Crestron **C2N-FTB**
FlipTop Control Center with Cresnet®
Operations & Installation Guide

CRESTRON

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CRESTRON

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Contents

FlipTop Control Center with Cresnet®: C2N-FTB

Introduction

Features and Functions

The C2N-FTB-B and the C2N-FTB-BALUM are Crestron® keypad devices that provide a stylish flush-mount tabletop interface and control solution. The fliptop compartment provides organized storage for a variety of pullout computer, communication, and A/V cables, which stow neatly out of sight within the fliptop compartment when not in use. The keypad provides A/V, lighting, and other functional controls via Cresnet®.

The suffix '-B', and '-BALUM', respectively denotes color, e.g., C2N-FTB-B is a black unit, and C2N-FTB-BALUM has a brushed aluminum finish. For simplicity within this guide, color suffix is omitted and the designation C2N-FTB is used except where noted.

Functional Summary

- Built-in engravable* keypad with 10 to 20 buttons with LEDs

- One AC power passthrough connector

- Two Cresnet ports (on the bottom side)

- Cable support plate (included)

* As an option, custom-engraved buttons can be designed and obtained by using the Crestron Engraver software. They are available from the Crestron website.

C2N-FTB Block Diagram
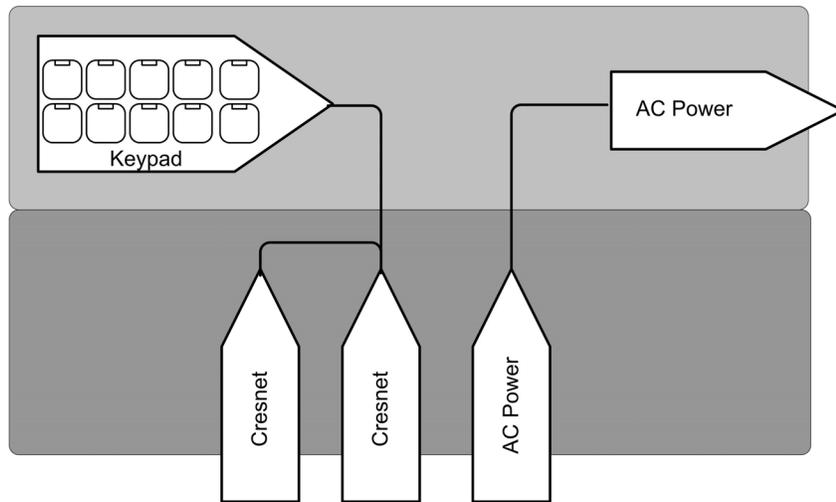
Specifications

Specifications for the C2N-FTB are given in the following table.

C2N-FTB Specifications

SPECIFICATION	DETAILS
Cresnet Power Usage	2 Watts (0.082 Amp @ 24 VDC)
Default Network ID	1E
Firmware	C2N-FTB.V.1.00.upg or later
2-Series Control System Update Files[1,2]	Version 3.125.CUZ (for QM-RMCRX) or later
Connectors	
Cresnet	(2) 4-pin terminal blocks
Ground	(1) Ground Terminal
AC	(1) AC Outlet
Operating Temperature and Humidity	41º to 104º F (5º to 40º C) 10 to 90% relative humidity (non-condensing)
Dimensions and Weight	Width: 6.75 in (17.13 cm) Height: 5.39 in (13.68 cm) with top closed Depth: 5.71 in (14.49 cm) Weight: 3.75 lbs (1.70 kg)

1. The latest software versions can be obtained from the Crestron website (www.crestron.com/updates). Refer to the NOTE following these footnotes.

2. 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.

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

Physical Description

Refer to the physical views shown below.

Top Open View

Physical Dimensions - Top View
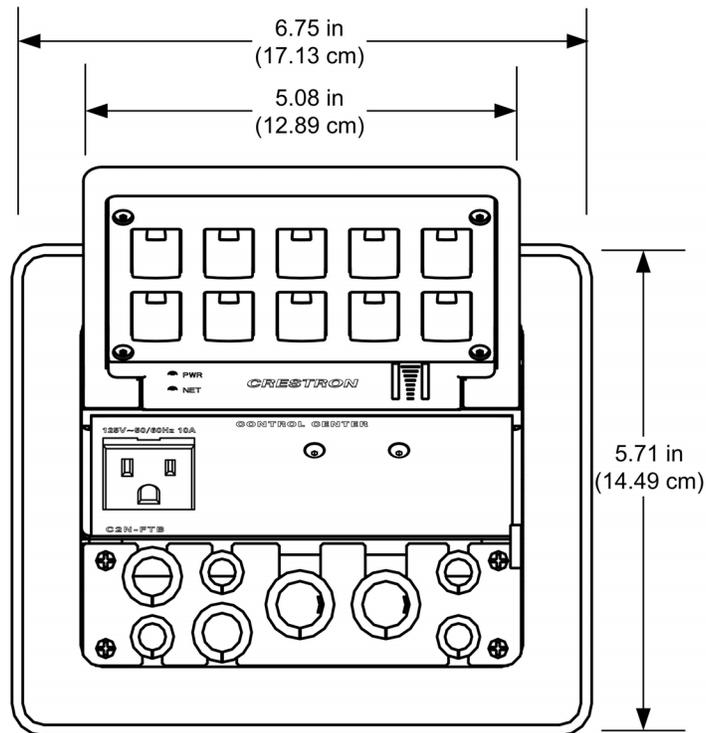
Physical Dimensions - Front View

Bottom View

5.35 in
(13.59 cm)

6.25 in
(15.86 cm)

Back View

Side View

2.31 in
(5.88 cm)

4.31 in
(10.95 cm)

5.39 in
(13.68 cm)

4.63 in
(11.77 cm)

5.21 in
(13.22 cm)
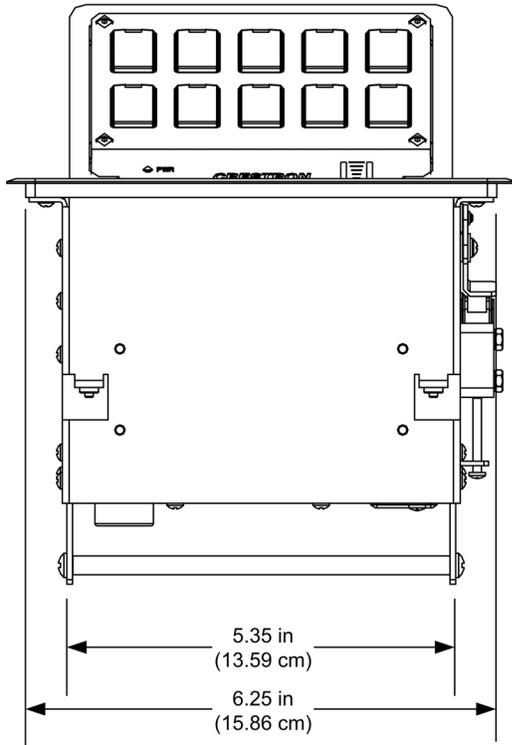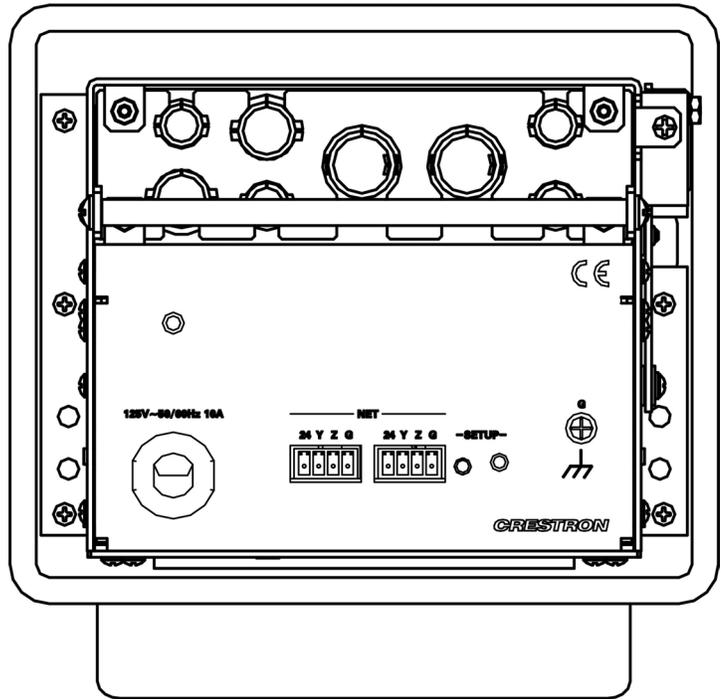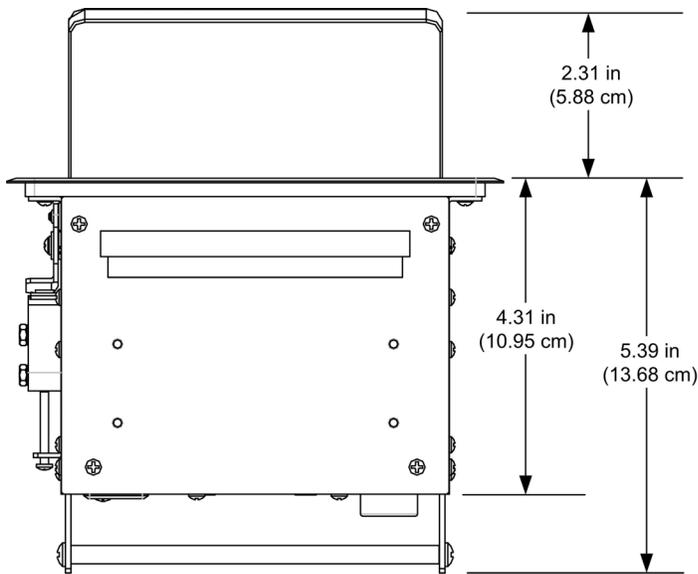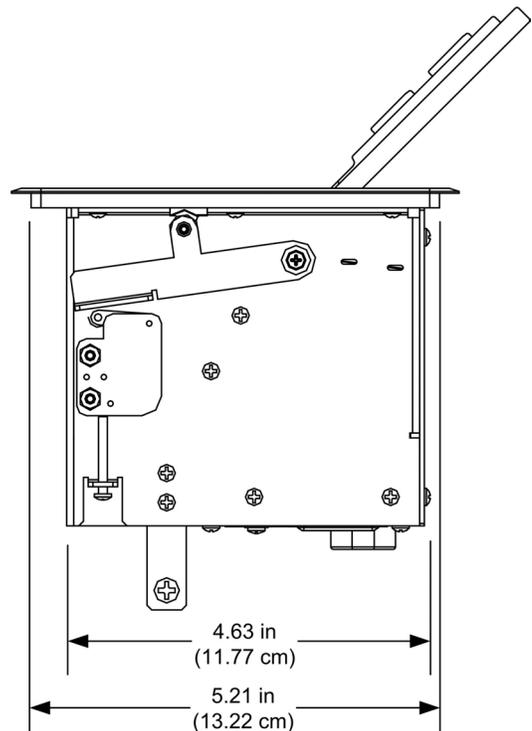
Controls and Ports (Top)

Buttons

The C2N-FTB can have 10 to 20 engravable, replaceable, programmable buttons. All buttons are functionally identical and have light emitting diodes (LEDs) that serve as user feedback indicators. The illumination of each LED (on/off) is independently addressable, and programmable using SIMPL Windows.
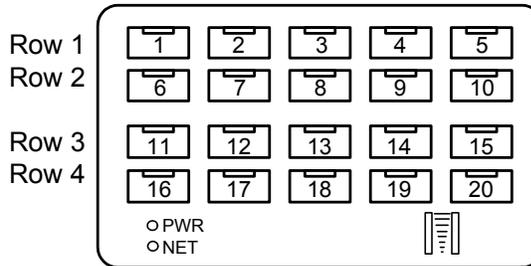
NOTE: Numbers in this illustration are for programming purposes only. Refer to page 21 for programming information.

NOTE: The C2N-FTB is shipped with a set of ten buttons. Additional buttons may be added by ordering button kits (refer to page 10).

NOTE: These button units do not support audio WAV files.

AC Outlet

125V – 50/60Hz 10A
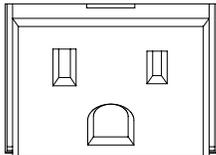
The 3-prong grounded AC outlet is rated at 125 VAC @ 10 Amps, 50 – 60 Hz.

Ports (Underside)

NET (x2)
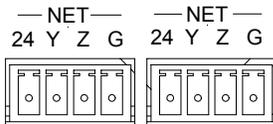
These two 4-pin terminal block connectors, located on the bottom side of the C2N-FTB, are for connection to the Cresnet network. One connector is used to connect to the Cresnet network while the second connector can be used to connect another Cresnet device. Cresnet power to the C2N-FTB is supplied through either of these connectors. For more information, refer to "Network Wiring" on page 6.

AC Power
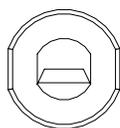
Connect the six-foot (183 cm) grounded AC line cord to supply AC power to the outlet on the topside of the C2N-FTB.

125V – 50/60Hz 10A

Indicators

PWR (Power)

This LED illuminates when 24 volts DC is supplied to the C2N-FTB from Cresnet.

NET

This LED illuminates when communication between the control system and the C2N-FTB is established (the unit is polled on the network). Illumination indicates that the SIMPL Windows program currently loaded has a network device defined at the same Net ID as the C2N-FTB.

Bargraphs

Two sets of eight-segment programmable red LEDs are provided that can be programmed to display audio level settings. The LEDs display is proportional to the input and can be set from zero to 100%.

SETUP LED and Pushbutton

The C2N-FTB is Touch-Settable ID-ready. A **SETUP** pushbutton is located on the bottom side of the C2N-FTB. The **SETUP** pushbutton and its associated LED are used for setting a units network ID during the initial configuration of a Cresnet system or when the device is being added/replaced. Refer to "Method B (Touch Settable ID)" on page 9 for detailed information.

Industry Compliance

As of the date of manufacture, the C2N-FTB has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling.

$$\text{CE} \quad \text{C}$$

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

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

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 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 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 resistance equation below 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	WIRE GAUGE
4	16
6	18
10	20
15	22
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 additional information on video connections over CAT5, refer to the latest version of the Crestron CAT5 Wiring Reference Guide (Doc. 6137) which is available from Crestron website (http://www.crestron.com/manuals).

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

Identity Code

Every equipment and user interface within the network requires 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 20 for details of the SIMPL Windows procedure

Refer to the note on page 23 for a definition of Viewport.

The Net ID of the C2N-FTB has been factory set to **1E**. The Net IDs of multiple C2N-FTBs 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 23. If communication cannot be established, refer to the "Troubleshooting Communications" section in the latest version of the 2-Series Control System Reference Guide (Doc. 6256), which is available from the Crestron website.

There are two different methods—Method A or Method B—for setting the Net ID:

Method A (Cresnet address-settable ID), described as follows, applies to devices in a Cresnet system with a 2-Series control system and requires that a single unit be the only network device connected to the control system.

Method B (Touch Settable ID or TSID), which begins on page 9, applies to all TSID-ready devices in a Cresnet system with 2-Series control system upgrade file (CUZ) version 3.029 or later. TSID functionality makes it possible for the control system to recognize a network device via its serial number, which is stored in the device's memory. This method does not require that any devices be disconnected from the network; Net IDs may be set with the entire Cresnet system intact. This method requires the use of the Crestron Viewport version 3.35 or later.

Use the appropriate method to set the Net ID.

Method A (Cresnet address-settable 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.

Method B (Touch Settable ID)

Before using this method, you should have a list of all current network devices and their Net IDs, to avoid assigning duplicate IDs.

Set Net ID by TSID

These procedures are for TSID-enabled network devices during the initial configuration of a Cresnet system or when such devices are being added/replaced.

1. Ensure that all network devices are connected to the control system.

2. Open the Crestron Viewport version 3.35 or later.

3. From the Viewport menu, select **Functions | Assign Cresnet ID by Serial Number**. The "Set Net ID by TSID" window appears. The window is first displayed with the data fields empty.

4. Click the **Search for Touch Settable Devices** button. The system searches the network and lists all TSID-enabled devices found. The list is similar to the report produced by pressing **F4** (Report Network Devices); the first eight digits of each line constitute the TSID number (hexadecimal form of the serial number).

"Set Net ID by TSID" Window
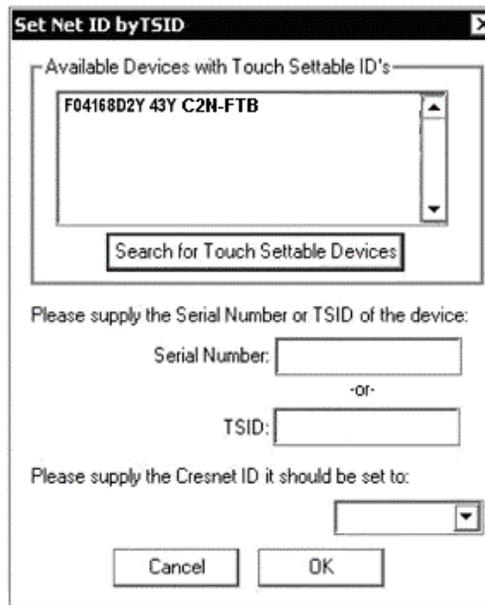
5. Enter either the serial number or TSID number of the device that requires a change. The list scrolls to and highlights the device listing. The listing should show the device's default Cresnet ID (a.k.a. Net ID).

6. Enter the Cresnet ID that the device should be set to and click **OK**. The number you enter should appear on the list.

CAUTION: This function does not prevent you from setting duplicate IDs. Be sure to check current assignments before entering the desired Cresnet ID number.

Serial Number to TSID Conversion

This utility is useful in a case where there are multiple devices of the same type on a network, you need to locate a particular one, you know the TSID but not the serial number, and your site installation list is based on device serial numbers. In this (or the reverse) situation, do the following:

1. Open the Crestron Viewport.

2. From the Viewport menu, select **Functions | Serial Number ←→ TSID Conversion Tool**. The "Serial Number ←→TSID Conversion Tool" window is displayed.

"Serial Number to TSID Conversion Tool" Window
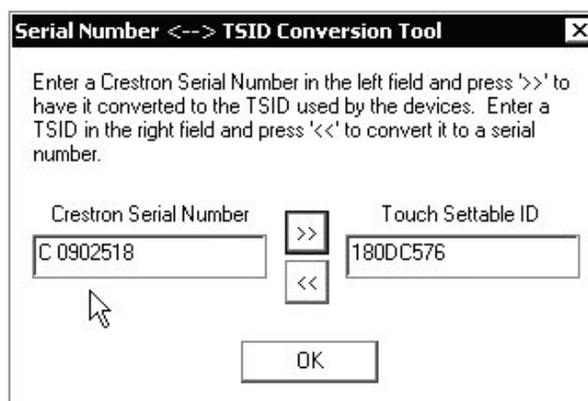
3. Enter the serial number or TSID number as instructed; press the appropriate button to obtain the corresponding number.

NOTE: Enter serial numbers, including spaces, exactly as they appear on the unit label. Alpha characters in serial numbers or TSID numbers may be entered in upper or lower case.

Installation

The C2N-FTB is shipped with ten large blank buttons. You can order a variety of button kits (sold separately) to add as many as 20 engraved or blank buttons.

Button Kits

KIT NUMBER	DESCRIPTION
FT-BTNB-L	One large button engraved as desired
FT-BTNB-L-BLANK	One large button not engraved
FT-BTNB-S	Two small buttons with divider engraved as desired
FT-BTNB-S-BLANK	Two small buttons with divider, not engraved

Button Installation

To replace the large buttons with small buttons, follow this procedure.

A 1/16" Allen (hexhead) wrench is required to remove the button faceplate.

1. Remove the four Allen screws that secure the button faceplate.

2. While holding adjacent buttons in place, carefully pull the button(s) to be replaced from the rubber membrane.

3. Carefully press the two small replacement buttons in place, making sure LED window faces up. Use care not to dislodge the membrane and circuit board.

CAUTION: The removable buttons fit snugly on the rubber membrane and must be removed carefully to avoid pulling the membrane from the unit. Once membrane is detached, you may be unable to reattach it.

4. The divider bar slips into the slots on the back of the faceplate.

5. Replace the faceplate.

Button Installation
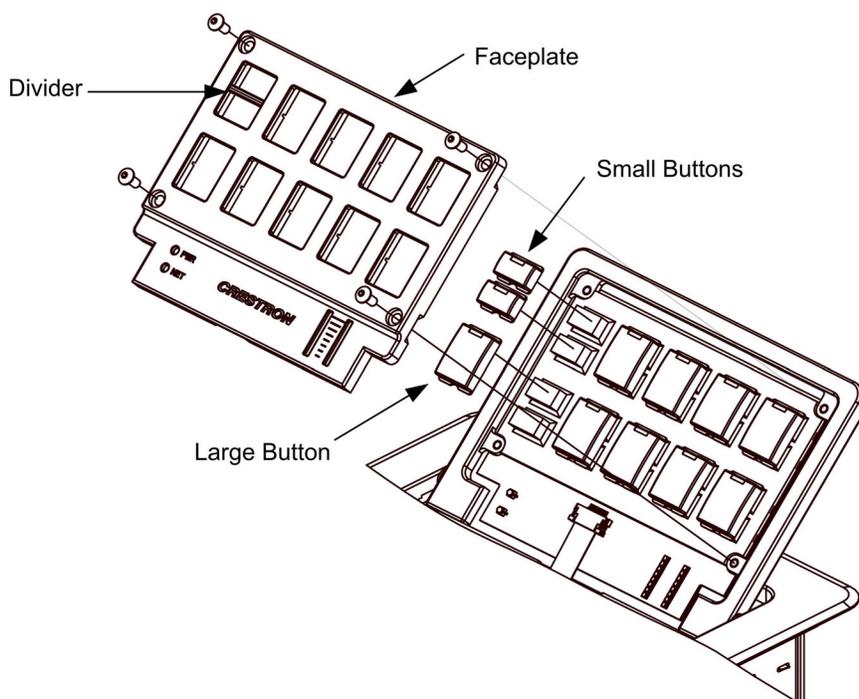
Cable Management Plate

The C2N-FTB is shipped with a cable management plate that provides an eight-hole plate for an easy pullout cable solution for computer, LAN and other passthrough cables.

Parts Supplied with Cable Management Plate

PART DESCRIPTION	QUANTITY
Cable Bushing, 5/16" ID, 0.5" OD	4
Cable Bushing, 0.39" ID, 0.64" OD	2
Cable Bushing, 0.54" ID, 0.79" OD	2
Cable Support Plate (2011563)	1
#4-40 x ¼" L, Pan Head Phillips Black Mounting Screws	4

The cable management plate must be installed before mounting the C2N-FTB to a surface. The cables are looped through the cable support plate.

A Phillips screwdriver is required to install the cable management plate.

1. Place the bushings on the cables (eight bushings supplied).

2. Thread the cables through the appropriate slot on the plate.

3. Snap the bushings into the plate slots. The bushings protect the cables from chafing against the metal edge of the plate.

4. Feed all the excess cable through the opening.

5. Use a Phillips screwdriver to attach the plate with the four #4-40 x ¼" black screws.

6. The cables may be secured to the bottom bar using tie wraps (not supplied).

Cable Management Plate Installation
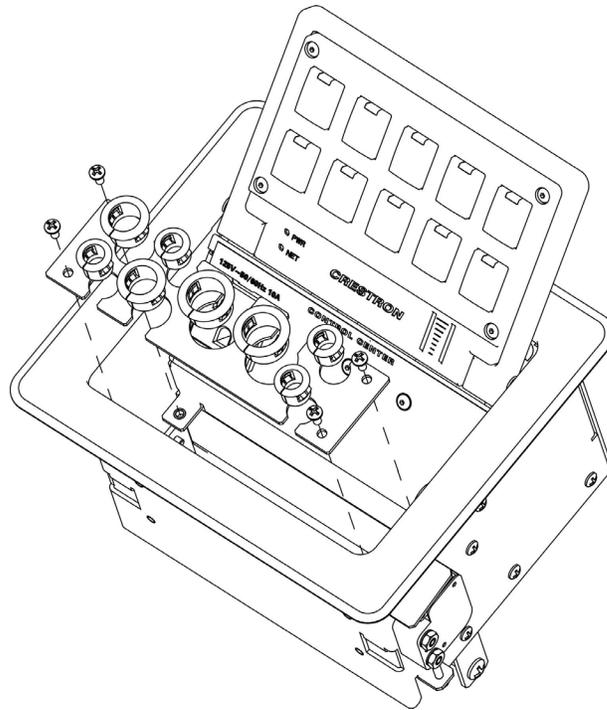
When selecting cables for installation in the C2N-FTB, cable connector length and strain relief diameter are important considerations.

- If the connector is too long, it can interfere with cover operation and scratch the buttons.

- If the width of the cable strain relief is too similar to the bushing inside diameter, the bushing can trap the cable.

NOTE: Do not use the cable management plate without the bushings.

Example Cable End

Must be wider than the inside diameter of the bushing
Large Bushing: 0.54 in (1.37 cm)
Medium Bushing: 0.39 in (0.99 cm)
Small Bushing: 0.31 in (0.79 cm)

Must not be longer than 2.13 in (5.4 cm) to avoid interference with cover operation and scratching the buttons
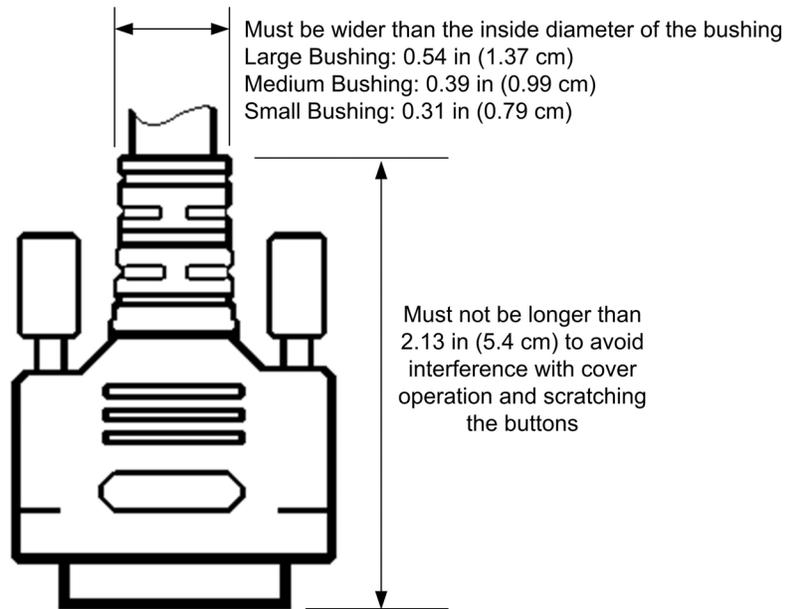
Cable Loops Through the Cable Management Plate

Allow approx. 40 inches clearance for cables

Cables Passed Through Cable Support Plate

Excess Cable Loops

Optional Cables
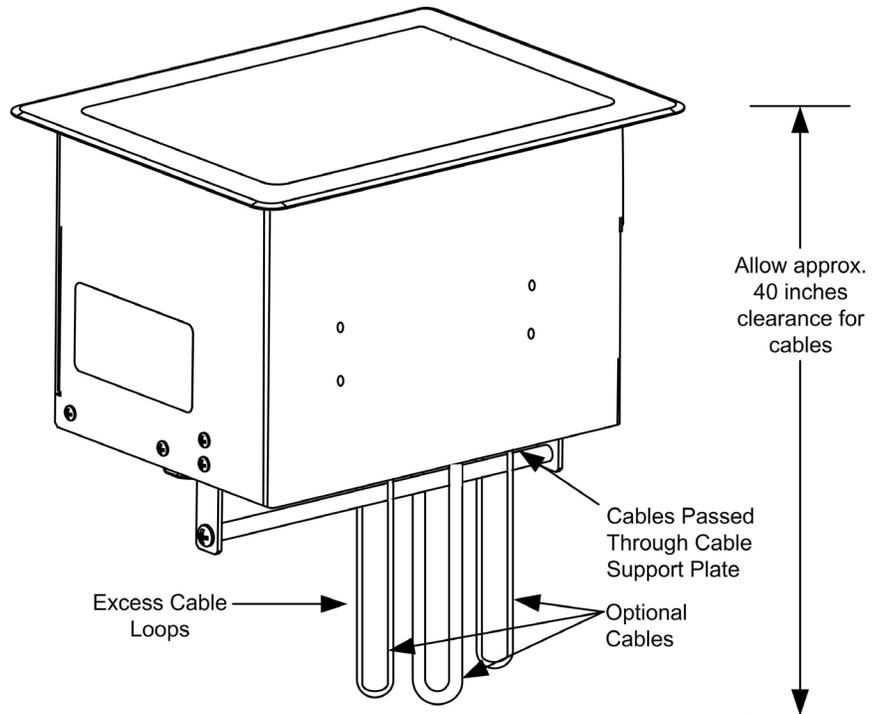
NOTE: Ensure that the cables have sufficient clearance to enable smooth movement. Allow approximately 40 inches (102 cm) from the top surface of the FlipTop box.

Mounting to Surface

The C2N-FTB is designed to mount in a horizontal surface, such as a desk top, lectern, or podium. The following diagram illustrates the required opening size to accommodate the C2N-FTB. A cutout template (4006405) is included.

Cutout Dimensions

6.375 in
(6 3/8 in)
(16.19 cm)

5.3125 in
(5 5/16 in)
(13.494 cm)

Maximum
Radius
0.125 in
(0.318 cm)
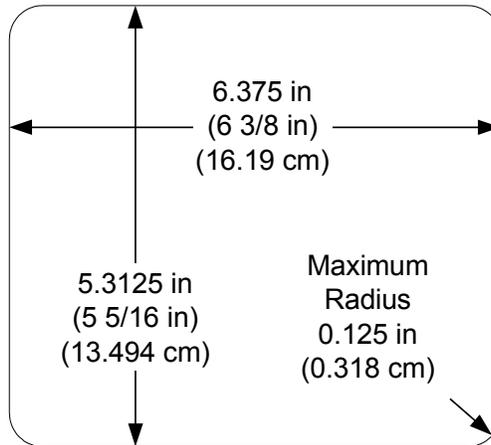
Mounting Parts Supplied with the C2N-FTB

PART DESCRIPTION	QUANTITY
#6-32, 3/16" Pan Head, Phillips Screw	8
#10-32, 2" Pan Head, Phillips Screw	4
Mounting Bracket	2

A Phillips screwdriver is required to mount the C2N-FTB to a surface.

NOTE: Before inserting the C2N-FTB in the mounting hole, ensure that all required cables have been installed.

1. Install the eight supplied #6-32 screws, but do not tighten (four on the front side and four on the rear side). These will be used to secure the front and rear mounting brackets.

2. Position the C2N-FTB in the mounting hole.

Mounting Bracket Screw Locations

#6-32 Screws

#6-32 Screws

Surface
Cutout
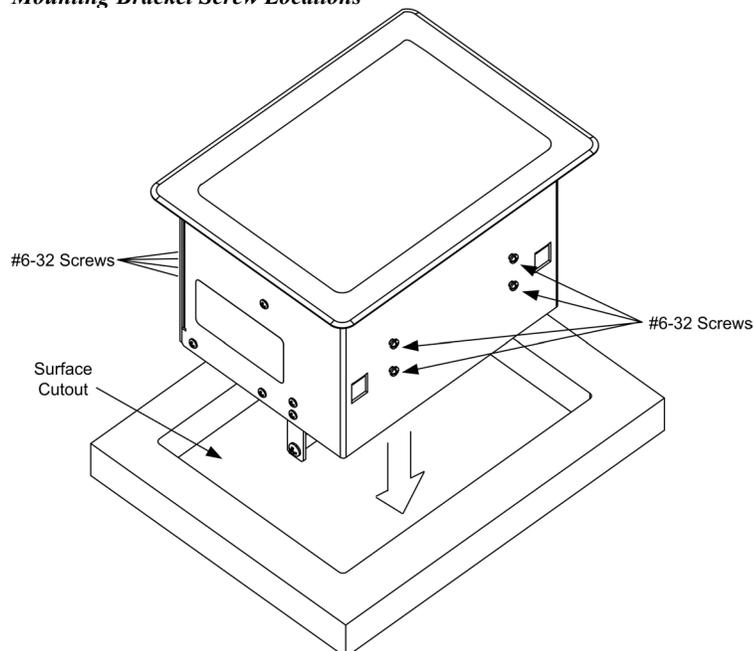
3. Install the four #10 screws in the mounting brackets (two screws per bracket). Refer to the following diagram.

4. Slide the mounting brackets over the #6-32 screws and tighten the #6-32 screws using a Phillips screwdriver.

5. Use a Phillips screwdriver to turn the four #10 screws equally until they contact the underside of the mounting surface.

NOTE: Do not over-tighten the #10 screws as this may damage the surface and/or the unit.

Mounting Bracket Installation
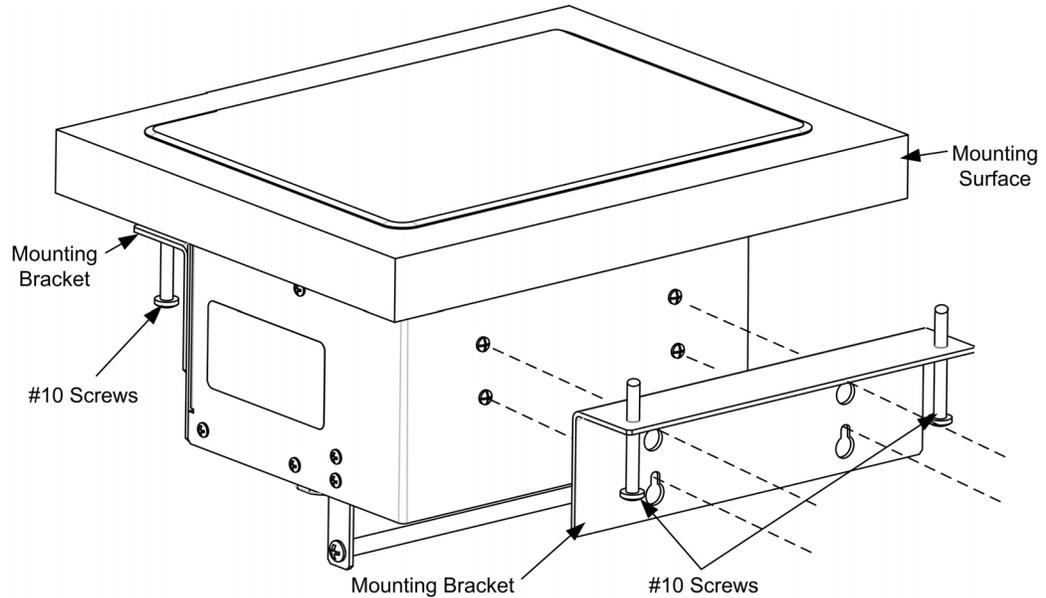
NOTE: Be careful not to press the buttons while closing the FlipTop, even though the buttons are disabled when the FlipTop begins to close and all pressed buttons are released.
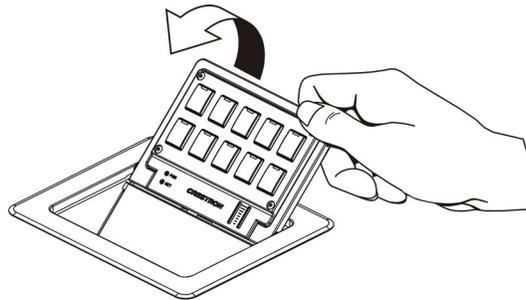
Hardware Hookup

Refer to the following hookup diagram and, aside from attaching power last, complete the connections in any order.

NOTE: To prevent overheating, do not operate this product in an area that exceeds the environmental temperature range listed in the specifications table.

Consideration must be given if installed in a closed or multi-unit rack assembly, inside a closed desk, or in a closed podium since the operating ambient temperature of these environments may be greater than the room ambient. Contact with thermal insulating materials should be avoided on all sides of the unit.

NOTE: The maximum continuous current from equipment under any external load conditions shall not exceed a current limit that is suitable for the minimum wire gauge used in interconnecting cables. The ratings on the connecting unit's supply input should be considered to prevent overloading the wiring.

Underside Connections
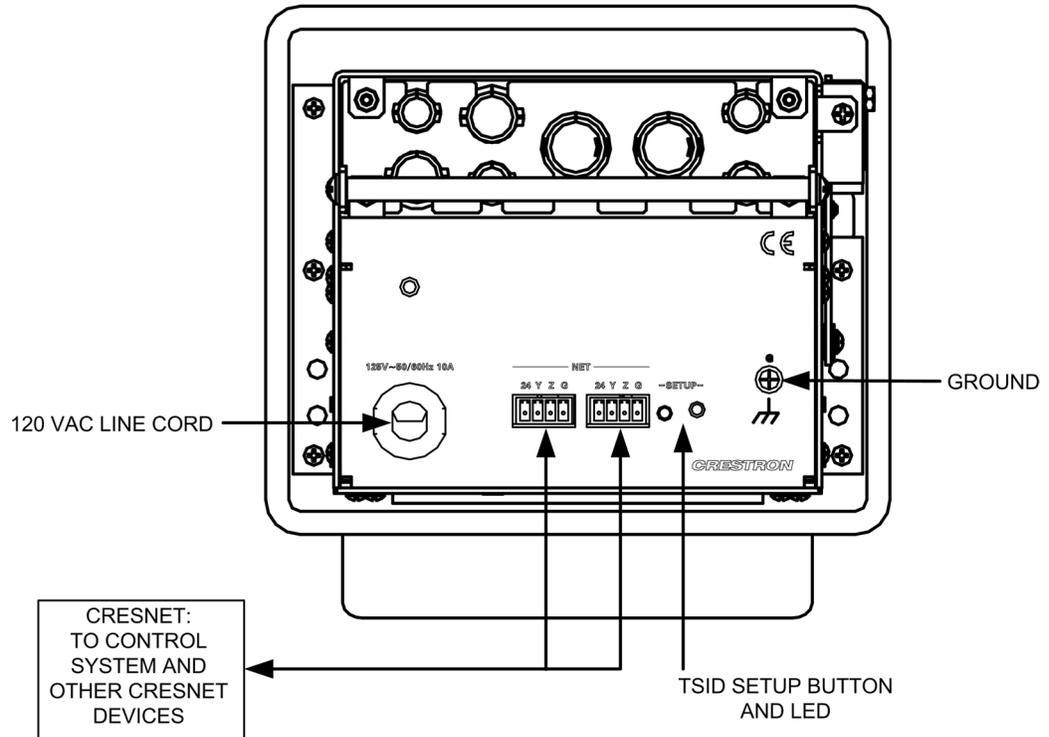
Ground Wire Connections

Proper grounding is required. Connect the ground from the C2N-FTB to earth ground. Connect the Cresnet shield lead at the control processor to the ground lead. The control processor chassis must also be connected to an earth ground (building steel). Refer to the following grounding diagram.

Ground Wire Connections
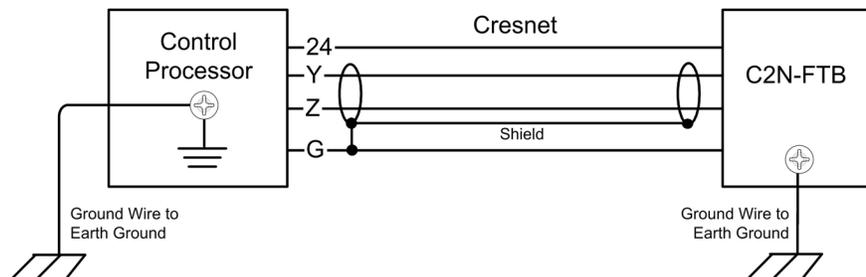
NOTE: Do not connect the shield to earth ground at the C2N-FTB

Configuration Software

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.

Configuration is easy thanks to Crestron's Windows-based programming software. Crestron SystemBuilder™ software creates a complete project, with no special programming required. SystemBuilder completes all necessary programming for a base system including all touchpanel screens and the control system program. The program output of SystemBuilder is a SIMPL Windows program with much of the functionality encapsulated in macros and templates. Once SystemBuilder creates the project, the system interfaces and program logic can be customized in SystemBuilder or can be easily modified with Crestron development tools (i.e., SIMPL Windows and Crestron VisionTools® Pro-e (VT Pro-e) software packages).

SystemBuilder comes with templates for all supported interfaces. If a user wishes to create a touchpanel project using templates with a different look-and-feel, this can be accomplished by making a custom template. This custom template can then be used by SystemBuilder to create the final project files to be loaded into the panels. Alternatively, VT Pro-e can be used to tweak projects created with the SystemBuilder or develop original touchpanel screen designs.

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 Crestron website.

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

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

- (Optional but highly recommended) SystemBuilder version 2.0 (Requires SIMPL Windows, VT Pro-e and Crestron database).

- SIMPL Windows version 2.05.22 or later. Library 320 and SIMPL+® Cross Compiler version 1.1 are required.

- Crestron Database version 16.4.1 or later. Required by SIMPL Windows.

- (Optional, if system was programmed without SystemBuilder 2.0) Installer's Toolbox version 1.0 or Viewport version 3.35.

- Crestron Engraver version 2.3 for button engraving.

Configuring with Crestron SystemBuilder

The Crestron SystemBuilder interface guides you through a few basic steps for specifying the control system, designating rooms and touchpanels, devices, and functionality. The Crestron SystemBuilder then configures the system, including all touchpanel projects and control system logic. It can also connect to Crestron RoomView™ management software.

The Crestron SystemBuilder is fully integrated with the Crestron suite of software development tools, including SIMPL Windows, Cross Compiler, VT Pro-e, Crestron Database, User IR Database, and User Modules Directory. The Crestron SystemBuilder accesses all these tools behind the scenes, enabling you to easily create robust systems.

SystemBuilder provides a step-by-step process that guides the user through the process of selecting components and determining signal routing and control. The control code and complete equipment lists are automatically generated. Crestron SystemBuilder automatically compiles and uploads your program to the control system.

SystemBuilder
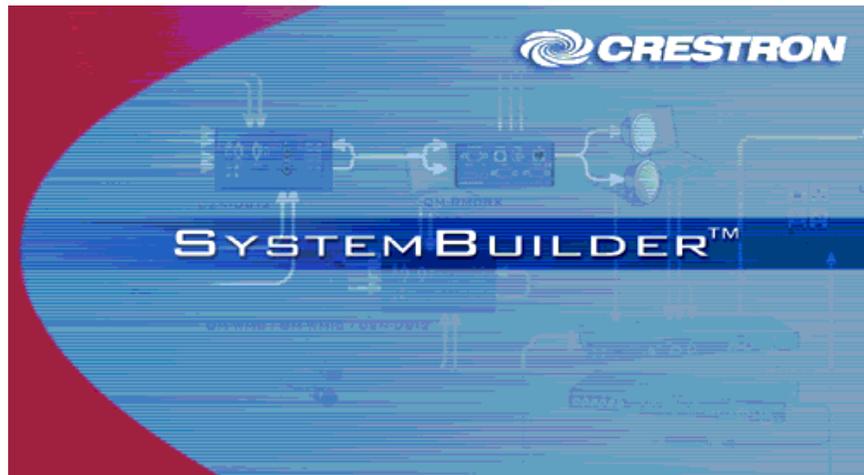
After entering the appropriate information in each step, SystemBuilder creates the control system logic and touchpanel pages, ready to upload to the controller.

NOTE: Crestron SystemBuilder version 2.0 or higher is required.

For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Configuring with SIMPL Windows

NOTE: The following are acceptable file extensions for programs that include a C2N-FTB, developed for specific control system types:

    .smw   *projectname*.smw (source file)
    .spz   *projectname*.spz (compiled file for 2-Series)
    .usp   *projectname*.usp (source code module for SIMPL+)
    .ir   *projectname*.ir   (user IR)
    .umc *projectname*.umc (user macro)
    .ush   *projectname*.ush (completed SIMPL+)

SIMPL Windows is the Crestron graphical, Windows®-based development tool for programming control systems. The SIMPL Windows interface provides two workspaces: the Configuration Manager, for configuring the control system, touchpanels, and controlled network devices; and Program Manager, for designing the logic and functionality of the control system.

In addition, you can use the powerful Crestron Viewport utility to accomplish multiple system tasks, such as uploading the program to the control system and performing diagnostic functions.

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

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

This section describes a sample SIMPL Windows program that includes a C2N-FTB.

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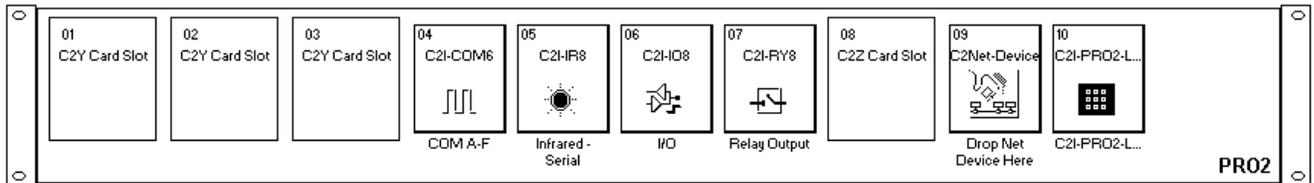
The *System Views* lower pane displays the PRO2 system tree (refer to the following graphic). This tree can be expanded to display and configure the communication ports.

Expanded PRO2 System Tree
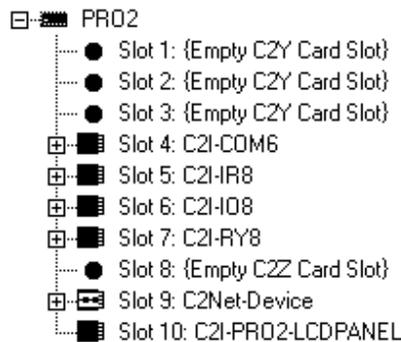
C2Net-Device Slot in Configuration Manager

To incorporate a C2N-FTB into the system, drag the C2N-FTB from the Wired Keypad folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree displays the C2N-FTB in Slot 9, with a default Net ID of 1E as shown in the following illustration.

A C2N-FTB in Slot 9

```
☐-▦ PRO2
   ┊⋯ ● Slot 1: {Empty C2Y Card Slot}
   ┊⋯ ● Slot 2: {Empty C2Y Card Slot}
   ┊⋯ ● Slot 3: {Empty C2Y Card Slot}
   ☐-▣ Slot 4: C2I-COM6
   ☐-▣ Slot 5: C2I-IR8
   ☐-▣ Slot 6: C2I-IO8
   ☐-▣ Slot 7: C2I-RY8
   ┊⋯ ● Slot 8: {Empty C2Z Card Slot}
   ☐-▦ Slot 9: C2Net-Device
   ┊    ┊⋯ ● ID 03: {EMPTY}
   ┊    ┊⋯ ● ID 04: {EMPTY}
   ┊    ┊⋯ ● ID 05: {EMPTY}
   ┊    ┊
   ┊    ┊⋯🖳 ID 1E: C2N-FTB
   ┊    ┊
   ┊    ┊⋯ ● ID FD: {EMPTY}
   ┊    ┊⋯ ● ID FE: {EMPTY}
   ┊⋯▣ Slot 10: C2I-PRO2-LCDPANEL
```
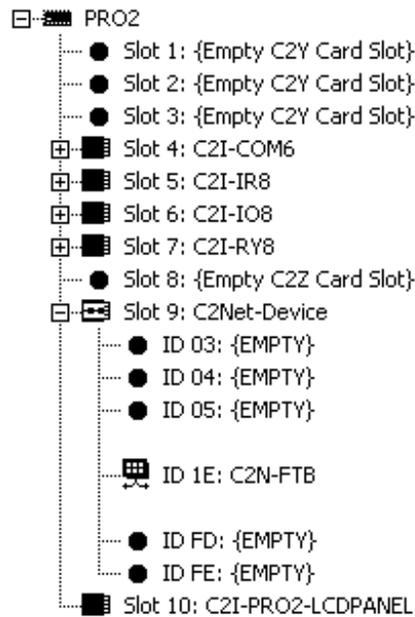
NOTE: The first C2N-FTB in a system is preset with a Net ID of 1E when its symbol is dragged into the upper pane of *System Views*. Additional units are assigned different Net ID numbers as they are added.

Setting the Net ID in Device Settings

Double-click the C2N-FTB icon in the upper pane to open the "Device Settings" window. This window displays C2N-FTB device information. The Net ID can be changed in this window using the *Net ID* tab, as shown in the following figure.

"Device Settings" Window

```
┌─────────────────────────────────────────────────┐
│ Device Settings: Crestron C2N-FTB           ⨯   │
├─────────────────────────────────────────────────┤
│ ┌──────────┬────────┬─────────────────┬────────┐│
│ │Device Name│ Net ID │ Connection Sheet│Device Info││
│ │           └        └                 └        ││
│ │                                              ││
│ │   Net ID:  1E ▾                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │                                              ││
│ │          ┌────┐  ┌──────┐  ┌──────┐          ││
│ │          │ OK │  │Cancel│  │Apply │          ││
│ │          └────┘  └──────┘  └──────┘          ││
│ └──────────────────────────────────────────────┘│
└─────────────────────────────────────────────────┘
```
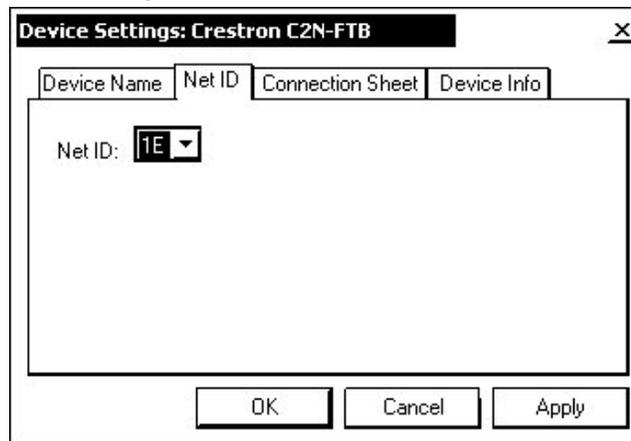
NOTE: This procedure sets the Net ID for the C2N-FTB in the program only. It does not automatically set the Net ID for the C2N-FTB itself. SIMPL Windows automatically changes Net ID values of a device added to a program if a duplicate device or a device with the same Net ID already exists in the program. 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-FTB Symbol in Programming Manager

The Buttons module is built into the C2N-FTB. It consists of a 10 to 20 button keypad with LED indicators, and two bargraphs. The button presses are fixed and map to <**press**> outputs on the symbol detail, as follows:
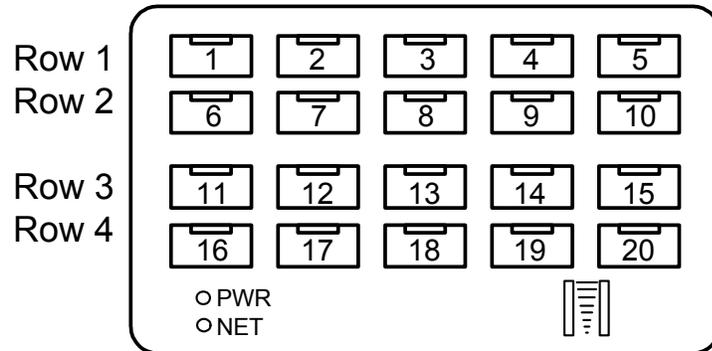
NOTE: Numbers in this illustration are for programming purposes only.

The buttons on rows 1 and 2 can be combined vertically to form one larger button. For example, the button caps for buttons #1 and #6 can be replaced with one larger button cap. Similarly, the vertical pairs on rows 3 and 4 can be combined to form one larger button. For example, buttons #13 and #18 can be combined. No other combinations are valid. That is, two buttons cannot be combined horizontally; the buttons on rows 2 and 3 cannot be combined.

Programming Manager is where programmers "program" a Crestron control system by assigning signals to symbols. The following diagram shows the C2N-FTB symbol in the SIMPL Windows' Programming Manager.

C2N-FTB Symbol – Detail View of Buttons
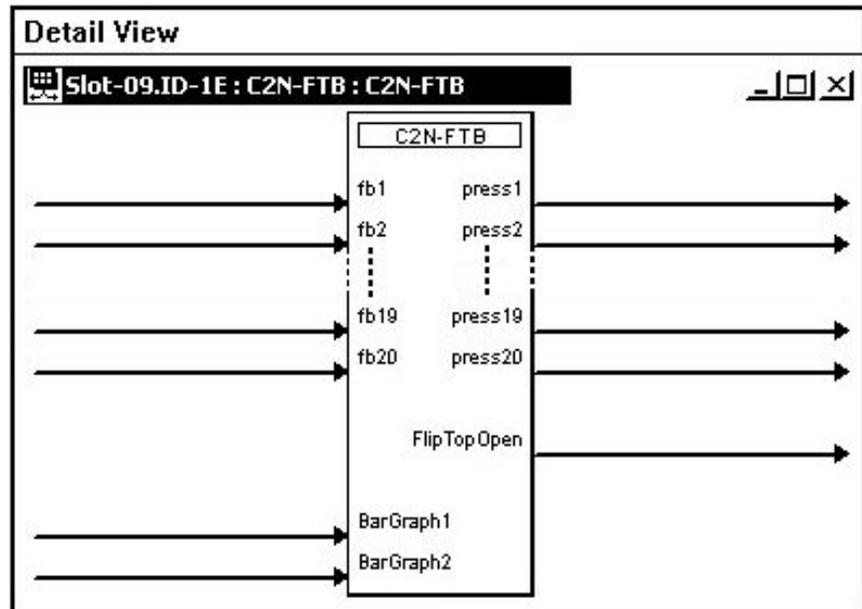
C2N-FTB Buttons – Signal Descriptions

SIGNAL TYPE AND NAME	DESCRIPTION
Digital Outputs: Button presses/vertical pair <**Press1**>, <**Press6**> Button presses/vertical pair <**Press2**>, <**Press7**> Button presses/vertical pair <**Press3**>, <**Press8**> Button presses/vertical pair <**Press4**>, <**Press9**> Button presses/vertical pair <**Press5**>, <**Press10**> Button presses/vertical pair <**Press11**>, <**Press16**> Button presses/vertical pair <**Press12**>, <**Press17**> Button presses/vertical pair <**Press13**>, <**Press18**> Button presses/vertical pair <**Press14**>, <**Press19**> Button presses/vertical pair <**Press15**>, <**Press20**>	Indicates that the corresponding button has been pressed. The signal remains high for the duration of the button press. If the FlipTop cover is not fully open the buttons are disabled and the unit will not report any button presses, and will release any button that is already pressed. The status of the cover is given by the <**FlipTopOpen**> output. If two buttons are combined to form one larger button, the same signal should be attached to both button presses. High/1 = Button pressed Low/0 = Button released
Digital Inputs: <**fb1**> through <**fb20**>	Activates the corresponding LED for as long as the input is high. If two buttons are combined, then only the LED for the top button in the vertical pair will be visible. High/1 (level sensitive) = Activate LED feedback Low/0 = Turn off LED
Digital Output: <**FlipTopOpen**>	Indicates that the FlipTop cover is fully open. The feedback remains high for as long as the cover is open. If the cover is not fully open the signal will go low, the keypad buttons will be disabled and the unit will not report any button presses. High/1 = FlipTop open Low/0 = FlipTop not fully open
Analog Input: <**Bargraph1**>	Sets the levels that will be displayed on the left bargraph. The bargraph is an 8-segment LED and is proportional to the input. Valid values range from 0% to 100%.
Analog Input: <**Bargraph2**>	Sets the levels that will be displayed on the right bargraph. The bargraph is an 8-segment LED and is proportional to the input. Valid values range from 0% to 100%.

Example Program

An example program for the C2N-FTB is available from the "Example Program" section of the Crestron website (http://www.crestron.com/exampleprograms). Search for C2N-FTB.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 to the system and touchpanel and firmware to the wall plates after their development. 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. Even firmware upgrades are available from the Crestron website as new features are developed after product releases. In those instances, one has the option to upload via the programming software or to upload and upgrade 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 also function as a terminal emulator for generic file transfer. All of these functions are accessed through the commands and options in the 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.

The following sections define how one would upload a SIMPL Windows program to the control system, or upgrade the firmware of the C2N-FTB. However, before attempting to upload or upgrade, 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.

NOTE: Even with these recommended models, results may vary on the computer being used.

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.

Typical Connection Diagram when Uploading

C2N-FTB (Underside)

Cresnet Cable

Control Processor

Null-modem RS-232 cable with DB9 female connectors on both ends

Computer
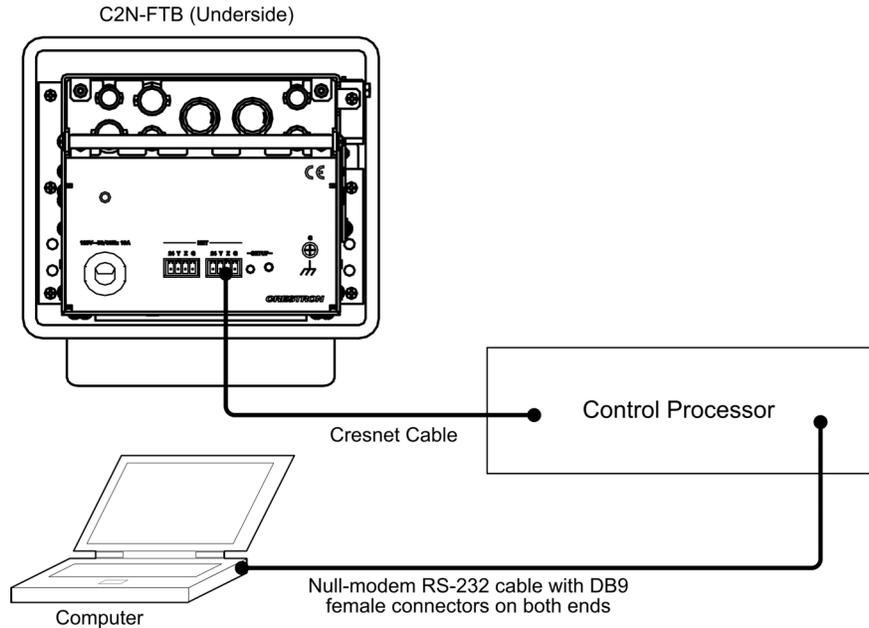
NOTE: Use a standard DB9 "Null-Modem" cable.

1. Open the Crestron Viewport. Either launch the stand-alone version of Viewport, or start SIMPL Windows and from the menu bar, select **Tools | Viewport**.

2. Refer to the figure after this step. From the Viewport menu, select **Setup | Communications settings** (alternatively, press **Alt+D**) to open the "Port Settings" window.

Setup | Communications Settings Command

Crestron Viewport

File   Edit   Setup   Diagnostics   Functions   File Transfer   Remote

Outgoing:

✔ Auto Baud Search
   Local Echo   Alt+L
   Display in Hex Mode   Alt+H
✔ CR to CR/LF (Outgoing)
✔ Sound
✔ Destructive Backspace (Incoming)
   Show Program Load Output in Incoming Data Window
   Character Mapping...
   Font...
   Split Window   Alt+W ▶
   Setup Sequence Keys...
   Communications settings...   Alt+D
   Modem settings...

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.

4. To verify communication, select **Diagnostics | Establish Communications (Find Rack)**. This should display a window that gives the COM port and baud rate. If communication cannot be established, refer to the "Troubleshooting Communications" section in the latest version of the 2-Series Control System Reference Guide (Doc. 6256), which is available from the Crestron website.

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.

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 23 has been performed.

2. As shown after this step, select **File Transfer | Send Program** (alternatively, press **Alt+P**) from the Viewport menu bar.

File Transfer | Send Program Command
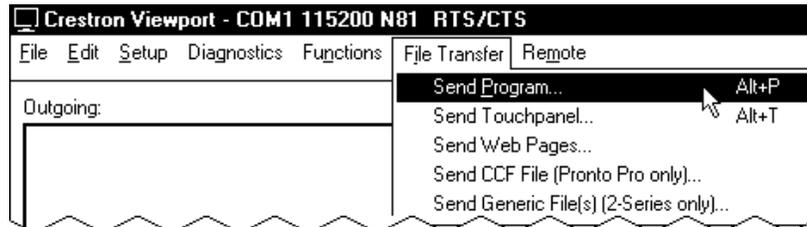
3. The "Send Program" window appears, as shown on the next page. Click **Browse**, locate the compiled file (.spz) and click **Open**. This will display the program's header information and enable one or both of the *What to Send* check boxes. If the program does not contain any SIMPL+ modules, only the *SIMPL Program* check box will be 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 latest version of the Crestron 2-Series Control System Reference Guide (Doc. 6256) for details about the other fields shown on the "Send Program" window.

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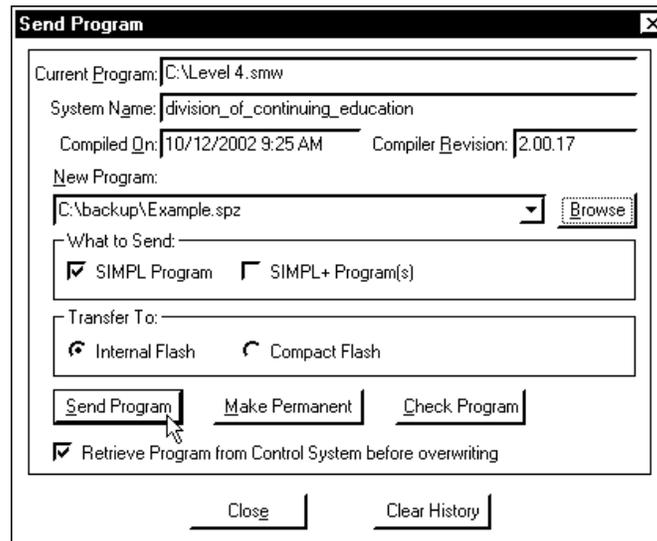
4. To verify that the program has been transferred successfully, select **Diagnostics | Report Program Information**. This should display a window that provides details about the current program loaded into the control system.

Firmware Upgrade

*A firmware upgrade
file has the extension .csf.*

To take advantage of all the C2N-FTB 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, complete the following steps.

NOTE: Viewport versions 3.80 or later have "Load Network Device (Legacy)..." and "Update Network Device Firmware..." options. Either will work with firmware version 1.00 but Crestron suggests using "Update Network Device Firmware..." to load firmware updates.

NOTE: A firmware upgrade file has the extension .csf.
The following is the acceptable file extension for a firmware update file.

.upg   C2N-FTB.V.XXXXX.upg

1. Make sure that "Communication Settings," which begins on page 23, has been performed.

2. As shown after this step, select **File Transfer | Update Network Device Firmware…** from the Viewport menu bar.

File Transfer | Update Network Device Firmware… Command
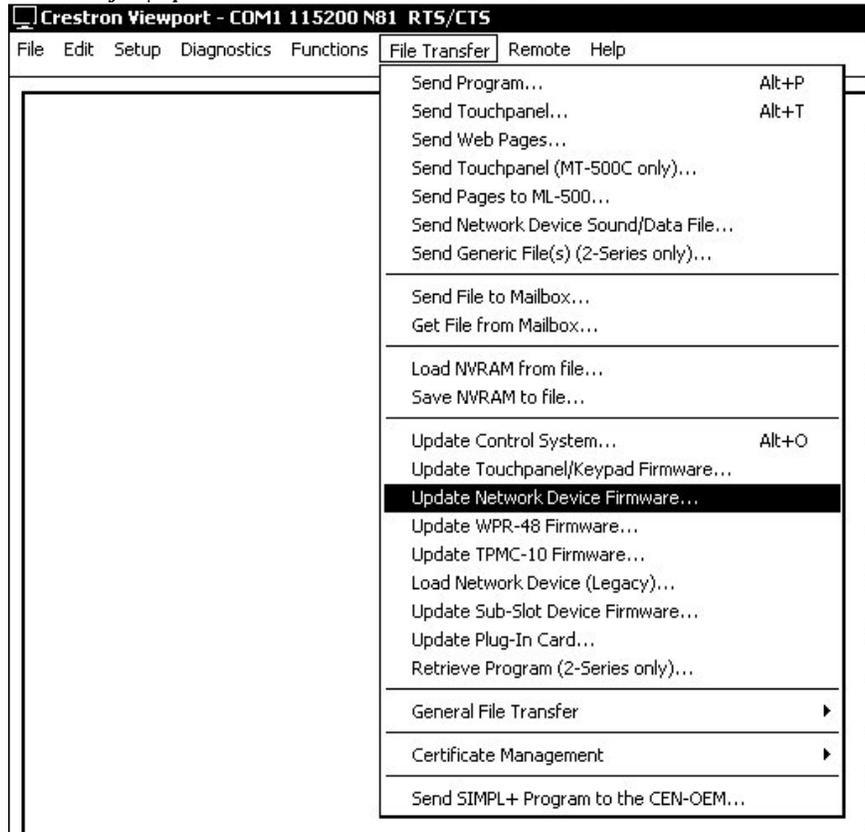
3. As shown in the "Select Network ID" window, select the Net ID of the C2N-FTB, and then click **OK**. The "Open" window appears (refer to the following graphics).

"Select Network ID" Window
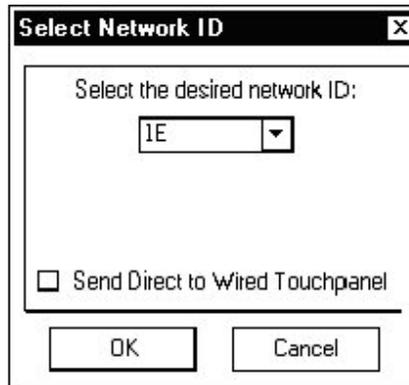
NOTE: If problems arise when transferring any Cresnet file (touchpanel project/firmware), lower the port speed baud rate to 38400 to match the Cresnet bus speed.

"Open" Window
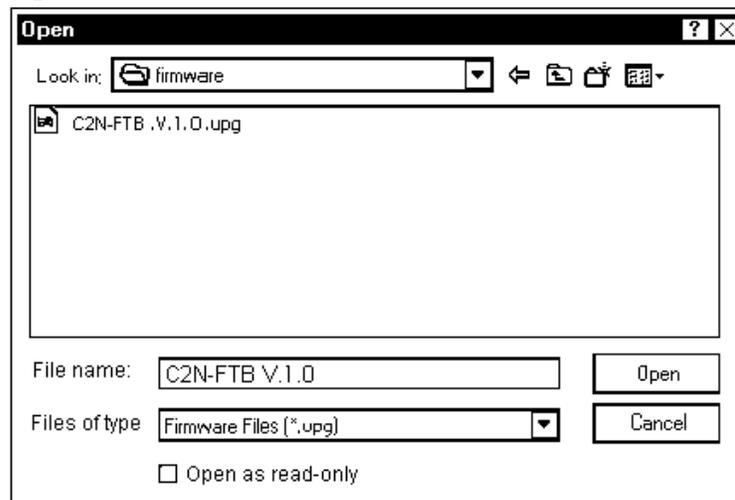
4. Browse to the desired [filename].upg file and click **Open** to begin the transfer.

Problem Solving

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

C2N-FTB Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
C2N-FTB not functioning.	Net ID is not correct.	In Viewport, poll the network to verify the Net ID.
	Net ID is not set to match the Net ID specified in SIMPL Windows.	Verify SIMPL Windows program for setting Net ID.
	Net ID is the same as another device's Net ID.	Assign a different Net ID.
PWR LED does not illuminate.	Not receiving power.	Verify that Cresnet is properly attached.
Buttons do not function when pressed.	Net ID incorrect or does not match SIMPL Windows program.	In Viewport, press F4 to verify Net ID. Verify SIMPL Windows program ID.
Button press yields incorrect result.	Incorrect programming.	Verify SIMPL Windows program.
Button LED does not illuminate.	Feedback signal names incorrect in SIMPL Windows.	Verify SIMPL Windows feedback signal names.

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-FTB, 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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