

Crestron **C2N-CAMIDJ**
Digital Joystick Camera Controller
Operations Guide



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



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

Contents

Digital Joystick Camera Controller: C2N-CAMIDJ	1
Introduction	1
Functions and Features	1
Specifications	3
Physical Description	4
Industry Compliance	8
Setup	8
Network Wiring	8
Identity Code	9
Hardware Hookup	12
Programming Software	13
Earliest Version Software Requirements for the PC	13
Programming with the Crestron SystemBuilder	14
Programming with SIMPL Windows	14
Example Program	23
Uploading and Upgrading	23
Communication Settings	23
Uploading a SIMPL Windows Program	25
Firmware Upgrade	27
Basic Operation	28
Problem Solving	29
Troubleshooting	29
Further Inquiries	29
Future Updates	29
Appendix: Functions of the CamiDJ Interface Module	30
Return and Warranty Policies	31
Merchandise Returns / Repair Service	31
CRESTRON Limited Warranty	31

Digital Joystick Camera Controller: C2N-CAMIDJ

Introduction

Functions and Features

The Crestron® C2N-CAMIDJ Digital Joystick Camera Controller (CAMIDJ) is a professional joystick controller designed to work in a Crestron 2-Series control system network (Cresnet®), to provide a powerful user interface for the remote operation of networked cameras and lenses. Precise camera positioning and zoom lens adjustment is enabled by its ergonomic 3-axis joystick with large grip and cushioned wrist rest. Intuitive left/right and up/down movement of the joystick delivers effortless pan and tilt control, with zoom in/out capability instantly at hand through a simple twist of the joystick handle. Integrated thumb switches on top of the joystick afford immediate selection between high and low speeds to ensure smooth and accurate positioning on the fly.

The CAMIDJ's encoder wheel provides for quick adjustment of pan, tilt, and zoom speeds, as well as iris (aperture) and focus settings. In addition, 12 pushbuttons and feedback LEDs are included to facilitate camera selection, preset recall, and other custom functions.

Functional Summary

- Intuitive three-axis joystick – pan left/right, tilt up/down, twist to zoom in/out
- Two thumb switches on joystick for high/low speed mode selection
- Six function pushbuttons
- Twelve programmable general purpose buttons for camera selection, presets, and custom functions
- Side-mounted encoder wheel for quick adjustment of pan, tilt, and zoom speeds plus adjustment of focus and iris (aperture)
- Precise camera positioning and zoom lens adjustment enable accurate preset repeatability

The CAMIDJ can be used alone or in combination with any Crestron touchpanel to provide the perfect head end for camera control networks of virtually any size. The supplied example program includes a CamiDJ Interface Module that permits control of up to four camera pan/tilt heads. Configurations that are more extensive can be developed using the supplied program as a model. Ideally designed to support Crestron's pan/tilt heads and lens interfaces, the CAMIDJ is equally well equipped to work with third-party pan/tilt heads and integrated PTZ (pan/tilt/zoom) cameras as part of a complete Crestron control system.

The thumb switches on the top of the joystick select either high or low speed mode. The speed mode selected is indicated by HIGH and LOW speed mode LED indicators. The encoder wheel is a rotating knob that allows the operator to operate the lens focus and iris controls, and to adjust the fast and slow speed scaling values. The function controlled by the encoder wheel is selected by pushbutton switches on the top of the unit. For function switches PAN, TILT, and ZOOM, rotation of the encoder wheel adjusts the high and low speed scaling for each of the functions, as selected by the joystick thumb switches. The scaling factor is displayed as a number from 00 to 99 on the two-digit display.

If no further adjustments are made to the wheel within approximately twenty seconds, the wheel function returns to FOCUS (default). The setting for each speed mode is stored independently in the control system when using the CamiDJ Interface Module, not in the CAMIDJ. The user can switch between fast and slow modes of control using the joystick pushbuttons.

For the FOCUS and IRIS function select buttons, the encoder wheel adjusts the lens focus or aperture. In the CamiDJ Interface Module, when FOCUS is selected, the two-digit display indicates "FC." When Iris MANUAL is selected, the display indicates "AP" (aperture). The AUTO function select switch puts the iris into auto mode, allowing the camera to make all iris adjustments. An additional twelve general purpose select buttons on the top panel are programmable through the Cresnet network and can be used to control functions such as selecting the camera to be controlled or setting and recalling presets. The buttons themselves are not engraveable, but the Crestron Engraver program can be used to create custom labels for the CAMIDJ to identify the switch functions.

Specifications

The table below provides a summary of specifications for the C2N-CAMIDJ.

Specifications of the C2N-CAMIDJ

SPECIFICATION	DETAILS
Cresnet Power Usage	4 Watts (0.17 Amps @ 24 VDC)
Default Net ID	0D
Control System Update Files ^{1,2}	
2-Series Control System	Version 2.004.CUZ or later
C2N-CAMIDJ Firmware ³	C2N-CAMIDJvx.xxx.x.upg or later
Controls	
Function buttons	(6) pushbuttons select the function controlled by the encoder wheel, and lens functions
Joystick thumb switches	(2) select high/low speed positioning mode
General purpose buttons	(12) programmable pushbuttons, select cameras or other functions as determined by SIMPL program
SETUP button	(1) pushbutton used for setup of the unit's network ID
Encoder wheel	(1) controls lens focus and manual iris adjustments; adjusts speed factor for pan, tilt, and zoom functions
Joystick	(1) three axis joystick (up/down, left/right, and twist in/out) used to control pan, tilt, and zoom functions
Operating Temperature	41° to 122°F (5° to 50°C)
Humidity	10% to 90% RH (non-condensing)
Overall Dimensions	Width: 9.44 in (23.98 cm) Height: 5.33 in (13.54 cm) Depth: 7.71 in (19.58 cm)
Weight	3.2 lb (4.5 kg)

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. In DETAILS, vx.xxx.x represents a version number.

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

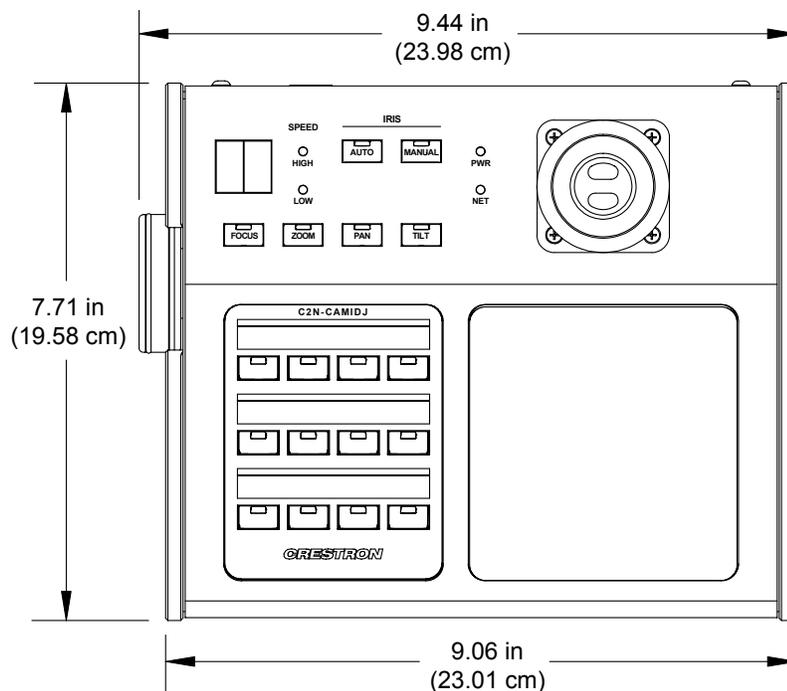
Physical Description

The CAMIDJ is housed in a black/silver metal enclosure with integral wrist-rest. Refer to illustrations below and on the next page.

Physical Views of C2N-CAMIDJ

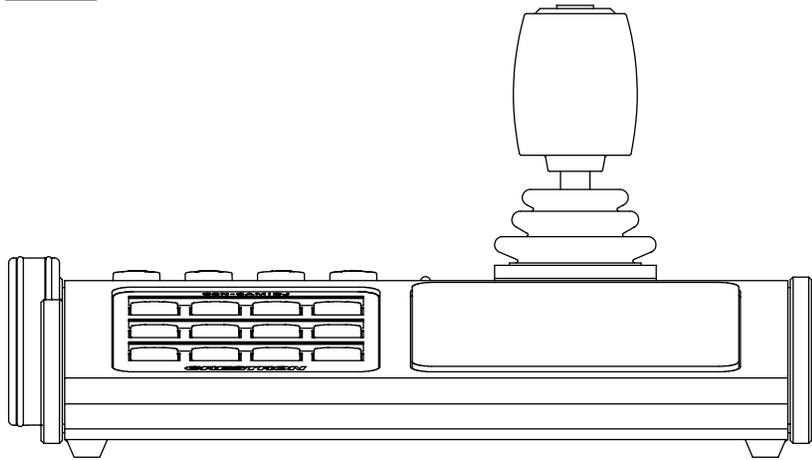


TOP

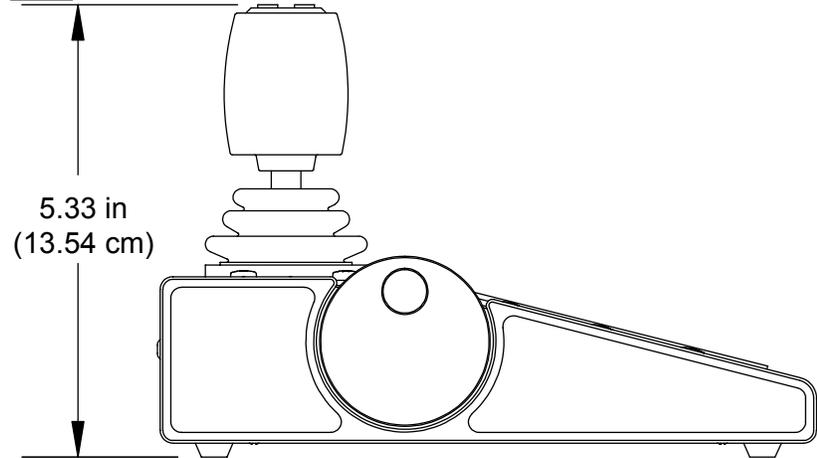


Physical Views of C2N-CAMIDJ (continued)

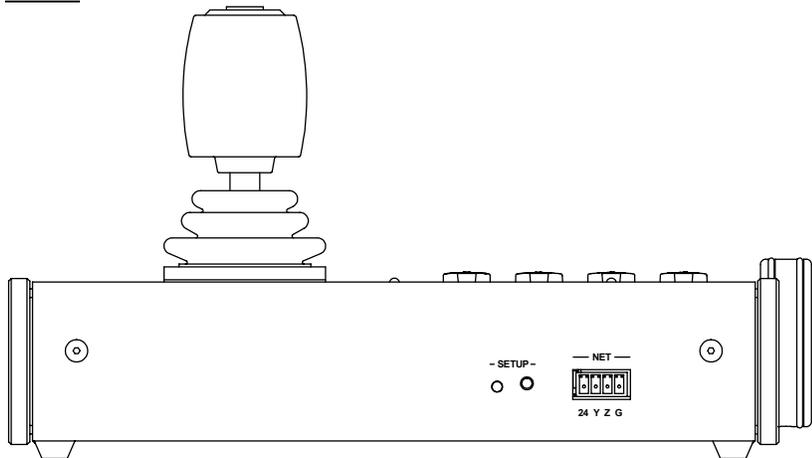
FRONT



SIDE



REAR



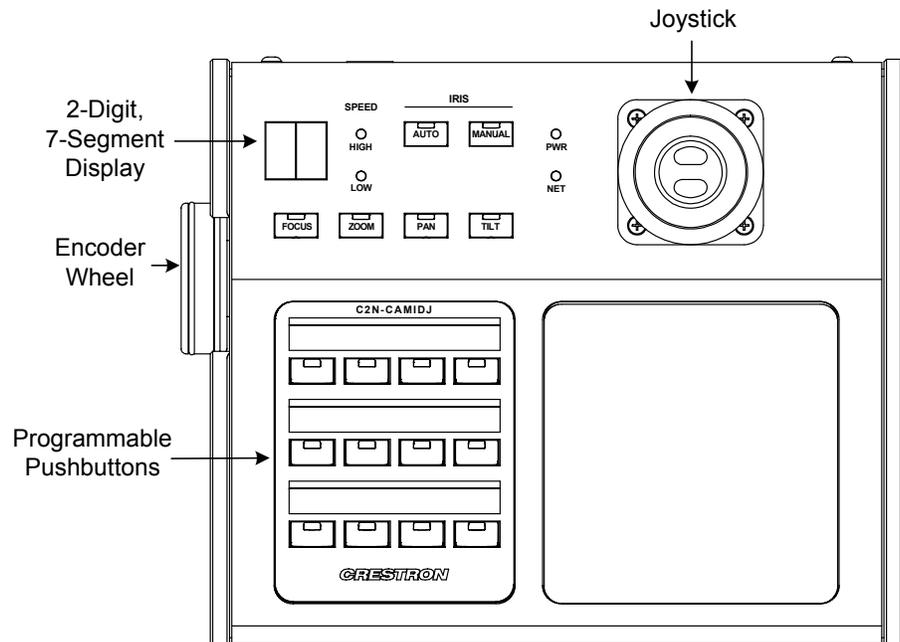
Network Connection

All connections to the CAMIDJ are made through the 4-pin terminal block NET port on the rear panel (mating connector supplied).

Controls and Indicators

Controls and related indicators are located on the side, top, and rear panels. Refer to the figures and descriptions, which follow.

Top Panel Controls and Indicators



2-Digit Display

When using the CamiDJ Interface Module, the display indicates the high and low speed settings or function as determined by the function select switches. For pan, tilt, and zoom functions, the display indicates a speed scaling percentage from 0-99. For the focus function, the display reads "FC." For the manual iris function, the display reads "AP."

PWR

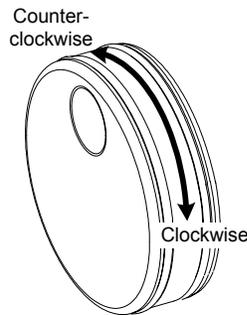
This green power LED illuminates when +24 VDC is supplied to the CAMIDJ.

NET

This yellow network LED illuminates when communication between the control system and the CAMIDJ is established. Illumination indicates that the SIMPL program currently loaded has a network device defined at the same Net ID as the CAMIDJ.

SPEED HIGH/LOW

These red speed LEDs indicate the speed mode selected by the joystick thumb switches, as determined by the CamiDJ Interface Module or a comparable SIMPL program. The LEDs are off by default when unit power is turned on.



Encoder Wheel

The encoder wheel, shown to the left, is used with the function switches to establish speed scale factor settings for pan, tilt, and zoom operations, to adjust the iris (aperture), and to focus the lens. The scaling factor is displayed as a number from 00 to 99 on the two-digit display. The wheel is also used to set the high and low speed scale factor for recall of preset target views. If no further adjustments are made to the wheel within approximately twenty seconds, the wheel function returns to FOCUS (default). The setting for each speed mode is stored independently in the control system when using the CamiDJ Interface Module, not in the CAMIDJ. The *clockwise/counter-clockwise* notations in the figure relate to outputs of the encoder, as described in the “Input/Output Signals” topic which begins on page 17.

IRIS AUTO/MANUAL

Selecting the AUTO function switch puts the lens iris (aperture) control in auto mode (iris is controlled by the camera).

Selecting the MANUAL function switch puts lens iris control in manual mode. In this mode, the encoder wheel controls the lens iris.

FOCUS / ZOOM / PAN / TILT

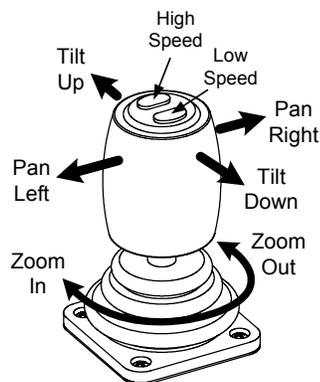
These four function switches are used with the encoder wheel to establish speed scale factor settings for pan, tilt, and zoom operations. Each button includes an LED that indicates the function selected.

The FOCUS switch selects lens focus control, the default function of the encoder wheel. The encoder wheel adjusts the aperture (if the IRIS MANUAL function is selected). Use the joystick thumb switches to set both a high speed and a low speed scale factor.

The ZOOM switch selects zoom speed control. The encoder wheel adjusts the zoom speed scale factor. Use the joystick thumb switches to set both a high speed and a low speed scale factor.

The PAN switch selects the PAN speed adjust function. The encoder wheel adjusts the pan speed scale factor. Use the joystick thumb switches to set both a high speed and a low speed scale factor.

The TILT switch selects the TILT speed adjust function. The encoder wheel adjusts the tilt speed scale factor. Use the joystick thumb switches to set both a high speed and a low speed scale factor.



Joystick

The diagram to the left illustrates the basic functions of the joystick. The user can switch between high speed and slow speed modes of control using the joystick thumb switches. In each operation (pan/tilt/zoom) the joystick springs back to center position when released. The output signals of the joystick increase as you push, pull, or twist from the center position toward the respective limits. The actual pan, tilt, and zoom speeds depend on the speed scale settings and the speed mode selected. The user can switch between fast and slow modes of control using the joystick pushbuttons.

SETUP LED and Pushbutton

The rear panel SETUP pushbutton and its associated red LED are used for setup of the unit's network ID during the initial configuration of a Cresnet system or when

the device is being added/replaced. Refer to “Identity Code” on page 9 for detailed information.

Industry Compliance

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



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

Setup

Network Wiring

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

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

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

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 following resistance equation to calculate the value on the right side of the equation.

Resistance Equation

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

<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).</p>
--

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.

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 15 for details of the SIMPL Windows procedure.

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

The Net ID of the CAMIDJ has been factory set to 0D. The Net IDs of multiple CAMIDJs 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 CAMIDJ Net IDs:

Method A (Cresnet address-settable ID), described on the next page, applies to CAMIDJs in a Cresnet system with a 2-Series control system upgrade file (CUZ) version prior to 3.008, but can be used with later versions of firmware and requires that a single unit be the only network device connected to the control system.

Method B (Touch Settable IDs), which begins on the next page, applies to CAMIDJs in a Cresnet system with 2-Series control system upgrade file (CUZ) version 3.029 or later. These upgrades enable Touch Settable ID (TSID) functionality, which 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 CAMIDJ Net ID.

Method A (Cresnet address-settable ID)

1. Ensure that the CAMIDJ is the only device 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 CAMIDJ from the *Current Network Devices* text window.
5. Select the new Net ID for the CAMIDJ 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 CAMIDJ to be added to the system.

Method B (Touch Settable IDs)

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 CAMIDJs 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. (Refer to the following figure.)

“Set Net ID by TSID” Window

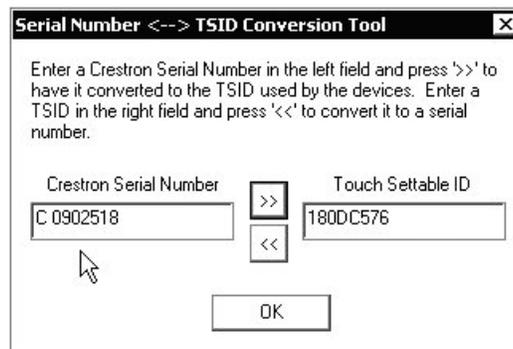
4. Click on the **Search for Touch Settable Devices** button. The system searches the network and lists all TSID-enabled devices found. The list is similar to the report produced by pressing **F4** (Report Network Devices); the first eight digits of each line constitute the TSID number (hexadecimal form of the serial number).
5. As you enter either the serial number or TSID number of the device that requires a change, the corresponding TSID or serial number automatically appears in its appropriate field, and the list scrolls to and highlights the device listing. The listing should show the device’s current Cresnet 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. (Refer to the following figure.)

“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.

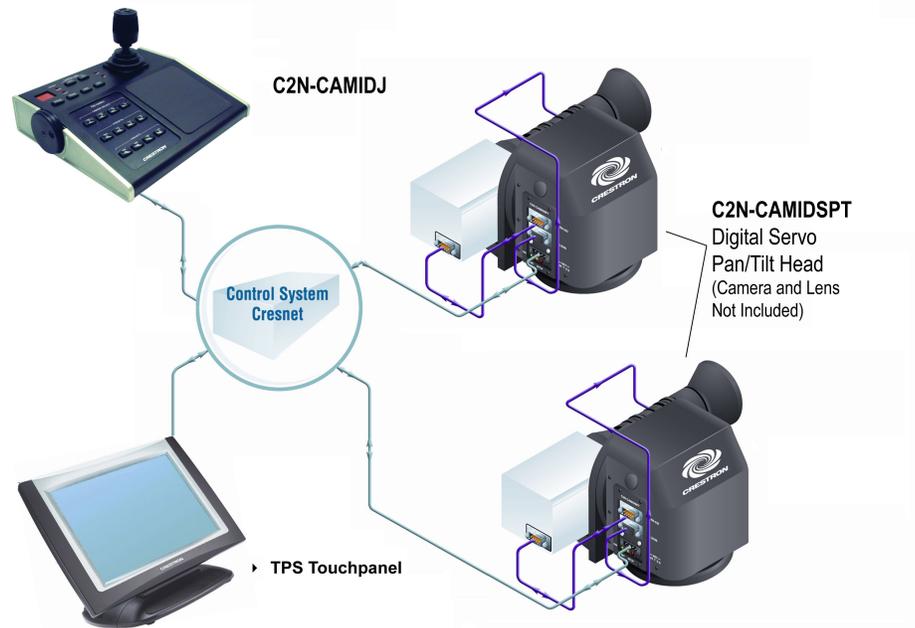
NOTE: Enter serial numbers, including spaces, exactly as they appear on the unit label. Alpha characters in serial numbers or TSID numbers may be entered in upper or lower case.

Hardware Hookup

CAMIDJ hookup consists of connecting the unit to the Cresnet network using Cresnet network cable (not supplied) and the Cresnet 4-pin mating connector (supplied). Refer to “Network Wiring” on page 8.

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

The following diagram shows a Cresnet configuration that includes the CAMIDJ and two Crestron C2N-CAMIDSPTs. (A complete configuration for control of remote video cameras would include distribution of the cameras’ video output to a local video monitor or to a touchpanel that supports real-time video so you can see the results of your setting adjustments.)



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.

You can create a program that allows you to include the CAMIDJ in a Crestron control system using the Crestron programming tools Crestron SystemBuilder™ and SIMPL Windows. These tools are intended for users with different levels of programming knowledge. The flexibility of each tool is proportional to the degree of programming expertise (i.e., the more flexible, the more a programmer needs to know and account for). Of course, one can initiate programming using the easiest method (SystemBuilder) and use advanced techniques that are available from SIMPL Windows to customize the job.

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.

The following are recommended software version requirements for the PC:

- SystemBuilder version 2.0 or later. Requires SIMPL Windows and Crestron Engraver. Requires SystemBuilder templates 1.10 or later.
- SIMPL Windows version 2.05.22 or later. Requires SIMPL+ Cross Compiler version 1.1.

- Crestron Database version 16.4.4 or later. Required by SIMPL Windows.
- Crestron Engraver version 2.3.3.2 (required if using SystemBuilder or to produce custom labels for the programmable selection buttons).

The easiest method of programming, but does not offer as much flexibility as SIMPL Windows.

Programming with the Crestron SystemBuilder

The Crestron SystemBuilder offers automatic programming for such residential and commercial applications as audio distribution, home theater, video conferencing, and lighting. The interface of this tool guides you through a few basic steps for designating rooms and specifying the control system, touchpanels, devices, and functionality. The Crestron SystemBuilder then programs the system, including all touchpanel projects and control system logic.

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

Programming with SIMPL Windows

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

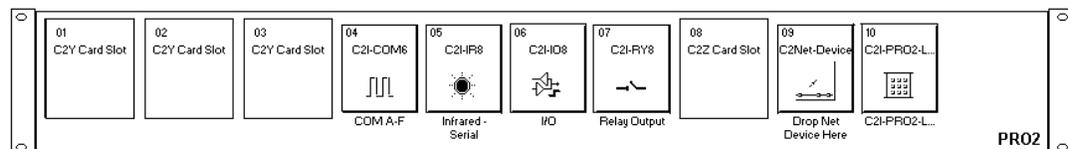
NOTE: In the following description, the PRO2 control system is used.

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

This section describes a sample SIMPL Windows program that includes a CAMIDJ.

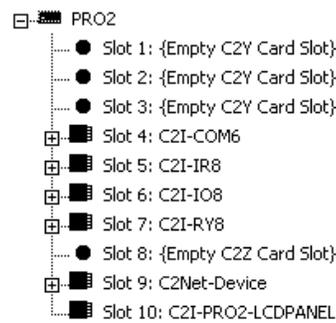
Configuration Manager is where programmers “build” a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated 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 following graphic). This tree can be expanded to display and configure the communications ports.

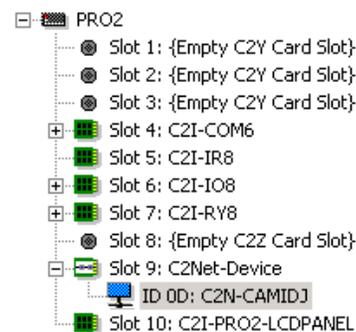
Expanded PRO2 System Tree



C2Net-Device Slot in Configuration Manager

To incorporate a CAMIDJ into the system, drag the CAMIDJ from the Cresnet Control Modules | Cresnet Camera Control Modules folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree displays the CAMIDJ in Slot 9, with a default Net ID of 0D as shown in the following illustration.

C2Net Device, Slot 9

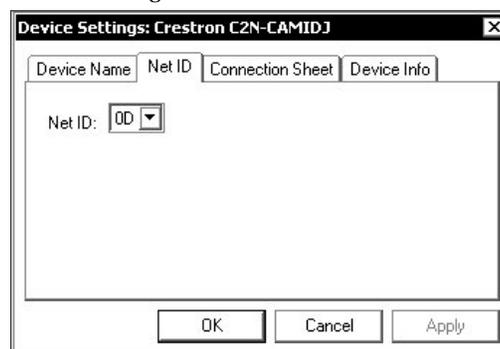


NOTE: The first CAMIDJ in a system is preset with a net ID of 0D when its symbol is dragged into the upper pane of *System Views*. Additional units are assigned different numbers as they are added.

Setting the Net ID in Device Settings

Double-click the CAMIDJ icon in the upper pane to open the “Device Settings” window. This window displays CAMIDJ device information. Select the *Net ID* tab to change the Net ID, as shown in the following figure.

“Device Settings” Window

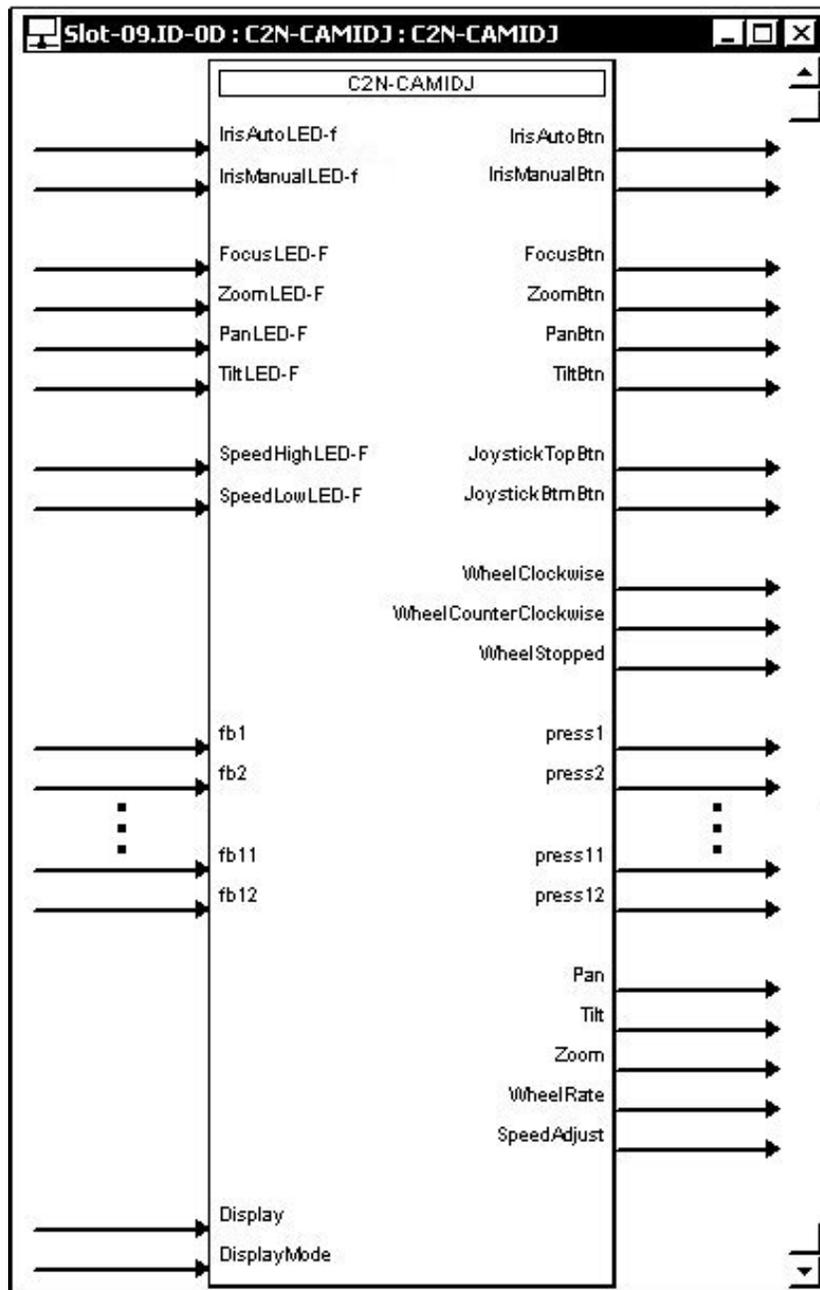


NOTE: SIMPL Windows automatically changes Net ID values of a device added to a program if a duplicate device or a device with the same default Net ID already exists in the program. Always ensure that the hardware and software settings of the Net ID match. For Net ID hardware setting details, refer to “Identity Code” on page 9.

CAMIDJ Symbol in Programming Manager

Programming Manager is where programmers “program” a Crestron control system by assigning signals to symbols. The illustration below shows the CAMIDJ symbol in the SIMPL Windows’ Programming Manager.

Detail View of the CAMIDJ in SIMPL Windows’ Programming Manager



Signal Types

Signals interconnect the various devices and logic symbols that comprise a SIMPL program. Signals can be one of three types: digital, analog, or serial. For any given signal, the signal type is determined by its driving source. That is, if the symbol that drives the signal has an analog output, then, by definition, the signal connected there will be an analog signal.

In SIMPL Windows, the signal types are color-coded as follows:

Digital = Blue
Analog = Red
Serial = Black
Other = Green

NOTE: “Other” signals are a combination of the three basic types (e.g. many symbols accept either analog or serial signals where the combination is shown as a green signal). The signal type is displayed on the Status Bar when the signal is highlighted.

For additional information, refer to Doc. 6120, Crestron SIMPL Windows Symbol Guide. It may be downloaded from the Crestron website.

Digital Signals

A digital signal contains one bit of information and usually takes on one of two values: 1 or 0. These two digits can represent the logical values true and false, and they can be represented in an electronic device by the states on/off or high/low, recognized as two voltage levels. (Other common descriptors are active/inactive.)

Analog Signals

Unlike digital signals, analog signals can vary continuously in value, in the same manner as a parameter such as volume, temperature, or pressure. Analog signals contain 16 bits of information, which means that this type of signal can have values ranging from 0 to 65535 ($2^{16}-1$). This 16-bit property makes analog signals useful for controlling devices that do not have discrete settings, such as volume controllers, pan/tilt head controllers, and lighting dimmers.

Serial Signals

Serial signals are much like analog signals, in that they, too, contain 16 bits of information. However, whereas the value of an analog signal is used directly—to control volume or temperature, for instance—the value of the serial signal is used as a pointer to a location in memory that contains a string of characters. When a serial signal is routed to a symbol, that symbol can identify the signal as serial rather than analog and it will automatically look at the data to which it points.

Thus, serial signals are used to facilitate the transmission of serial data (strings of characters). These signals can be generated by incoming data on a COM port or by a symbol that has a serial output.

Input/Output Signals

The following table lists functional descriptions for the CAMIDJ inputs and outputs. Many of the signal descriptions include information relative to the CamiDJ Interface Module included in the CAMIDJ example program. Refer to the Appendix for a functional description of the CamiDJ Interface Module.

CAMIDJ Input and Output Signal Descriptions

SIGNAL TYPE AND NAME	DESCRIPTION
Digital input: <IrisAutoLED-F>	<p>Activates the LED feedback of the IRIS AUTO button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{IrisAutoLED-F}>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that iris auto adjust mode has been selected.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <IrisAutoBtn>	<p>Indicates that the IRIS AUTO button has been pressed. The output remains high for as long as the button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ}>>IrisAutoBtn}} input of the module. When connected to the CamiDJ Interface, this signal is used to activate the iris auto adjust mode.</p> <p>High/1 = IRIS AUTO button pressed; Low/0 = Iris auto adjust mode released</p>
Digital input: <IrisManualLED-F>	<p>Activates the LED feedback of the IRIS MANUAL button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{IrisManualLED-F}>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that the iris manual adjust mode has been selected. The unit will remain in iris manual adjust mode for as long as the encoder wheel is being rotated. If there is no wheel rotation for 20 seconds, the unit will revert to focus adjust mode and the IRIS MANUAL button will show blinking feedback on the LED. The button would need to be pressed again to re-enter iris manual adjust mode.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <IrisManualBtn>	<p>Indicates that the IRIS MANUAL button is being pressed. The output remains high for as long as the IRIS MANUAL button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ}>>IrisManualBtn}} input of the module. When connected to the CamiDJ Interface, this output is used to activate the iris manual adjust mode.</p> <p>High/1 = IRIS MANUAL button pressed; Low/0 = IRIS MANUAL button released</p>
Digital input: <FocusLED-F>	<p>Activates the LED feedback of the FOCUS button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{FocusLED-F}>>C2N-CAMIDJ}} output of the module. Activation of the signal will indicate that the focus adjust mode (encoder wheel controls focus) has been selected. The unit will revert to focus adjust mode (exiting speed adjust mode or iris manual adjust mode) after a timeout period of 20 seconds has passed with no movement of the encoder wheel.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <FocusBtn>	<p>Indicates that the FOCUS button is being pressed. The output remains high for as long as the FOCUS button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ}>>FocusBtn}} input of the module. When used with the CamiDJ Interface, the output activates the encoder wheel focus function.</p> <p>High/1 = FOCUS button pressed; Low/0 = FOCUS button released</p>

(continued on next page)

CAMIDJ Input and Output Signal Descriptions (continued)

SIGNAL TYPE AND NAME	DESCRIPTION
Digital input: <ZoomLED-F>	<p>Activates the LED feedback of the ZOOM button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{ZoomLED-F>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that the zoom speed adjust mode (encoder wheel controls zoom speed) has been selected. The unit will remain in zoom speed adjust mode for as long as the encoder wheel is being rotated. If there is no wheel rotation for 20 seconds, then the unit will revert to focus adjust mode.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <ZoomBtn>	<p>Indicates that the ZOOM button is being pressed. The output remains high for as long as the ZOOM button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>ZoomBtn}} input of the module. When connected to the CamiDJ Interface, activating this output allows adjustment of zoom high and low speeds.</p> <p>High/1 = ZOOM button pressed; Low/0 = ZOOM button released</p>
Digital input: <PanLED-F>	<p>Activates the LED feedback of the PAN button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{PanLED-F>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that the pan speed adjust mode (encoder wheel controls pan speed) has been selected. The unit will remain in pan speed adjust mode for as long as the encoder wheel is being rotated. If there is no wheel rotation for 20 seconds, then the unit will revert to focus adjust mode.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <PanBtn>	<p>Indicates that the PAN button is being pressed. The output remains high for as long as the PAN button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>PanBtn}} input of the module. When connected to the CamiDJ Interface, activating this output allows adjustment of pan high and low speeds.</p> <p>High/1 = PAN button pressed; Low/0 = PAN button released</p>
Digital input: <TiltLED-F>	<p>Activates the LED feedback of the TILT button for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{TiltLED-F>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that the tilt speed adjust mode (encoder wheel controls tilt speed) has been selected. The unit will remain in tilt speed adjust mode for as long as the encoder wheel is being rotated. If there is no wheel rotation for 20 seconds, the unit will revert to focus adjust mode.</p> <p>High/1 (level sensitive) = Activate LED; Low/0 = Release LED</p>
Digital output: <TiltBtn>	<p>Indicates that the TILT button is being pressed. The output remains high for as long as the TILT button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>TiltBtn}} input of the module. When connected to the CamiDJ Interface, activating this output allows adjustment of the tilt high and low speeds.</p> <p>High/1 = TILT button pressed; Low/0 = TILT button released</p>

(continued on next page)

CAMIDJ Input and Output Signal Descriptions (continued)

SIGNAL TYPE AND NAME	DESCRIPTION
Digital input: <SpeedHighLED-F>	<p>Activates the SPEED HIGH feedback indicator for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{SpeedHighLED-F>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that high-speed positioning mode for focus, zoom, pan, tilt, and speed adjust functions has been selected.</p> <p>High/1 (level sensitive) = Activate feedback; Low/0 = Release feedback</p>
Digital output: <JoystickTopBtn>	<p>Indicates that the HIGH button (top joystick button) is being pressed. The output remains high for as long as the HIGH button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>JoystickTopBtn}} input of the module. When connected to the CamiDJ Interface, this output selects high-speed control of focus, pan, tilt, zoom, and iris manual functions.</p> <p>High/1 = HIGH button pressed; Low/0 = HIGH button released</p>
Digital input: <SpeedLowLED-F>	<p>Activates the SPEED LOW feedback indicator for as long as the input is high.</p> <p>If used with the CamiDJ Interface, this input will be connected to the {{SpeedLowLED-F>>C2N-CAMIDJ}} output of the module. Activation of the signal indicates that low-speed positioning mode for focus, zoom, pan and tilt control, and speed adjust functions has been selected.</p> <p>High/1 (level sensitive) = Activate feedback; Low/0 = Release feedback</p>
Digital output: <JoystickBtmBtn>	<p>Indicates that the LOW button (bottom joystick button) is being pressed. The output remains high for as long as the LOW button is pressed.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>JoystickTopBtn}} input of the module. When connected to the CamiDJ Interface, this output selects low speed control of focus, pan, tilt, zoom, and iris manual functions.</p> <p>High/1 = LOW button pressed; Low/0 = LOW button released</p>
Digital output: <WheelClockwise>	<p>Indicates that the direction of wheel rotation is clockwise. The output remains high for as long as the direction is clockwise.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>WheelClockwise}} input of the module.</p> <p>High/1 = LOW button pressed; Low/0 = LOW button released</p>
Digital output: <WheelCounterClockwise>	<p>Indicates that the direction of wheel rotation is counterclockwise. The output remains high for as long as the direction is counterclockwise.</p> <p>If used with the CamiDJ Interface, this output is connected to the {{C2N-CAMIDJ>>WheelCounterClockwise}} input of the module.</p> <p>High/1 = Wheel rotation counterclockwise; Low/0 = Wheel rotation not counterclockwise</p>
Digital output: <WheelStopped>	<p>Indicates that the encoder wheel is stopped. The output remains high for as long as the wheel is not rotating.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>WheelStopped}} input of the module.</p> <p>High/1 = Wheel stopped; Low/0 = Wheel rotating</p>

(continued on next page)

CAMIDJ Input and Output Signal Descriptions (continued)

SIGNAL TYPE AND NAME	DESCRIPTION
Digital inputs: <fb1> through <fb12>	Activates the LED feedback of the corresponding generic pushbutton. If used with the CamiDJ Interface, these inputs will be connected to the {{FB#>>C2N-CAMIDJ}} outputs of the module. Activation of the signals indicates that the functions have been selected. fb1 = CAMI 1 selected fb2 = CAMI 2 selected fb3 = CAMI 3 selected fb4 = CAMI 4 selected fb5 = Preset 1 selected fb6 = Preset 2 selected fb7 = Preset 3 selected fb8 = Preset 4 selected fb9 = Preset 5 selected fb10 = Preset 6 selected fb11 = Preset 7 selected fb12 = Preset speed adjust selected High/1 = Activate LED; Low/0 = Release LED
Digital outputs: <press1> through <press12>	Indicates that the corresponding generic pushbutton has been pressed. The output remains high for as long as the button is pressed. If used with the CamiDJ Interface, these outputs will be connected to the {{C2N-CAMIDJ>>Press#}} inputs of the module and will trigger the following functions: press1 = Select CAMI 1 press2 = Select CAMI 2 press3 = Select CAMI 3 press4 = Select CAMI 4 press5 = Select Preset 1 press6 = Select Preset 2 press7 = Select Preset 3 press8 = Select Preset 4 press9 = Select Preset 5 press10 = Select Preset 6 press11 = Select Preset 7 press12 = Select Preset speed adjust High/1 = Generic button pressed; Low/0 = Generic button released
Analog output: <Pan>	Reports the current pan position (left-right axis) of the joystick. Reported values will range from 0xFFFF at full left, to 0x0000 at full right. A value of 0x8000 denotes the center spring back position. This output is connected to the CamiDJ Interface input {{C2N-CAMIDJ>>Pan}} .
Analog output: <Tilt>	Reports the current tilt position (up-down axis) of the joystick. Reported values will range from 0xFFFF at full down, to 0x0000 at full up. A value of 0x8000 denotes the center spring back position. If used with the CamiDJ Interface, this output will be connected to the {{C2N-CAMIDJ>>Tilt}} input of the module.

(continued on next page)

CAMIDJ Input and Output Signal Descriptions (continued)

SIGNAL TYPE AND NAME	DESCRIPTION
Analog output: <Zoom>	<p>Reports the current zoom position (twist axis) of the joystick. Reported values will range from 0xFFFF at full twist left, to 0x0000 at full twist right. A value of 0x8000 denotes the center spring back position.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {}C2N-CAMIDJ>>Zoom}} input of the module.</p>
Analog output: <WheelRate>	<p>Reports the speed of rotation and direction of spin of the encoder wheel.</p> <p>Values are reported as follows: No rotation = 0x8000 Counterclockwise rotation = 0x8001 to 0xFFFF (maximum speed) Clockwise rotation = 0x7FFF to 0x0000 (maximum speed)</p> <p>If used with the CamiDJ Interface, this output will be connected to the {}C2N-CAMIDJ>>WheelRate}} input of the module.</p>
Analog output: <SpeedAdjust>	<p>Reports the current value of the <Display> input. The value will increment and decrement by rotation of the encoder wheel.</p> <p>Reported values will range from 0xFFFF at full clockwise position to 0x0000 at full counterclockwise position.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {}C2N-CAMIDJ>>ScaledDisplayReturn}} input of the module.</p>
Analog input: <Display>	<p>Sets the value that will be scaled 0 to 99 and then displayed on the 2-digit display (when <DisplayMode> is set to 3d or 4d).</p> <p>If <DisplayMode> is set to 4d, the displayed value is updated (in increments of 1 unit) with each change in the position of the encoder wheel.</p> <p>Valid values range from 0x0000 (minimum speed, scaled to 00 on the display) to 0xFFFF (maximum speed, scaled to 99 on the display).</p> <p>If used with the CamiDJ Interface, this output is connected to the {}Display>>C2N-CAMIDJ}} output of the module.</p>
Analog input: <DisplayMode>	<p>For the different modes of operation of the encoder wheel, this input is used to select the content of the 2-digit display.</p> <p>Valid values range from 0d to 9d as follows: 0d (default) = -- 1d = F0 (Indicates focus adjust mode.) 2d = IR (Indicates iris manual adjust mode.) 3d = 00 to 99 (Displays the scaled value of the <Display> analog. Rotation of the encoder wheel has no effect on the displayed value.) 4d = 00 to 99 (Displays the scaled value of the <Display> analog, then updates the value as the encoder wheel rotates.) 5d = Turn off 2-digit display. 6d = F (Indicates focus adjust mode.) 7d = R (Indicates iris manual adjust mode.) 8d = FC (Indicates focus adjustment.) 9d = RP (Indicates aperture adjustment.)</p> <p>Out of range values display the -- default.</p> <p>If used with the CamiDJ Interface, this output will be connected to the {}DisplayMode>>C2N-CAMIDJ}} output of the module.</p>

Example Program

An example program for the CAMIDJ is available from the “Example Program” section of the Crestron website (<http://www.crestron.com/exampleprograms>). Search for C2N-CAMIDJ.ZIP.

Uploading and Upgrading

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

Assuming a PC is properly connected to the entire system, Crestron programming software allows the programmer to upload programs and projects after their development to the system and network devices. However, there are times when the files for the program and projects are compiled and not uploaded. Instead, compiled files may be distributed from programmers to installers, from Crestron to dealers, etc. 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 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 or upgrade the firmware of the CAMIDJ. However, before attempting to 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)

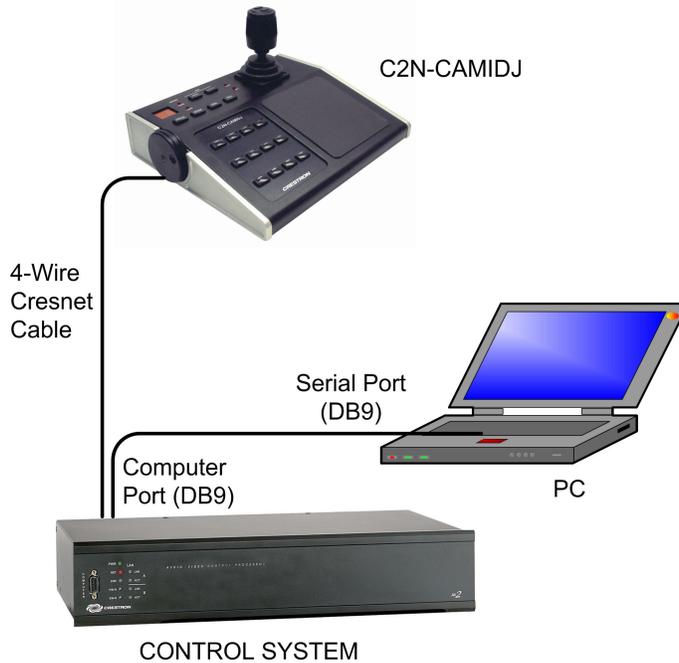
Results may vary, depending on the computer being used. Other models, even from the same manufacturer, may not yield the same results.

The procedure in this section provides details for RS-232 communication between the PC and the control system. If TCP/IP communication is preferred, consult the

latest version of the Crestron e-Control Reference Guide (Doc. 6052) or the respective Operations Guide for the control system. These documents are available from the Crestron website. Refer to the following figure for a typical connection diagram when uploading files.

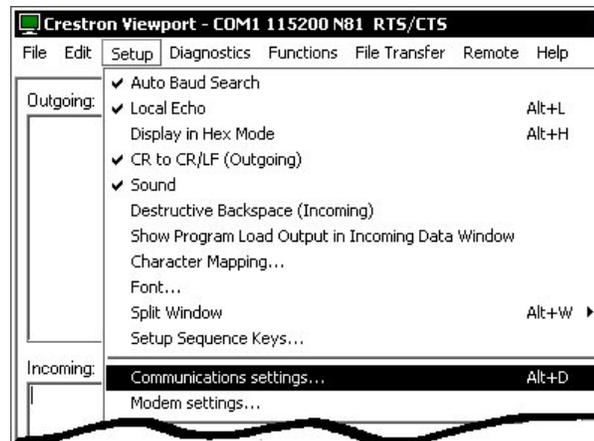
NOTE: Use a standard DB9 male to female “straight-through” cable.

Typical Connection Diagram when Uploading



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. From the Viewport menu, select **Setup | Communications settings** (alternatively, press **Alt+D**) to open the “Port Settings” window. Refer to the following figures.

Accessing the “Port Settings” Window



3. Select the **RS-232** connection type. Verify the available COM is selected. Verify that the baud rate is set to **115200** (PRO2 default), the parity is **None**, the data bits is **Eight**, the stop bits is **One**, *XON/XOFF* is not selected, and *RTS/CTS* is selected. Click the **OK** button to save the settings and close the window.

“Port Settings” Window

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

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

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.

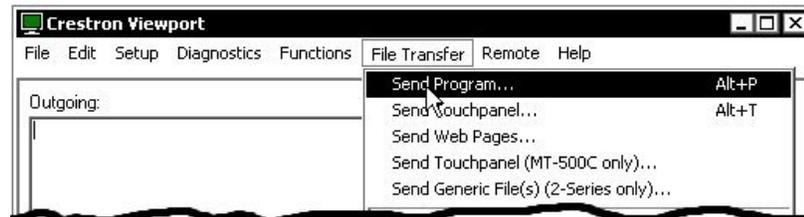
Upload via SIMPL Windows

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.

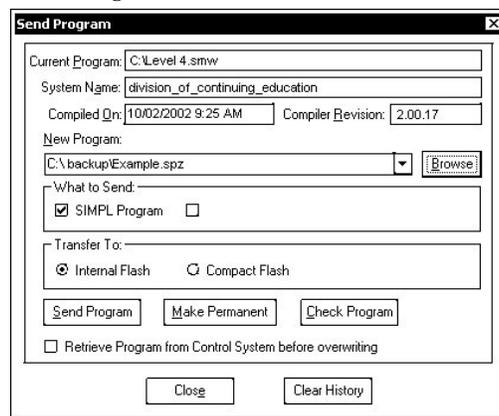
File Transfer | Send Program Command



3. The “Send Program” window appears, as shown after this step. Click **Browse**, locate the compiled file (.spz for PRO2), 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 respective Operations Guide for the control system 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.

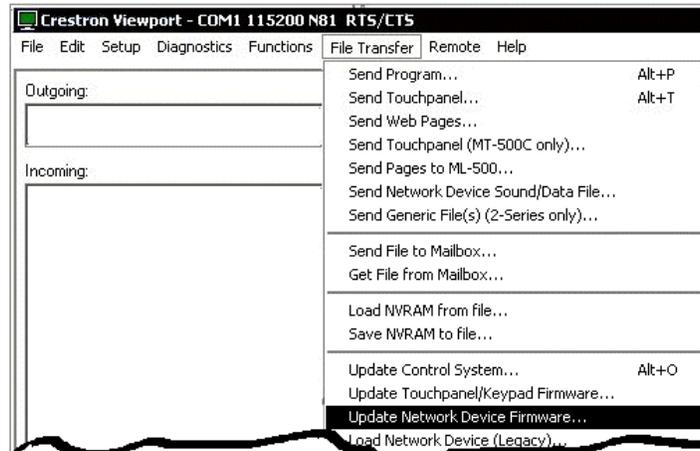
Firmware Upgrade

A firmware upgrade file has the extension .csf

To take advantage of all the available features, it is important that the unit contains the latest firmware. 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 CAMIDJ firmware, complete the following steps.

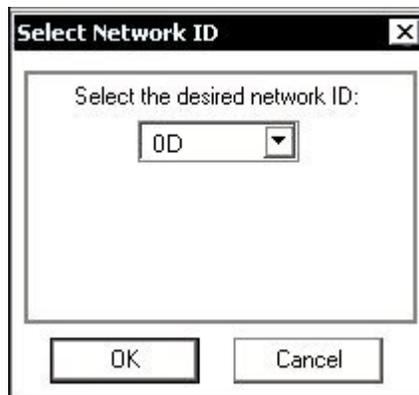
1. Make sure that “Communication Settings” that begins on page 23 has been performed. Suggested baud rate is 38400.
2. As shown after this step, select **File Transfer | Update Network Device Firmware** from the Viewport menu.

File Transfer | Update Network Device Firmware Command

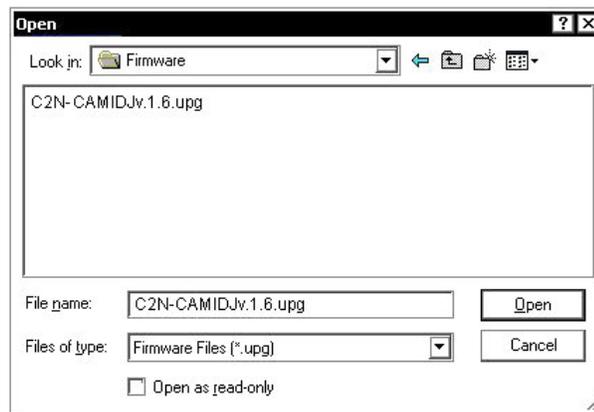


3. As shown in the following figure, select the Net ID of the CAMIDJ and then click **OK**.

“Select Network ID” Window



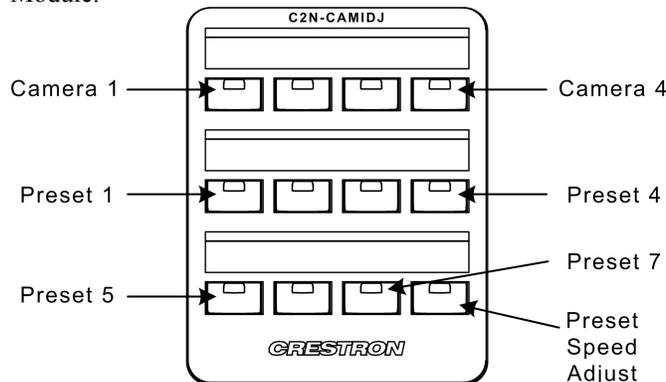
4. As shown on the next page, select the firmware (UPG) file and click **Open**. The transfer will complete automatically.

Select UPG File

Basic Operation

After installing the CAMIDJ, as described in “Hardware Hookup” on page 12, upload the example program, which includes the CamiDJ Interface Module program. (Refer to “Upload via Crestron Viewport” on page 26.) Verify that the Net IDs of the installed Camera Interface units (Crestron CAMIDSPTs or equivalent third-party devices) correspond to the Net IDs assigned in the program (34, 35, 36, and 37).

Typical operation of the unit consists of selecting the camera(s), choosing target views, using the controls to set the zoom levels and to focus on the desired targets, and to establish up to seven presets for each camera. The following figure shows how the twelve programmable pushbuttons are defined in the CamiDJ Interface Module.



To set and recall presets, do the following:

1. Set preset recall speeds by pressing the Preset Speed Adjust switch and using the joystick thumb switches and the encoder wheel to set both a high speed and a low speed scale factor. These settings will apply for all presets.
2. Select a camera and use the controls to set up a target view (up to seven target views per camera).
3. Press and hold a Preset button for approximately five seconds to save that target view as a preset. The Preset button LED will give a confirming flash.
4. To verify the Preset, use the controls to set up a different target. Then select either high or low speed, and momentarily press the Preset button being

verified. The camera should move to the preset target view. When the preset position is reached, the button's LED will remain on.

- Repeat these procedures for each camera and up to seven target views per camera.

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.

CAMIDJ Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Unit does not function. Green PWR LED is not illuminated.	Wrong power supply used.	Use a Crestron power supply.
	Unit is not receiving power, or is receiving insufficient power.	Verify that cables plugged into NET port are secure. Verify that power supply is correct.
Unit does not function. Yellow NET LED is not illuminated.	Improper Net ID used.	Verify that the CAMIDJ Net ID matches Net ID in the software program.
	Loose connection located within network.	Verify that cable plugged into NET port is secure.

Further Inquiries

If you cannot locate specific information or have questions after reviewing this guide, please take advantage of Crestron's award winning customer service team by calling the Crestron corporate headquarters at 1-888-CRESTRON [1-888-273-7876]. For assistance in your local time zone, refer to the Crestron website (<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-CAMIDJ, additional information and programming examples 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: Functions of the CamiDJ Interface Module

The supplied example program provides a CamiDJ Interface Module (refer to the following figure) that permits control of up to four camera pan/tilt heads.



For detailed information and signal descriptions of the CamiDJ Interface Module, refer to the SIMPL Window's Help file (F1).

Return and Warranty Policies

Merchandise Returns / Repair Service

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

CRESTRON Limited Warranty

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

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

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

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

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

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

Trademark Information

All brand names, product names, and trademarks are the sole property of their respective owners. Windows is a registered trademark of Microsoft Corporation. Windows95/98/Me/XP and WindowsNT/2000 are trademarks of Microsoft Corporation.



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

Operations Guide - DOC. 6341
02.05

Specifications subject to
change without notice.