

Crestron **C2N-SDC-DC**
Shade & Drape DC Motor Controller

Operations & Installation Guide



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Shade & Drape DC Motor Controller: C2N-SDC-DC

Introduction

Features & Functions

The Crestron[®] C2N-SDC-DC is a shade and drape DC motor control Cresnet[®] slave module designed to control two 2-wire bi-directional DC motors that drive shades and drapes. The C2N-SDC-DC is specifically designed for the Cresnet control network and functions as part of a complete Crestron control/automation system. Power for the shade motors is derived from the Cresnet +24 VDC supply. Two 2-pin terminal connectors are provided for + drive and – drive for each motor.

Functional Summary

- Controls two 24 VDC shade or drape motors individually or simultaneously (30 W maximum)
- The C2N-SDC-DC mounts on a standard 2-gang or 4-inch square electrical box
- Four manual pushbutton controls are provided on the faceplate

The C2N-SDC-DC is designed to fit inside and mount to a 2-gang wall box or 4 x 4 x 1.5 inch electrical box, where input power for the two shade or drape motors is derived from Cresnet.

Two 2-pin terminal blocks for motor connections can accommodate 30 AWG to 12 AWG wires.

A hardware interlock prevents the motors from being driven in both directions simultaneously. In addition, the firmware implements a

lockout timer that shuts the motor off for a brief time before allowing the motor to reverse direction. Additional control is available via Cresnet.

Four pushbuttons on the face of the unit allow the motors to be activated without Cresnet control, which is particularly useful when operating the unit locally during installation.

Specifications

The following table summarizes the specifications for the C2N-SDC-DC.

Specifications of the C2N-SDC-DC

SPECIFICATION	DETAILS
Cresnet Power Usage	3 Watts (0.125 Amps @ 24 VDC) ¹
Default ID	23
Control System Update Files ^{2, 3, 4}	
2-Series Control System	Version 3.117.CUZ or later
CNMSX-AV/PRO	Version 5.14.02X.UPZ or later
CNRACKX/-DP	Version 5.12.63W.UPZ or later
CEN/CN-TVAV	Version 5.12.63V.UPZ or later
Firmware Version	C2N-SDC-DC.v1.0.upg
Motor Input Power	24 VDC from Cresnet
Load Types	2-wire Bi-directional DC Motor
Maximum Load per Motor	30 W each channel, 30 W total
Operating Temperature	41° to 122°F (5° to 50°C)
Humidity Range	10% to 90% RH
Dimensions	Height: 4.10 in (10.42 cm) Width: 4.10 in (10.42 cm) Depth: 1.16 in (2.95 cm)
Weight	0.55 lb (0.25 kg)

- Does not include power for the motors. For example, add 10 Watts for each Somfy LT28B shade motor. Three Watts are consumed by the C2N-SDC-DC when the motors are not operating. Motor loads may be connected to the C2N-SDC-DC up to the available power remaining on the Crestron power supply. Crestron recommends that the available power be de-rated by a factor of two to allow for the inrush motor current that

- occurs when the motors are initially activated. A dedicated power supply for the C2N-SDC-DC and associated motors is recommended.
2. The latest versions can be obtained from the Crestron website. Refer to NOTE after last footnote.
 3. Crestron 2-Series control systems include the AV2 and PRO2. Consult the latest Crestron Product Catalog for a complete list of 2-Series control systems.
 4. Filenames for CNX update files have a UPZ extension. Files on the website may be .zip or self-extracting .exe files containing the .cuz or .upz file. All can be obtained from the Crestron website. To avoid program problems, make sure you are using the update file with the correct suffix letter (e.g., 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).

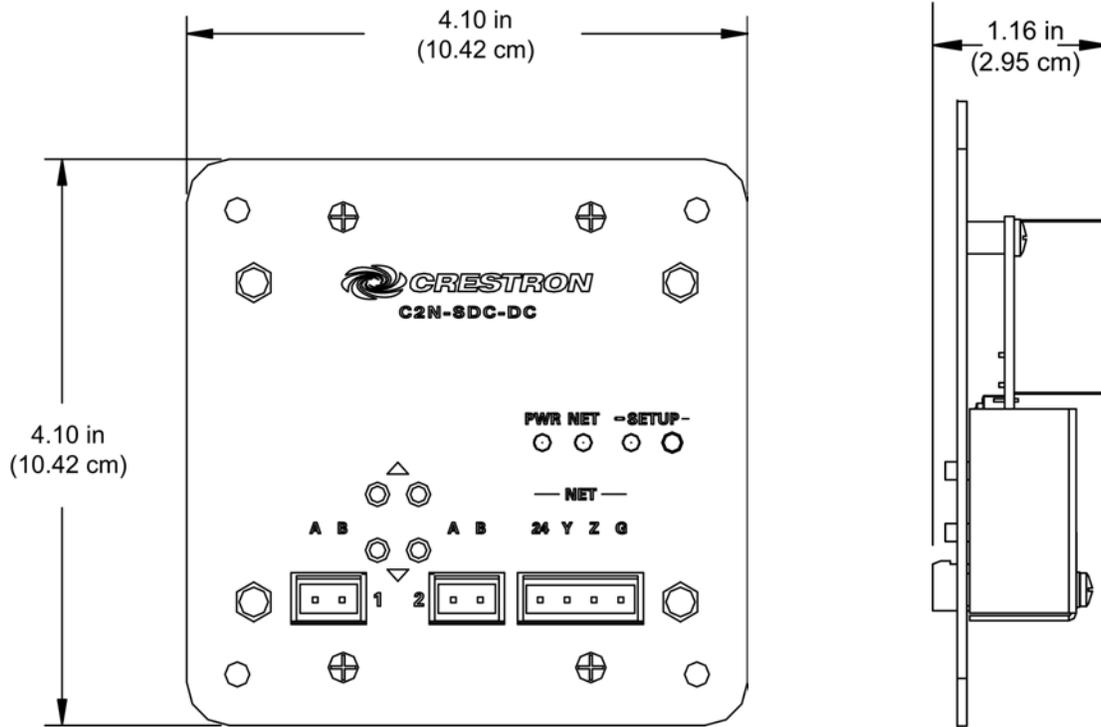
Physical Description

The C2N-SDC-DC is a mountable plate with electronic components attached to the rear side. The front side of the plate is labeled and includes; three LEDs that indicate the unit's status, one Cresnet connector, two connectors for motor control, and all local motor controls. Refer to the following illustrations.

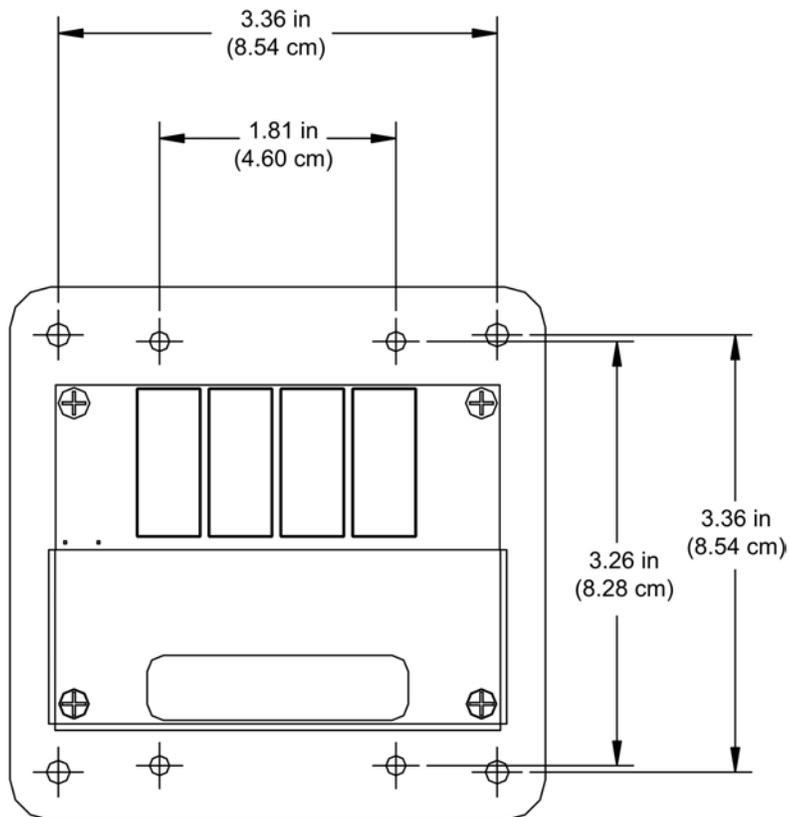
C2N-SDC-DC Front View



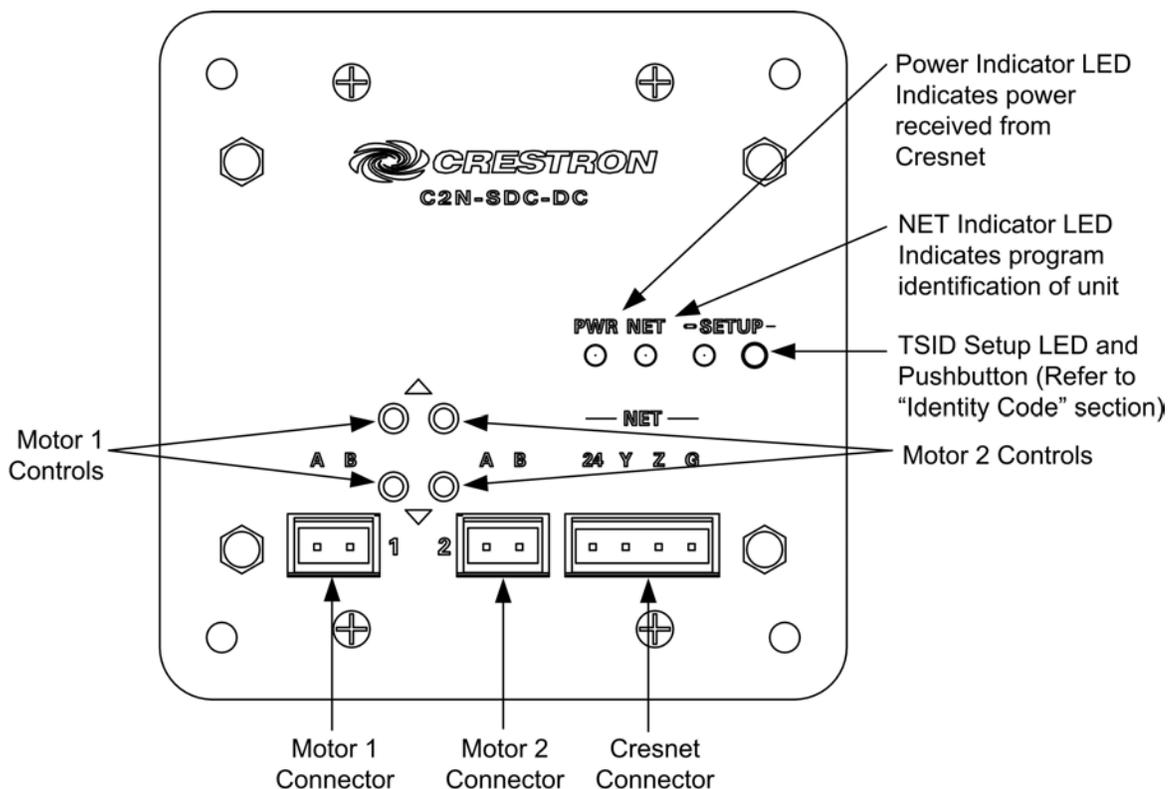
C2N-SDC-DC, Physical Views, Front and Side



C2N-SDC-DC, Physical Views, Rear



Controls and Indicators



Industry Compliance

As of the date of manufacture, the C2N-SDC-DC 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) these devices may not cause harmful interference, and (2) these devices must accept any interference received, including interference that may cause undesired operation.

Setup

Network Wiring

CAUTION: In order to ensure optimum performance over the full range of your installation topology, Crestron Certified Wire, and only Crestron Certified Wire, should be used. Failure to do so may incur additional charges if support is required to identify performance deficiencies as a result of using improper wire.

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

CAUTION: Provide sufficient power to the system. Insufficient power can lead to unpredictable results or damage to the equipment. Please use the Crestron Power Calculator (<http://www.crestron.com/calculators>) to help calculate how much power is needed for the system.

NOTE: When installing network wiring, refer to the latest revision of the wiring diagram(s) appropriate for your specific system configuration, available from the Crestron website.

When calculating the wire gauge for a particular Cresnet run, the length of the run and the Cresnet power usage of each network unit to be connected must be taken into consideration. If Cresnet units are to be daisy-chained on the run, the Cresnet power usage of each network unit to be daisy-chained must be added together to determine the Cresnet power usage of the entire chain. If the unit is a home-run from a Crestron system power supply network port, the Cresnet power usage of that unit is the Cresnet power usage of the entire run. The length of the run in feet and the Cresnet power usage of the run should be used in the following resistance equation to calculate the value on the right side of the equation.

Resistance Equation

$$R < \frac{40,000}{L \times P}$$

Where: R = Resistance (refer to the following table).
 L = Length of run (or chain) in feet.
 P = Cresnet power usage of entire run (or chain).

The required wire gauge should be chosen such that the resistance value is less than the value calculated in the resistance equation. Refer to the following table.

Wire Gauge Values

RESISTANCE (R or Ohms)	WIRE GAUGE	
	(AWG)	(MM ²)
4	16	1.50
6	18	0.75
10	20	0.50
15	22	0.34
13	Doubled CAT5	
8.7	Tripled CAT5	

NOTE: All Cresnet wiring must consist of two twisted pairs. One twisted pair is the +24V conductor and the GND conductor, and the other twisted pair is the Y conductor and the Z conductor.

NOTE: When daisy-chaining Cresnet units, strip the ends of the wires carefully to avoid nicking the conductors. Twist together the ends of the wires that share a pin on the network connector, and tin the twisted connection. Apply solder only to the ends of the twisted wires. Avoid tinning too far up the wires or the end becomes brittle. Insert the tinned connection into the Cresnet connector and tighten the retaining screw. Repeat the procedure for the other three conductors.

NOTE: For larger networks (i.e., greater than 28 network devices), it may become necessary to add a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality throughout the network. Also, for networks with lengthy cable runs, it may be necessary to add a Hub/Repeater after only 20 devices.

Identity Code

Every piece of equipment and user interface within the network requires a unique identity code (Net ID or Cresnet ID). These codes are two-digit hexadecimal numbers from 03 to FE (ID 02 is reserved for control systems). The Net ID of each unit must match an ID code specified in the SIMPL Windows program.

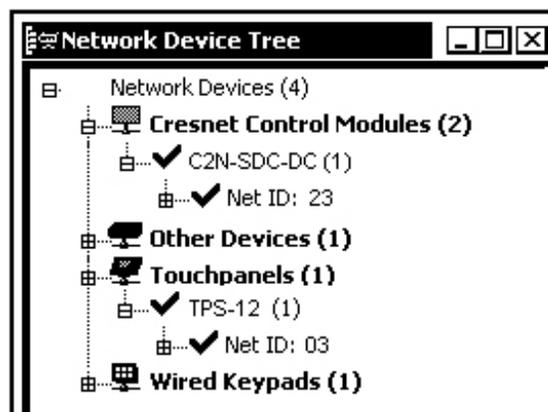
The Net ID of the C2N-SDC-DC has been factory set to **23**. The Net IDs of multiple C2N-SDC-DCs in the same system must be unique. Net IDs are changed from a personal computer (PC) via Crestron Toolbox.

NOTE: If communication cannot be established, refer to the “Troubleshooting Communications” section in the 2-Series Control Systems Reference Guide (latest version of Doc. 6256) for details. If an earlier control system is used, refer to the latest version of that control system’s Operation Guide.

NOTE: This method does not change the Net ID as assigned in SIMPL windows.

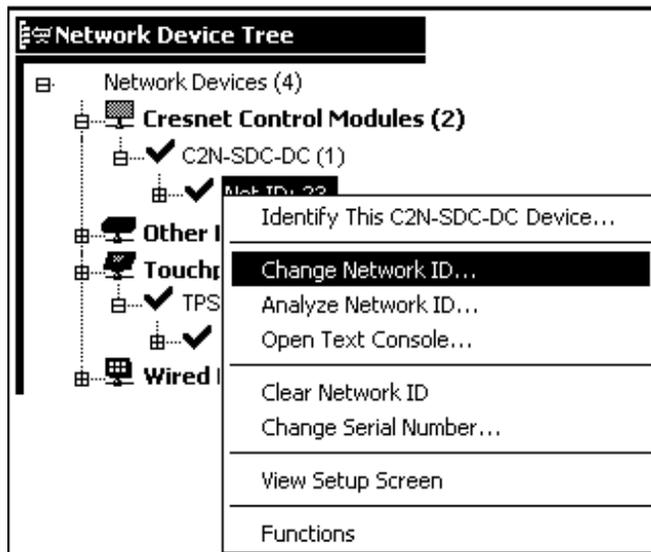
1. Ensure that the C2N-SDC-DC is connected to your computer through a control system. Refer to “Communication Settings” on page 18.
2. Once communication is established, click **Tools | Network Device Tree** to display the devices in the system. Communications are confirmed when the network devices are displayed.

Network Device Tree



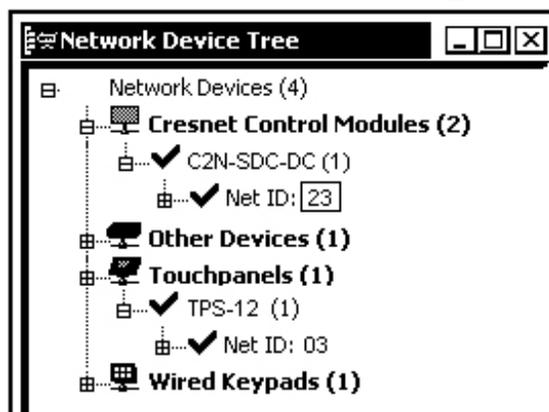
3. Right-click the C2N-SDC-DC Net ID and open the sub-menu. This menu provides a wide range of functions, including; change the Net ID, open text console, upload project, update firmware, etc.

Network Device Tree Sub-Menu



4. Select “**Change Network ID...**”. A box appears around the Net ID, allowing you to make the change. Toolbox will not allow a duplicate ID number.

Network Device Tree – Change Net ID



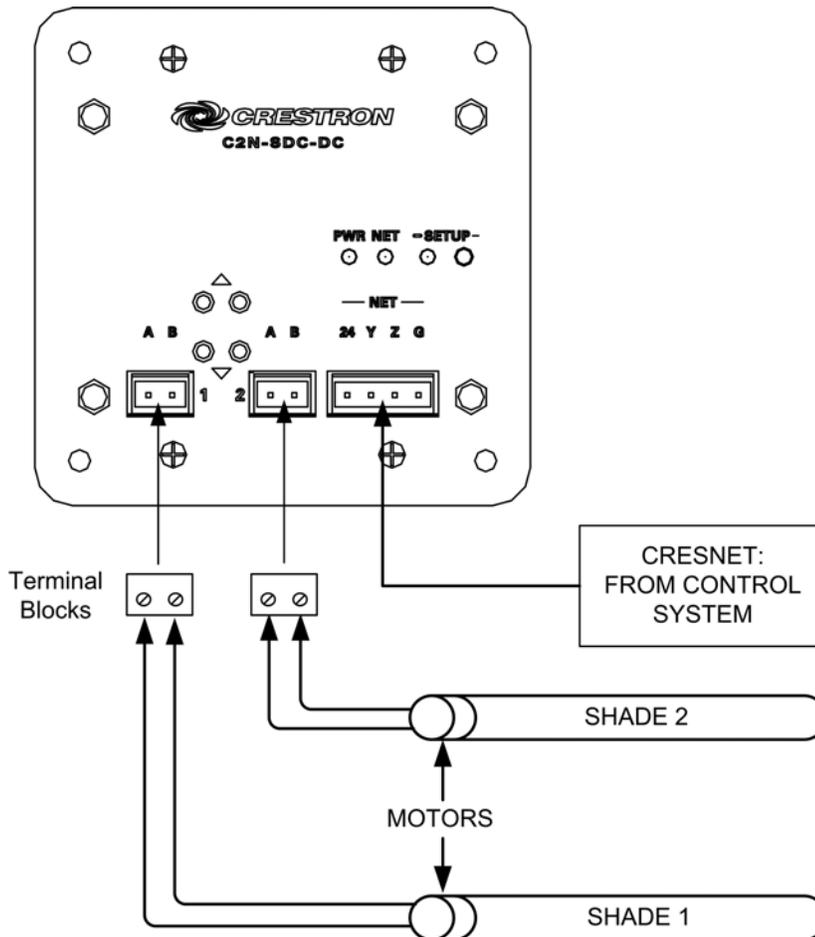
Hardware Hookup

Refer to the following hookup diagram. The C2N-SDC-DC is equipped with three connector plugs that have screw terminals. Use these connectors to attach the motor wires and Cresnet wires to the C2N-SDC-DC.

NOTE: All wiring must be installed in accordance with all local and national electrical codes.

NOTE: Three Watts are consumed by the C2N-SDC-DC when the motors are not operating. Motor loads may be connected to the C2N-SDC-DC up to the available power remaining on the Crestron power supply. Crestron recommends an independent power supply for each C2N-SDC-DC.

Hookup Diagram



NOTE: The UP ▲ button applies +24 VDC to pin A (referenced to pin B). The DOWN ▼ button applies +24 VDC to pin B (referenced to pin A). If the shade does not go in the desired direction when the button is pressed, reverse the polarity of the shade motor wires.

Installation

The C2N-SDC-DC may be mounted in a two-gang electrical box or a 4 x 4 inch (1900) electrical box. Ensure that you are using a box with sufficient depth (minimum 1.5 inch) to accommodate the device.

Screws are included for both mounting locations.

Included Mounting Hardware

QUANTITY	PART	APPLICATION
4	06-32 x 3/8" Pan Head Screw	Two-Gang Electrical Box Mounting (not provided)
2	08-32 x 3/8" Pan Head Screw	4 X 4 inch (1900) Electrical Box Mounting (not provided)

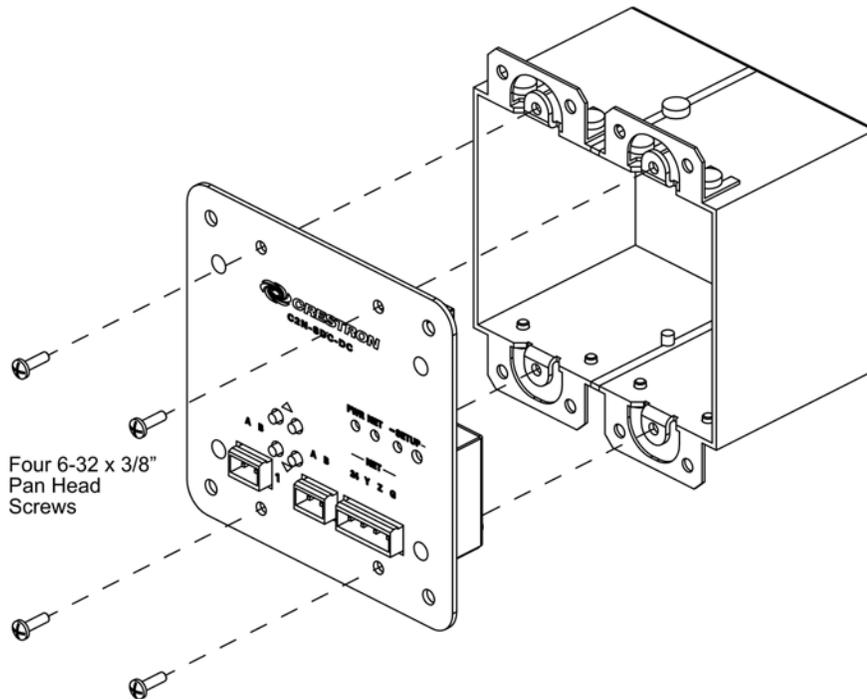
Tools Required:

- Phillips screwdriver

Two-Gang Box Mounting

When mounting in a two-gang electrical box, use the four 06-32 3/8" pan head screws as shown in the following illustration.

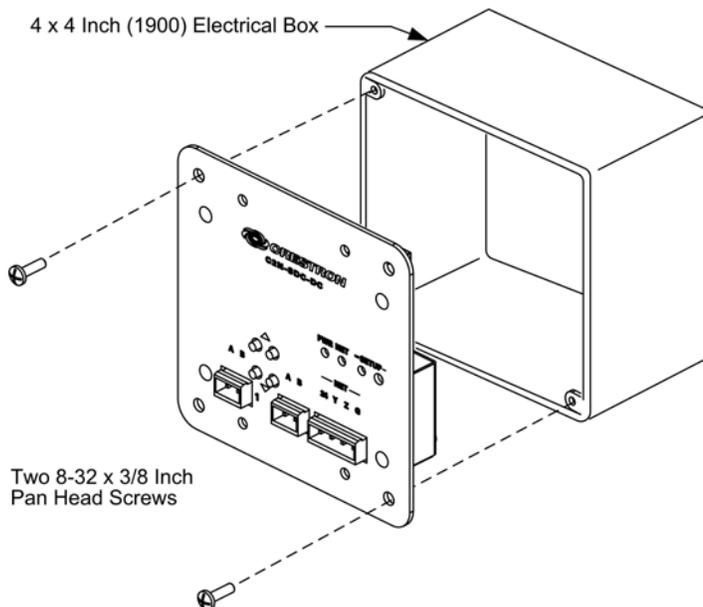
Installation in a Two-Gang Electrical Box



4 x 4 Inch Box Mounting

When mounting the C2N-SDC-DC in a 4 x 4 inch electrical box, use the two 8-32 x 3/8 inch pan head screws as shown in the following illustration.

Installation in a 4 x 4 Inch (1900) Electrical Box



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. To post a question or view questions you have submitted to Crestron's True Blue Support, log in at <http://support.crestron.com>. First-time users will need to establish a user account.

The C2N-SDC-DC can be programmed with SystemBuilder™, D3 Pro™, iLux™ Designer, or with SIMPL Windows for the more advanced Cresnet programmers.

SystemBuilder offers a host of tools, templates, wizards and automated operations for creating complete control system projects. SystemBuilder presents a simple graphical interface, organized into five views. Each view provides a toolbox of equipment such as interfaces, third-party sources, and control modules.

Crestron D3 Pro software creates a complete project, with no special programming required. D3 Pro completes all necessary programming for a base system including the control system program. Once D3 Pro creates the project, the system interfaces and program logic can be customized. It can also be modified with Crestron development tools (i.e., SIMPL Windows) software, although this should rarely be necessary.

The program output of D3 Pro and SystemBuilder are SIMPL Windows programs with much of the functionality encapsulated in macros. Therefore, extending the capabilities of the system is very easy. Crestron D3 Pro, SystemBuilder and SIMPL Windows are intended for users with different levels of programming knowledge. The flexibility of each is proportional to the degree of programming expertise (i.e., the more flexible, the more a programmer needs to know and account for). Of course, one can begin programming using the easiest method (Crestron D3 Pro and SystemBuilder) and use advanced techniques that are available from SIMPL Windows to customize the job.

Crestron iLux Designer is a Cresnet sub-system used for lighting and shade/drape control. It is capable of storing and recalling 16 scenes and allows individual lighting and shade control.

The iLux Designer and SystemBuilder software can be downloaded from the Crestron website, and contain extensive help files.

Earliest Version Software Requirements for the PC

NOTE: Crestron recommends that you use the latest software and that each device contains the latest firmware to take advantage of the most recently released features. Please check the Crestron website (<http://www.crestron.com/updates>) for the latest versions of software and firmware. New users are required to register to obtain access to this site.

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

- SIMPL Windows version 2.05.22 with Library Update 337. Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 17.1.0 or later. Required by SIMPL Windows.
- (Optional) Crestron D3 Pro™ (version 1.43 or later)
- (Optional) Crestron Toolbox (version 1.0.5.0 or later)
- (Optional) Crestron SystemBuilder™ (version 1.02 or later)
- (Optional) Crestron iLux™ Designer (version 1.0 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 a C2N-SDC-DC, 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

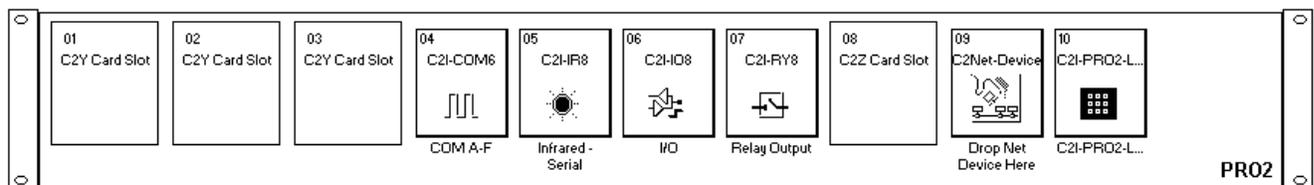
NOTE: In the following description, the PRO2 control system is used.

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 a C2N-SDC-DC.

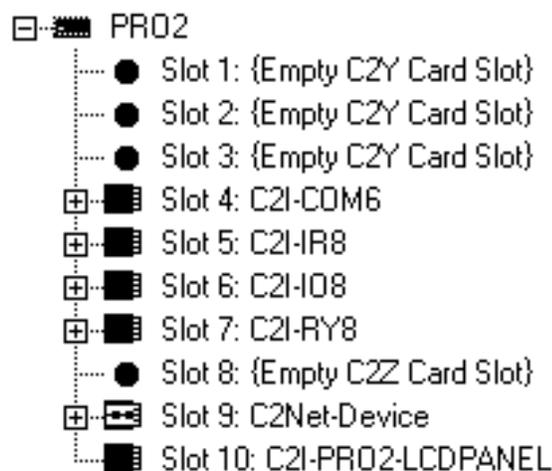
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

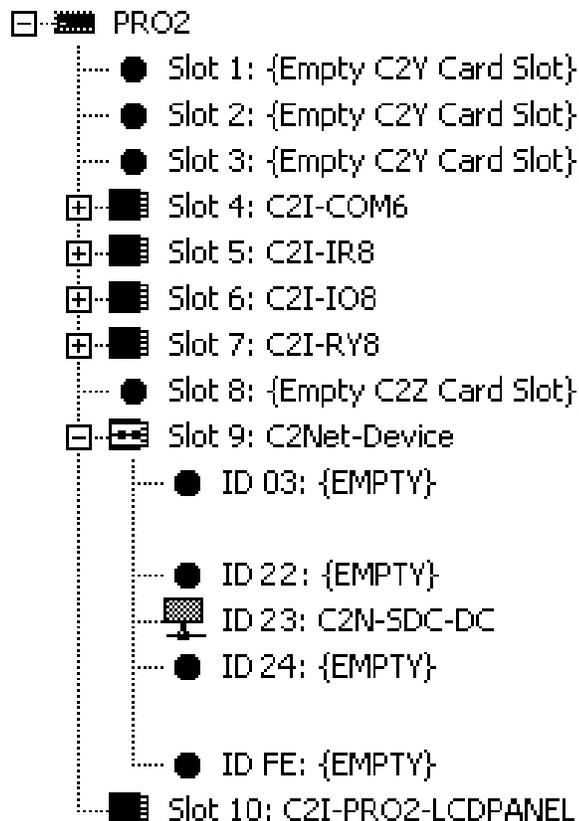


C2Net-Device Slot in Configuration Manager

To incorporate a C2N-SDC-DC into the system, drag the C2N-SDC-DC from the Cresnet Control Modules | Cresnet Shade Drape Controllers folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree displays the C2N-SDC-DC in Slot 9, with a default Net ID of 23 as shown in the following illustration.

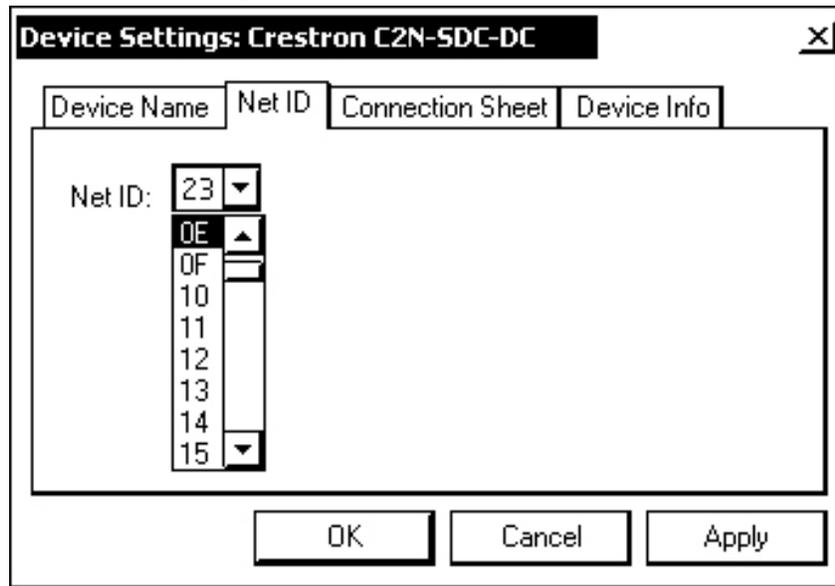
NOTE: The first C2N-SDC-DC in a system is preset with a Net ID of 23 when its symbol is dragged into the upper pane of *System Views*. Additional units are assigned different Net ID numbers as they are added.

C2Net Device, Slot 9



Setting the Net ID in Device Settings

Double-click the C2N-SDC-DC icon to open the “Device Settings” window. This window displays the C2N-SDC-DC device information. If necessary, select the *Net ID* tab to change the Net ID as shown in the following figure.

“Device Settings” Window

NOTE: SIMPL Windows automatically changes the Net ID value of a device added to a program if a device with the same 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 8.

C2N-SDC-DC Symbol in Programming Manager

Programming Manager is where programmers "program" a Crestron control system by assigning signals to symbols. The symbol can be viewed by double clicking on the icon or dragging it into *Detail View*. A description for each signal in the symbol is described in the SIMPL Windows help file (F1).

Example Program

An example program for the C2N-SDC-DC is available from the "Example Programs" section of the Crestron website (<http://www.crestron.com/exampleprograms>). Search for C2N-SDC-DC.zip.

Uploading and Upgrading

NOTE: Crestron recommends that you use the latest software and that each device contains the latest firmware to take advantage of the most recently released features. Please check the Crestron website (<http://www.crestron.com/updates>) for the latest versions of software and firmware. New users are required to register to obtain access to this site.

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 Toolbox.

The following section defines how to upload a SIMPL Windows program using Toolbox. 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 (discontinued)
- Keyspan USA-19QW (discontinued)

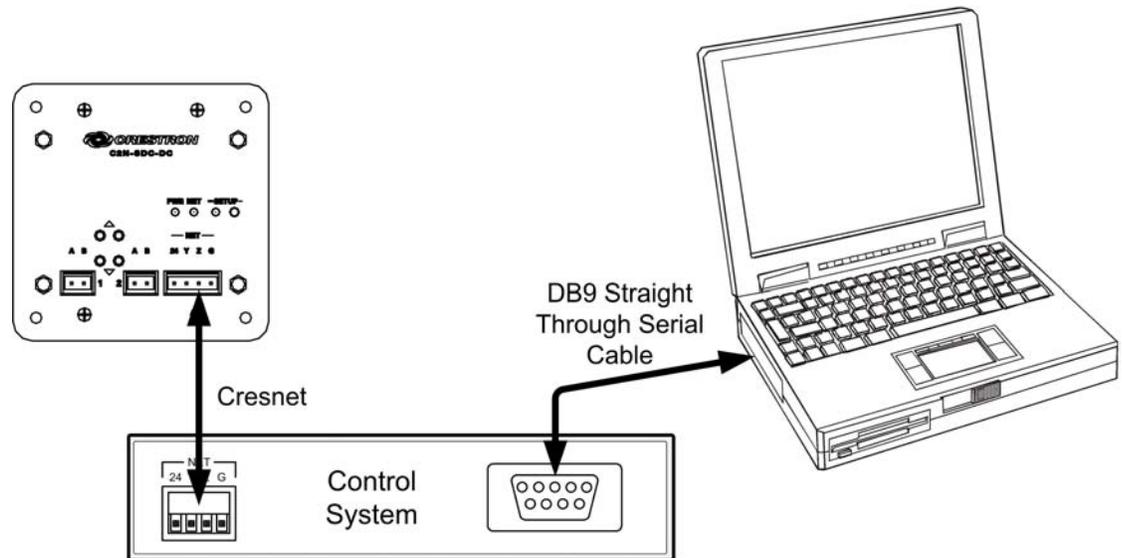
Other models, even from the same manufacturer, may not yield the same results.

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 Crestron website. Refer to the following figure for a typical connection diagram when uploading files.

NOTE: Use a standard DB9 male to female “straight-through” cable for 2-Series controllers.

Typical Connection Diagram when Uploading



1. Ensure that all devices are connected to the control processor and the control processor is connected via serial cable to the PC.
2. Open Crestron Toolbox.
3. Open Crestron Toolbox and click **Tools | Manage Address Book** to display a list of available devices. Select **Serial on COM1** as the connection type. **Serial on COM1** is an entry in the DefaultAddressBook that is included with Crestron Toolbox. The Address Book allows you to maintain a list of accessible control systems and network devices. You can establish a session with any or all of the devices in the address book (provided the PC has a valid connection to each device via Cresnet, Ethernet, or serial communication).

The PC communication settings specified here should match the protocol that the control processor expects. The usual settings are as follows.

- Port = COM 1 through COM 8. Select the correct COM port on the PC.
- Baud rate = Auto-Detect (or 115200).
- Parity = None.
- Number of data bits = 8.
- Number of stop bits = 1.
- Hardware handshaking (RTS/CTS) enabled.
- Software handshaking (XON/XOFF) not enabled.

“Address Book” Window – Serial Setup

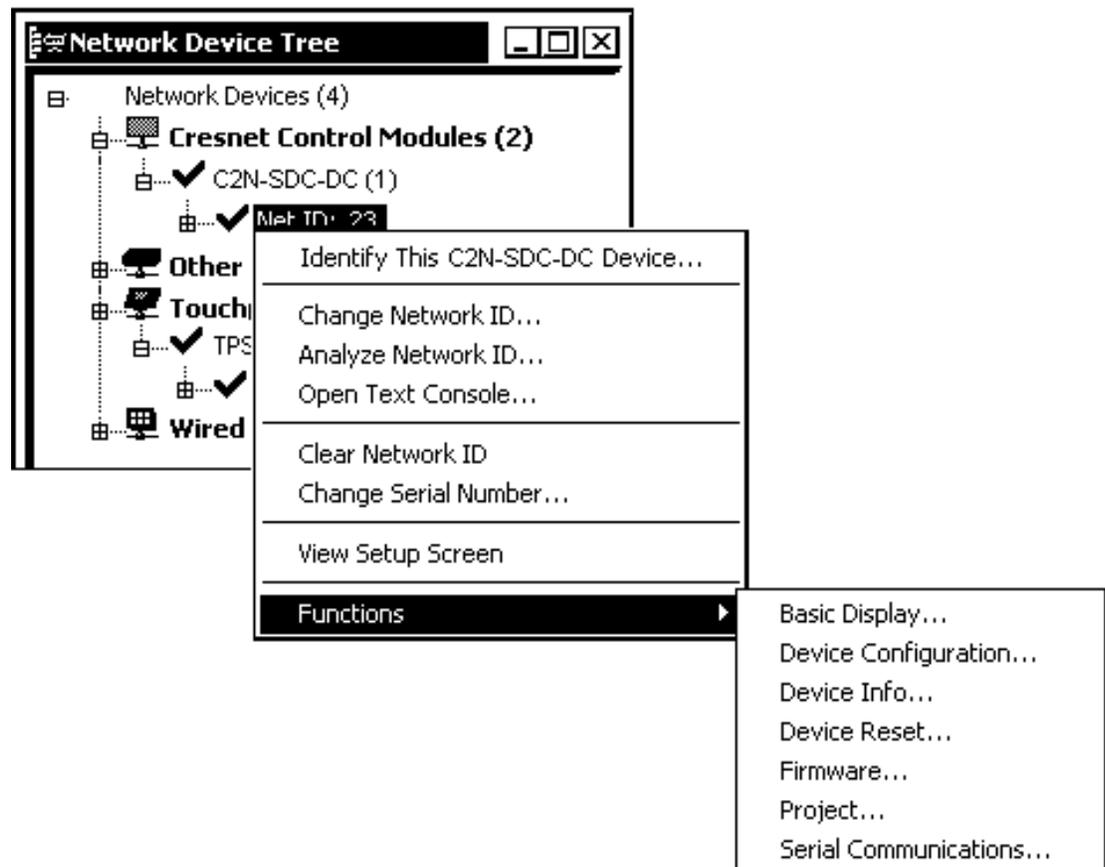
Name	Address
Serial on COM1	rs232 1,0,n,8,1,n,y
WPR-48	rs232 1,115200,n,8,1,n,n;devi...
ML-500	rs232 1,115200,n,8,1,n,n;devi...
MT-1000	usb;device MT-1000
MT-500C	rs232 1,115200,n,8,1,n,n;devi...
Remote Cons...	Serial on COM1: cresnet 03

4. After setting the correct parameters, click **OK** to return to the Crestron Toolbox main window.
5. Click **Tools | Network Device Tree**, or click the network device tree icon  to display the devices in the system.

Communications are confirmed when the network devices are displayed.

To view a specific device, expand the network device tree by clicking +. Expand the network device tree until the device to be managed is selected. Right-click the desired Net ID to open the sub-menu. This menu provides a wide range of functions, including; change the Net ID, open text console, upload project, update firmware, etc.

Network Device Tree Sub-Menu



NOTE: Toolbox displays a customized list of functions depending on the type of device with which it is communicating.

Uploading a SIMPL Windows Program

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

Upload via SIMPL Windows

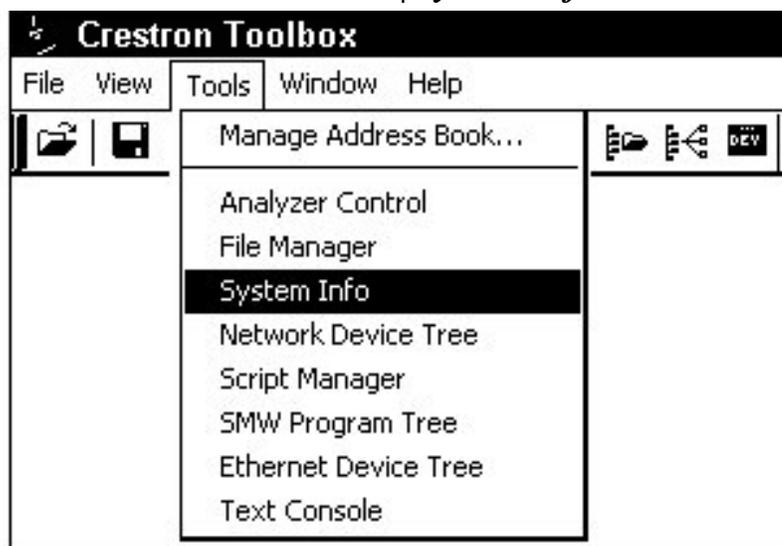
1. Start SIMPL Windows.
2. Select **File | Open** to view the “Open” window, navigate to the SIMPL Window file (.smw), and click **Open**.
3. Select **Project | Transfer Program**.

NOTE: 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+.

Upload via Toolbox

1. Verify that the procedure for “Communication Settings” that begins on page 18 has been performed.
2. Open Crestron Toolbox.
3. Select **Tools | System Info**.

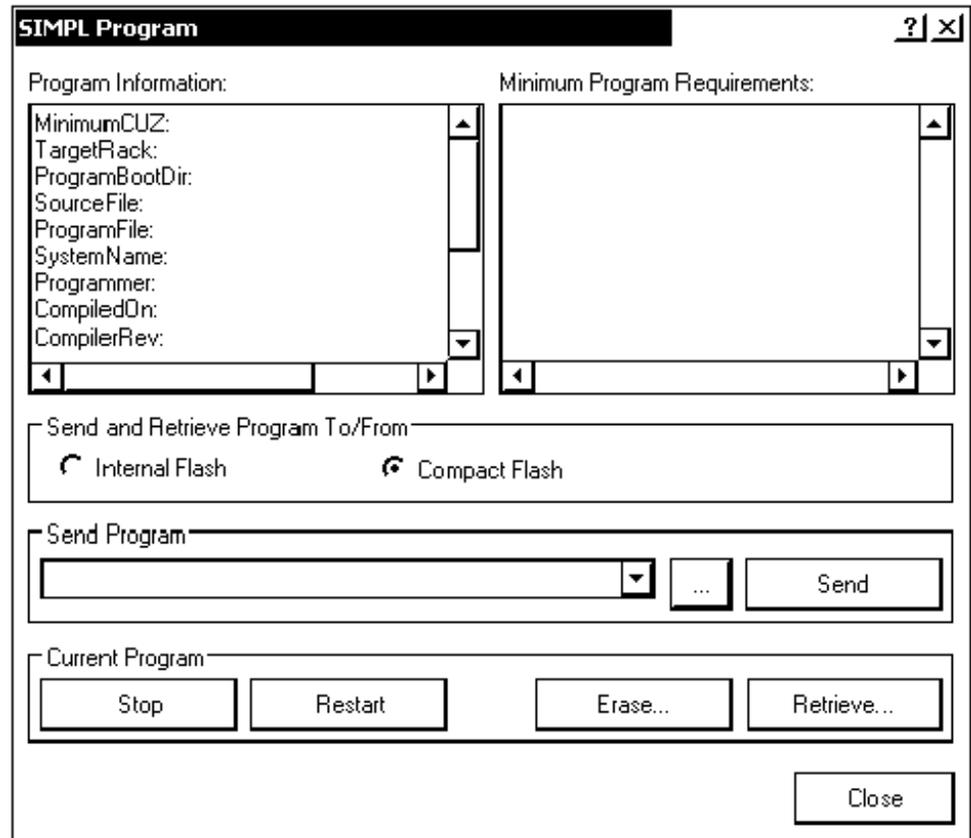
Crestron Toolbox – Tools | System Info



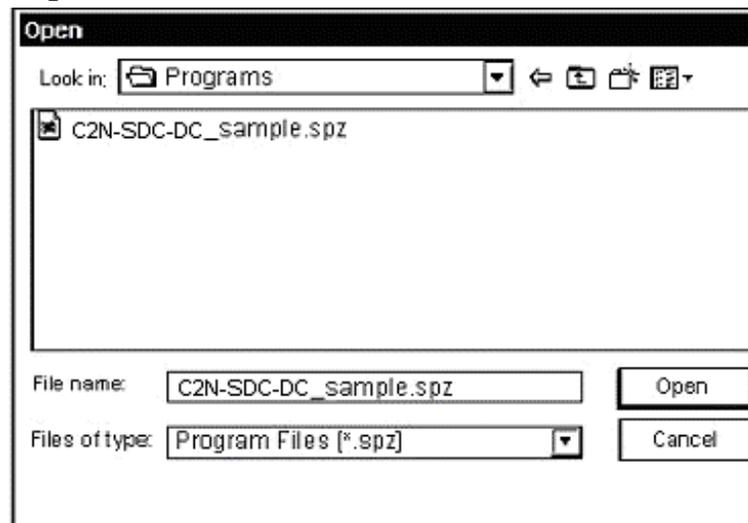
- When the “System Info” window appears, the Functions option becomes available from the menu bar.
- Select **Functions | SIMPL Program**.

The “SIMPL Program” window contains information about the currently loaded SIMPL program (if any), and permits you to stop, start, erase, retrieve, and upload a SIMPL program. This menu also permits you to upload to compact flash or internal flash.

“SIMPL Program” Window



- Click the  button to browse for a new compiled (.spz) program.

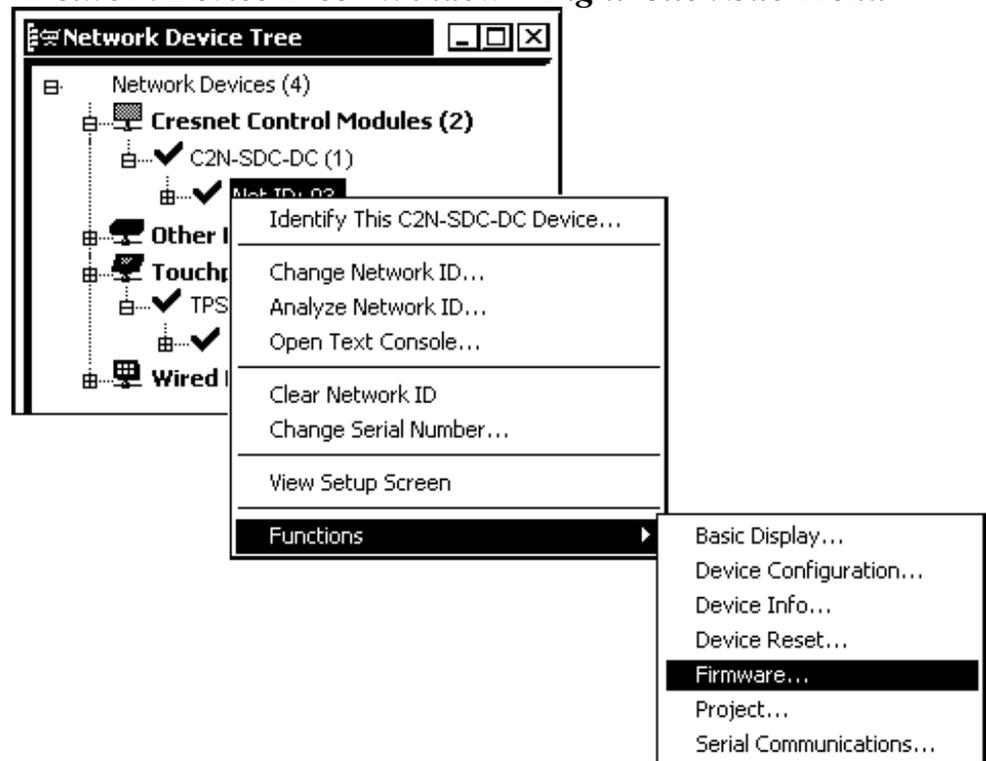
“Open” Window

7. Select a file and click **Open**. When the “SIMPL Program” window re-opens click **Send**.

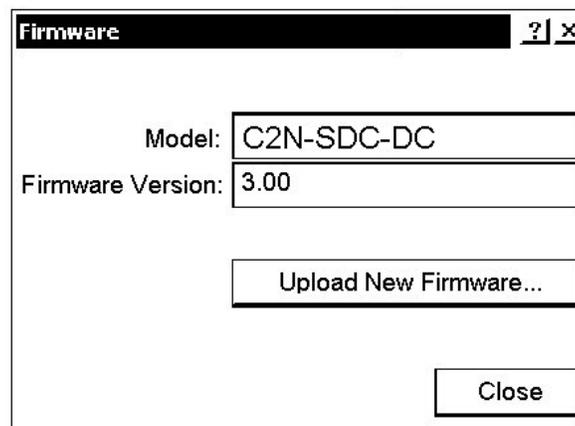
Firmware Upgrade

To take advantage of all the C2N-SDC-DC features, it is important that the unit contains the latest firmware available. Please check the Crestron website for the latest version of firmware. Not every product has a firmware upgrade, but as Crestron improves functions, adds new features, and extends the capabilities of its products, firmware upgrades are posted. To upgrade the firmware using Crestron Toolbox, complete the following steps.

1. Verify that “Communication Settings,” which begins on page 18, has been performed.
2. Open Crestron Toolbox.
3. Open the “Network Device Tree” window.
4. Right-click on the device and select **Functions | Firmware....**

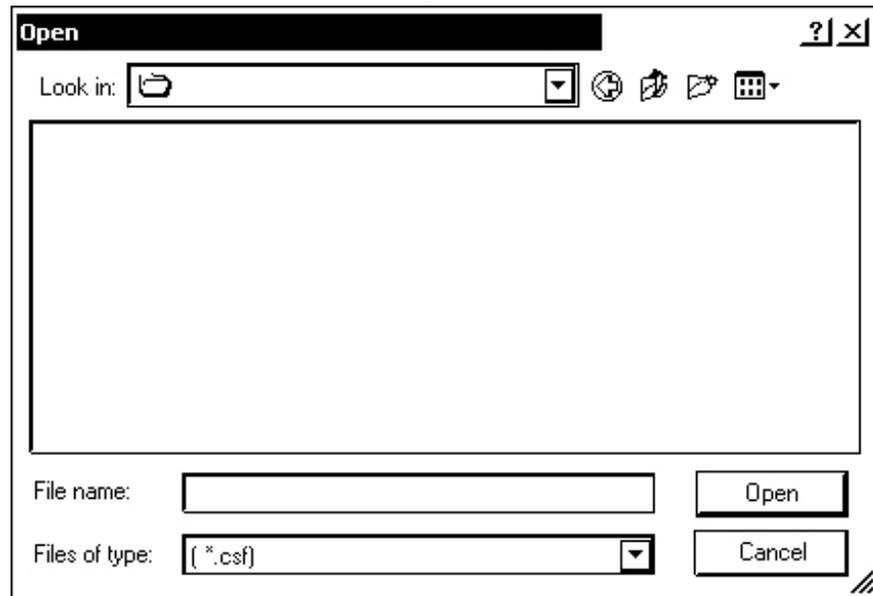
“Network Device Tree” Window – Right-Click Sub Menu

5. The “Firmware” window displays the model and current firmware version. Click **Upload New Firmware** to browse for the firmware file.

“Firmware” Window

6. When the following screen appears, browse to locate the firmware (.csf) file.

Locate Firmware in the “Open” Window



7. Click **Open** and the file transfers to the unit.
8. The “Firmware” window indicates the new firmware version. Click **Close**. The device reboots with the new firmware.

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.

C2N-SDC-DC Troubleshooting

TROUBLE	PROBABLE CAUSE(S)	CORRECTIVE ACTION
Green PWR LED does not illuminate	Wrong power supply	Use a Crestron power supply
	C2N-SDC-DC is not receiving power	Verify that cable plugged into NET port is secure

Continued on the following page

C2N-SDC-DC Troubleshooting (continued)

TROUBLE	PROBABLE CAUSE(S)	CORRECTIVE ACTION
Yellow NET LED does not illuminate	Improper Net ID	Verify that the C2N-SDC-DC Net ID matches the Net ID in the software program
	Loose network connection	Verify that cable plugged into NET port is secure
Shade/Drape move in opposite direction desired	Incorrect shade/drape motor wiring	Reverse the polarity of shade/drape motor wires
Shade/Drape does not respond	Shade/Drape fault	Verify shade/drape upper and lower limit – Refer to shade/drape manufacturer instructions
SETUP LED is on steady	No application software	Load firmware
SETUP LED is flashing	Flashes during download	Wait for download to complete. If still flashing or on steady, cycle power

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

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.

You can also log onto the online help section of the Crestron website 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 C2N-SDC-DC, 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 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. 07647, 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.

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**Operations & Installation Guide – DOC. 6373
(2012949)
07.05**

Specifications subject to
change without notice.