Crestron **C2N/C2NI-CB Series**
Cameo® Keypads
Operations & Installation Guide

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Contents

Cameo Keypads: C2N/C2NI-CB Series

Introduction

Features and Functions

- Stylish and versatile wall mount keypads (standard mount, flush mount, or UK mount)
- Versatile combination of engravable buttons
- "Rocker" action supports up to three functions per button
- Installer-configurable with an assortment of three button sizes and blank spacers
- Tapered buttons for enhanced tactile response
- Elegant white LED light pipe feedback
- Cresnet® communications
- Quick and easy installation—flush mount/standard electrical box/UK box
- Standard mount model available in almond, black, or white
- Flush mount and UK mount models available in ten designer colors

Crestron® Cameo® introduces a totally different concept in keypad design, featuring an incredibly small footprint and slim profile with an expanded array of colors and versatile button configurations.

Cameo Standard Mount

The Cameo standard mount model, C2N-CBD, is designed for installation in a conventional electrical gang-box using a decorator style faceplate (not included).

Cameo Flush Mount

Cameo's unique flush mount design affords a very discreet appearance occupying just one-third the space of a conventional keypad. Employing a smart spring clamp mounting system, the C2N-CBF Cameo flush mount model installs easily in drywall without requiring a back box.

Cameo UK Mount

The version of the Cameo keypad designed for wall box applications within the UK, C2NI-CBUK, may also be used anywhere a post-construction flush-mount keypad is required.

Designer Colors

The flush mount and UK mount models are available in a palette of ten designer colors that has been professionally formulated to harmonize perfectly in a wide range of modern and traditional living spaces.

Customize Your Button Layout

Exquisitely simple yet extensively customizable, the Cameo keypad can be configured easily by the installer. Each keypad is actually furnished with an assortment of engravable button caps and blank spacers in three different sizes to support a variety of physical layouts. The button caps feature an ergonomically tapered shape for excellent tactile response. The taper of each button can be oriented upward or downward, enabling two vertically adjacent buttons to emulate the feel of a single "rocker" switch.

Define Your Functionality

Through software, each button can be individually configured to operate in one of three possible modes: single-press, left/right rocker, or left/center/right rocker, supporting a total of up to 18 possible button presses on a single keypad. Six pinhead-sized white LED light pipes provide very versatile button feedback and bargraph capability. The LED's may be oriented to the left or right of the buttons simply by inverting the keypad. In their "off" state, the LED's may be set to glow

dimly for enhanced visibility in a darkened room. Adjustable button backlighting is also provided.

Specifications

Specifications for the C2N/C2NI-CB Series keypads are listed in the following table.

C2N/C2NI-CB Series Specifications

SPECIFICATION	DETAILS
Power Requirements	
Cresnet Power Usage	3 Watts (0.125 Amps @ 24 VDC)
Default Net ID	25
Minimum 2-Series Control System Update File[1, 2, 3]	Version 2.004.CUZ or later
C2N-CB Series Firmware	C2N-CB.v2.10.upg or later
Environmental	
Temperature	32° to 113°F (0° to 45°C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	Injection-molded plastic, plus model-specific mounting options
Dimensions:	
Flush Mount Model	Height: 3.20 in (8.13 cm)[4] Width: 1.73 in (4.38 cm)[4] Depth: 1.52 in (3.86 cm)[5]
Standard Mount Model	Height: 4.12 in (10.47 cm) Width: 1.80 in (4.56 cm) Depth: 1.52 in (3.86 cm)[5]
UK Mount Model	Height: 3.38 in (8.58 cm)[4] Width: 3.38 in (8.58 cm)[4] Depth: 1.52 in (3.86 cm)[5]
Weight	2.6 oz (73 g) – Flush mount 3.1 oz (87 g) – Standard Mount 2.5 oz (70 g) – UK Mount

1. The latest versions can be obtained from the Crestron website. Refer to NOTE after last footnote.

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.
3. Minimum Non 2-Series Control System Update Files:
   CEN/CN/TVAV Version 5.12.63V.UPZ or later
   CNMSX-AV/PRO Version 5.14.02X.UPZ or later
   CNRACKX/-DP Version 5.14.02W.UPZ or later
   ST-CP Version 4.02.4S.UPZ or later
   CNX update files are required for either CNMSX-AV/PRO or CNRACKX/-DP. Filenames for CNX update files have a UPZ extension, and ST-CP files are in one EXE or zipped 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).
4. Dimension includes faceplate.
5. The depth of the keypad is listed without the Cresnet connector (approximately 0.45 in) and clearance for the wiring.

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

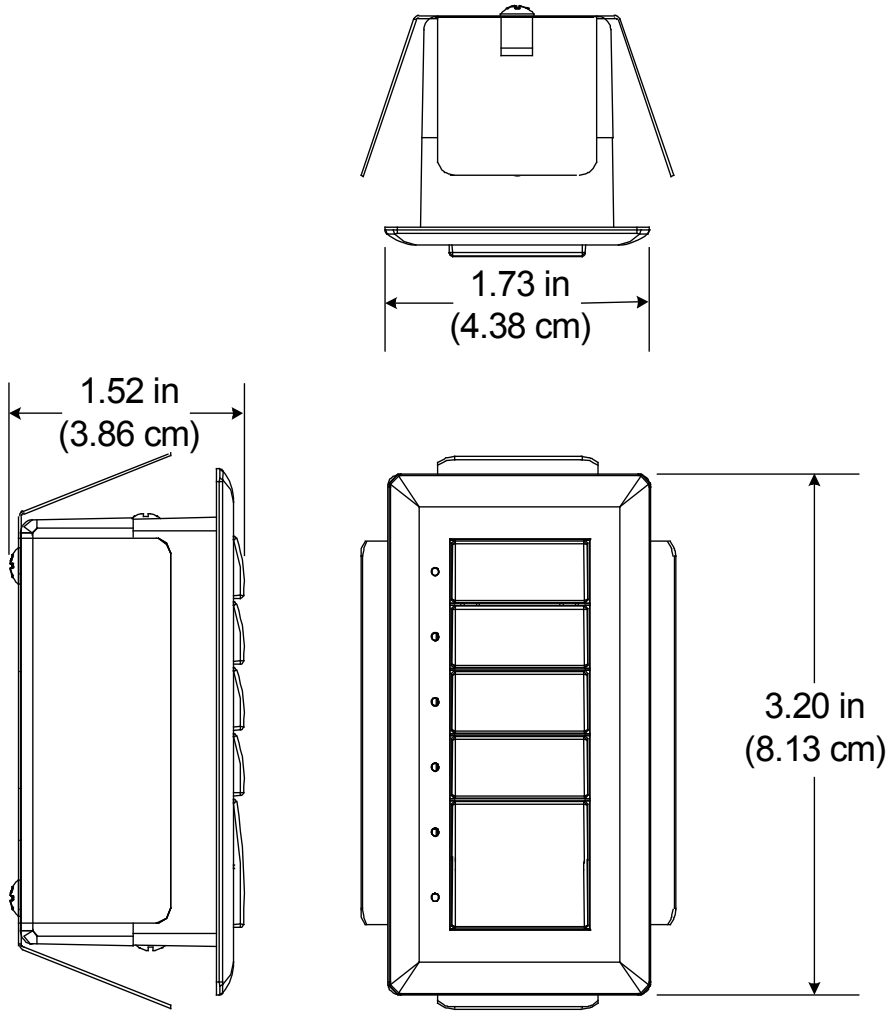
This section provides information on the connections, controls and indicators available on your C2N/C2NI-CB Series keypad.

The button caps are tapered and are arranged in a shingle style with the narrow part of the button cap at the top. Each button cap can, however, be arranged in either orientation, and the overall keypads can be installed with the LEDs on the right. Spacers are flat and flush with the front of the bezel surface. Button caps are laser-engravable using the Crestron Engraver software; spacers are not. The engraving software provides up to three fields for each button cap to allow for the left/right and center press functions, permits multiple lines of text, and also allows you to specify the orientation of each button cap. The Crestron Engraver software, Version 2.4 or later, is available from the Crestron website.

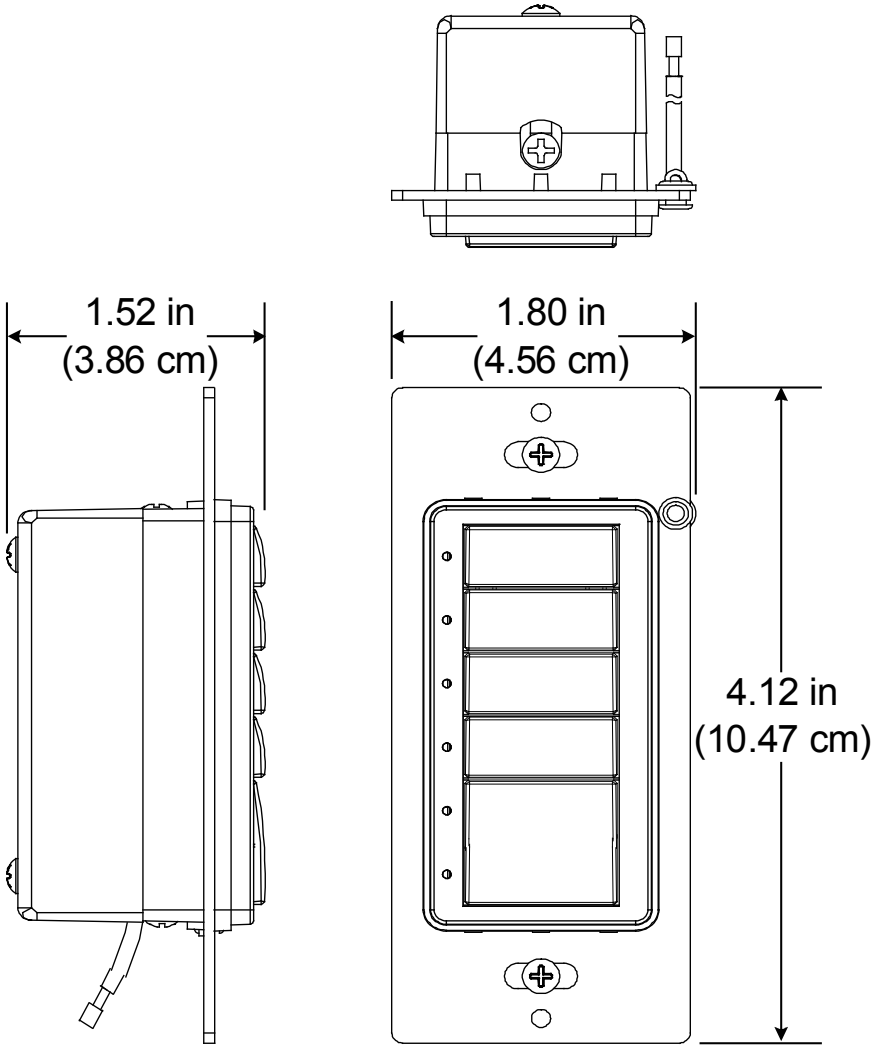
NOTE: A single button cannot be installed in the lowest position of the keypad.

The following illustrations provide overall dimensions of the three keypad styles.

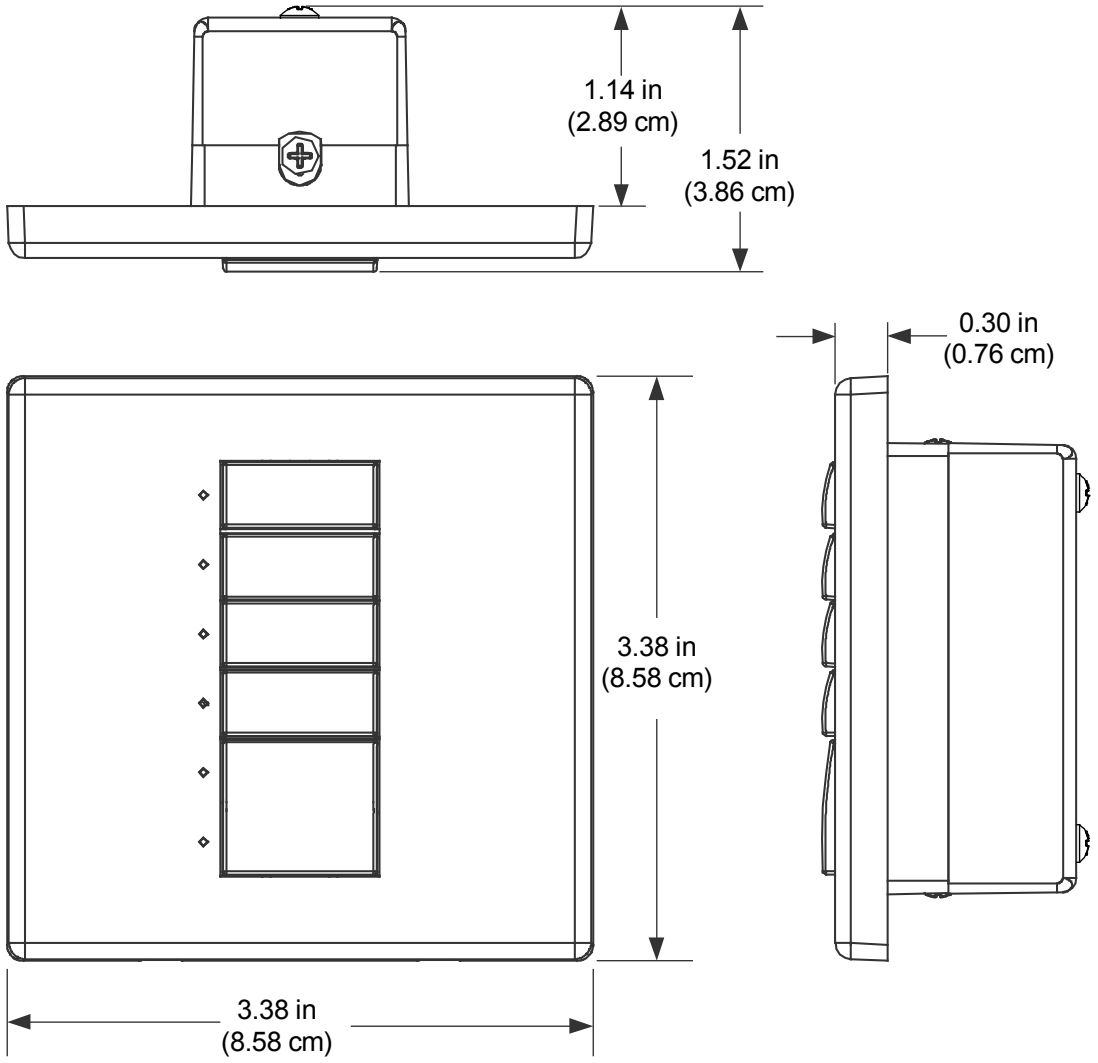
Keypad Overall Dimensions – Flush Mount Configuration



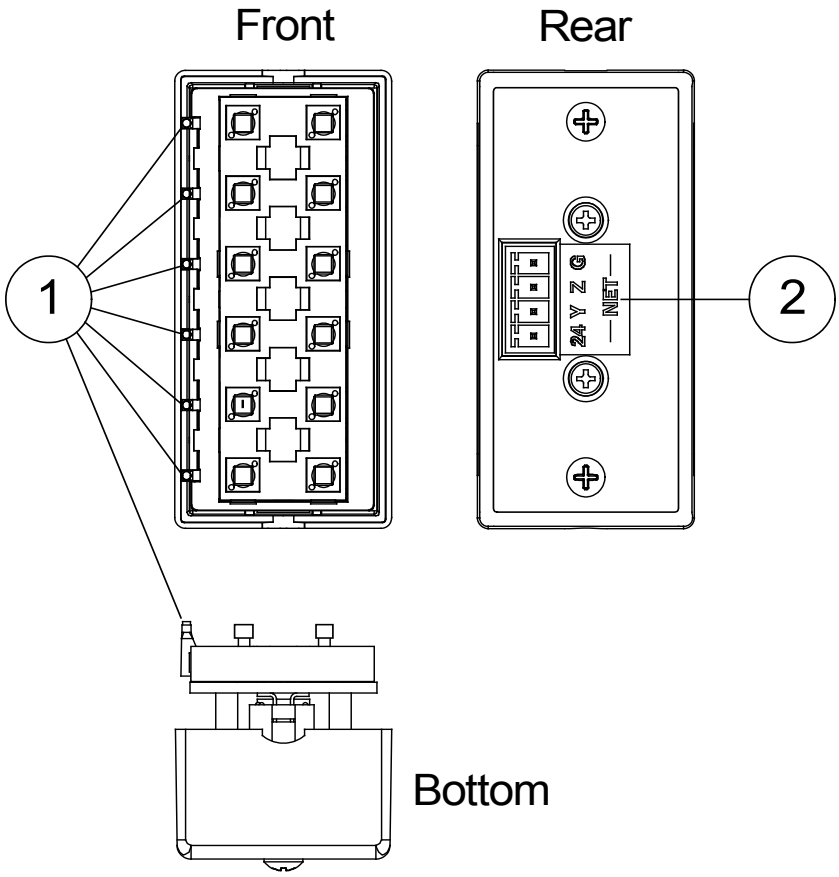
Keypad Overall Dimensions – Standard Mount Configuration



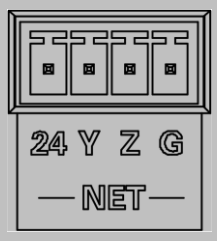
Keypad Overall Dimensions – UK Mount Configuration



Rear Housing and Switch Assembly



Connectors, Controls & Indicators

#	CONNECTORS*, CONTROLS & INDICATORS	DESCRIPTION
1	LED Light Pipes	Six pinhead-sized white LED light pipes provide button feedback and bargraph capability
2		Four-position terminal block connector for data and power. Connects to Cresnet control network. Pin 1 (24) Power Pin 2 (Y) Data Pin 3 (Z) Data Pin 4 (G) Ground

*Interface connector for the **NET** port is provided with the unit.

Industry Compliance

As of the date of manufacture, the C2N/C2NI-CB Series keypads have been tested and found to comply with specifications for CE marking.

CE

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.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Setup

Network Wiring

When wiring the network, consider the following:

- Use Crestron Certified Wire.
- Use Crestron power supplies for Crestron equipment.
- Provide sufficient power to the system.

  CAUTION: 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).

- For larger networks, use a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality.

For more details, refer to "Check Network Wiring" on page 31.

Identity Code

The Net ID of the C2N/C2NI-CB Series keypad has been factory set to **25**. The Net IDs of multiple C2N/C2NI-CB Series devices in the same system must be unique. Net IDs are changed from a personal computer (PC) via the Crestron Toolbox™ (refer to "Establishing Communication" on page 28).

When setting the Net ID, consider the following:

- The Net ID of each unit must match an ID code specified in the SIMPL Windows program.
- Each network device must have a unique Net ID.

For more details, refer to the Crestron Toolbox help file.

Assembly and Installation

Assembly of the keypad consists of placing the button caps/spacers in position based on how the unit is programmed, securing them together with a plastic button support, putting the button cap/spacer assembly in place on the rear housing and switch assembly, and attaching the bezel.

The button caps are tapered, and are often installed in a shingle-style pattern (refer to the "C2N/C2NI-CB Series Keypad Physical Views" illustration on page 4). Usual orientation of the keypad is with the LEDs on the left. It can, however, be inverted with the LEDs on the right, but the original relationship of the button numbers to the LEDs remains, i.e., with the unit inverted, row one is on the bottom – row six is on the top, and programming of the switches would have to be done accordingly.

Installation consists of connecting the unit to the Cresnet system, and then mounting it directly to the mounting surface or to a back box, depending on the keypad configuration.

The following items are required for all installations:

- Cresnet network cable (not supplied)
- Cresnet 4-pin mating connector (supplied)
- No. 2 Phillips screwdriver (not supplied)

NOTE: Verify that you have sufficient Cresnet power to support your net devices.

Flush Mounting Installation

The Cameo keypad for flush mounting installation is supplied partially assembled along with several items as listed in the following table.

Supplied Parts/Assemblies – Flush Mounting

QTY	ITEM	DESCRIPTION
1	Rear housing and switch assembly	Rear housing with switch circuitry attached
1	Bezel	Bezel assembly
1	4-pin female mini network connector	Used to connect Cresnet network cable to the keypad
2	Screws, Black, Phillips pan head, 4-40 x 3/16"	Used to attach the bezel assembly to the keypad rear housing and switch assembly

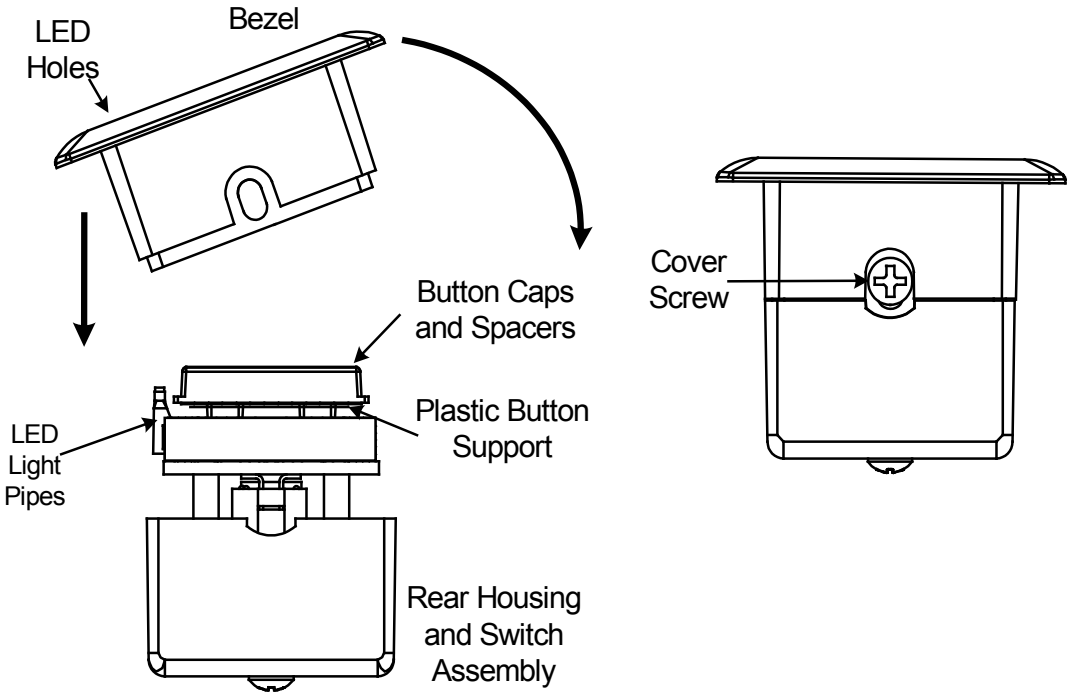
(Continued on following page)

Supplied Parts/Assemblies – Flush Mounting (Continued)

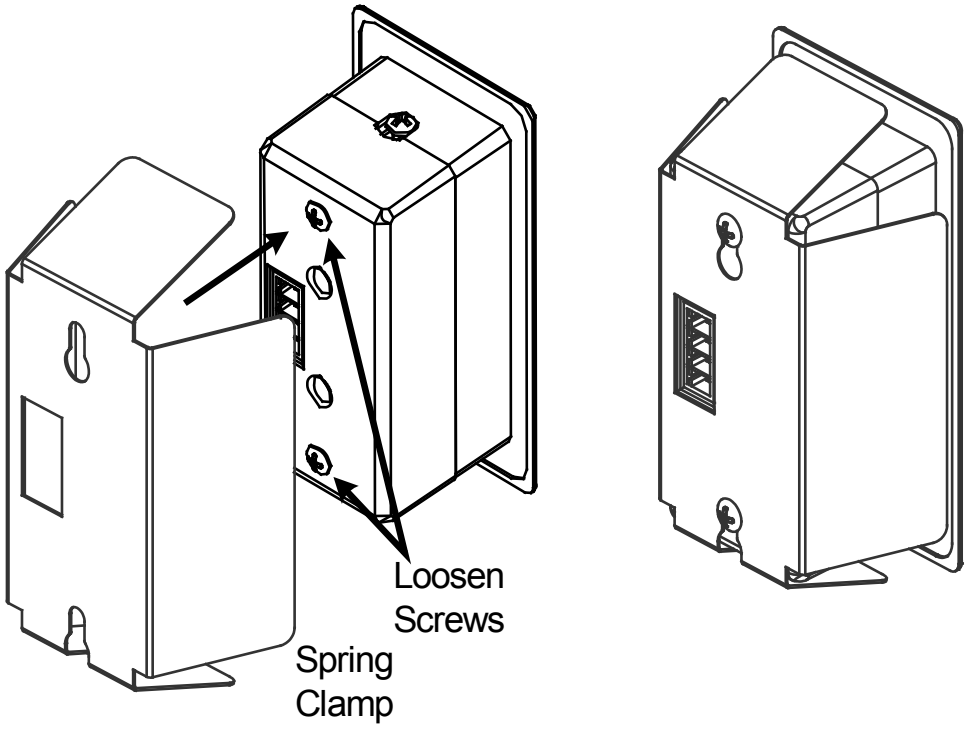
QTY	ITEM	DESCRIPTION
2	Single row spacer	Switch cover for single non-operational switch
1	Double row spacer	Switch cover for two non-operational switches
1	Triple row spacer	Switch cover for three non-operational switches
1	Plastic button support	Used to hold the button caps/spacers together in position
1	Spring clamp	Used to secure the assembled keypad in the wall
1	Template	Used to mark correct hole size in the wall

Assemble the keypad as described in the following steps. Refer to the accompanying illustrations.

1. Place the button caps and/or spacers in position according to the program plan. Attach the plastic button support to the button caps/spacers, and put the assembled parts in place on the rear housing and switch assembly. (Refer to the illustration for the standard mounting installation procedures, step 1, on page 16.)
2. Carefully position the bezel assembly, LED edge first, down and over the button caps/blanks and rotate slightly into position on the rear housing and switch assembly.
3. Hold the bezel and rear housing together and install and tighten the two supplied Phillips pan head, 4-40 x 3/16” cover screws (black) into the rear housing and switch assembly, as shown in the following illustration.
4. Press each button to be certain that you feel the press and release to ensure that the button caps move freely.



5. Attach the spring clamp to the rear of the keypad, as shown in the following figure, by loosening the screws sufficiently to place the clamp over the screws and slide it down into position, and then retighten the screws.

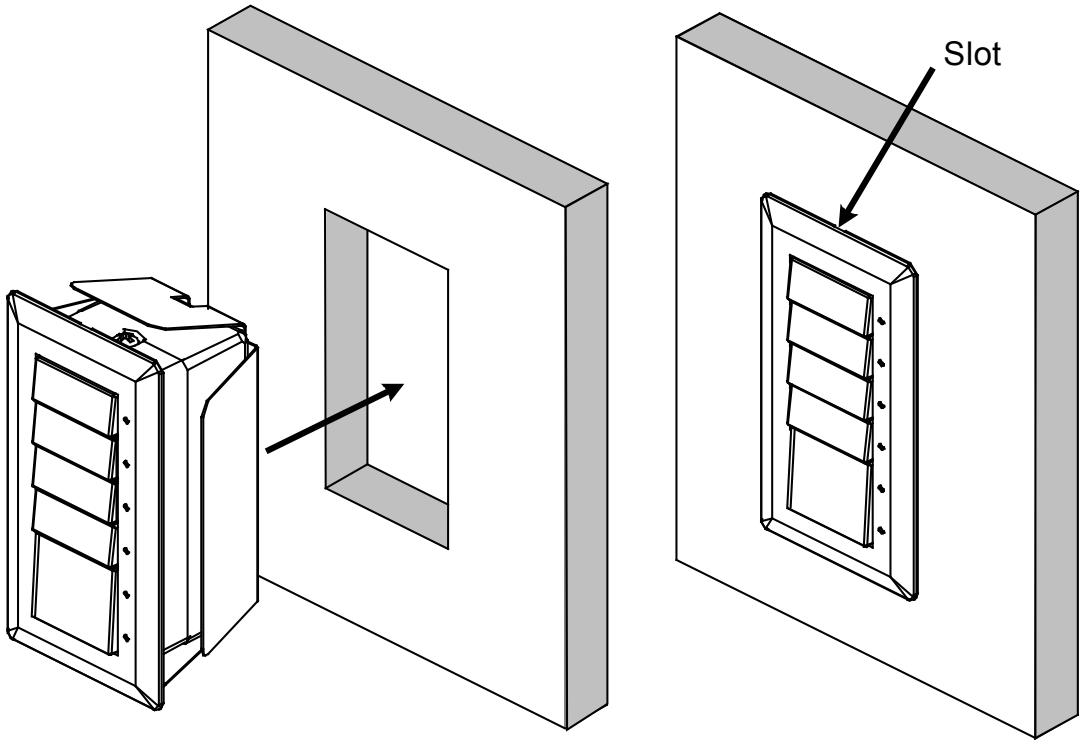


6. Use the supplied template to prepare the hole in the wall. (Refer to the Appendix on page 34 for an illustration of the template.)

NOTE: Be very careful when cutting the hole. There are no adjustments for alignment with the spring clamp.

After the Cresnet network wiring has been installed and verified, use the following procedure to install the keypad in the prepared hole.

1. Turn Cresnet system power **OFF**.
2. Connect the Cresnet cable, using the supplied mating connector, to the keypad's Cresnet port.
3. Make sure the keypad is oriented properly and insert the keypad in the hole. The natural action of the spring clamp holds the keypad in position.



4. Turn Cresnet system power **ON**.
5. If the keypad needs to be removed from the wall, there is a slot on one edge of the bezel (refer to the figure). Use a small flat blade screwdriver to pry the keypad away from the wall, being

careful to avoid damage to the wall surface, and use your fingers to remove the keypad.

Standard Mounting Installation

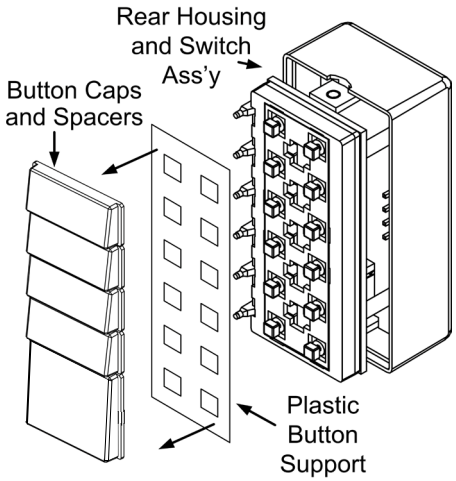
The keypad for standard mounting installation is supplied partially assembled along with several items as listed in the following table.

Supplied Parts/Assemblies – Standard Mounting

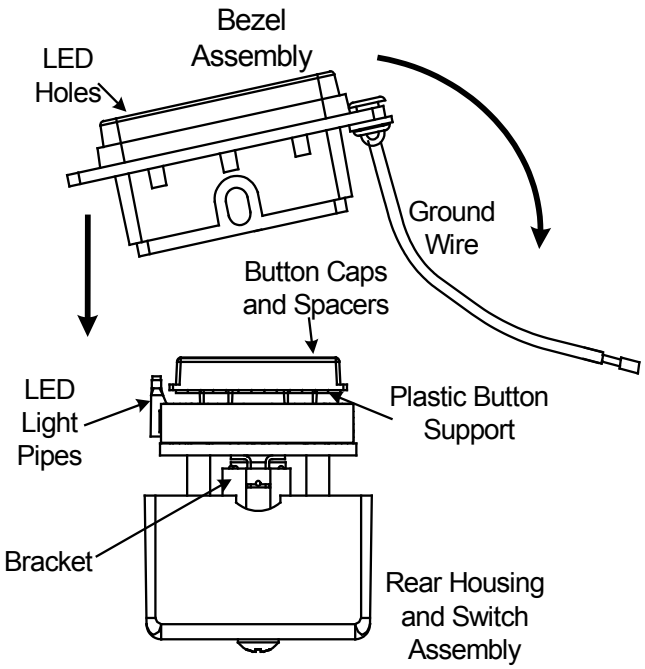
QTY	ITEM	DESCRIPTION
1	Rear housing and switch assembly	Rear housing with switch circuitry attached
1	Bezel assembly	Bezel and metal plate assembly, with ground wire
1	4-pin female mini network connector	Used to connect Cresnet network cable to the keypad
2	Screws, Black, Phillips pan head, 4-40 x 3/16”	Used to attach the bezel assembly to the keypad rear housing and switch assembly
2	Single row spacer	Switch cover for single non-operational switch
1	Double row spacer	Switch cover for two non-operational switches
1	Triple row spacer	Switch cover for three non-operational switches
1	Plastic button support	Used to hold the button caps/spacers together in position
2	Screws, Steel, Phillips, pan head, 6-32 x 7/8”	Used to attach the assembled keypad to a back box

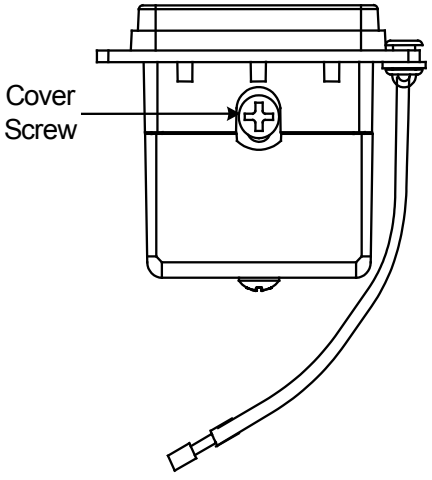
Assemble the keypad as described in the following steps. Refer to the accompanying illustrations.

1. Arrange the button caps and/or spacers in position according to the program plan. Attach the plastic button support to the button caps/spacers, and put the assembled parts in place on the rear housing and switch assembly.



2. Carefully position the bezel assembly, LED edge first, down and over the button caps/spacers and rotate slightly into position on the rear housing and switch assembly.





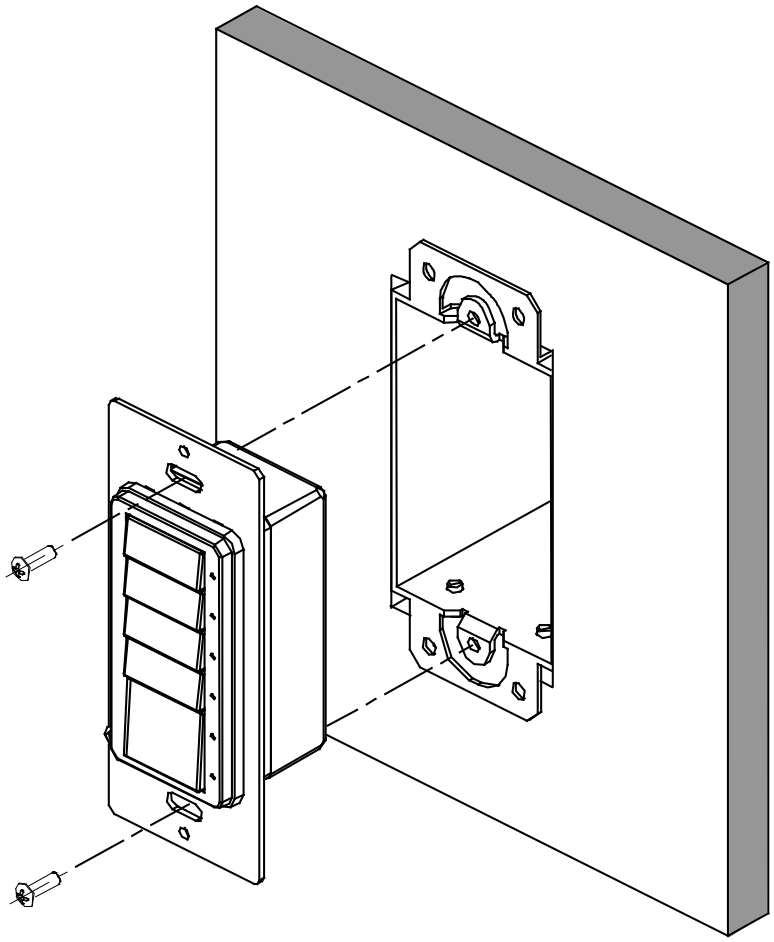
3. Hold the bezel and rear housing together.
4. Install and tighten the two supplied Phillips pan head, 4-40 x 3/16" cover screws (black), as shown in the illustration.
5. Press each button to be certain that you feel the press and release to ensure that the button caps move freely.

After the Cresnet network wiring has been installed and verified, use the following procedure to install the keypad in a standard, single-gang electrical box (not supplied).

1. Turn Cresnet system power **OFF**.
2. Connect the Cresnet cable to the keypad's Cresnet port, using the supplied mating connector.

CAUTION: Excess wire pinched between the keypad and electrical box could short out. Make sure that all excess wire is completely inside the electrical box and not between the box and the keypad.

3. Attach the ground wire to the ground screw of the electrical box.
4. Make sure the keypad is oriented properly, place it in the electrical box, and attach using the supplied 7/8 in. pan head screws.



5. Attach the desired decorator style faceplate (not supplied).
6. Turn the Cresnet system power **ON**.

UK Mounting Installation

The keypad for UK mounting installation is supplied partially assembled along with several items as listed in the following table.

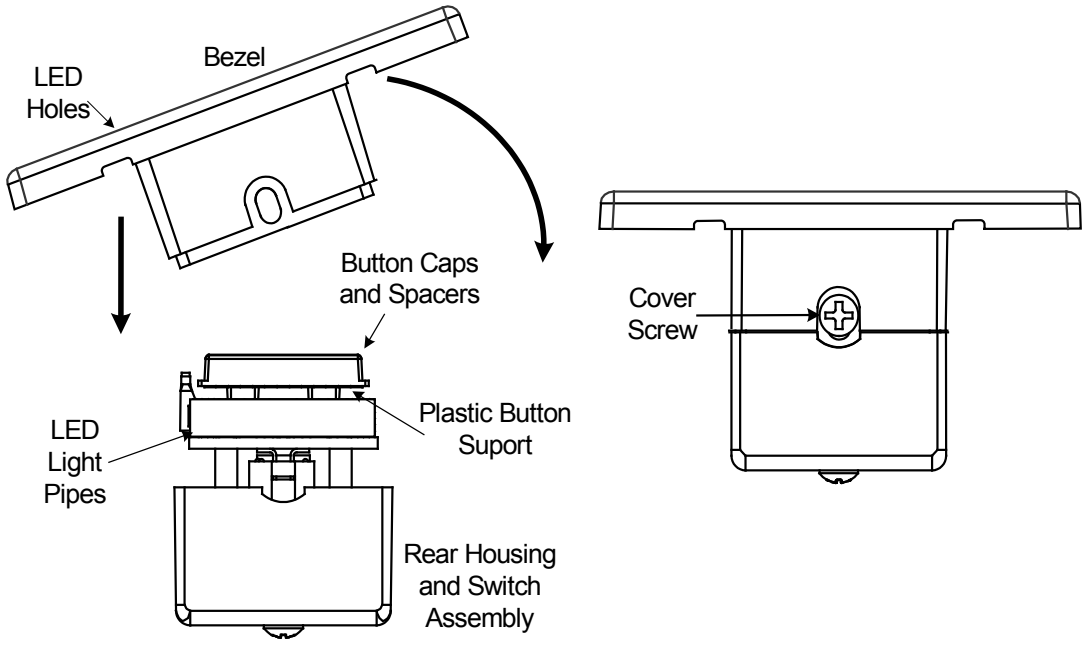
Supplied Parts/Assemblies – UK Mounting

QTY	ITEM	DESCRIPTION
1	Rear housing and switch assembly	Rear housing with switch circuitry attached
1	Bezel	Bezel assembly
1	Plastic wall plate	Alternate mounting device and bezel support
1	4-pin female mini network connector	Used to connect Cresnet network cable to the keypad
2	Screws, Black, Phillips pan head, 4-40 x 3/16”	Used to attach the bezel assembly to the keypad rear housing and switch assembly
2	Single row spacer	Switch cover for single non-operational switch
1	Double row spacer	Switch cover for two non-operational switches
1	Triple row spacer	Switch cover for three non-operational switches
2	Screws, Steel, Phillips, pan head, 6-32 x 7/8”	Used only to attach assembled keypad to back box

Assemble the keypad as described in the following steps. Refer to the accompanying illustration.

1. Place the button caps and/or spacers in position according to the program plan. Attach the plastic button support to the button caps/spacers, and put the assembled parts in place on the Rear Housing and Switch assembly. (Refer to the illustration for the standard mounting installation procedures, step 1, on page 16.)
2. Carefully position the bezel assembly, LED edge first, down and over the button caps/blanks and rotate slightly into position on the rear housing and switch assembly.

3. Hold the bezel and rear housing together and install and tighten the two supplied Phillips pan head, 4-40 x 3/16" cover screws (black), as shown in the illustration.



4. Press each button to be certain that you feel the press and release to ensure that the button caps move freely.

The keypad can be mounted directly to an appropriate surface or it can be mounted to a back box. In both cases, you can choose to have mounting screws visible or hidden.

Mounting to the Surface

Use the supplied template to prepare the hole in the wall. (Refer to the Appendix on page 34 for an illustration of the template.) After the Cresnet network wiring has been installed and verified, use the following procedure to install the keypad in the prepared hole.

1. Put the plastic wall plate in position over the prepared hole and attach using two screws (not supplied) appropriate for the mounting surface. (Refer to A in the figure on page 21.)
2. Turn Cresnet system power **OFF**, and connect the Cresnet cable to the keypad's Cresnet port, using the supplied mating connector.

3. Insert the keypad into the hole and press the bezel against the plastic wall plate until it snaps securely into position.
4. Turn the Cresnet system power **ON**.

If the keypad needs to be removed from the wall, there are two slots on one edge of the bezel (visible on the bottom edge of view C in the figure on page 21). Use a flat blade screwdriver to pry the bezel away from the wall plate, being careful to avoid damage to the bezel.

Mounting to a UK Back Box

Prepare the hole in the wall appropriate for the back box. (Back boxes for these keypads are typically square or rounded and have tabs with screw holes for mounting the keypads on each side rather than top and bottom.) After the Cresnet network wiring has been installed and verified, use the following procedure to install the keypad in the back box.

1. Put the plastic wall plate in position over the back box and attach using the supplied 7/8 in. pan head screws. (Refer to B in the figure on page 21.)
2. Turn Cresnet system power **OFF**, and connect the Cresnet cable to the keypad's Cresnet port, using the supplied mating connector.
3. Insert the keypad into the hole and press the bezel against the plastic wall plate until it snaps securely into position.
4. Turn the Cresnet system power **ON**.

If the keypad needs to be removed from the wall, there are two slots on one edge of the bezel (visible on the bottom edge of view C in the figure on page 21). Use a flat blade screwdriver to pry the bezel away from the wall plate, being careful to avoid damage to the bezel.

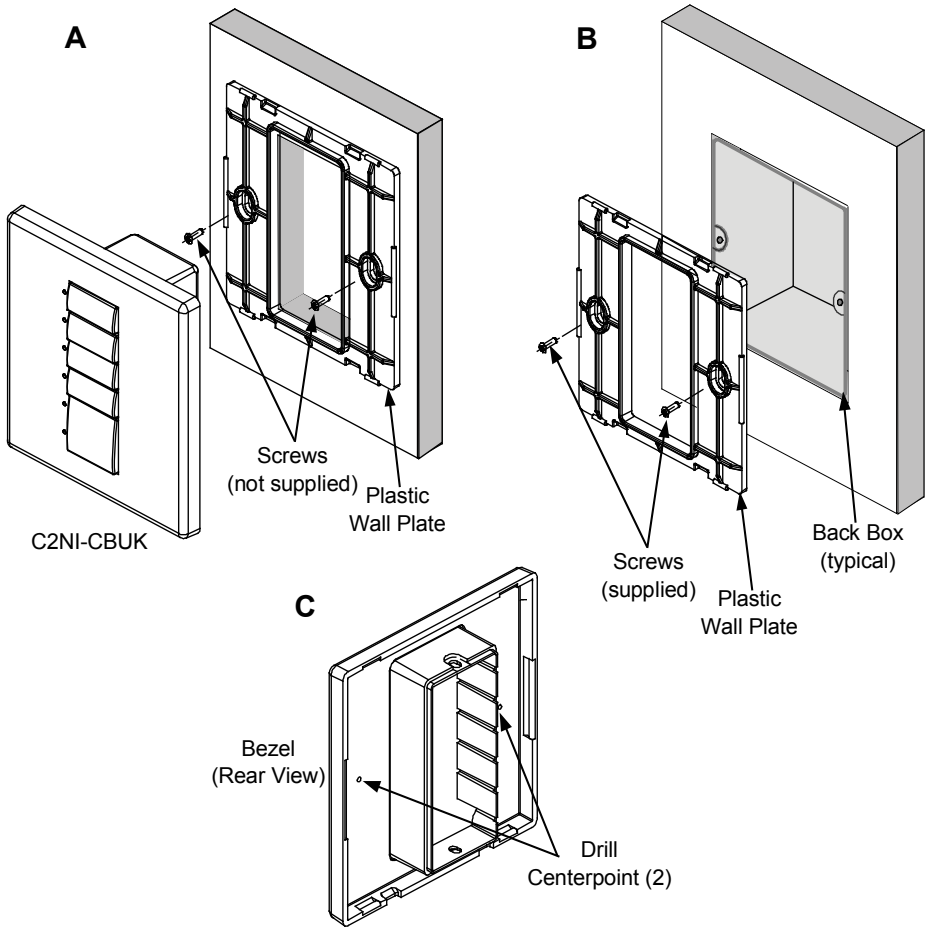
Mounting Using Screws Through the Bezel

Refer to the figure on the next page and do the following.

1. Drill pilot holes through the bezel from the rear at each of the drill center points. Then, from the front of the bezel, drill the final holes and countersink as required. (Refer to C in the following figure.)
2. Place the plastic wall plate over the keypad with the smooth surface facing out, and snap the wall plate and bezel together.
3. Attach the keypad to the mounting surface or to the back box using the appropriate screws.
4. Turn the Cresnet system power **ON.**

If the keypad needs to be removed from the wall, remove the screws securing the keypad to the mounting surface/back box, and pull the keypad free.

UK Mounting Options



Programming 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.

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.

Crestron has developed an assortment of Windows®-based software tools to develop a Cresnet system. The following are the minimum recommended software versions for the PC:

Software

TASK	REQUIRED SOFTWARE VERSION
Program control system to operate C2N/C2NI-CB Series keypads.	SIMPL Windows version 2.05.22 or later with SIMPL+® Cross Compiler version 1.1. or later and Library update 311 or later. Also requires Crestron Database version 16.4 or later.
Upload program and firmware.	Crestron Toolbox 1.01.11 or later.

(Continued on following page)

Software (Continued)

TASK	REQUIRED SOFTWARE VERSION
Program with simple wizards for systems using a C2N/C2NI-CB Series keypads.	Crestron SystemBuilder™ version 1.0 or later (requires SIMPL Windows, VT Pro-e®, Crestron Database and Crestron Engraver) with SystemBuilder Templates version 1.0 or later. Refer to software release notes or Crestron website for other required Crestron software packages.
Software for lighting and environmental controls (optional)	Crestron D3 Pro® version 2.1.7 or later (requires D3 Pro Templates version 2.0.1 or later).
Create labels for front panel buttons.	Crestron Engraver version 2.4 or later.

Programming with Crestron SystemBuilder

Crestron SystemBuilder™ is the easiest method of programming but does not offer as much flexibility as SIMPL Windows. For additional details, download SystemBuilder from the Crestron website and examine the extensive help file.

Programming with D3 Pro

Crestron's D3 Pro® lighting software provides all the tools necessary to create a complete Crestron lighting system for residential applications. The lighting system includes the control system logic program, touchpanel projects and keypad programming, documentation and real-time lighting adjustment capabilities.

As with all Crestron software, D3 Pro provides extensive right-click and drag-and-drop functionality in addition to convenient keyboard shortcuts for frequently used functions and commands.

Programming is organized into six system **Views** of the lighting system, each providing a moveable toolbox of devices such as interfaces, fixtures and control modules. You can add a device to your system simply by

selecting it from one of the toolboxes and dragging it to a room. The available toolboxes differ depending on the View but all Views include a "General" toolbox that allows you to add areas and rooms at any time.

Programming with SIMPL Windows

NOTE: While SIMPL Windows can be used to program the C2N/C2NI-CB Series keypads, it is recommended to use SystemBuilder for configuring a system.

SIMPL Windows is Crestron's premier software for programming Crestron control systems. It is organized into two separate but equally important "Managers".

Configuration Manager

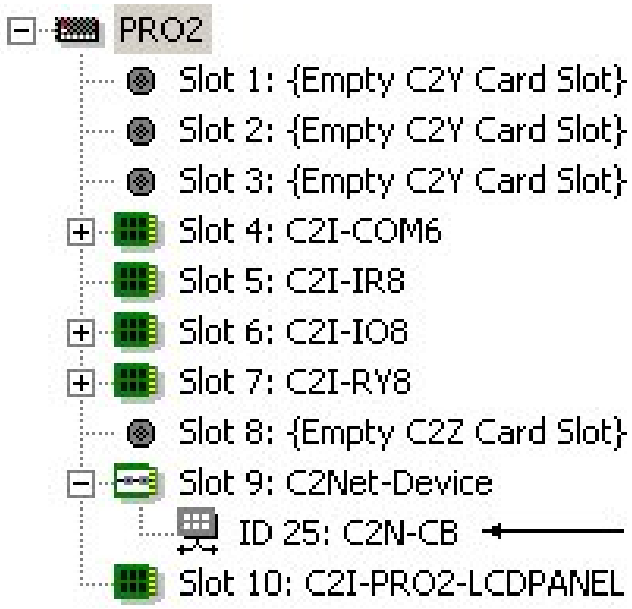
Configuration Manager is the view where programmers "build" a Crestron control system by selecting hardware from the *Device Library*.

- To incorporate the C2N/C2NI-CB keypad into the system, drag the C2N-CB icon, which includes all models, from the Wired Keypads folder of the *Device Library* and drop it in the *System Views*.

Locating the C2N-CB in the Device Library

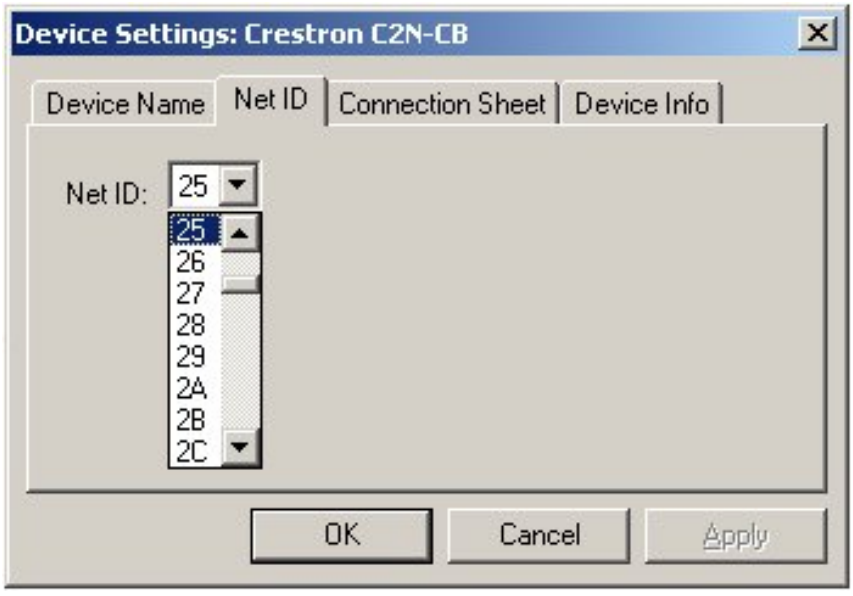
- The system tree of the control system displays the device in the appropriate slot with a default Net ID as shown in the following illustration.

C2Net Device, Slot 9



- Additional C2N/C2NI-CB Series devices are assigned different Net ID numbers as they are added.
- If necessary, double click a device to open the "Device Settings" window and change the Net ID, as shown in the following figure.

"C2N-CB Device Settings" Window



- The ID code(s) specified in the SIMPL Windows program must match the Net ID of each unit.

Program Manager

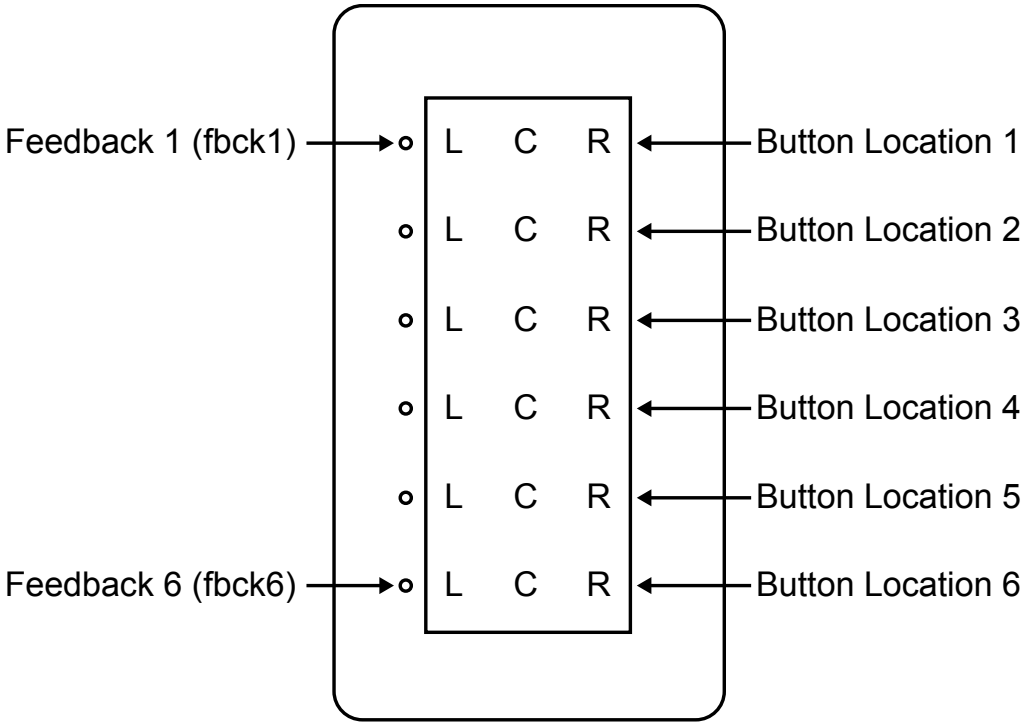
Program Manager is the view where programmers "program" a Crestron control system by assigning signals to symbols.

The symbol can be viewed by double-clicking on the icon or dragging it into *Detail View*. Each signal in the symbol is described in the SIMPL Windows help file (**F1**).

Button Locations

The following illustration demonstrates the available button locations, left (L), right (R), and center (C) button press options, and feedback LEDs on the keypad.

Cameo Keypad Button and Feedback LED Arrangement



Reverse Button Locations

In cases where it is desirable to mount the keypad with the feedback LEDs on the right, programmers will have to take into account that physically, button 6 is now at the top, button 1 is at the bottom, and that the right and left switch positions are reversed. Bear in mind, however, that when combining buttons in this orientation, the usual programming constraints still apply. For example, if merging buttons 4, 5, and 6, even though button 6 is now physically at the top of the keypad, button 4 still controls the mode of the merged buttons.

NOTE: A Crestron module in Crestron Database version 17.1.0, the C2N-Cameo Bargraph Feedback v1.0, makes it possible to use the feedback LEDs like a bargraph, so that for a function like volume control, as the switches are used to control the volume, the LEDs display its approximate level.

Uploading and Upgrading

Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (for example, programs or firmware) can be transferred to the control system (and/or device). Finally, program checks can be performed (such as changing the device ID) to ensure proper functioning.

Establishing Communication

Use Crestron Toolbox for communicating with the C2N/C2NI-CB; refer to the Crestron Toolbox help file for details. There is a single method of communication: indirect serial communication.

Indirect Serial Communication

- C2N/C2NI-CB connects to control system via Cresnet.
- Establish communications between the PC and the control system as described in the latest version of the 2-Series Control Systems Reference Guide (Doc. 6256), which is available from the Crestron website (http://www.crestron.com/manuals).

Programs and Firmware

Program, project or firmware files may be distributed from programmers to installers or from Crestron to dealers. Firmware upgrades are available from the Crestron website as new features are developed after product releases. One has the option to upload programs via the programming software or to upload and upgrade via the Crestron Toolbox. For details on uploading and upgrading, refer to the SIMPL Windows help file or the Crestron Toolbox help file.

SIMPL Windows

If a SIMPL Windows program is provided, it can be uploaded to the control system using SIMPL Windows or Crestron Toolbox.

Firmware

Check the Crestron website to find the latest firmware. (New users may be required to register to obtain access to certain areas of the site, including the FTP site.)

- Upgrade C2N/C2NI-CB firmware via Crestron Toolbox.
- Establish indirect serial communications with the C2N/C2NI-CB and display the "System Info" window.
- Select **Functions | Firmware…** to upgrade the C2N/C2NI-CB firmware.

Program Checks

Display the network device tree (**Tools | Network Device Tree View**) to show all network devices connected to the control system. Right-click on the C2N-CB to display actions that can be performed on the C2N/C2NI-CB.

Problem Solving

Troubleshooting

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

C2N/C2NI-CB Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
The keypad does not function.	The wrong power supply is being used.	Use a Crestron power supply.
	The unit is not receiving power, or is receiving insufficient power.	Verify that the cable plugged into the **NET** port is secure. Verify that the power supply is correct.
	There is a loose connection in the network.	Verify that the cable plugged into the **NET** port is secure.
The keypad does not function. All six feedback LEDs are on low.	Improper Net ID used.	Verify that the Cameo Net ID matches the Net ID in the software program.
Keypad does not function, or does not function as expected. However, it reports on Cresnet at the proper Net ID.	Not programmed correctly	Use Test Manager to check the behavior when buttons are pressed. Revise and reload the program as needed to correct the behavior.

Check Network Wiring

Use the Right Wire

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

Calculate Power

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 to help calculate how much power is needed for the system (http://www.crestron.com/calculators).

When calculating the length of wire for a particular Cresnet run, the wire gauge and the Cresnet power usage of each network unit to be connected must be taken into consideration. Use Crestron Certified Wire only. 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 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 wire gauge and the Cresnet power usage of the run should be used in the following equation to calculate the cable length value on the equation's left side.

Cable Length Equation

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

Where: L = Length of run (or chain) in feet
R = 6 Ohms (Crestron Certified Wire: 18 AWG (0.75 MM^2))
or 1.6 Ohms (Cresnet HP: 12 AWG (4 MM^2))
P = Cresnet power usage of entire run (or chain)

Make sure the cable length value is less than the value calculated on the right side of the equation. For example, a Cresnet run using 18 AWG Crestron Certified Wire and drawing 20 watts should not have a length of run more than 333 feet. If Cresnet HP is used for the same run, its length could extend to 1250 feet.

NOTE: All Crestron certified 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.

Strip and Tin Wire

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.

Add Hubs

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.

Reference Documents

The latest version of all documents mentioned within the guide can be obtained from the Crestron website (http://www.crestron.com/manuals). This link will provide a list of product manuals arranged in alphabetical order by model number.

List of Related Reference Documents

DOCUMENT TITLE
2-Series Control Systems Reference Guide

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 (http://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/C2NI-CB, 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.

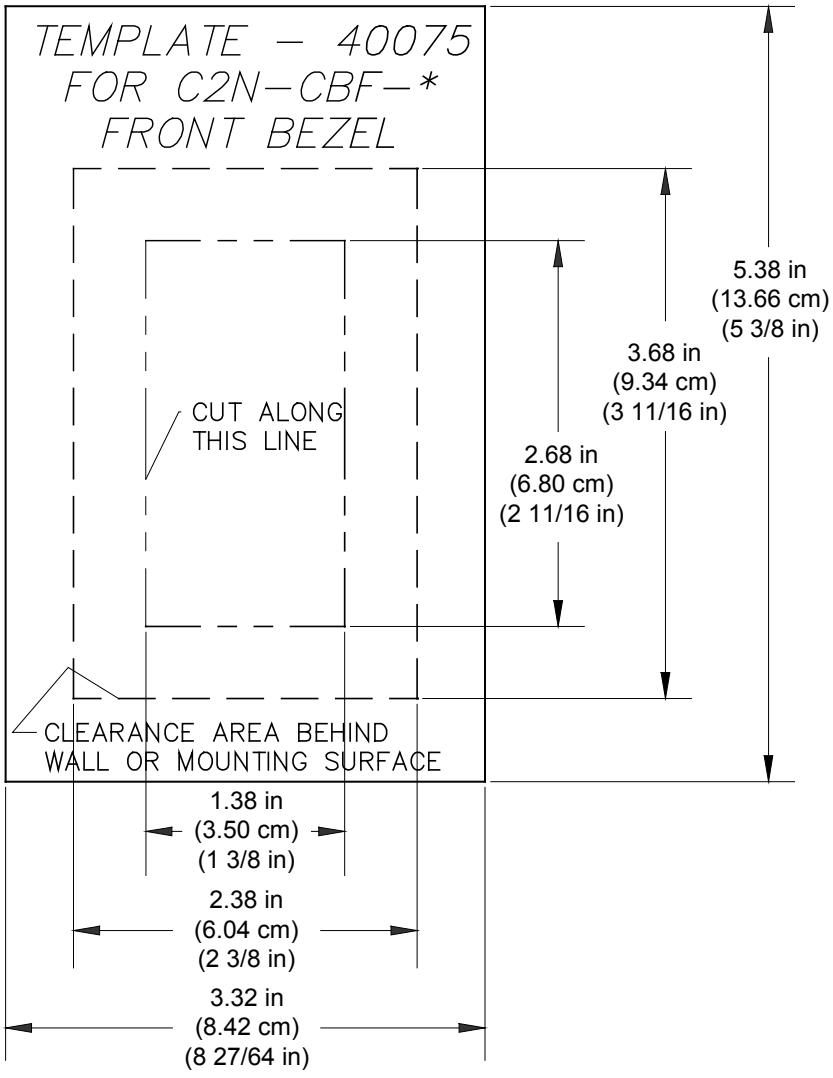
Check the Crestron website periodically for manual update availability and its relevance. Updates are identified as an "Addendum" in the Download column.

Appendix: Template for Flush Mount Hole

The following figure (not to scale) illustrates the supplied template used to prepare the hole in the wall or other mounting surface for the flush mount Cameo keypad.

NOTE: Use only the original template, not a photocopy, to prepare the hole. Photocopies usually alter the size of the image slightly, which would make the hole the wrong size.

Be careful when cutting the hole, the spring clamp on the keypad does not have provision for positioning adjustment. Also, ensure that there is a sufficient clearance area behind the mounting surface as shown on the template.



Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact an authorized CRESTRON dealer. Only authorized CRESTRON dealers may contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number and return address.
2. Products may be returned for credit, exchange or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee plus shipping costs on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

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

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

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

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

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

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

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