Crestron **C2N-RTHS**

Remote Temperature/Humidity Sensor

Operations & Installation Guide

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Remote Temperature/Humidity Sensor: C2N-RTHS

Introduction

The C2N-RTHS is a network device remote temperature/humidity sensor.

This product connects to the Cresnet system for reporting temperature and relative humidity to the processor.

Functional Summary

- Small and unobtrusive face allows blending into any décor
- Primed white, may be used as is, painted, or wallpapered
- Easy one-piece mounting (additional hardware not required)
- Readily connects to Cresnet with four wire pigtail (four wire nuts included)
- Touch Settable ID (TSID) capable

Specifications

SPECIFICATION	DETAILS
Default ID	2B
Control System Update Files[1, 2, 3]	
2-Series Control System	Version 2.004.CUZ or later
CNMSX-AV/Pro Update File	Version 5.12.63X.UPZ or later
CNRACKX/-DP Update File	Version 5.12.63W.UPZ or later
CEN/CN-TVAV Update File	Version 5.12.63V.UPZ or later
Firmware Version	C2N-RTHS.V1.4.UPG
Temperature Range	-40º to 176ºF (-40º to 80ºC) 0.1ºF (0.1ºC) Output Resolution 1.0ºF (0.5ºC) Accuracy
Humidity Range	0 to 100% RH 1% RH Output Resolution 5% RH Accuracy
Power	24 VDC @ 10 mA maximum (<1 W) Provided by Cresnet
Dimensions	1 inch (2.54 cm) Tube Diameter 2.22 inch (5.64 cm) Tube Length 1.5 inch (3.81 cm) Front Disk

1 The latest versions can be obtained from the Downloads | Software Updates section of the Crestron website (**www.crestron.com)**. Refer to NOTE below.

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 Filenames for CNX and ST-CP update files have a UPZ extension. Files on the website may be .zip or self-extracting .exe files containing the .cuz or .upz file. All can be obtained from the Downloads section of the Crestron website. To avoid program problems, make sure you are using the update file with the correct suffix letter (e.g., S, V, W, X).

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

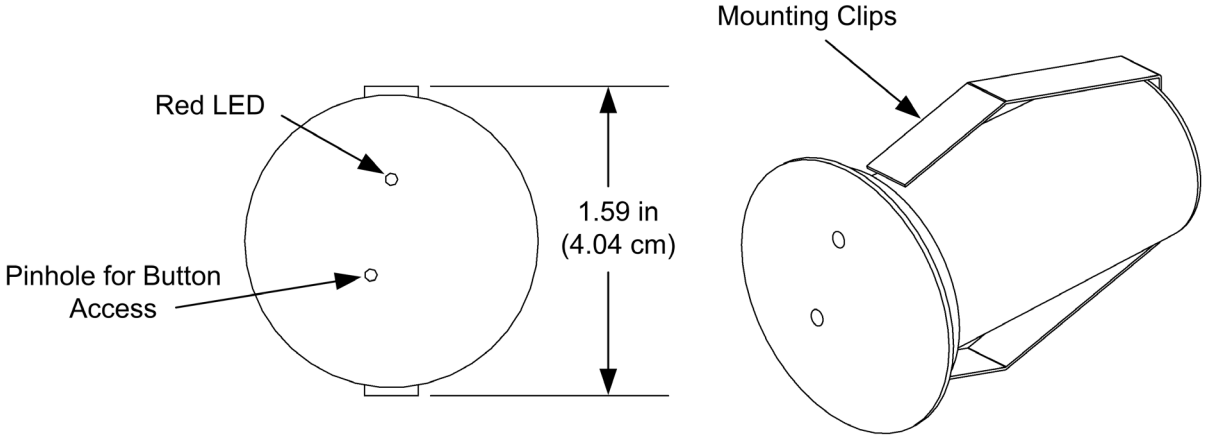
Physical Description

Refer to the following illustrations.

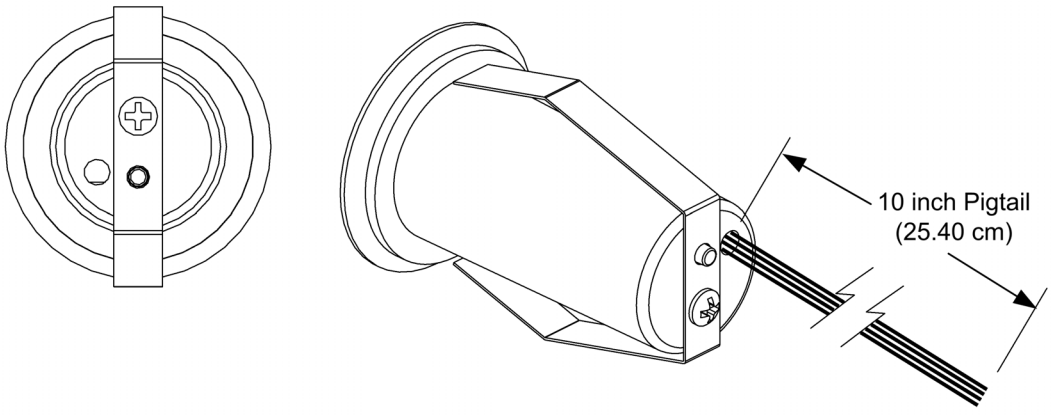
The face of the sensor is 1.5 in (3.81 cm) wide, and has an LED and pinhole access for the TSID button. The sensor body is 2.0 in (5.64 cm) long, and mounts nearly flush to the wall.

The C2N-RTHS remote sensor is contained in a cylindrical plastic body. It mounts in a one-inch diameter hole, exposing a 1.5 in (3.81 cm) diameter disk that protrudes approximately 3/16 inch (0.59 cm) from the surface of the wall. Total mounting depth is about 2.25 in (5.72 cm).

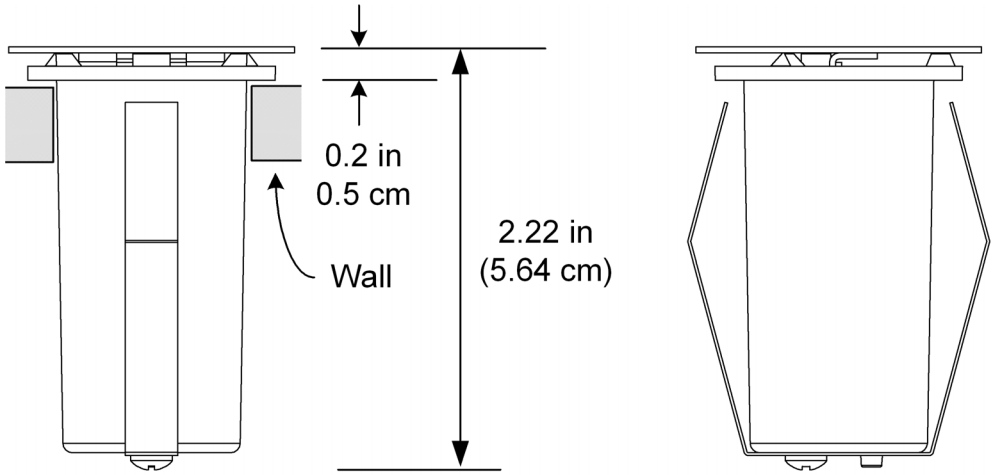
Front and Angled Views



Rear and Angled Views



Side Views



Industry Compliance

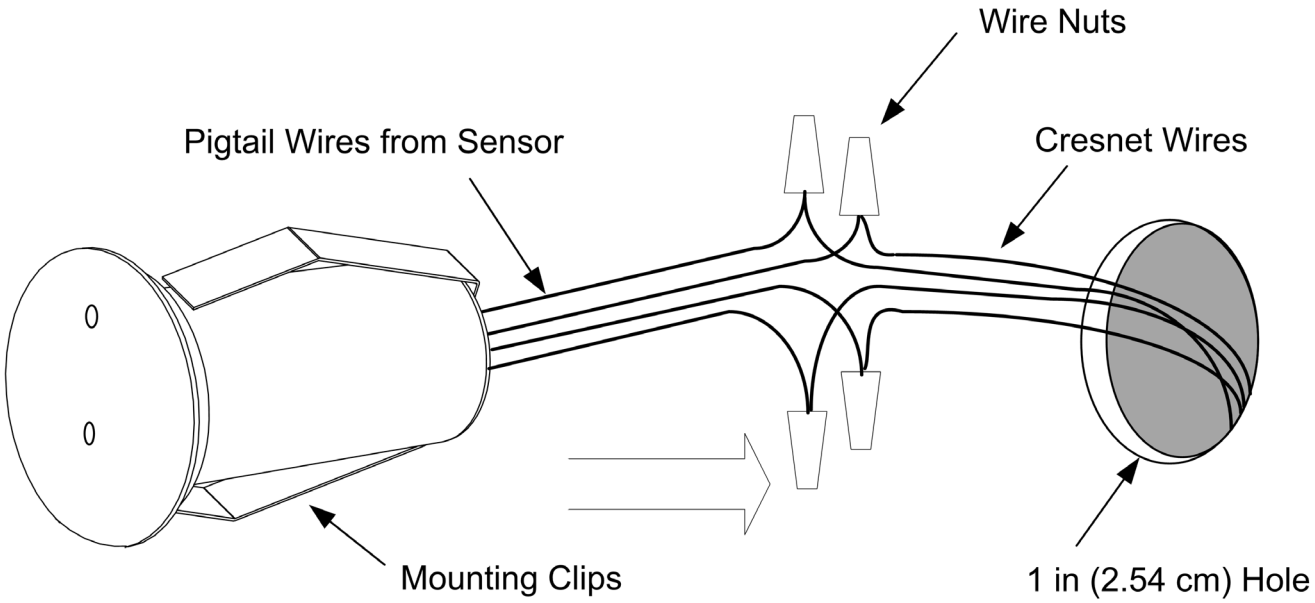
As of the date of manufacture, the C2N-RTHS has been tested and found to comply with specifications for CE marking and standards per EMC and Radiocommunications Compliance Labelling (N11785).

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.

Installation

1. Ensure that the location is not close to a heat or humidity source and away from direct sunlight, skylights, and windows.
2. Locate an area on the wall that is free of miscellaneous wiring and studs.
3. Make a small hole near the center of the designated mounting site to verify that the location is suitable.
4. Drill or cut a 1 in (2.54 cm) diameter circular hole in the wall at the desired position.

5. Route the Cresnet wires to the sensor. Use the four wire nuts included to connect the wires (red to red, white to white, blue to blue, and black to black).
6. Press fit the sensor into the hole; the clips on either side of the sensor hold it in place.



NOTE: The face of the sensor may be painted or wallpapered to match the wall. However, keep the small gap around the outer edge clear of any obstructions.

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. The Net ID of the C2N-RTHS has been factory set to **2B**. The Net IDs of multiple C2N-RTHSs in the same system must be unique. Net IDs are changed from a personal computer (PC) via the Crestron Viewport.

NOTE: The Crestron Viewport is available as a pull-down command from SIMPL Windows and VT Pro-e (**Tools | Viewport**) or as a standalone utility. The Viewport utility accomplishes 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.

There are two different methods—Method A or Method B—for setting the C2N-RTHS Net IDs:

Method A (Cresnet address-settable ID), described below, applies to C2N-RTHSs in a Cresnet system with a CNX control system or 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 C2N-RTHSs 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 C2N-RTHS Net ID.

Method A (Cresnet address-settable ID)

1. Ensure that the C2N-RTHS 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 C2N-RTHS from the *Current Network Devices* text window.

5. Select the new Net ID for the C2N-RTHS 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**).

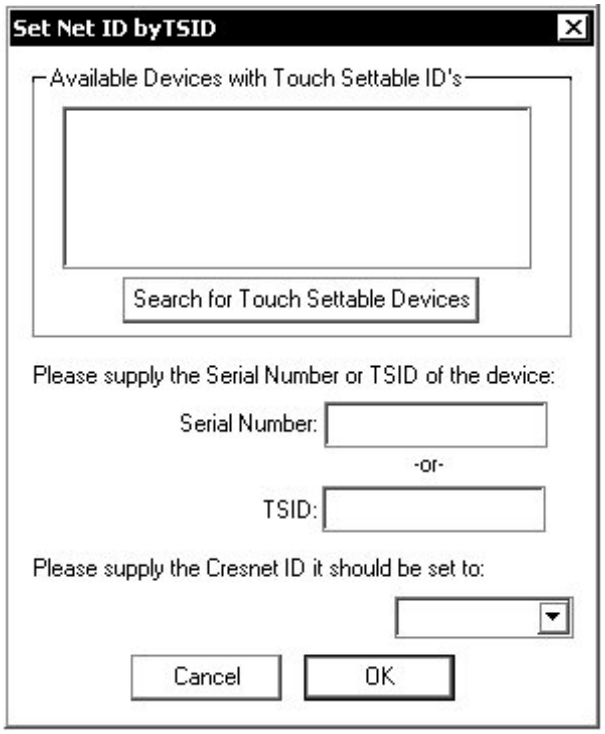
10. Repeat this procedure for each C2N-RTHS to be added to the system.

Method B (Touch Settable IDs)

Touch Settable ID (TSID) modes are supported through the use of the pinhole setup button and a red LED. These procedures are for TSID-enabled network devices during the initial configuration of a Cresnet system or when such devices are being added/replaced. Before using this method, you should have a list of all current network devices and their Net IDs, to avoid assigning duplicate IDs.

1. Ensure that all C2N-RTHS 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 figure on the next page.)

"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.

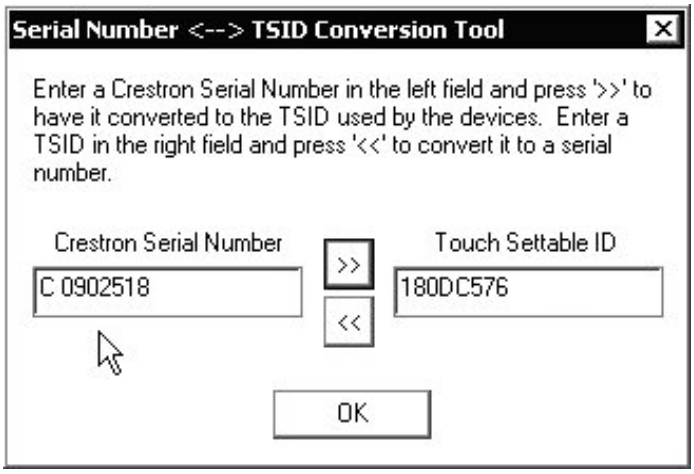
CAUTION: This function does not prevent you from setting duplicate IDs. Be sure to check current assignments before entering the desired Cresnet ID number.

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.

"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.

Programming

Have a question or comment about Crestron software?

Answers to frequently asked questions (FAQs) can be viewed in the Online Help section of the Crestron website (www.crestron.com). To post your own 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 Downloads | Software Updates section of the Crestron website (www.crestron.com).

The following are recommended software version requirements for the PC:

- SIMPL Windows version 2.05.20 or later, with Library Update 280 or later.
  Requires SIMPL+ Cross Compiler version 1.1.
- Crestron Database version 16.1.0 or later. Required by SIMPL Windows.

Programming with SIMPL Windows

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

.smw	*projectname*.smw (source file)
.spz	*projectname*.spz (compiled file for 2-series)
.bin	*projectname*.bin (compiled file for CNX generation)
.csz	*projectname*.csz (compiled file for CNX generation with SIMPL+)
.ush	*projectname*.ush (compiled file for CNX generation with SIMPL+header file)
.usp	*projectname*.usp (source code module for SIMPL+)

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.

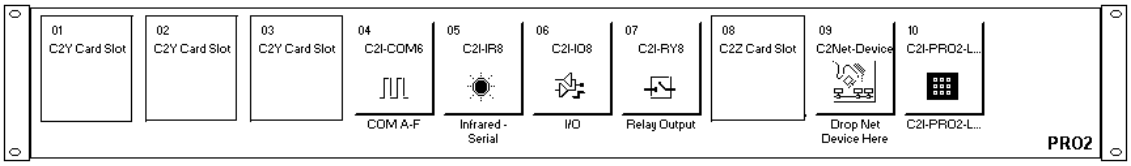
NOTE: The following descriptions assume that the reader has knowledge of SIMPL Windows. If not, refer to the extensive help information provided with the software.

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

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

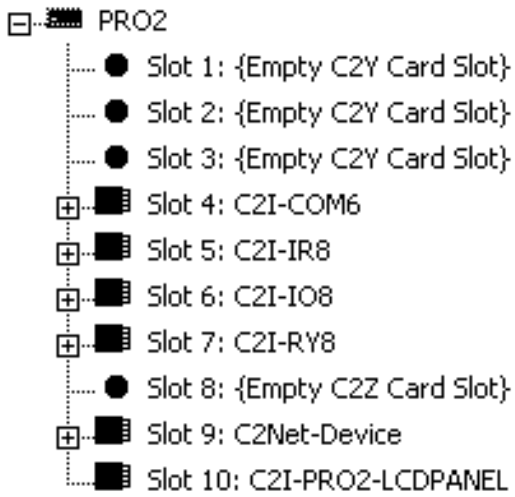
Configuration Manager is where programmers "build" a Crestron control system by selecting hardware from the *Device Library*. In Configuration Manager, drag the PRO2 from the Control Systems folder of the *Device Library* and drop it in the upper pane of the *System Views*. The PRO2 with its associated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

Expanded PRO2 System Tree



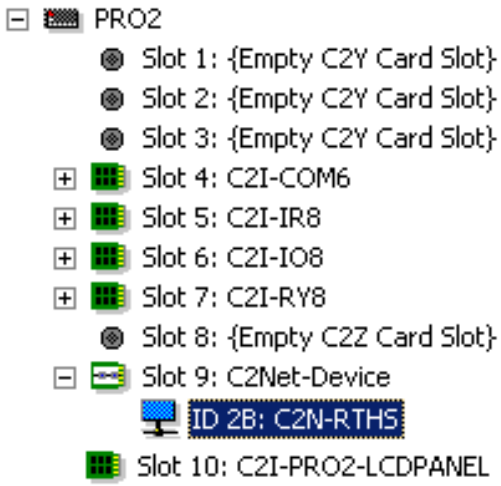
C2Net Device Slot in Configuration Manager

To incorporate a C2N-RTHS into the system, drag the C2N-RTHS from the Cresnet Control Modules | Cresnet Sensing Modules folder of the *Device Library* and drop it in *System Views*. The PRO2 system tree

displays the C2N-RTHS in Slot 9, with a default Net ID of 2B as shown in the following illustration.

NOTE: The first C2N-RTHS in a system is preset with a Net ID of 2B when its symbol is dragged into the upper pane of *System Views*. Additional units are assigned different Net ID numbers as they are added.

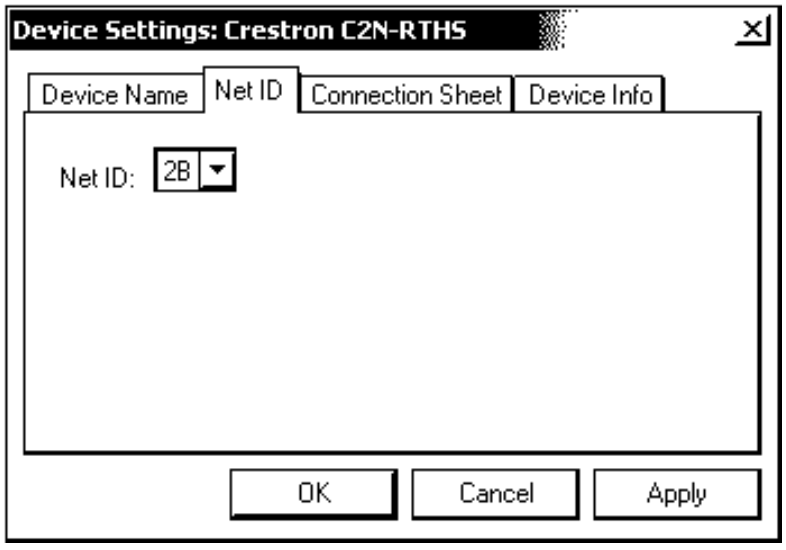
C2Net Device, Slot 9



Setting the Net ID in Device Settings

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

C2N-RTHS "Device Settings" Window

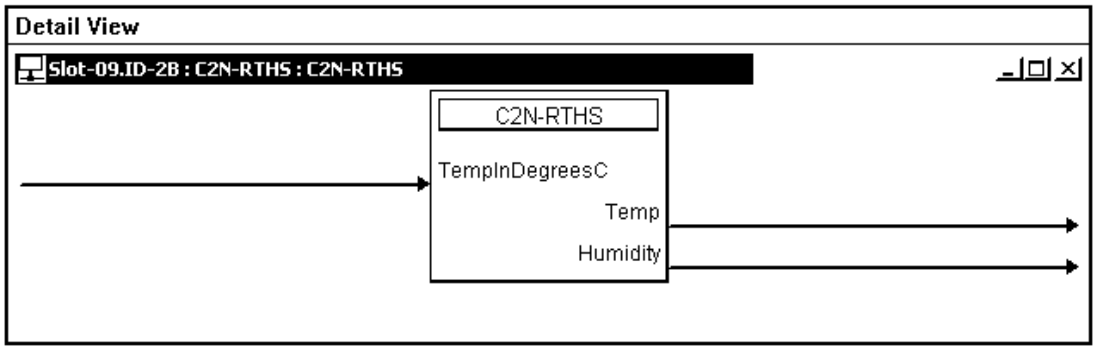


NOTE: SIMPL Windows automatically changes Net ID values of a device added to a program if a duplicate device or a device with the same default Net ID already exists in the program. Always ensure that the hardware and software settings of theNet ID match. For Net ID hardware setting details, refer to "Touch Settable ID" on page 5.

C2N-RTHS Symbol in Programming Manager

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

C2N-RTHS Symbol in SIMPL Windows Detail View



C2N-RTHS Digital Input and Analog Output Signals

Signal	Analog/Digital	Function	Value
TempInDegreesC	Digital	Determines temperature output units	1 = Degrees Celsius 0 = Degrees Fahrenheit
Temp	Analog (signed)*	Temperature in tenths of a degree (723 = 72.3°)	-400 to 1760
Humidity	Analog	Relative Humidity in percent (52 = 52%)	0 to 100

* To display negative numbers for TPS panels, check "Signed Feedback" on the *Design* tab in the VT Pro-e "Object Properties" window. On other panels, such as the CT-1000, Crestron recommends converting the signed number to a display string if you expect the temperature to be negative.

Problem Solving

Troubleshooting

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

C2N-RTHS Troubleshooting

TROUBLE	PROBABLE CAUSE(S)	CORRECTIVE ACTION
No temperature or humidity reading.	Wiring not properly connected.	Check connection, refer to page 4.
	Improper Cresnet ID.	Check Cresnet ID, refer to page 5.
	Improper programming.	Check SIMPL Windows program, refer to page 9.

Further Inquiries

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

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

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

Future Updates

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

Check the Crestron website (www.crestron.com) periodically for manual update availability and its relevance. Updates are available from the Download | Product Manuals section and are identified as an "Addendum" in the Download column.

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange, or service without prior authorization from CRESTRON. To obtain warranty service for CRESTRON products, contact the factory and request an RMA (Return Merchandise Authorization) number. Enclose a note specifying the nature of the problem, name and phone number of contact person, RMA number, and return address.
2. Products may be returned for credit, exchange, or service with a CRESTRON Return Merchandise Authorization (RMA) number. Authorized returns must be shipped freight prepaid to CRESTRON, 6 Volvo Drive, Rockleigh, N.J. 07647, or its authorized subsidiaries, with RMA number clearly marked on the outside of all cartons. Shipments arriving freight collect or without an RMA number shall be subject to refusal. CRESTRON reserves the right in its sole and absolute discretion to charge a 15% restocking fee, plus shipping costs, on any products returned with an RMA.
3. Return freight charges following repair of items under warranty shall be paid by CRESTRON, shipping by standard ground carrier. In the event repairs are found to be non-warranty, return freight costs shall be paid by the purchaser.

CRESTRON Limited Warranty

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

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

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

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

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

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

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