

Crestron **ST-IO**
Input/Output Module

Operations Guide



This document was prepared and written by the Technical Documentation department at:



Crestron Electronics, Inc.
15 Volvo Drive
Rockleigh, NJ 07647
1-888-CRESTRON

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Input/Output Module: ST-IO

Introduction

Features and Functions

There are two Crestron® Input/Output Module configurations available: ST-IO and STI-IO. Configuration differences depend on which power pack is used. The ST-IO is supplied with a power pack for a 120V AC supply and the STI-IO is supplied with a power pack for 220VAC. For purposes of this Operations Guide, the term ST-IO is used for either configuration.

The ST-IO device has eight relays and four digital voltage/closure inputs. As part of the Cresnet system, use of an external power pack is optional. This unit can operate using the Cresnet® voltage or an external power supply.

NOTE: When connected to both the Cresnet power and the external power supply, the Cresnet power is disconnected.

The ST-IO module incorporates eight relays that can be connected to controllable devices. The eight normally open relays are isolated from one another.

The ST-IO also incorporates four digital inputs that can operate in one of two modes: closure and voltage. The input mode is configured using internal jumpers. The ST-IO is set to closure mode when shipped.

- In closure mode, the ST-IO detects switch/relay closures to ground (closed = logic 1 and open = logic 0). The inputs are connected to 5 VDC via a 1.0K ohm “pull-up” resistor and protection diode.
- In voltage mode, the ST-IO detects active voltages (voltages > 2.5V = logic 1 and voltages < 1.5V = logic 0). The mode for these inputs is selectable via internal jumpers.

Refer to “Digital Input Modes” on page 7 for a description to change digital input mode.

Functional Summary

- | |
|--|
| <ul style="list-style-type: none">• Eight isolated normally open relays• Four digital inputs operating in closure mode or voltage mode• Two network connectors for daisy-chaining units• Rack mountable with optional ST-RMK (1 space height) |
|--|

Specifications

The following three tables provide a summary of specifications for the ST-IO module, digital inputs, and relay outputs.

ST-IO Specifications

SPECIFICATION	DETAILS
Power Requirements	6 Watts (.25A @ 24VDC) - Cresnet or 0.5A @ 12VDC external power supply (supplied)
Default Net ID	14
Control System Update Files ^{1, 2, 3}	
2-Series Control System	Version C2-2.000.CUZ or later
CEN/CN-TVAV	Version 5.10.13V.UPZ or later
CNMSX-AV/Pro	Version 5.01.35X.UPZ or later
CNRACKX/-DP	Version 5.01.35W.UPZ or later
ST-CP	Version 4.02.04S.UPZ or later
Ports/Connectors	
NET	Two 6-pin, RJ type connectors
DIGITAL IN	One 5-pin connector
RELAY OUTPUT	One 16-pin connector
12 VDC, 0.5A	One – Male receptacle for external power pack
Rack Space	1 unit high, ½ unit wide
Environmental Temperature	41° to 113°F (5° to 45°C)
Environmental Humidity	10% to 90% RH (non-condensing)
Dimensions & Weight	Height: 1.70 in (4.318 cm) Width: 7.07 in (17.95 cm) Depth: 6.32 in (16.06 cm) Weight: 1.96 lb (0.89 kg)

1. The latest software versions can be obtained from the Downloads | Software Updates section of the Crestron website (www.crestron.com). Refer to the note below.
2. Crestron 2-Series control systems include the AV2, CP2/CP2E, MP2/MP2E, PAC2, PRO2 and RACK2.
3. Filenames for CNX and ST-CP update files have a UPZ extension. Files on the website may be .zip or self-extracting .exe files containing the .cuz or .upz file. To avoid program problems, make sure you are using the update file with the correct suffix letter (e.g., S, V, W, X).

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

ST-IO Digital Input Specifications (Per Channel)

SPECIFICATION	VOLTAGE MODE	CLOSURE MODE
Input Threshold	2.0 Volts (+/- 0.5)	> 2.5V = logic 1 < 1.5V = logic low
Input Voltage Range	0 to +24 Volts	N/A
Input Impedance	44K Ohms to Ground	1 K to +5 Volts

ST-IO Relay Output Specifications (Per Channel)

SPECIFICATION	DETAILS
Maximum Rating per Relay	1A, 30 Volts (AC or DC) Maximum 100 μ A, 100 mV Minimum

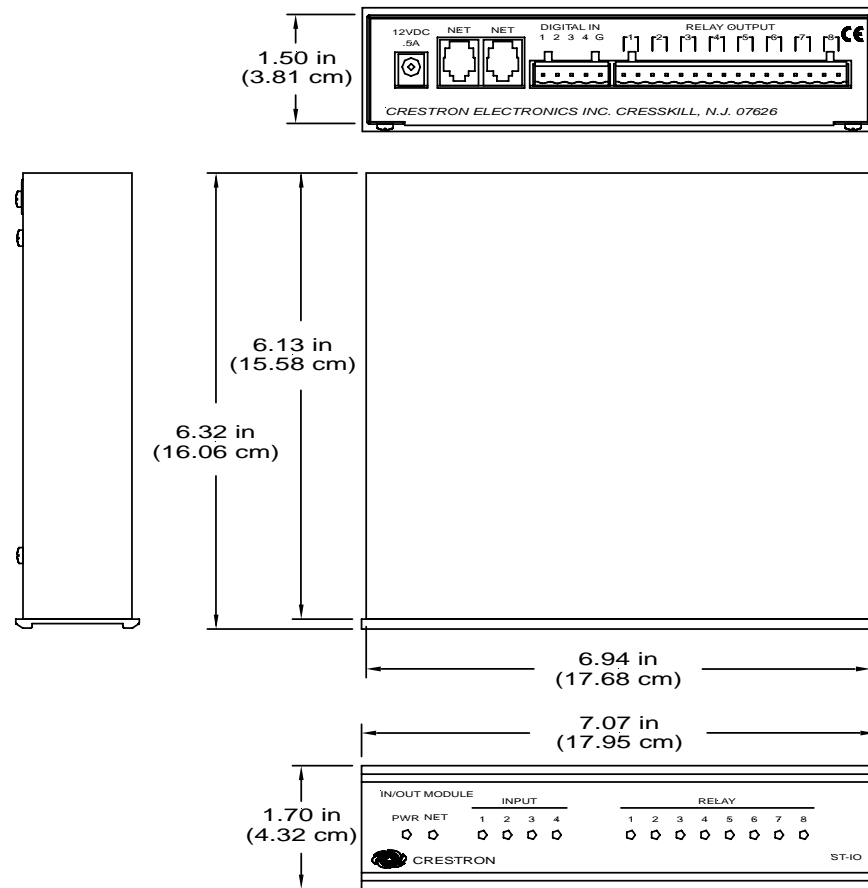
Physical Description

The ST-IO, shown in the following illustrations, is housed in a black enclosure with labels on the front and rear panels. The 14 LEDs on the front panel indicate the current status. All connections are made on the rear of the unit. Four rubber feet are supplied on the base of the unit for stability and to prevent slippage.

ST-IO Front and Back Views



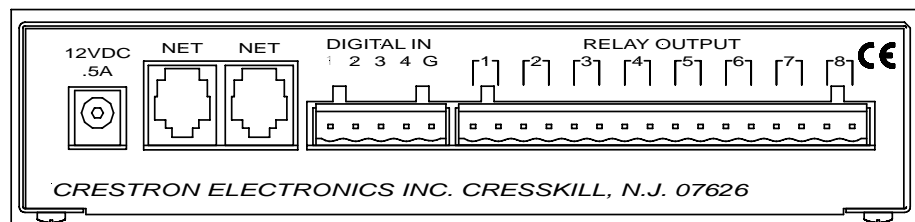
ST-IO Physical Views



Ports

A number of labeled ports are provided on the back of the ST-IO. Refer to the following illustration and descriptions.

ST-IO Ports



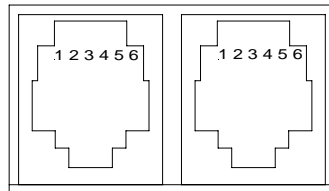
12 VDC .5 A

This DC power socket connector is used to supply external power via a 500 mA power pack (1000 mA power pack for STI-IO).

NET

These two 6-pin, RJ-12 modular jacks are used to connect the ST-IO module to a Cresnet control system. When the module is part of the Cresnet system, power may be supplied via NET if within system power and cable length limits; the supplied power pack is optional and need not be attached. Two NET ports are available so that network units can be daisy-chained together. Review the latest revision of the Network Modular Cable Requirements (Doc. 5682).

Net Connectors



PIN	SIGNAL
1	+24
2	+24
3	Y
4	Z
5	GND
6	GND

NOTE: Most 4-conductor phone cables are wired in a crisscross fashion and are not compatible with Crestron equipment.

If the power pack is attached when the module is part of a Cresnet system, power is drawn from the power pack. The module does not draw from the network power, but the network power remains chained.

DIGITAL IN (1, 2, 3, 4, & G)

This 5-pin connector (four inputs and one common) is used to detect digital input levels in either closure or voltage mode.

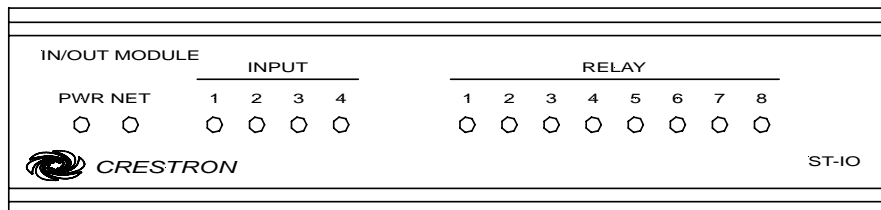
RELAY OUTPUT (1 through 8)

This 16-pin connector provides eight isolated, normally open, relay contact pairs.

Indicators

There are 14 LED indicators located on the front panel of the ST-IO. Refer to illustration and descriptions that follow.

ST-IO Indicators



PWR (Power)

This green LED illuminates when power is supplied to the ST-IO.

NET

This yellow LED illuminates when communication between Cresnet and the ST-IO is established. Illumination indicates that the SIMPL Windows program currently loaded has a network device defined with the same network ID as the ST-IO.

Input (1 through 4)

These red LEDs illuminate when the respective signal to the digital input is logic 1.

RELAY (1 through 8)

These red LEDs illuminate when the respective relay is closed.

Industry Compliance

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



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

Setup

Identity Code

All equipment and user interfaces within the network require a unique identity code (Net ID). These codes are two-digit hexadecimal numbers from 03 to FE. The Net ID of each unit must match an ID code specified in the SIMPL Windows program. Refer to “Setting the Net ID in Device Settings” on page 11 for details of the SIMPL Windows procedure.

Refer to the note on page 13 for a definition of Viewport.

The Net ID of the ST-IO has been factory set to **14**. The Net IDs of multiple ST-IOs in the same system must be unique. Net IDs are changed from a personal computer (PC) via the Crestron Viewport.

NOTE: For detailed information on establishing communication between the PC and control system, refer to “Communication Settings” on page 13. If communication cannot be established, refer to the “Troubleshooting Communications” section in the respective Operations Guide for the control system.

Use the following instructions to set or change the Net ID.

1. Ensure that the device requiring a Net ID change is the only unit connected to the control system.
2. Open the Crestron Viewport.

3. From the Viewport menu, select **Functions | Set Network ID**. The software checks the baud rate and then opens the "Set Network ID" window.
4. In the "Set Network ID" window, select the device requiring a Net ID change from the *Current Network Devices* text window.
5. Select the new Net ID for the device from the *Choose the new network ID for the selected device (Hex)*: text box.
6. Click **Set ID** to initiate the change. This will display the "ID command has been sent" window.
7. In the "Command Complete" window, click **OK**.
8. In the *Current Network Devices* text window, verify the new Net ID code.
9. In the "Set Network ID" window, click **Close**.

NOTE: The new Net ID code may also be verified by selecting **Diagnostic | Report Network Devices** in the Viewport (alternately, select **F4**).

10. Repeat this procedure for each additional network device requiring a Net ID change.

Digital Input Modes

All four digital inputs on the ST-IO are factory set in the closure mode. However, any number of inputs can be changed to voltage mode by opening the unit and moving a jumper over the proper pins. Verify the current setting of each digital input using Viewport to poll the network devices. From the Viewport main menu, select **Diagnostics | Report Network Devices**, or press **F4**. A detailed list of all devices will be displayed. The data includes the Net ID, the name and type of device, as well as its operating system or firmware version and configuration data, where applicable.

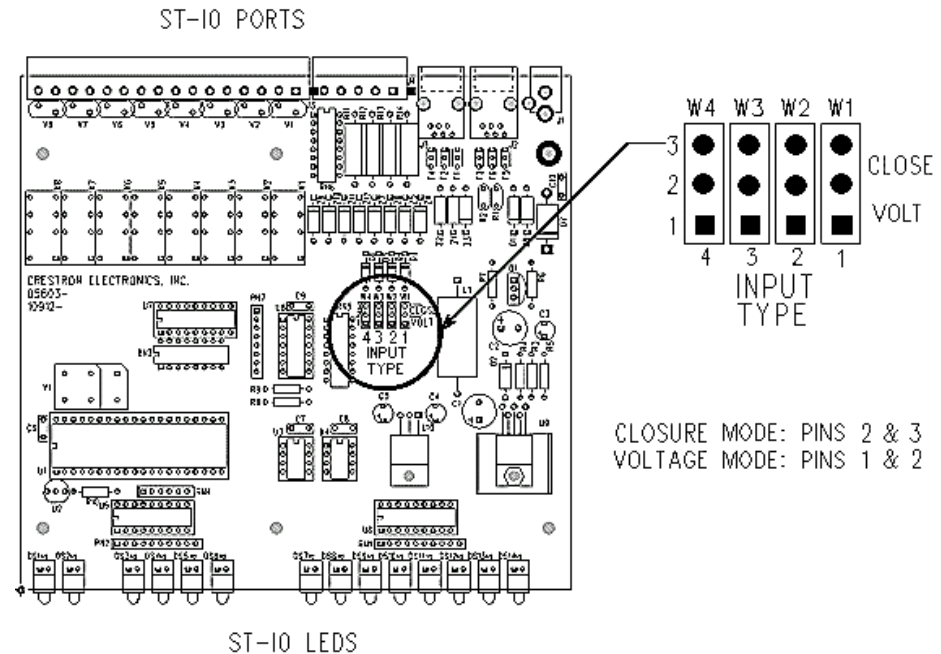
A factory supplied unit responds with the following configuration data.

INPUT MODE: IN1=C, IN2=C, IN3=C, IN4=C

Each input (IN1 through IN4) is in closure mode (C). Voltage mode is defined with a "V".

If the mode setting for any of the digital inputs must be changed, power down the ST-IO and complete the following steps.

1. Turn the unit over and place it topside down on a soft, clean surface.
2. Loosen and remove four screws and washers that secure the top cover to the ST-IO.
3. Lift, turn the unit over, and place the unit down on its four rubber feet.
4. Slide the top cover toward the back panel while holding the ST-IO in place until the cover is free.
5. Locate the jumpers covering pins for the respective inputs (labeled 1, 2, 3, and 4 from right to left). Refer to the following illustration.

Location of Jumpers on ST-IO PC Board

NOTE: The jumpers must be installed in one of the two positions described in step 6. If the jumpers are completely removed, the ST-IO will not function properly.

6. Lift the jumpers from the pins and replace so that the proper pins are connected together. (Cover pins 1 and 2 for voltage mode. Cover pins 2 and 3 for closure mode.)
7. Replace the cover by sliding it over the unit and secure with four screws and washers.
8. Apply power to the ST-IO and poll the network devices again to verify the mode settings.

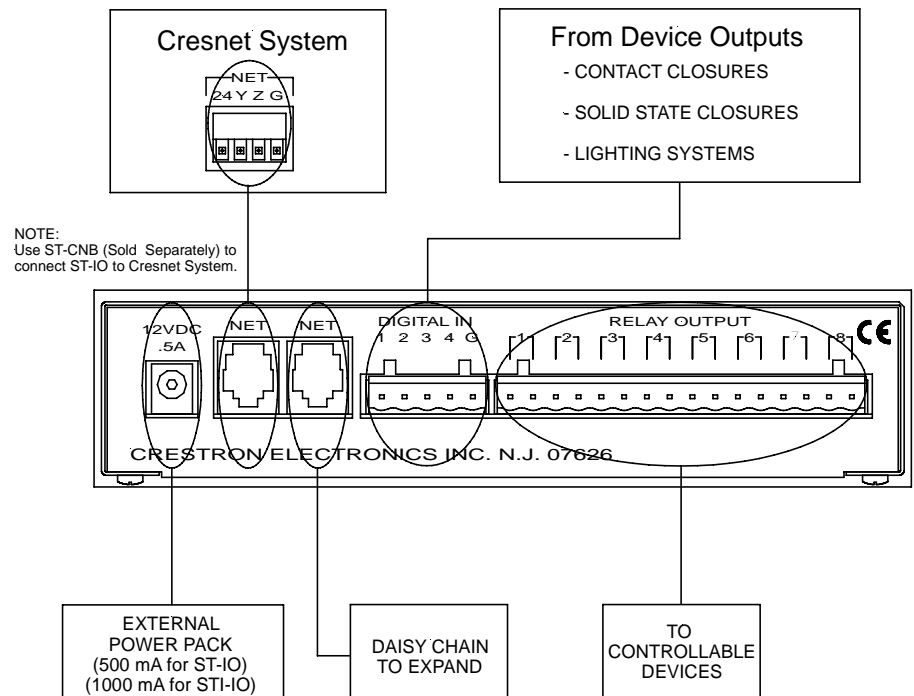
Hardware Hookup

Refer to the following hookup diagram. Other than making the power connection last, complete the connections in any order.

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

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the Downloads | Product Manuals | Wiring Diagrams section of the Crestron website (www.crestron.com).

Hookup Connections for ST-IO



Programming Software

Have a comment about Crestron Software?

Direct software related suggestions and/or complaints to Crestron via e-mail (software@crestron.com). Do not forward any queries to this address. Instead refer to "Further Inquiries" on page 17 for assistance.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software to take advantage of the most recently released features. The latest software is available from the Downloads | Software Updates section of the Crestron website (www.crestron.com).

The following are the earliest useable software version requirements for the PC:

- SIMPL Windows, any version. Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 16.0 or later. Required by SIMPL Windows.
- Crestron Viewport version 3.35 or later.

Programming with SIMPL Windows

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

NOTE: The following are file extensions for programs that include an ST-IO, developed for specific control system types:

.smw source file
 .spz compiled file for 2-Series
 .bin compiled file for CNX generation
 .csz compiled file for CNX generation with SIMPL+
 .ush compiled file for CNX generation with SIMPL+ header file
 .usp source code module for SIMPL+
 .umc user macro for SIMPL

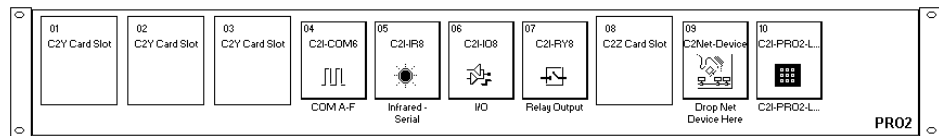
NOTE: In the following description, the PRO2 control system is used.

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

This section describes a sample SIMPL Windows program that includes an ST-IO.

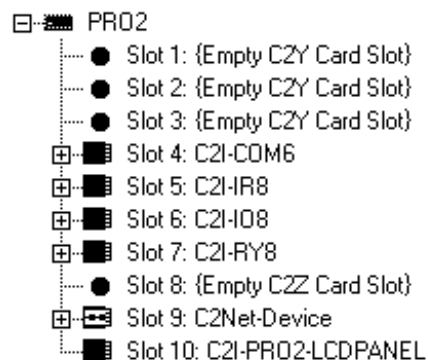
Configuration Manager is where programmers "build" a Crestron control system by selecting hardware from the *Device Library*. In Configuration manager, drag the PRO2 from the *Control Systems* folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

PRO2 System Views



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

Expanded PRO2 System Tree



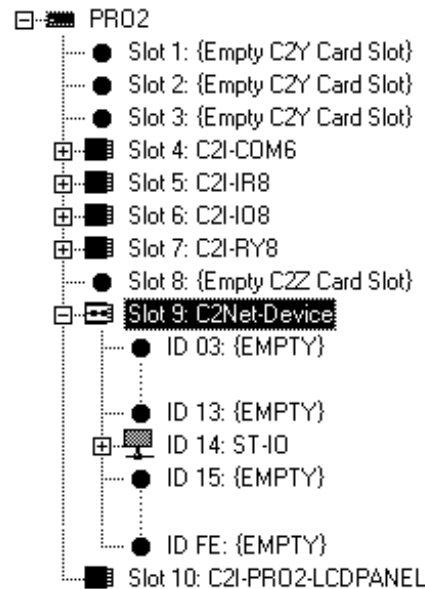
C2Net-Device Slot in Configuration Manager

To incorporate an ST-IO into the system, drag the ST-IO from the Cresnet Control Modules | Cresnet I/O Control & Other Modules folder of the *Device Library* and

drop it in *System Views*. The PRO2 system tree displays the ST-IO in Slot 9, with a default Net ID of 14 as shown in the following illustration.

NOTE: The first ST-IO in a system is preset with a Net ID of 14 when its symbol is dragged into the upper pane of *System Views*. Additional ST-IO units are assigned different Net ID numbers as they are added.

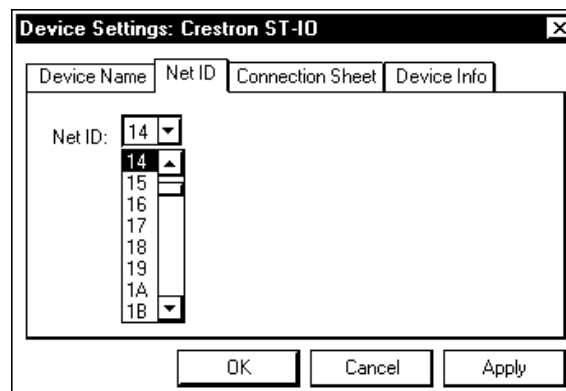
C2Net Device, Slot 9



Setting the Net ID in Device Settings

Double-click the ST-IO icon to open the “Device Settings” window. This window displays the ST-IO device information. If necessary, select the *Net ID* tab to change the Net ID as shown in the following figure.

ST-IO “Device Settings” Window

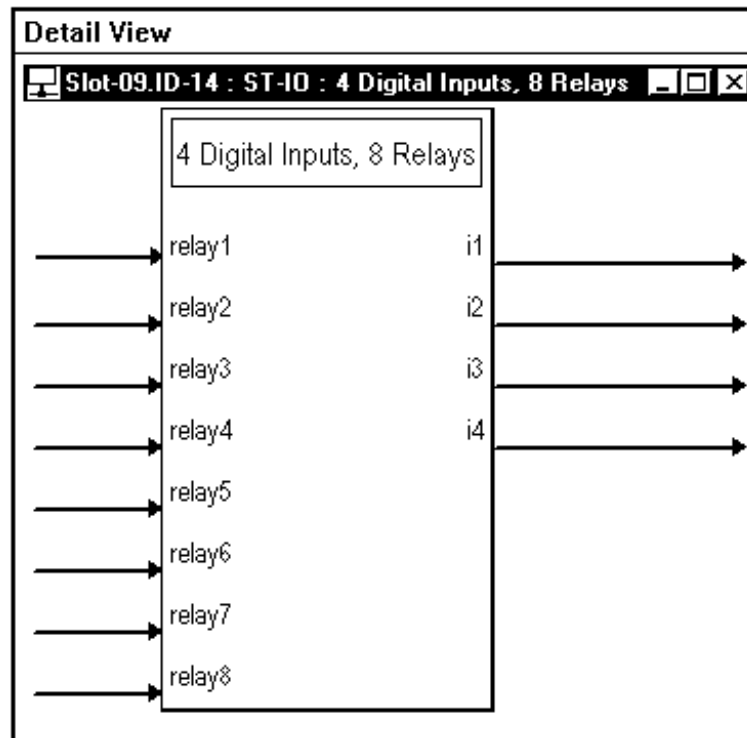


NOTE: SIMPL Windows automatically changes the Net ID values of a device added to a program if a duplicate device or a device with the same default Net ID already exists in the program. Always ensure that the hardware and software settings of the Net ID match. For Net ID hardware setting details, refer to “Identity Code” on page 6.

ST-IO Symbol in Programming Manager

Programming Manager is where programmers “program” a Crestron control system by assigning signals to symbols. The following graphic shows the ST-IO symbol in the SIMPL Windows’ Programming Manager.

ST-IO SIMPL Windows Symbol



The ST-IO provides eight isolated relays for controlling low voltage contact closure devices such as drapes, screens and lifts. It also provides four local digital outputs.

When a <relay> signal goes high, the corresponding relay closes for as long as the signal remains high. When the signal goes low, the relay opens. If a signal is undefined, the relay is open.

The four local <i> outputs can function in either closure or voltage mode. In closure mode (the default setting), an <i> signal goes high whenever the ST-IO detects the presence of a switch or relay closure to ground. In voltage mode, the <i> signal goes high when it detects the presence of an active voltage (voltages > 2.5V = logic 1, and voltages < 1.5V = logic low).

Device Extenders

To facilitate network functions and diagnostics, SIMPL Windows provides two device extenders for the ST-IO.

The Poll Manager and The Poll Manager (2 Series Extended) symbols are device extenders for plug-in control cards and for Cresnet devices and touchpanels. The Poll Manager takes the device on and offline without need to physically disconnect it from the network, and reports the current connection status of the device.

The device extenders are available with X-Series and 2-Series control systems; they are not available with the ST-CP or CN-Series control systems.

To add a device extender, right-click the ST-IO in *Program View*, point to Insert Device Extender and select the desired device extender. To program a device extender, expand the ST-IO in *Program View* and drag the device extender to *Detail View*.

Uploading

Assuming a PC is properly connected to the entire system, Crestron programming software allows the programmer to upload programs and projects after their development to the system and network devices. However, there are times when the files for the program and projects are compiled and not uploaded. Instead, compiled files may be distributed from programmers to installers, from Crestron to dealers, etc. In those instances, one has the option to upload via the programming software or to upload via the Crestron Viewport.

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

NOTE: Firmware for the ST-IO is not upgradable in the field.

The following section defines how to upload a SIMPL Windows program. Before attempting to upload, it is necessary to establish communications.

Communication Settings

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

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

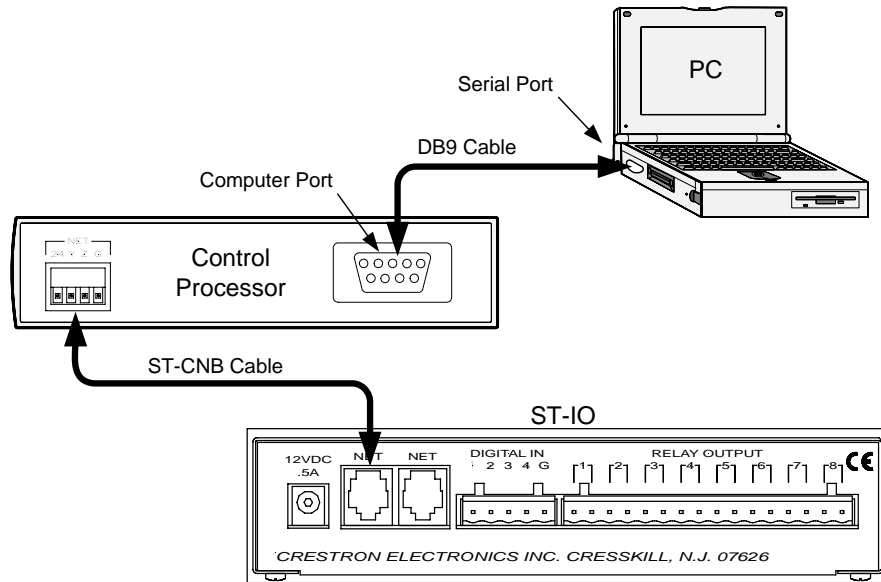
Other models, even from the same manufacturer, may not yield the same results.

The procedure in this section provides details for RS-232 communication between the PC and the control system. If TCP/IP communication is preferred, consult the latest version of the Crestron e-Control Reference Guide (Doc. 6052) of the respective Operations Guide for the control system. These documents are available from the Downloads | Product Manuals section of the Crestron website

(www.crestron.com). Refer to the following figure for a typical connection diagram when uploading files.

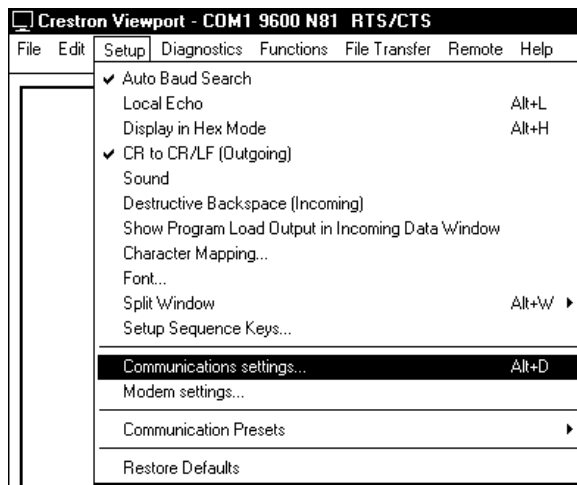
NOTE: Use a standard DB9 male to female “straight-through” cable.

Typical Connection Diagram when Uploading



1. Open the Crestron Viewport.
Either launch the standalone version of Viewport, or start SIMPL Windows, and from the menu bar, select **Tools | Viewport**.
2. Refer to the following illustration. From the Viewport menu, select **Setup | Communications settings** (alternatively, press **Alt+D**) to open the “Port Settings” window.

Setup | Communications Settings Command



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

“Port Settings” Window

The screenshot shows the "Port Settings" dialog box with the following configuration:

- Connection Type:** RS-232 TCP/IP (Crestron Terminal Protocol)
- Port:** Com 1 Com 2 Com 3 Com 4
 Com 5 Com 6 Com 7 Com 8
- Baud Rate:** 115200 57600 38400 19200 9600
 4800 2400 1200 600 300
- Parity:** None Even Odd
- Data Bits:** Seven Eight
- Stop Bits:** One Two
- XON/XOFF RTS/CTS
- Line Pacing for ASCII Uploads (in milliseconds):** 0
- Mode for Network Transfers:** ASCII XModem

NOTE: The parameters shown in the illustration above are the port settings for a 2-Series control system. Consult the Operations Guide for the control system being used for the exact parameter selection.

4. To verify communication, select **Diagnostics | Establish Communications (Find Rack)**. This should display a window that gives the COM port and baud rate. If communications cannot be established, refer to the “Troubleshooting Communications” section in the respective Operations Guide for the control system.

Uploading a SIMPL Windows Program

A control system source file has the extension .smw. A compiled SIMPL Windows file has the extension .spz for a 2-Series control system, .bin for CNX generation, and .csz for CNX generation with SIMPL+.

The SIMPL Windows file can be uploaded to the control system using SIMPL Windows or via the Crestron Viewport.

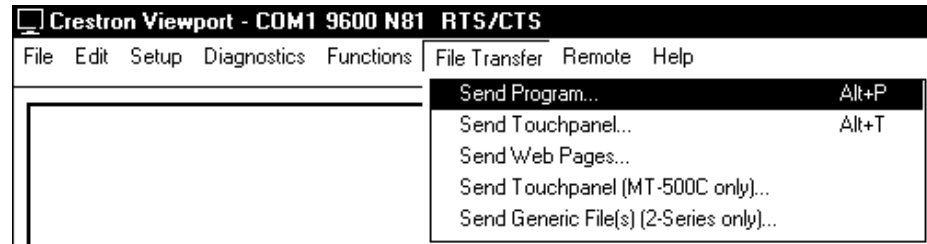
Upload via SIMPL Windows

1. Start SIMPL Windows.
2. Select **File | Open** to view the “Open” window, navigate to the SIMPL Window file (.smw), and click **Open**.
3. Select **Project | Transfer Program**.

Upload via Crestron Viewport

1. Verify that the procedure for “Communication Settings” that begins on page 13 has been performed.
2. As shown after this step, select **File Transfer | Send Program** (Alternatively, press **Alt+P**) from the Viewport menu.

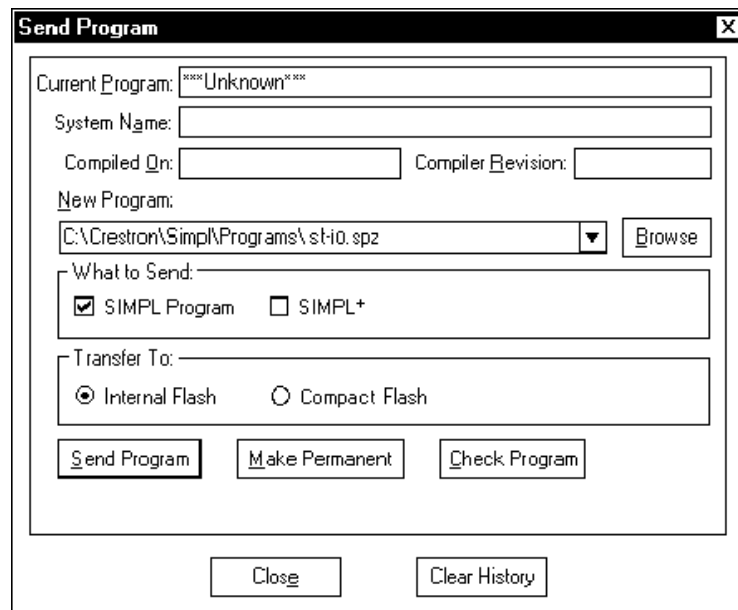
File transfer / Send Program Command



3. The “Send Program” window appears as shown after this step. Click **Browse**, locate the completed file (.spz for PRO2) and click **Open**. This displays the program’s header information and enables one or both of the *What to Send* check boxes. If the program does not contain any SIMPL+ modules, only the *SIMPL Program* check box is enabled. If it does contain SIMPL+ modules, then the *SIMPL+ Program(s)* check box will also be enabled. Select one or both check boxes and then click **Send Program** to begin the transfer.

NOTE: Refer to the respective Operations Guide for control system details about the other fields in the “Send Program” window.

“Send Program” Window



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

Problem Solving

Troubleshooting

The following table provides corrective action for possible trouble situations. If further assistance is required, please contact a Crestron customer service representative.

ST-IO Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Unexpected response from control system.	Network devices are not communicating to the control system.	From the Viewport, poll the network (F4) to verify communication.
Green PWR LED does not illuminate.	ST-IO is not receiving power.	Confirm that power pack securely plugged into outlet and that the connector is properly attached to the ST-IO.
		Verify that proper cables are securely attached to ST-IO NET connectors (for Cresnet system only).
	Incorrect power supply.	Use a Crestron power supply, PW-1215, PW-1205, or Cresnet.
Yellow NET LED does not illuminate.	Improper Net ID.	Verify that ST-IO Net ID matches the Net ID in the SIMPL Windows program. Refer to "Identity Code".
	Loose network connection.	Verify that cables attached to ST-IO NET connectors are proper and secure.

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website (www.crestron.com) for a listing of Crestron worldwide offices.

Future Updates

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

Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

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 an authorized CRESTRON dealer. Only authorized CRESTRON dealers may 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, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

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

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

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

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

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

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

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Crestron Electronics, Inc.
15 Volvo Drive Rockleigh, NJ 07647
Tel: 888.CRESTRON
Fax: 201.767.7576
www.crestron.com

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