

Crestron **ST-VS**
Video Sensor Module

Operations Guide



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Contents

| | |
|---|----------|
| Video Sensor Module: ST-VS | 1 |
| Introduction | 1 |
| Features and Functions..... | 1 |
| Specifications | 1 |
| Physical Description..... | 2 |
| Industry Compliance | 5 |
| Setup..... | 6 |
| Identity Code | 6 |
| Hookup..... | 6 |
| Programming Software..... | 7 |
| Earliest Version Software Requirements for the PC | 8 |
| Programming with SIMPL Windows..... | 8 |
| Uploading | 11 |
| Communication Settings | 11 |
| Uploading a SIMPL Windows Program | 13 |
| Problem Solving | 15 |
| Troubleshooting | 15 |
| Further Inquiries..... | 16 |
| Future Updates | 16 |
| Return and Warranty Policies..... | 17 |
| Merchandise Returns / Repair Service | 17 |
| CRESTRON Limited Warranty | 17 |

Video Sensor Module: ST-VS

Introduction

Features and Functions

The Crestron® video sensor, ST-VS, is used to detect the presence of a video signal coming out of the baseband video port (typically the yellow RCA or BNC output jack on an A/V device) for up to four independent sources (i.e., VCRs or TVs). The ST-VS detects video with minimum peak-to-peak amplitude of 0.5 VDC (sync to white level). It can also accept audio signals up to 2 Vrms.

Functional Summary

- The ST-VS is used to detect the presence of a baseband video signal
- Senses four independent sources (ie. VCRs, DVDs, etc)
- Provides power status information to the control system based on the presence of a video signal from any given device

Specifications

The table below provides a summary of specifications for the ST-VS.

ST-VS Specifications

| SPECIFICATION | DETAILS |
|--------------------|---|
| Power Requirements | 3 Watts (.25A @ 24VDC) - Cresnet® or 0.5A @ 12 VDC external power supply (PW-1205 supplied with ST-VS, PWI-1210 supplied with STI-VS) |
| Default Net ID | 3C |

Specifications continued on next page.

ST-VS Specifications (continued)

| SPECIFICATION | DETAILS |
|--|--|
| 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 |
| VIDEO 1 through 4 | Four pair of RCA Type connectors |
| 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 (4.32 cm) Width: 6.94 in (17.63 cm) Depth: 6.32 in (16.06 cm) Weight: 1.92 lb (0.87 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 that follows.
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).

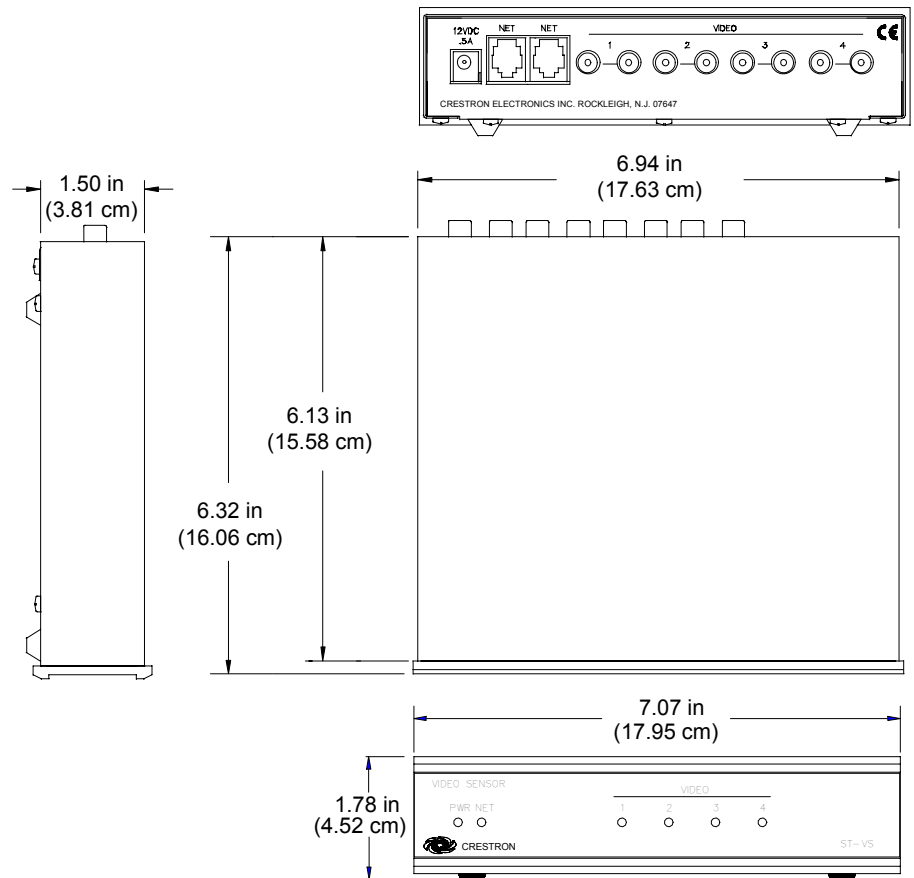
Physical Description

The ST-VS is housed in a black enclosure with labels on the front and rear panels. On the front of the unit there are six LEDs for indicating the unit's current status. All connections are made to the back of the unit. Refer to the physical view shown after this paragraph. There are four rubber feet on the base of the unit for stability and to prevent slippage.

ST-VS Front and Rear View



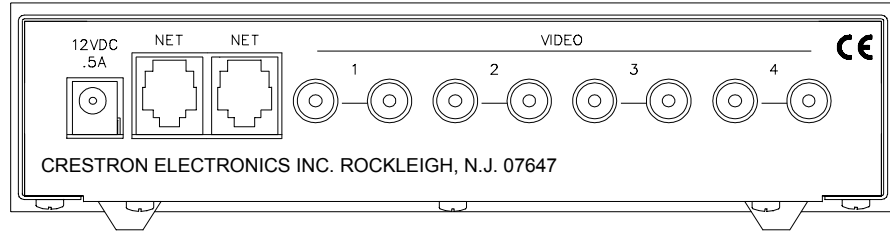
ST-VS Physical Views



Ports

A number of ports are provided on the back of the ST-VS. Each has a silk-screened label. Refer to the illustration and descriptions below.

ST-VS Ports



12 VDC .5A

NOTE: If the ST-VS is part of the Cresnet system, use of this port is optional.

This DC power socket connector is used to supply power via an external AC power pack. Crestron recommends and supplies specific power packs for its network devices. Available power packs include Crestron part number **PW-1205** (120 VAC USA and Canada) or **PWI-1210** (230 VAC International).

AC Power Pack Specifications

| CRESTRON POWER PACK | INPUT | OUTPUT |
|---------------------|---------------|----------------|
| PW-1205 | 120 VAC 60 Hz | 12 VDC 500 mA |
| PWI-1210 | 230 VAC 50 Hz | 12 VDC 1000 mA |

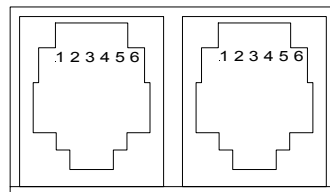
AC Power Pack Polarity



NET

These two 6-pin, RJ-12 modular jacks are used to connect the ST-VS 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.

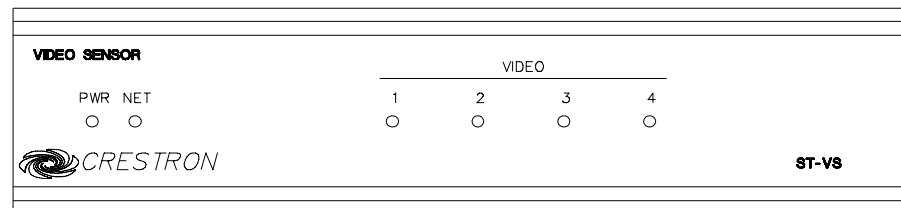
VIDEO 1 - 4

There are four sets of independent video pass through connectors. These eight RCA connectors (two per video signal) connect to the (up to) four independent sources that require sensing.

Indicators

There are six LED indicators located on the front panel of the ST-VS. Each has a silk-screened label. Refer to the illustration and descriptions below.

ST-VS Indicators



PWR (Power)

This LED illuminates when 12 volts (from the external power pack) or 24 volts DC (from the network) is supplied to the ST-VS.

NET

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

VIDEO 1 - 4

These four LEDs illuminate when a video signal on the respective VIDEO connector exceeds the minimum requirements (threshold) for signal detection.

Industry Compliance

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



NOTE: This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) these devices may not cause harmful interference, and (2) these devices 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 10 for details of the SIMPL Windows procedure.

The Net ID of the ST-VS has been factory set to **3C**. The Net IDs of multiple ST-VSs in the same system must be unique. Net IDs are changed from a personal computer (PC) via the Crestron Viewport.

Refer to the note on page 11 for a definition of Viewport.

NOTE: For detailed information on establishing communication between the PC and control system, refer to “Communication Settings” on page 11. 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.

Hookup

Refer to the following hookup diagram. Other than making the power connection last, complete the connections in any order. RCA cables are not supplied.

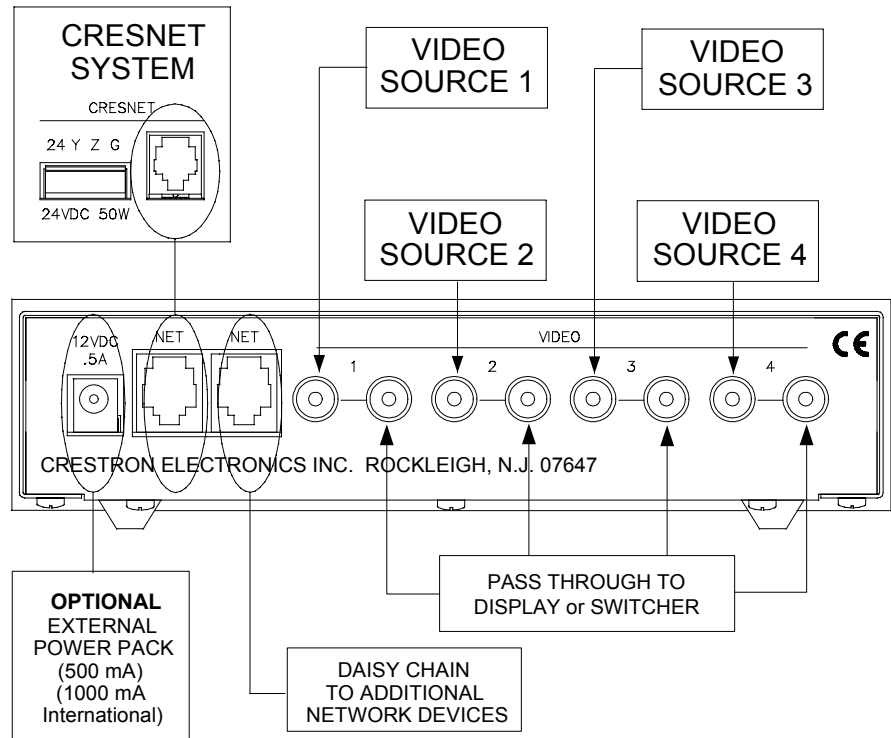
CAUTION: Use only Crestron power supplies for Crestron equipment. Failure to do so could cause equipment damage or void the Crestron warranty.

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).

NOTE: Refer to the latest revision of the Crestron Network Modular Cable Requirements (Doc. 5682) when making connections to the port labeled NET.

Hookup Connections for the ST-VS

NOTE:
USE ST-CNB OR CN-RJ11
(SOLD SEPARATELY)
TO CONNECT ST-VS TO 4-WIRE
NETWORK CONNECTOR.



Programming Software

NOTE: Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website (www.crestron.com). To post a question or view questions you have submitted to Crestron's True Blue Support, log in at <http://www.crestron.com/accounts/login.asp>. First-time users will need to establish a user account.

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 15.0.0 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-VS, 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 |

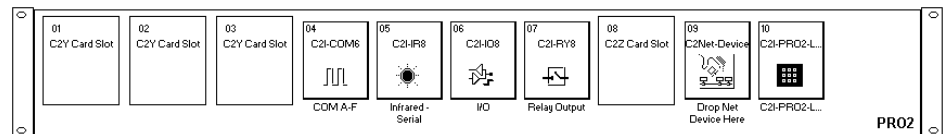
NOTE: In the following description, the PRO2 control system is used.

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-VS.

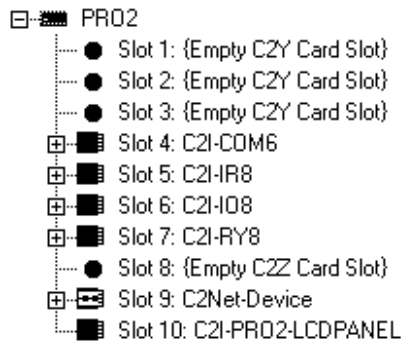
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration manager, drag the PRO2 from the *Control Systems* folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

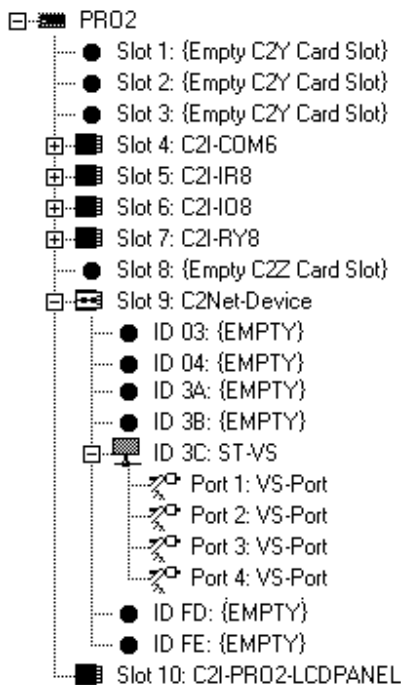
Expanded PRO2 System Tree



C2Net-Device Slot in Configuration Manager

To incorporate an ST-VS into the system, drag the ST-VS from the Cresnet Control Modules | Cresnet Sensing Modules folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree displays the ST-VS in Slot 9, with a default Net ID of 3C as shown in the following illustration.

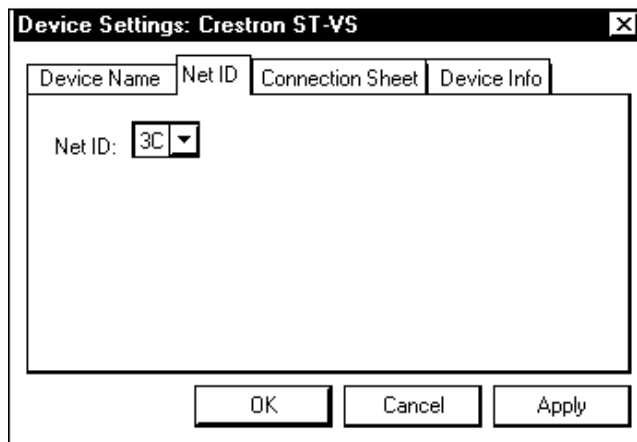
NOTE: The first ST-VS in a system is preset with a Net ID of 3C when its symbol is dragged into the upper pane of *System Views*. Additional ST-VS units are assigned different Net ID numbers as they are added.



Setting the Net ID in Device Settings

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

ST-VS “Device Settings” Window

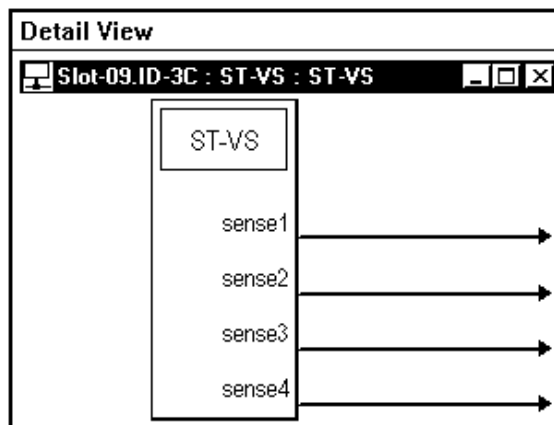


NOTE: SIMPL Windows automatically changes the Net ID values of a device added to a program if a duplicate device or a device with the same default Net ID already exists in the program. Always ensure that the hardware and software settings of the Net ID match. For Net ID hardware setting details, refer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

ST-VS 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-VS symbol in the SIMPL Windows’ Programming Manager.

Detail View of the ST-VS in SIMPL Windows Programming Manager



The ST-VS provides four discrete video sensors. The <sense> outputs go high whenever the presence of a video signal is detected at the corresponding input.

Device Extenders

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

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-VS in *Program View*, point to Insert Device Extender and select the desired device extender. To program a device extender, expand the ST-VS 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 control system. 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-VS is not field upgradable.

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:

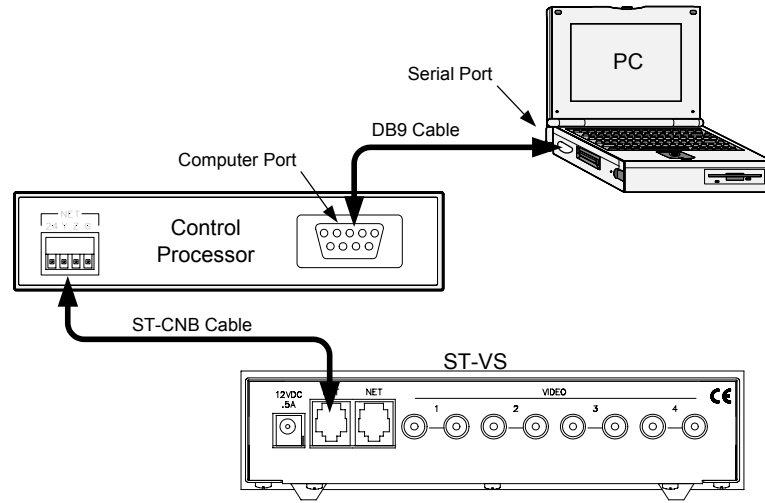
- Belkin (large model) F5U103
- I/O Gear GUC232A
- Keyspan USA-19QW

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) or 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.

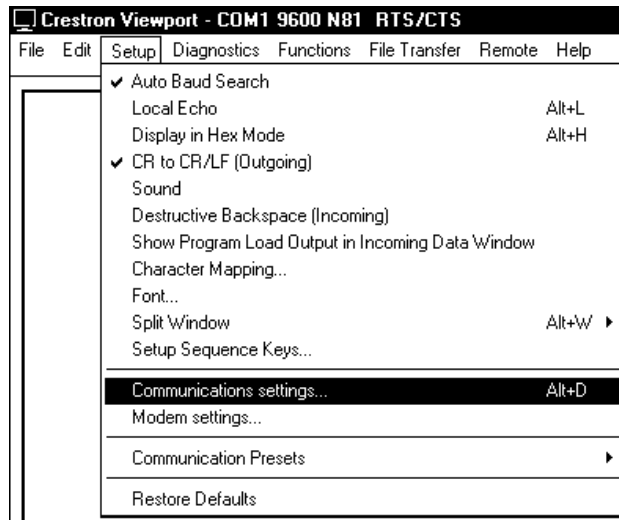
NOTE: Use a standard DB9 male to female “straight-through” cable.

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

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.

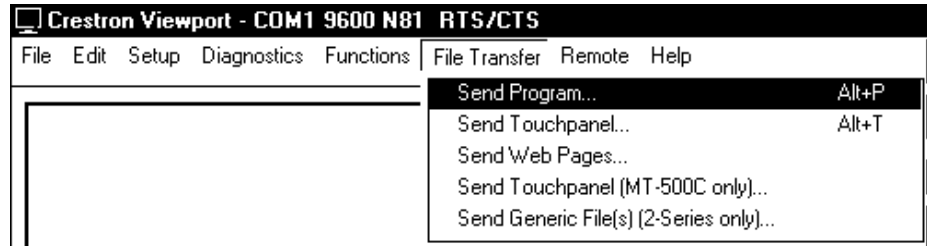
Upload via SIMPL Windows

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 11 has been performed.
2. As shown after this step, select **File Transfer | Send Program** (Alternatively, press **Alt+P**) from the Viewport menu.

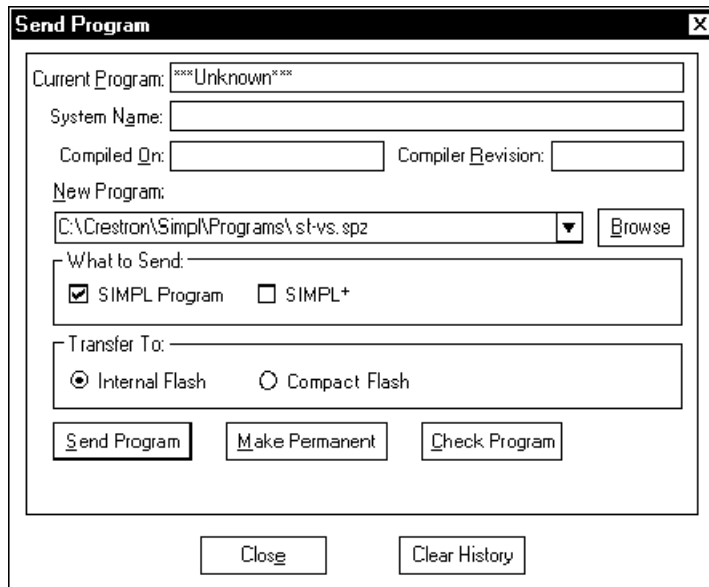
File transfer | Send Program Command



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-VS 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- VS is not receiving power. | Confirm that power pack securely plugged into outlet and that the connector is properly attached to the ST-VS. |
| | | Verify that proper cables are securely attached to ST-VS NET connectors (for Cresnet system only). |
| | Incorrect power supply. | Use a Crestron power supply, PW-1205, PWI-1210, or Cresnet. |
| Yellow NET LED does not illuminate. | Improper Net ID. | Verify that ST-VS Net ID matches the Net ID in the SIMPL Windows program. Refer to "Identity Code". |
| | Loose network connection. | Verify that cables attached to ST-VS NET connectors are proper and secure. |
| Video 1 – 4 LEDs do not illuminate | Video signal is below minimum. | Video signal must have a minimum peak-to-peak amplitude of 0.5 VDC (Sync to White level). Audio signals up to 2 Vrms. |
| | ST-VS is not receiving signal. | Ensure that the RCA cables are securely attached to the ST-VS and the source. |

Further Inquiries

If after reviewing this Operations Guide, you cannot locate specific information or have questions, please take advantage of the Crestron award winning customer service team by calling:

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

You can also log onto the online help section of the Crestron website (www.crestron.com) to ask questions about Crestron products. First-time users will need to establish a user account to fully benefit from all available features.

Future Updates

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

Check the Crestron website (www.crestron.com) periodically for manual update availability and its relevance. Updates are available from the Downloads | Product Manuals section and 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 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 supercedes all previous warranties.

Trademark Information

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Specifications subject to
change without notice.