to the original purchaser. In no event shall CRESTRON be liable for incidental or consequential damages of any kind (property or economic damages inclusive) arising from the sale or use of this equipment. CRESTRON is not liable for any claim made by a third party or made by the purchaser for a third party.

CRESTRON shall, at its option, repair or replace any product found defective, without charge for parts or labor. Repaired or replaced equipment and parts supplied under this warranty shall be covered only by the unexpired portion of the warranty.

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

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