Crestron **CHV-TSTAT-FCU-HOTEL** Heating and Cooling Thermostat (Fan Coil Unit)

Operations & Installation Guide

CRESTRON®

Regulatory Compliance

As of the date of manufacture, the CHV-TSTAT-FCU-HOTEL has been tested and found to comply with specifications for CE marking.

CE

Federal Communications Commission (FCC) Compliance Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following 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.

CAUTION: Changes or modifications not expressly approved by the manufacturer responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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

Industry Canada (IC) Compliance Statement

CAN ICES-3(B)/NMB-3(B)

The specific patents that cover Crestron products are listed at patents.crestron.com.

This document was written by the Technical Publications department at Crestron.

Contents

Heating and Cooling Thermostat (Fan Coil Unit): CHV-TSTAT-FCU-HOTEL

Introduction

The CHV-TSTAT-FCU-HOTEL is a versatile heating and cooling thermostat for fan coil units. Relative humidity capability can be added through an external remote humidity sensor (sold separately). Although functional as a standalone thermostat, the CHV-TSTAT-FCU-HOTEL delivers enhanced functionality as part of a complete Crestron® automation system. Integrating HVAC with a Crestron system can help lower energy bills and increase user friendliness.

The large backlit LCD display provides a clear view of temperature, setpoint, system mode, fan mode, system status, and setup functions. Climate control features include separate heating and cooling setpoints, and adjustable anticipators to prevent overshooting the desired temperature. Continuous fan operation can be selected when needed for increased circulation

Features and Functions

- Wall mount heat and cool thermostat for fan coil unit HVAC systems
- Crestron system integration
- Saves on energy costs with advanced programming abilities
- Supports two remote temperature sensors
- Allows operation in event of control system failure
- Backlit LCD display
- Fan coil unit control
- Available in white, black, and almond

Fan Coil Unit Support

The CHV-TSTAT-FCU-HOTEL thermostat controls fan coil units. The CHV-TSTAT-FCU-HOTEL has custom firmware, display programming, and terminal labels designed for 3-speed fan applications. The CHV-TSTAT-FCU-HOTEL supports on/off control of the valves and the fan in 4-pipe fan coil applications, eliminating the need for an additional device dedicated to controlling the fan coil unit itself.

Automation System Integration

The connection to the control system allows the functions of the CHV-TSTAT-FCU-HOTEL to be controlled from touch screens, keypads, wireless remotes, computers, or even a mobile device. It supports unlimited flexibility for remote control, scheduling, and integration with other devices and systems. However, in the event that communication with the control system is disrupted for any reason, the CHV-TSTAT-FCU-HOTEL remains operable to control the HVAC system.

Easy Installation

System design and installation using Cresnet® thermostats could not be easier. Since no control system wires are required, the CHV-TSTAT-FCU-HOTEL can be installed just like any conventional thermostat.

To simplify installation, physical switches are provided for the most critical configuration options including heat and cool type, heat pump

behavior, power settings, number of heating and cooling stages, and fan options. These settings allow HVAC contractors to install and test the thermostats prior to the appearance of a Crestron system integrator.

When connected to a control system, setting the ID of each device employs the same convention as Crestron's familiar TSID (touch-settable ID) method. Each device is programmable using Crestron Studio™, SIMPL Windows, SystemBuilder™, or D3 Pro® software just like any wired Cresnet device. Even firmware updates are performed over the Cresnet network.

Remote Sensors

Optional remote temperature sensors can be connected to the CHV-TSTAT-FCU-HOTEL for enhanced flexibility and optimized performance. Climate can be regulated according to an average of multiple sensors, or the built-in sensors can be disabled entirely to allow the CHV-TSTAT-FCU-HOTEL to be installed out of view. Outdoor temperature can be monitored to optimize system performance. Compatible sensors include the CHV-RTS and the CHV-RSS (both sold separately).

Specifications

Specifications for the CHV-TSTAT-FCU-HOTEL are listed in the following table.

CHV-TSTAT-FCU-HOTEL Specifications

SPECIFICATION	DETAILS
Measurement Range	
Indoor Temperature	0° to 110° F (-18° to 43° C)
Outdoor Temperature	-40º to 170º F (-40º to 77º C)
Humidity	0% to 100% RH*
Temperature Tolerance	
Over Full Range	±1º F (±0.5º C)
At Room Temperature	±1º F (+0.1/0.4º C)
Humidity Tolerance	±5%
Setpoint Range	
Auto Setpoint	38° to 99° F (3° to 37° C)
Heat Setpoint	38° to 89° F (3° to 32° C)
Cool Setpoint	38° to 99° F (3° to 37° C)
Humidity Setpoint	5% to 90 % RH*
Relay Rating	1 amp @ 40 volts dc or 24 volts ac (nominal)
Power Requirements	
24V	2 watts (0.083 amps) @ 24 volts ac, supplied by heating or cooling system
Cresnet Power Usage	<1 watts (<0.05 amps @ 24 volts dc), required for Cresnet communication only

(Continued on following page)

CHV-TSTAT-FCU-HOTEL Specifications (Continued)

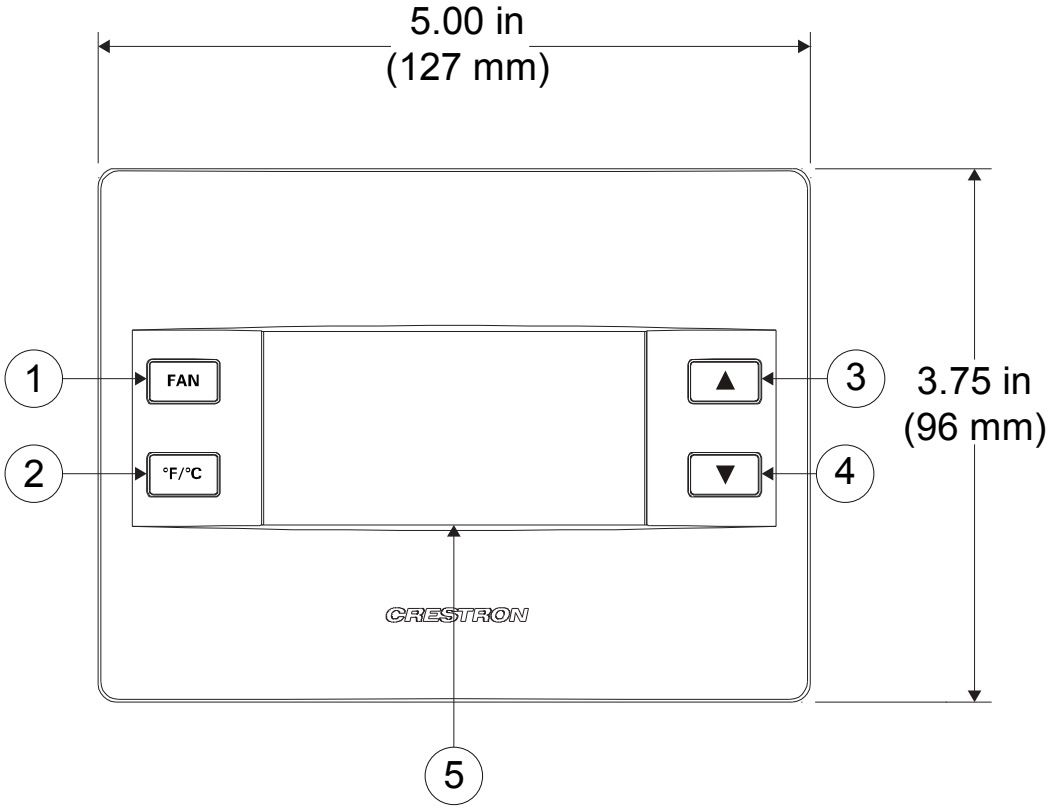
SPECIFICATION	DETAILS
Display	
Type	Transflective LCD, backlit
Size	2.75 in (70 mm)
Resolution	128 x 64
Viewing Angle	±50° horizontal (@ 0° vertical), ±50° vertical (@ 0° horizontal)
Default Net ID	2A
Environmental	
Temperature	41º to 104º F (5º to 40º C)
Humidity	10% to 90% RH (non-condensing)
Enclosure	Plastic
Dimensions	
Height	3.75 in (96 mm)
Width	5.00 in (127 mm)
Depth	1.04 in (27 mm)
Weight	6 oz (165 g)
Accessories	
CHV-RSS	Remote Slab Sensor and Outdoor Temperature Sensor
CHV-RTS	Remote Temperature Sensor
CHV-RTHS	Remote Temperature and Humidity Sensor
CRESNET-HP-NP-[BK,OR,TL]	Cresnet "High-Power" Control Cable, non-plenum
CRESNET-NP-[BK,OR,TL,YL]	Cresnet Control Cable, non-plenum
CRESNET-P-[BK,OR,TL,YL]	Cresnet Control Cable, plenum

* Requires CHV-RTHS Remote Temperature and Humidity Sensor (sold separately).

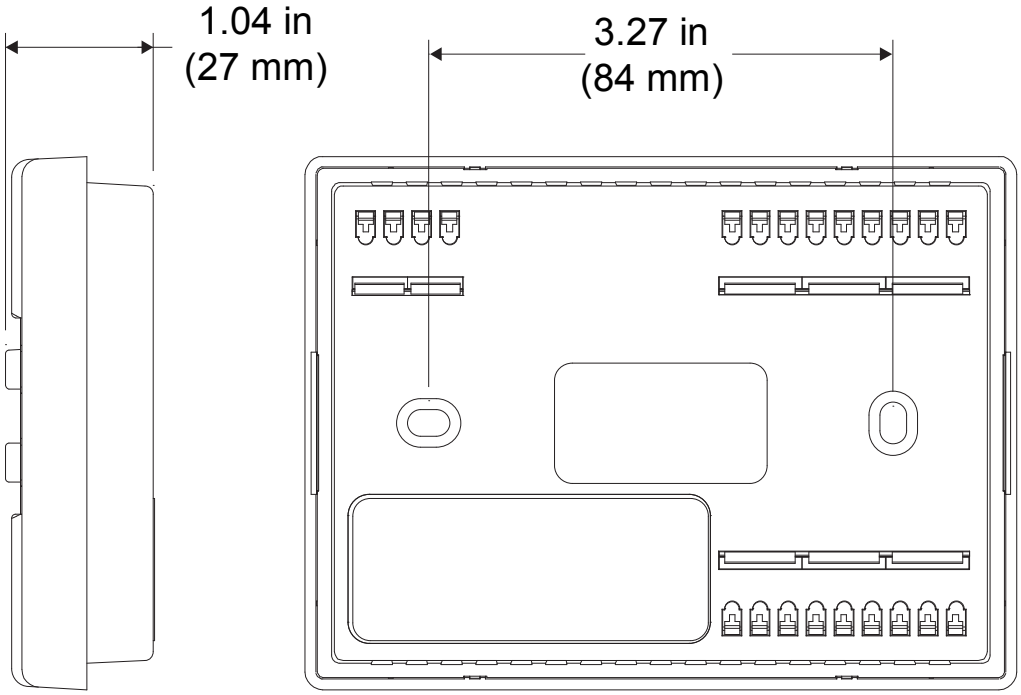
Physical Description

This section provides information on the connections, controls, and indicators available on the CHV-TSTAT-FCU-HOTEL.

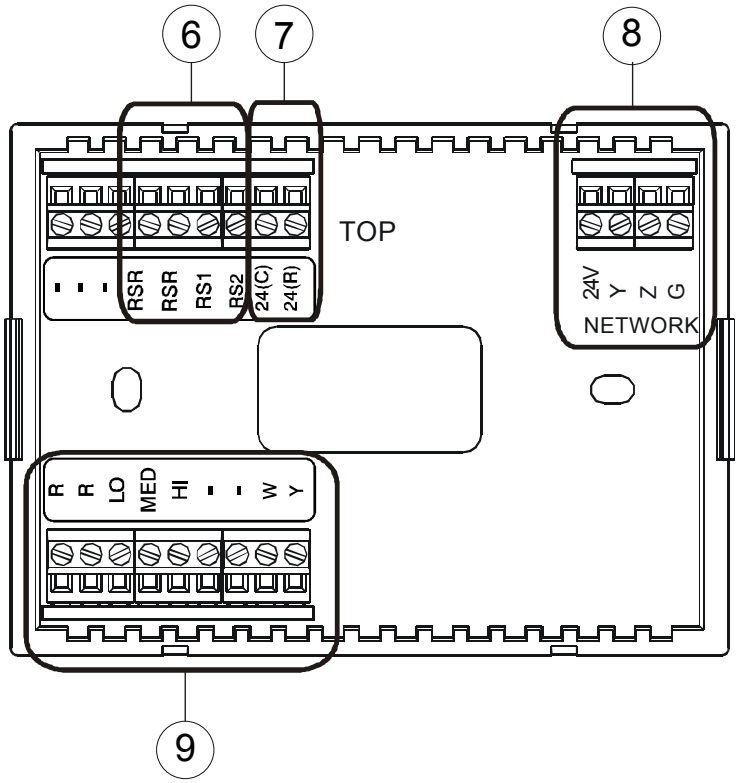
CHV-TSTAT-FCU-HOTEL Overall Dimensions (Front View)



CHV-TSTAT-FCU-HOTEL Overall Dimensions (Front and Side Views)



CHV-TSTAT-FCU-HOTEL Backplate (Front Cover Removed)



Connectors, Controls, and Indicators

#	CONNECTORS, CONTROLS, AND INDICATORS	DESCRIPTION
1	FAN Button	Change fan speed and turn thermostat off
2	ºF / ºC Button	Change display between Fahrenheit and Celsius
3	▲	Raises temperature setpoint; Selects user modes and increments selection in setup modes
4	▼	Lowers temperature setpoint; Selects user modes and decrements selection in setup modes
5	LCD DISPLAY	Displays current operating functions and setup screens
6	Remote Sensing Connections (Optional)	**RSR**: Remote Sensor Return **RSR**: Remote Sensor Return **RS1**: Remote Sensor Terminal – Connect the sensor from RS1 to RSR **RS2**: Remote Sensor Terminal – Connect the sensor from RS2 to RSR

(Continued on following page)

Connectors, Controls, and Indicators (Continued)

#	CONNECTORS, CONTROLS, AND INDICATORS	DESCRIPTION
7	Power Connections (Required)	**24 (C)**: 24 Vac common terminal supplies remote 24 Vac power to thermostat **24 (R)**: 24 Vac return terminal. Can be connected to R by P4 jumper placed in lowest position
8	Network (Optional)	(1) 4-position terminal block; Cresnet slave port, connect to Cresnet control network **24**: Power (24 Vdc) **Y**: Data **Z**: Data **G**: Ground
9	Control Connections (System Dependent)	(2) 9-position terminal blocks **R**: Return for system call **R**: Return for system call **LO**: Calls for low fan speed **MED**: Calls for medium fan speed **HI**: Calls for high fan speed **W**: Calls for heat **Y**: Calls for cool

Setup

Network Wiring

When wiring the Cresnet 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. Use the Crestron Power Calculator to help calculate how much power is needed for the system (www.crestron.com/calculators).

For Cresnet networks with 20 or more devices, use a Cresnet Hub/Repeater (CNXHUB) to maintain signal quality.

For more details, refer to "Check Network Wiring" on page 28.

Identity Code

NOTE: The latest software can be downloaded at www.crestron.com/software.

The Net ID of the CHV-TSTAT-FCU-HOTEL has been factory set to **2A**. The Net IDs of multiple CHV-TSTAT-FCU-HOTEL devices in the same system must be unique. Net IDs are changed from a personal computer (PC) via Crestron Toolbox™ (refer to "Establishing Communication" on page 16).

When setting the Net ID, consider the following:

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

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

Installation

The CHV-TSTAT-FCU-HOTEL is supplied with two #06-32 x 1 in (26 mm) pan head screws (2007251).

NOTE: Installers should have a strong working knowledge of HVAC systems.

The location of the thermostat can affect its performance and efficiency. Install the thermostat away from direct sunlight, drafts, doorways, skylights, and windows. Also, make sure the thermostat is conveniently located for control access and setup.

Thermostats should be mounted 60 inches (~1.6 meters) above the finished floor (HVAC industry standard). Do not mount on an exterior wall. The following tools and hardware may be required for installation:

- Standard 1-gang electrical box (not supplied)
- Phillips screwdriver (not supplied)
- Two 1-inch pan head Phillips screws (included)
- Wall Anchors
- Drywall Screws

Use the following procedure to install the CHV-TSTAT-FCU-HOTEL in a 1-gang electrical box (refer to illustration on the following page):

1. Turn HVAC system power OFF.
2. Separate the thermostat front plate from the rear plate. It may be necessary to exert force when removing the front plate.
3. Feed HVAC wiring from the electrical box through the hole in the center of the rear plate so it can be connected to the proper terminals on the CHV-TSTAT-FCU-HOTEL after the thermostat is mounted.

   CAUTION: Excess wire pinched between the CHV-TSTAT-FCU-HOTEL and electrical box could cause a short circuit. Make sure that all excess wire is completely inside the electrical box and not between the box and the CHV-TSTAT-FCU-HOTEL.

   NOTE: To ensure accurate temperature readings, avoid drafts in the back of the unit by plugging the wire hole with insulation.

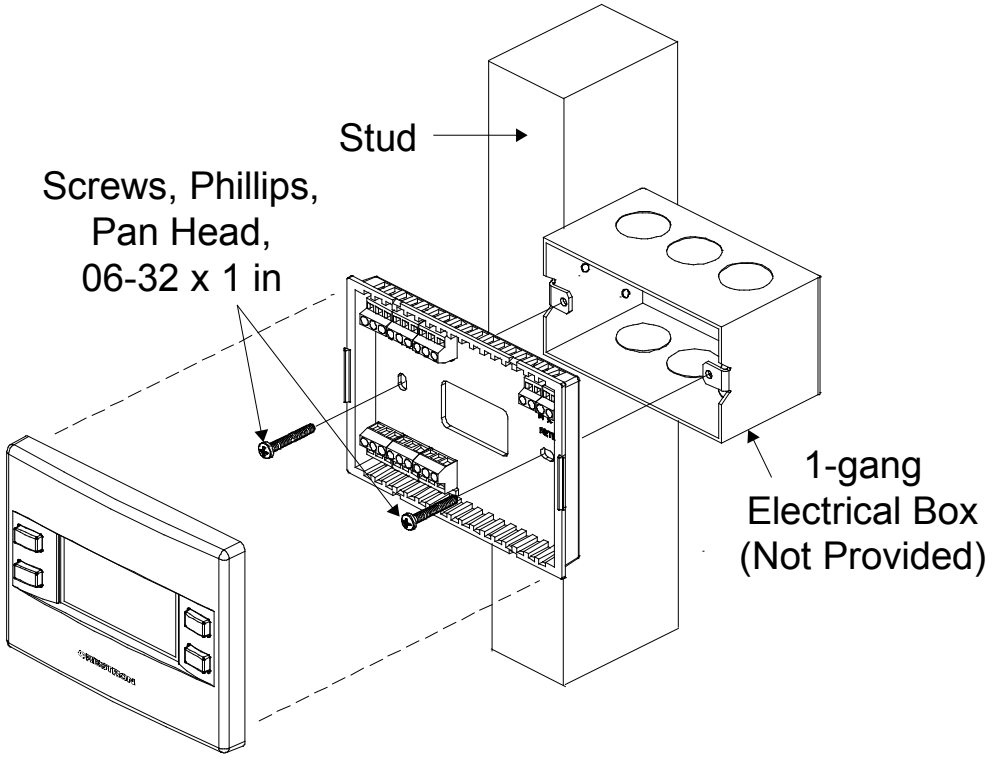
4. Make sure unit is correctly oriented and place it in the electrical box.
5. Attach the CHV-TSTAT-FCU-HOTEL rear plate to the electrical box using the two included #06-32 x 1 in (26 mm) pan head screws. Screws and wall anchors can also be used to attach the rear plat directly to a wall.

CAUTION: Do not press on the LCD display during mounting, as this may cause the screen to crack.

6. Attach the front plate.

Installing the CHV-TSTAT-FCU-HOTEL in a Horizontally Mounted 1-Gang Electrical Box

NOTE: Install insulation (not supplied) in the 1-gang electrical box to prevent inaccurate readings.



7. Carefully remove the warning label from the LCD display.
8. Turn HVAC system power ON.

Use the following procedure to install the CHV-TSTAT-FCU-HOTEL directly on a wall (refer to illustration on the following page):

1. Turn HVAC system power OFF.

2. Separate the thermostat front plate from the rear plate. It may be necessary to exert force when removing the front plate.
3. Feed HVAC wiring through the hole in the wall and the hole in the center of the rear plate so it can be connected to the proper terminals on the CHV-TSTAT-FCU-HOTEL after the thermostat is mounted.

CAUTION: Excess wire pinched between the CHV-TSTAT-FCU-HOTEL and the wall could cause a short circuit.

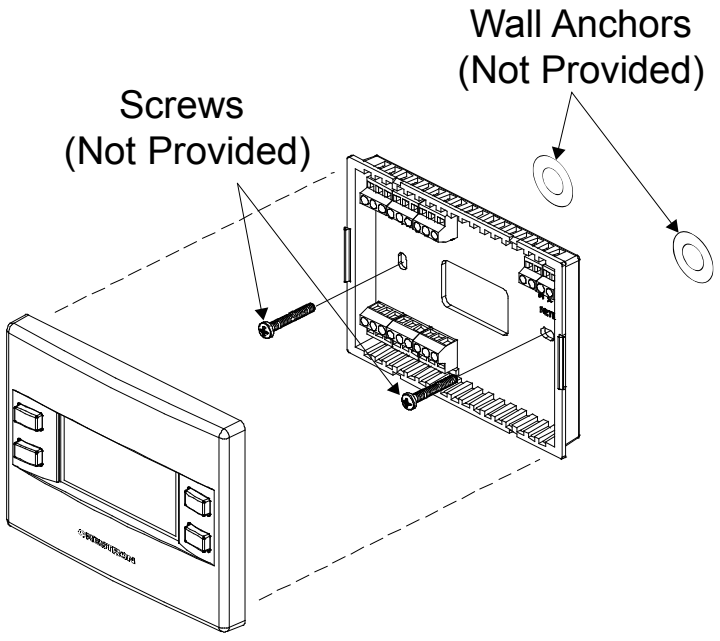
NOTE: To ensure accurate temperature readings, avoid drafts in the back of the unit by plugging the wire hole with insulation.

4. Make sure unit is correctly oriented and attach the CHV-TSTAT-FCU-HOTEL rear plate to the wall using screws and wall anchors.

CAUTION: Do not press on the LCD display during mounting, as this may cause the screen to crack.

5. Attach the front plate.

Installing the CHV-TSTAT-FCU-HOTEL Directly on the Wall

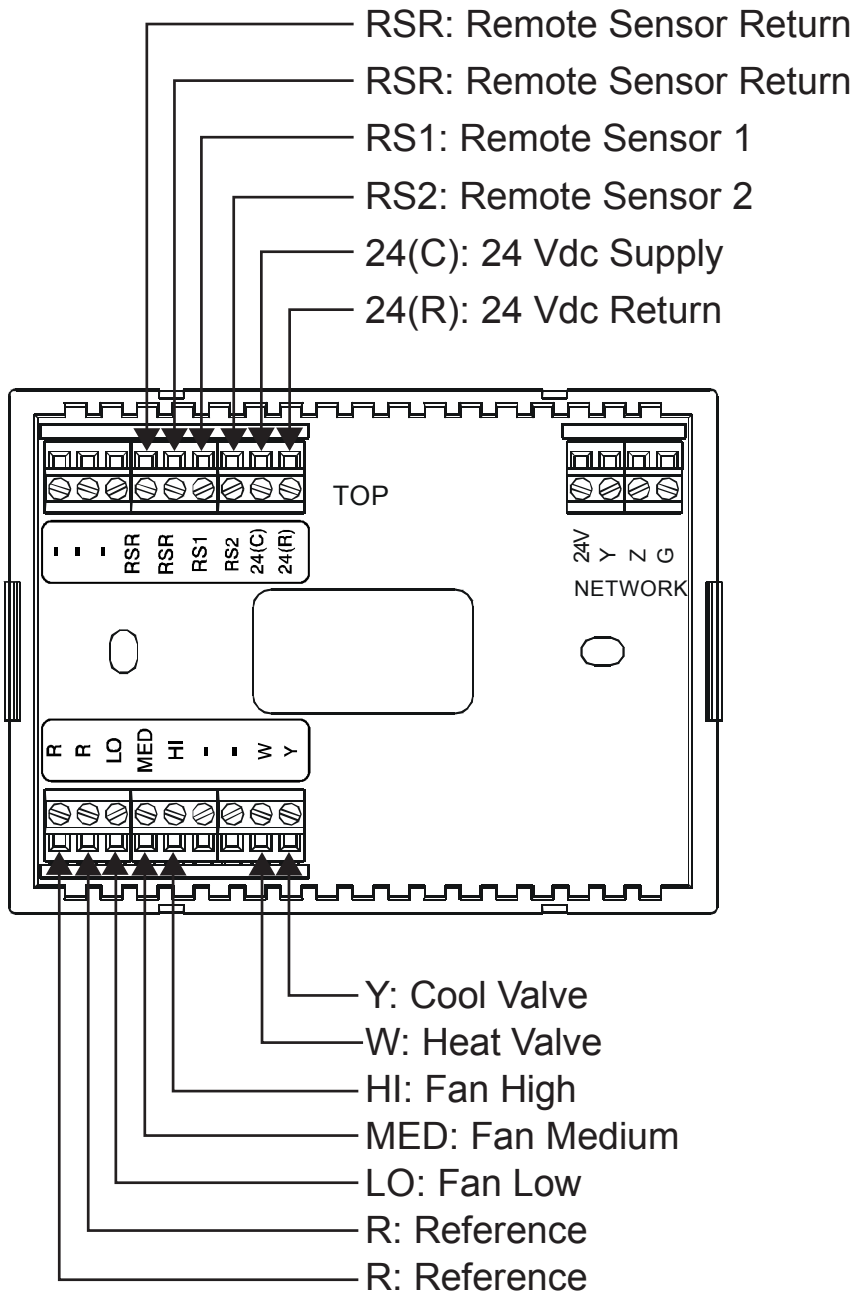


6. Carefully remove the warning label from the LCD display.
7. Turn HVAC system power ON.

Wiring the CHV-TSTAT-FCU-HOTEL

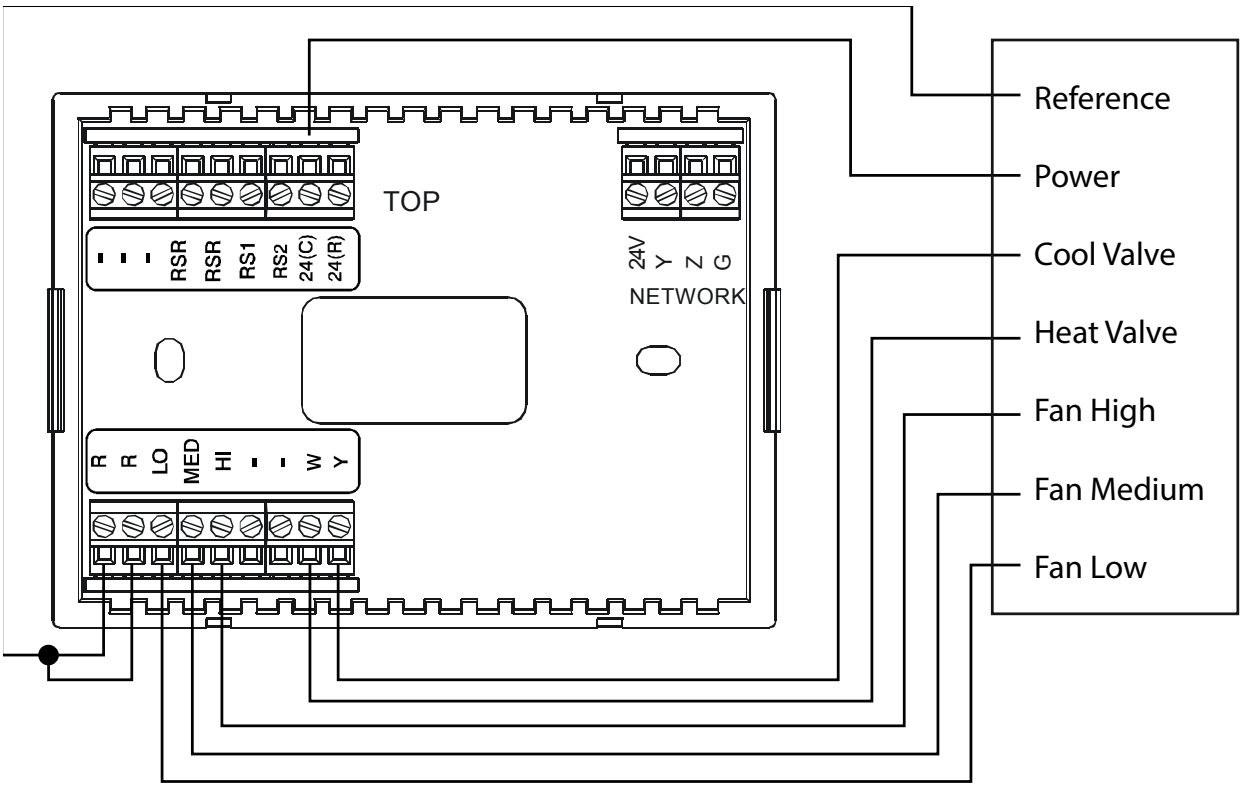
Make the necessary connections as called out in the illustrations that follow for terminal information. A small flat head screwdriver (not supplied) is required to attach the control wires from the HVAC system. Apply power after all connections have been made.

Connections for the CHV-TSTAT-FCU-HOTEL

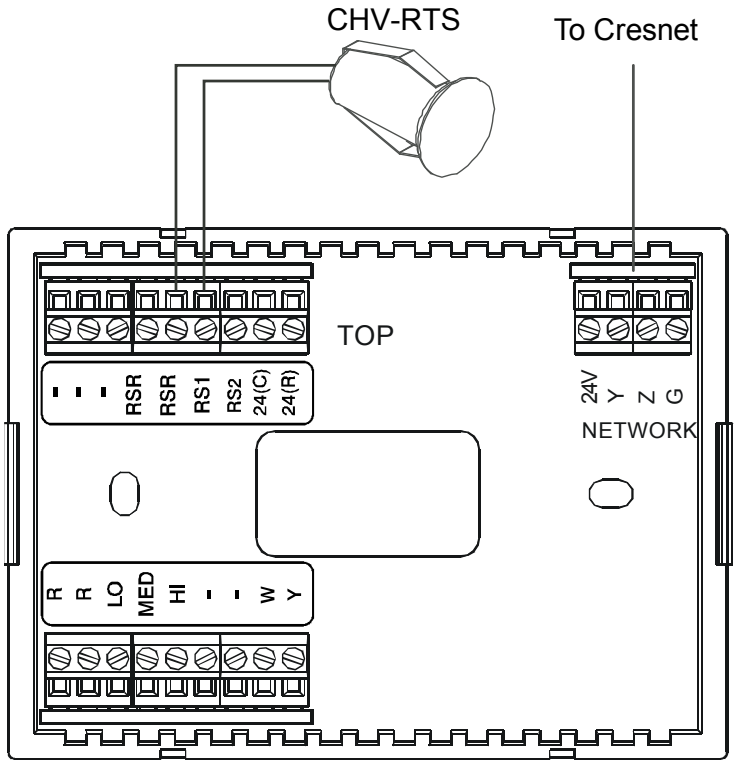


NOTE: Place the jumper in the lowest position to connect pin 3 and pin 4 to provide power to the thermostat.

Wiring the CHV-TSTAT-FCU-HOTEL



Wiring the CHV-RTS and Cresnet Connections



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 (or device). Finally, program checks can be performed (such as changing the device ID or creating an IP table) to ensure proper functioning.

NOTE: Crestron software and any files on the website are for authorized Crestron dealers and Crestron Service Providers (CSPs) only. New users must register to obtain access to certain areas of the site (including the FTP site).

Establishing Communication

Use Crestron Toolbox for communicating with the CHV-TSTAT-FCU-HOTEL; refer to the Crestron Toolbox help file for details. There a single method of communication: indirect.

Indirect Communication

CHV-TSTAT-FCU-HOTEL connects to control system via Cresnet:

1. Click **Tools** | **System Info**.
2. Click the icon to open the "Edit Address" window.
3. In the "Edit Address" window make the following selections:
   - For *Connection Type*, select *Indirect*.
   - For *Device is at*, select *Cresnet ID*.
   - In the *Device is at* drop-down menu, select the ID of the CHV-TSTAT-FCU-HOTEL.

- In the *Through* drop-down menu, select the control system that the device is connected to.

4. Click **OK**. Communications are confirmed when the device information is displayed.

Programs and Firmware

Program 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 Crestron Studio help file, SIMPL Windows help file, or the Crestron Toolbox help file.

Crestron Studio or SIMPL Windows

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

Firmware

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

Upgrade CHV-TSTAT-FCU-HOTEL firmware via Crestron Toolbox.

1. Establish communication with the CHV-TSTAT-FCU-HOTEL and display the "System Info" window.
2. Select **Functions | Firmware…** to upgrade the CHV-TSTAT-FCU-HOTEL firmware.

Program Checks

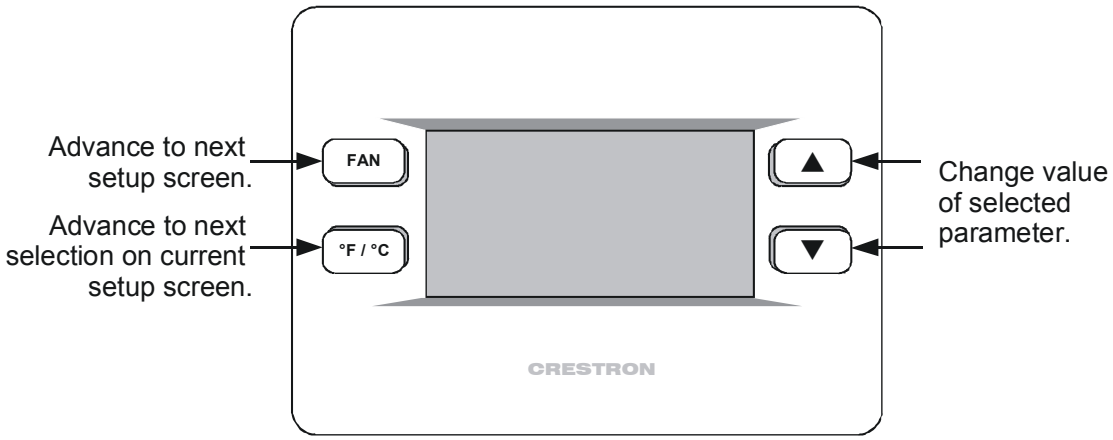
Using Crestron Toolbox, display the network device tree (**Tools** | **Network Device Tree View**) to show all network devices connected to the control system. Right-click on the CHV-TSTAT-FCU-HOTEL to display actions that can be performed on the CHV-TSTAT-FCU-HOTEL.

Thermostat Setup

After installing the thermostat, it is necessary to set it up for a particular heating and cooling system. Press and hold the **FAN** and **ºF / ºC** buttons simultaneously for 5 seconds to access *Setup* mode. The **ºF / ºC,** arrow keys (▲▼), and **FAN** buttons are used to set up the thermostat.

- Press **ºF / ºC** to advance to the next selection on the current setup screen. A box appears around the selected parameter.
- Press the arrow keys (▲▼) to change the value of the selected parameter.
- Use the **FAN** button to advance to the next setup screen.

CHV-TSTAT-FCU-HOTEL Setup



Press and hold **FAN** and **ºF / ºC** simultaneously for 2 seconds to exit *Setup* mode.

NOTE: Refer to "Wiring the CHV-TSTAT-FCU-HOTEL to the HVAC System" on page 12 for remote sensor connections to the thermostat.

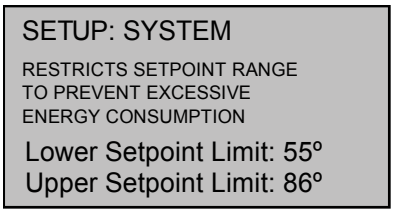
"SETUP: SYSTEM" Screen

SETUP: SYSTEM
System Type: HEAT-COOL WITH 3-SPEED FAN

System Type displays the heating system as *HEAT-COOL WITH 3-SPEED FAN*.

Lower Setpoint Limit defines the lowest temperature that the thermostat can be set.

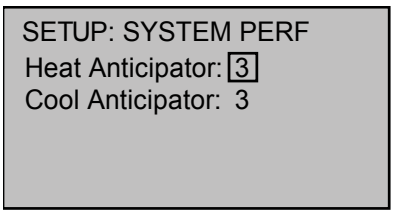
This limit prevents excessive energy consumption.



Upper Setpoint Limit: Defines the highest temperature that the thermostat can be set. This limit prevents excessive energy consumption.

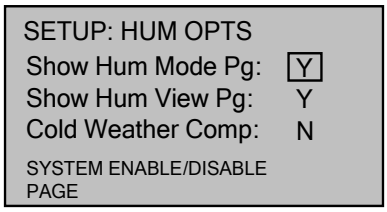
NOTE: If an out of range setpoint is entered, it is ignored.

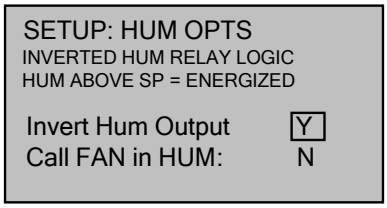
"SETUP: SYSTEM PERF" Screen



Heat Anticipator and *Cool Anticipator* prevent a heat or cool call from overshooting the desired setpoint. Select *1 – 6*. The default value is *3*.

"SETUP: HUM OPTS" Screen





Show Hum Mode Pg and *Show Hum View Pg* show the humidity page in normal operation by selecting *Y*.

Cold Weather Comp modifies the humidifier output to prevent condensation on windows. This requires an outdoor temperature source (CHV-TSTAT-FCU-HOTEL with CHV-RTHS, CHV-RTS, or CHV-RSS, sensors sold separately).

Invert Hum Output reverses the logic controlling the switching of the humidity relay (NO or NC). This may be useful when controlling a dehumidifier.

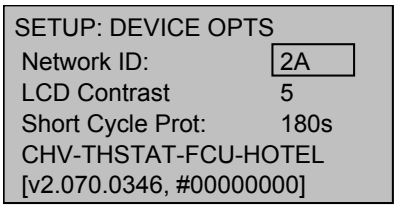
NOTE: Most dehumidifier applications require the default setting (*Y*).

Call FAN in HUM makes a fan call during any humidity call. This prevents the need to wait for a heating or cooling call to trigger the fan.

NOTE: Most dehumidifier applications automatically trigger fan operation.

NOTE: This setting is only useful for humidity calls with normal (non-inverted) logic.

"SETUP: DEVICE OPS" Screen



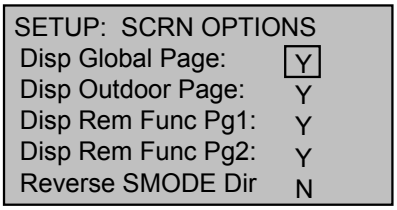
Network ID sets the device's Cresnet Net ID. Valid entries are *03* to *FE* in hex to match the network ID set for the thermostat in Crestron Studio or SIMPL Windows.

LCD Contrast controls the brightness of the LCD screen. Select *1 – 10* to lighten or darken the screen.

Short Cycle Prot prevents rapid heat or cool calls to the heating system by forcing a delay between heat or cool calls. Select *0s*, *30s*, *60s*, or *180s*. The default value is *180s*.

This screen displays model number, firmware version, and TSID.

"SETUP: SCRN OPTIONS" Screen



Select options to be displayed when the **ºF / ºC** button is pressed in normal operation:

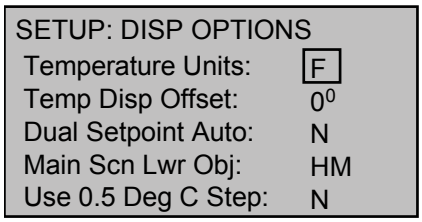
Disp Global Page displays the temperature and humidity selection for entire house (if part of a Cresnet system).

Disp Outdoor Page displays the temperature and humidity selection for the outside sensor.

Disp Rem Func Pg1 and *Disp Rem Func Pg2* allows remote control of other functions (e.g., lights, alarms, etc.).

Reverse SMODE Dir allows the arrow keys to select mode functions in both directions. When *Y* is selected the arrow keys (▲ ▼) can be used to select system mode functions in both directions.

"SETUP: DISP OPTIONS" Screen



Temperature Units selects the display of the temperature units in (*F*) Fahrenheit or (*C*) Celsius.

Temp Disp Offset allows the user to adjust the displayed and regulated temperature (between *-6°* – *+6°* F). The factory default is 0° F.

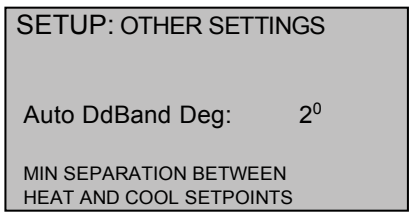
NOTE: *Offset* allows recalibration of the room temperature sensor. The offset is the number of degrees added to or subtracted from the actual temperature. This adjustment changes the actual regulated temperature, not just the display.

Dual Setpoint Auto enables 2-point auto functionality.

Main Scn Lwr Object allows the selection of the item shown on the main screen. Choose slab (*SB*), humidity (*HM*), outdoor (*OD*), or none (*NA*).

Use 0.5 Deg C Step displays Celsius values in 0.5° C steps.

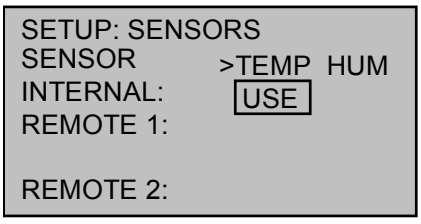
"SETUP: OTHER SETTINGS" Screen



Auto DdBand Deg selects the minimum differential (2 – 6) between heating and cooling setpoints.

Dual Setpoint Auto needs to be set to *Y* on the "Display Options" screen.

"SETUP: SENSORS" Screen



The thermostat auto-detects connected remote sensors. The sensors are used for temperature and humidity averaging. Choose *USE* to include the sensor or *OMIT* to exclude the sensor in the averaging

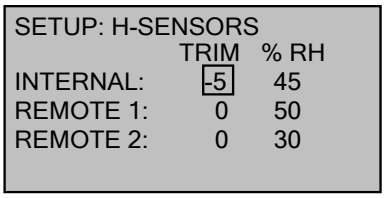
equation. Sensors that have the same designation (e.g., outdoor) are averaged together.

For *INTERNAL* sensors choose *USE* or *OMIT*.

NOTE: Sensor temperature and humidity can be output to network even if *OMIT* is chosen.

For *REMOTE 1* and *REMOTE 2* sensors, choose *USE*, *OMIT*, *OD* (outdoors), or *SLAB* (remote sensors only). Sensors only appear on screen when connected to the thermostat.

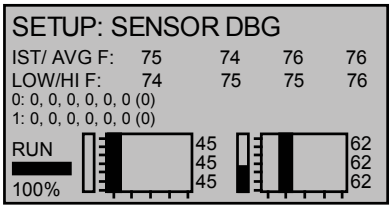
"SETUP: H-SENSORS" Screen



TRIM allows the user to calibrate (*-9 – +9)* the *INTERNAL, REMOTE 1*, and *REMOTE 2* humidity sensors to match % RH values obtained by other equipment. The values here are based on a logarithmic index and are not to be interpreted as units of measurement.

NOTE: For best results, calibration should be performed when RH is 40% or higher.

"SETUP: SENSOR DBG" Screen



Press **ºF / ºC** to run or stop sensor debugging. A completion progress bar indicates debugging status.

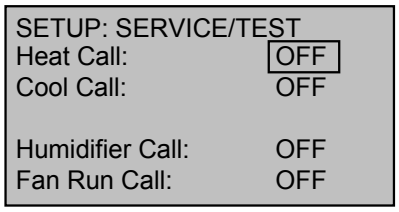
IST / AVG F displays the instantaneous and average temperature (F) for **RS1**, followed by the instantaneous and average temperature (F) for **RS2**.

LOW/HI F displays the low and high temperature (F) for **RS1** followed by the low and high temperature (F) for **RS2**.

0 and *1* displays the number of communication errors present for sensor 1 and 2. Values should be close to 0. Check the wiring if values are higher than 20.

Each histogram should display only a single column. Histogram values should not have much spread.

"SETUP: SERVICE/TEST" Screen



NOTE: This screen bypasses all system delays and is used by the installer to manually operate the HVAC system. Only one system can be run at a time.

A *Heat Call* is enabled by selecting *ON* or *OFF*.

A *Cool Call* is enabled by selecting *ON* or *OFF*.

A *Humidifier Call* is enabled by selecting *ON* or *OFF*.

A *Fan Run Call* is enabled by selecting *ON* or *OFF*.

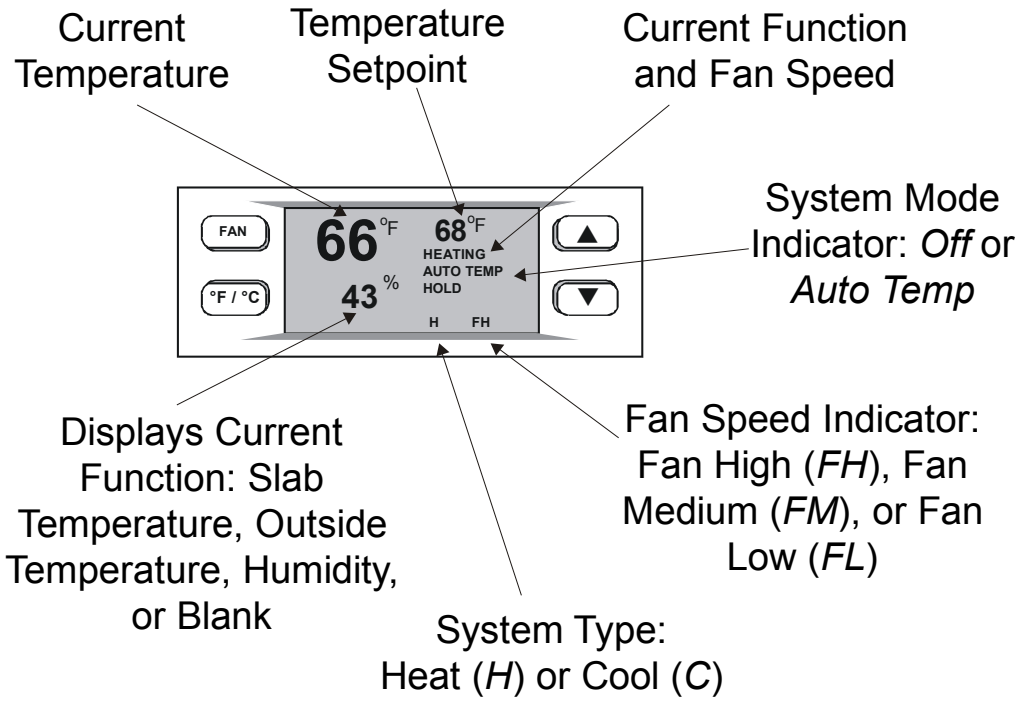
Press and hold **FAN** and **ºF / ºC** for 2 seconds to exit *Setup* mode.

NOTE: Exit is not possible if the sensor setup does not meet system requirements.

Thermostat Operation

The main screen displays the current temperature, system mode, fan mode, relative humidity, and setpoint temperatures. This screen also indicates the system type currently running.

Main Screen



Press the **ºF / ºC** button to change the screen display from Fahrenheit to Celsius.

Press the **FAN** button to turn the system on and then cycle through *Fan Auto*, *Fan High*, *Fan Medium*, *Fan Low*, and *Off* modes.

Press the up ▲ arrow button to increase the setpoint temperature. Press the down ▼ arrow button to decrease the setpoint temperature.

NOTE: The first press of the up ▲ and down ▼ arrow buttons triggers backlight.

NOTE: System indicators flash to indicate short cycle timer protection (timer guards) engaged.

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.

CHV-TSTAT-FCU-HOTEL Troubleshooting

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
The display is blank.	Thermostat is not receiving power from the system.	Check for power on pins **24(C)** and **24(R)**.
		Check the circuit breaker that powers the furnace or boiler.
		Check the jumper on thermostat board.
		Verify the thermostat wiring is correct.
	Incorrectly mounted to the backplate.	Correctly mount the thermostat to the backplate.
Temperature setting cannot be changed.	The upper or lower temperature limit was reached.	Verify temperature setting is within the setpoint range. Setpoint range is 38 to 99º F (4 to 38º C).
System cycles too quickly or a high temperature variance is experienced.	An anticipator or regulation setting is too low.	Change the anticipator or regulator setting. Refer to "Thermostat Setup," on page 18.
	An anticipator or regulation setting is too high.	

(Continued on following page)

CHV-TSTAT-FCU-HOTEL Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Heating or cooling system is not operating.	Power is not being provided to the thermostat.	Verify that the circuit breaker is not tripped.
		Check the power connection at the thermostat, furnace, and air conditioner.
		Verify that the circuit breaker is not tripped for the furnace or boiler.
		Recheck wiring connections.
	Flashing system indicator (short cycle timer) not satisfied.	Wait 5 minutes to ensure the short cycle timer is not enabled or consult an HVAC contractor.
	The auto deadband setting is set too high.	Adjust the auto deadband settings.
	Temperature sensors are disabled or have failed.	Refer to “Thermostat Setup,” on page 18.
	There is poor communications between thermostat and furnace or boiler.	Recheck wiring connections.
		Use low capacitance twisted-pair wiring.

(Continued on following page)

CHV-TSTAT-FCU-HOTEL Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Main screen lower object field displays *ERR* when hardware configuration appears functional.	Setting indicated in the *Main Scn Lwr Object* selection does not have an associated sensor attached.	Set the field to *N/A*.
		Correct the sensor configuration.
		Update the SIMPL program to feed the required data.
An incorrect temperature is displayed.	The incorrect temperature type (ºF or ºC) is selected.	Press **ºF / ºC** to change the units.
	Sensors are setup incorrectly.	Check the sensor setup screens.
	The temperature offset is too large.	Reset the temperature offset setting.
	Thermostat mounting location is incorrect.	Ensure that thermostat is located out of direct sunlight, drafts, doorways, skylights, and windows.
LCD displays “NetDown” message.	There is no control system program or the program does not have a device at the Net ID address included in the system.	Check the Net ID listed in the program and ensure that it matches the thermostat.
		Correct the Net ID in the program (if required).

(Continued on following page)

CHV-TSTAT-FCU-HOTEL Troubleshooting (Continued)

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Setup mode cannot be exited.	Sensors are not properly set up.	Ensure sensor set up meets system requirements.
Temperature offset value not affecting Cresnet outputs.	Offset is only added to "RegulationTemp."	Add offset in SIMPL program.
Cannot change screens or setpoints	Local operation is locked out by control system.	Remove the lockout from the control system program.

Check Network Wiring

Use the Right Wire

To ensure optimum performance over the full range of the installation topology, use Crestron Certified Wire only. 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. Use the Crestron Power Calculator to help calculate how much power is needed for the system (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 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 (101 meters). If Cresnet HP is used for the same run, its length could extend to 1250 feet (381 meters).

NOTE: All Crestron certified Cresnet wiring must consist of two twisted pairs. One twisted pair is the **24** and **G** pair and the other twisted pair is the **Y** and **Z** pair.

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

Use of a Cresnet Hub/Repeater (CNXHUB) is advised whenever the number of Cresnet devices on a network exceeds 20 or when the combined total length of Cresnet cable exceeds 3000 feet (914 meters).

Reference Documents

All documents mentioned in this guide are available at www.crestron.com/manuals.

List of Related Reference Documents

DOCUMENT TITLE
CHV-TSTAT-FCU-Hotel Quickstart Guide

Further Inquiries

To locate specific information or resolve questions after reviewing this guide, contact Crestron's True Blue Support at 1-888-CRESTRON [1-888-273-7876] or, for assistance within a particular geographic region, refer to the listing of Crestron worldwide offices at www.crestron.com/offices.

To post a question about Crestron products, log onto Crestron's Online Help at www.crestron.com/onlinehelp. First-time users must 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 CHV-TSTAT-FCU-HOTEL, additional information may be made available as manual updates. These updates are solely electronic and serve as intermediary supplements prior to the release of a complete technical documentation revision.

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

Return and Warranty Policies

Merchandise Returns / Repair Service

1. No merchandise may be returned for credit, exchange or service without prior authorization from Crestron. To obtain warranty service for Crestron products, contact 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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Operations & Installation Guide – DOC. 7543A
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