

Crestron **CHV-TSTATEX-FCU**  
infiNET EX<sup>®</sup> Thermostat (Fan Coil Unit)  
Operations & Installation Guide



## Regulatory Compliance

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



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## Federal Communications Commission (FCC) Compliance Statement

**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

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## Industry Canada (IC) Compliance Statement

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

To satisfy RF exposure requirements, this device and its antenna must operate with a separation distance of at least 20 centimeters from all persons and must not be colocated or operating in conjunction with any other antenna or transmitter.

The specific patents that cover Crestron products are listed at [patents.crestron.com](http://patents.crestron.com).

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# infiNET EX Thermostat (Fan Coil Unit): CHV-TSTATEX-FCU

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## Introduction

The CHV-TSTATEX-FCU is a wireless thermostat featuring infiNET EX<sup>®</sup> technology. The CHV-TSTATEX-FCU installs just like a conventional thermostat because no extra wires are needed to connect to the control system. Although functional as a standalone thermostat, the CHV-TSTATEX-FCU delivers enhanced functionality as part of a complete Crestron<sup>®</sup> automation system. Integrating HVAC with a Crestron system can help lower energy bills and increase user friendliness.

The CHV-TSTATEX-FCU is designed for fan coil unit HVAC systems. 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/cool thermostat for fan coil unit HVAC systems
- Crestron system integration via infiNET EX wireless network
- Saves on energy costs with advanced programming abilities
- Supports two remote temperature sensors
- *Fail-safe* mode allows operation in event of control system failure
- Backlit LCD display
- Fan coil unit control\*
- Available in white, black, or almond

\* 4-pipe fan coil units are supported.

### ***Fan Coil Unit Support***

The CHV-TSTATEX-FCU infiNET EX thermostat provides the functionality of controlling fan coil units<sup>1</sup>. The CHV-TSTATEX-FCU has custom firmware, display programming and terminal labels designed for 3-speed fan applications. The CHV-TSTATEX-FCU 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.

### ***infiNET EX Communications***

Built on steadfast infiNET™ technology, infiNET EX is the new standard in 2-way wireless connectivity that can handle installations in even the most urban settings. The redundant nature of its mesh networking technology means that a command is never missed, resulting in faultless operation - something that is of the utmost importance when it comes to HVAC control and home automation. The CHV-TSTATEX-FCU harnesses this cutting edge wireless connectivity which affords it a level of robustness and dependability above other solutions.

### ***Automation System Integration***

The wireless connection to the control system allows the functions of the CHV-TSTATEX-FCU 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-TSTATEX-FCU remains operable to control the HVAC system.

### ***Easy Installation***

System design and installation using infiNET EX thermostats could not be easier. Since no control wires are required, the CHV-TSTATEX-FCU can be installed just like any conventional thermostat.

To simplify installation, physical switches are provided for the most critical configuration options including heat/cool type, heat pump behavior, power settings, number of heating/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.

An infiNET EX gateway such as the CEN-RFGW-EX or MC3 (both sold separately) is needed for communications. Setting up a complete network of infiNET EX devices is simple, utilizing dynamic discovery (self-install) to locate and acquire each RF device automatically. Setting the ID of each device employs the same convention as Crestron's familiar TSID (touch-settable ID) method, and 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 wireless network.

No further action is required to configure the infiNET EX network. Each device assigned to a common gateway automatically behaves as a wireless expander<sup>2</sup> for any other devices within range (approximately 150 feet (~46 meters) indoors), and additional expanders may be added if necessary. The infiNET EX gateway monitors each device on the network at all times, ignoring any other 2.4 GHz signals. It reconfigures the entire network automatically in response to new sources of interference and other changes in RF conditions.

1. 4- pipe fan coil units are supported.
2. CHV-TSTATEX-FCU must be powered by a 24 volt source to enable repeater functionality.

**Remote Sensors**

Optional remote temperature sensors can be connected to the CHV-TSTATEX 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-TSTATEX to be installed out of view. For heat pump-type systems, 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-TSTATEX-FCU are listed in the following table.

*CHV-TSTATEX-FCU Specifications*

<b>SPECIFICATION</b>	<b>DETAILS</b>
Wireless	
RF Transceiver	2-way RF, 2.4 GHz ISM Channels 11-26 (2400 to 2483.6 MHz), IEEE 802.15.4 compliant
Range (typical)	150 ft (46 m) indoor, 250 ft (76 m) outdoor; Subject to site-specific conditions; range is increased by adding additional devices or CLW-EXPEX wireless expander (sold separately)
Gateway	Requires a CEN-RFGW-EX RF gateway or MC3 3-Series Control System <sup>®</sup> (both sold separately)
Display	Backlit LCD with two large 7-segment digits, two small 7-segment digits, 14 dedicated symbols; Displays ambient temperature, setpoint, system mode, fan setting, call activity, low battery, RF or control system communication errors, firmware download progress, setup parameter/function and value
Measurement Range	
Ambient Temperature	-10° to 110° F (-23° to 43° C)
Display Limits	-9° to 99° F (-9° to 43° C)
Temperature Tolerance	
Over Full Range	±1° F (±0.5° C)
At Room Temperatures	±1° F (+0.4/-0.2° C)
Setpoint Range	
Heat Setpoint	38° to 89° F (3° to 32° C)
Cool Setpoint	59° to 99° F (15° to 37° C)
Relay Rating	1 amp @ 40 volts dc or 24 volts ac (nominal)
Environmental	
Temperature	-10° to 110° F (-23° to 43° C)
Humidity	10% to 90% RH (non-condensing)

*(Continued on following page)*

*CHV-TSTATEX-FCU Specifications (Continued)*

SPECIFICATION	DETAILS
Power Requirements 24V  Battery	0.24 watts (10 mA @ 24 volts ac) supplied by heating or cooling system  Two AA batteries, estimated 1 year normal operation
Default RF ID	01
Housing	Injection molded plastic, surface mountable to the front of a horizontally oriented 1-gang electrical box.
Dimensions Height Width Depth	4.50 in (115 mm) 5.53 in (141 mm) 1.03 in (26 mm)
Weight	7 oz (190 g)
Available Models CHV-TSTATEX-FCU-A-T  CHV-TSTATEX-FCU-B-T  CHV-TSTATEX-FCU-W-T	infiNET EX Thermostat, Fan Control Unit, Textured, Almond  infiNET EX Thermostat, Fan Control Unit, Textured, Black  infiNET EX Thermostat, Fan Control Unit, Textured, White
Available Accessories CEN-RFGW-EX CHV-RSS  CHV-RTS CLW-EXPEX-GD-W-T  MC3	infiNET EX Wireless Gateway  Remote Slab Sensor and Outdoor Temperature Sensor  Remote Temperature Sensor  infiNET EX Wireless Expander, Ground Pin Down, White Textured  3-Series Control System



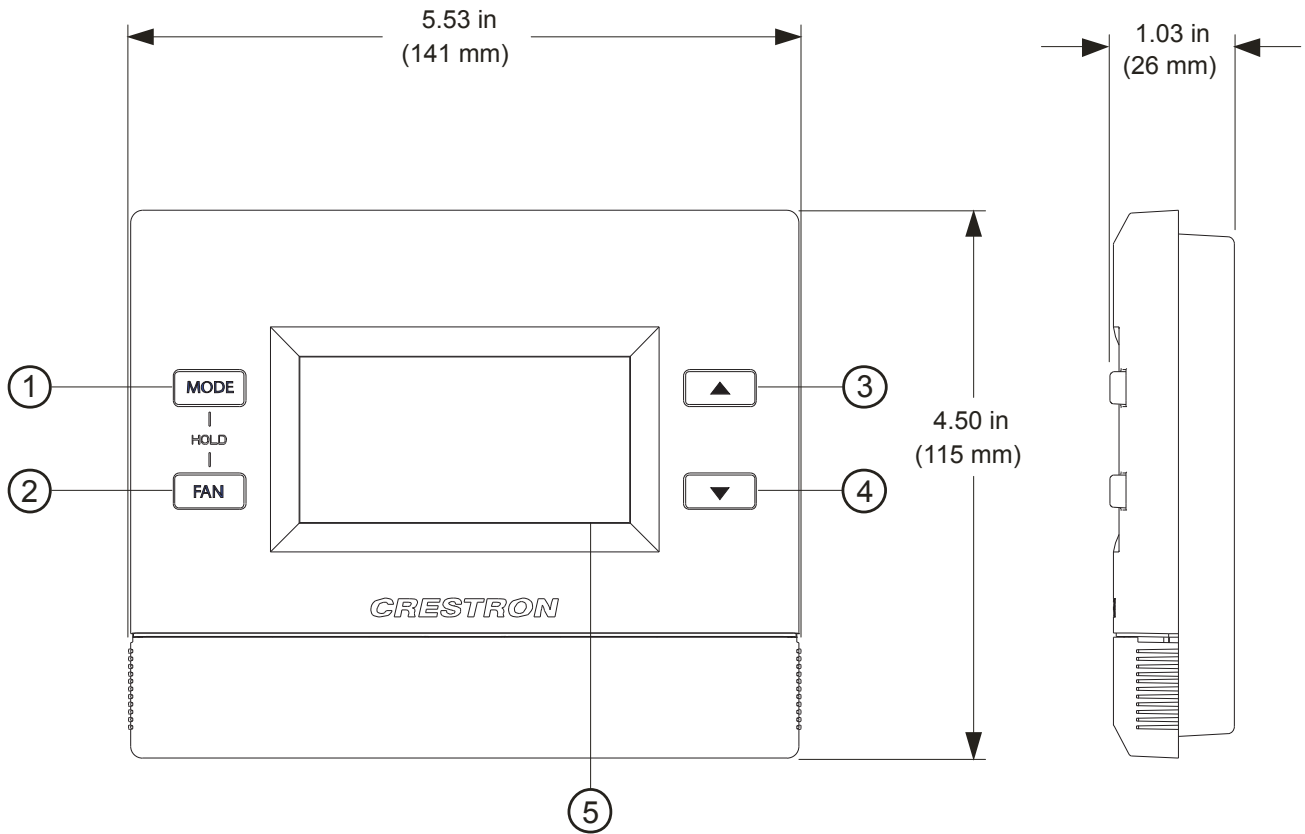
### Physical Description

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

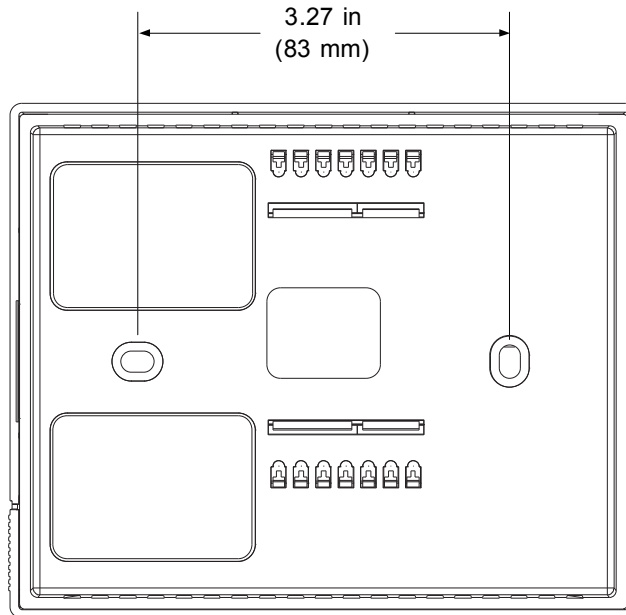
#### *CHV-TSTATEX-FCU Physical View*



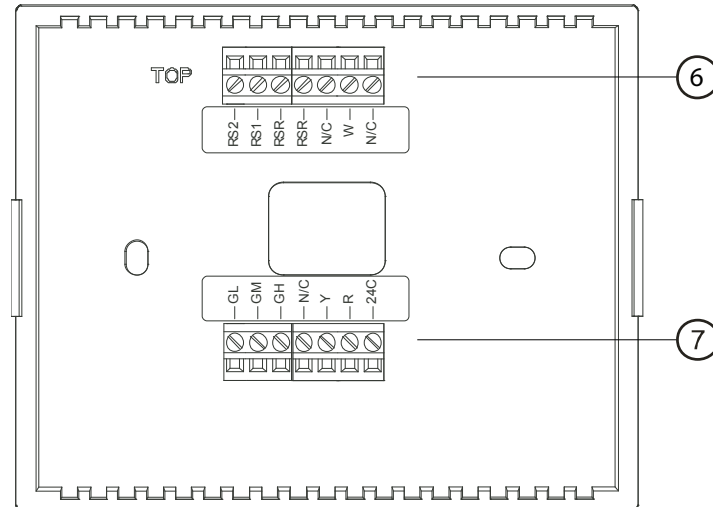
#### *CHV-TSTATEX-FCU Overall Dimensions (Front and Side Views)*



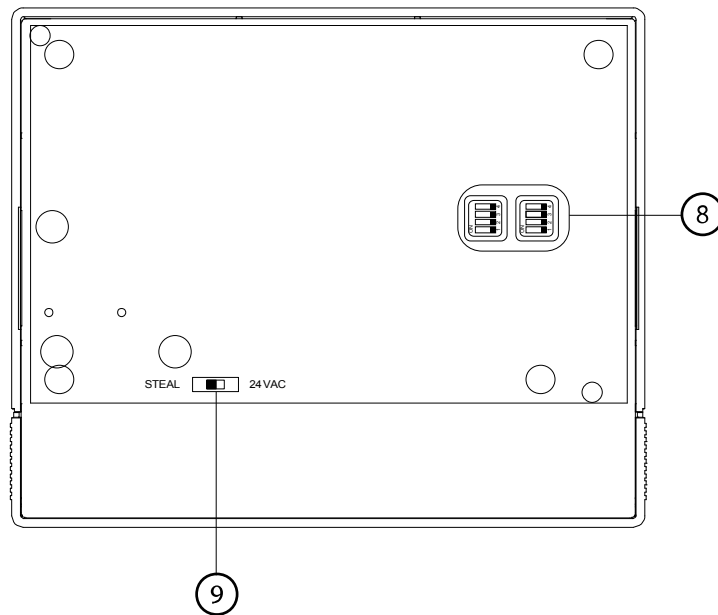
*CHV-TSTATEX-FCU Overall Dimensions (Rear View)*



*CHV-TSTATEX-FCU (Connection View, Front with Cover Removed)*



*CHV-TSTATEX-FCU (DIP Switch and Power Switch View)*



*Connectors, Controls & Indicators*

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
1	MODE Button	Cycles through available system modes: <i>OFF, HEAT, AUTO</i> and <i>COOL</i>
2	FAN Button	Toggles fan setting between FAN AUTO and FAN ON
3	▲	Raises the setpoint
4	▼	Lowers the setpoint
5	LCD Display	Displays ambient temperature, setpoint, system mode, fan setting, call activity, low battery, RF or control system communication errors, setup parameter/function and value
6	HVAC	(7) terminal blocks <b>RS2:</b> Remote sensor (2) (outdoor) <b>RS1:</b> Remote sensor (1) (indoor) <b>RSR:</b> Remote sensor return <b>RSR:</b> Remote sensor return <b>N/C:</b> Unused <b>W:</b> Heat <b>N/C:</b> Unused

*(Continued on following page)*

*Connectors, Controls & Indicators (Continued)*

#	CONNECTORS, CONTROLS & INDICATORS	DESCRIPTION
7	HVAC	(7) terminal blocks. <b>GL:</b> Fan low <b>GM:</b> Fan medium <b>GH:</b> Fan high <b>N/C:</b> Unused <b>Y:</b> Cool <b>R:</b> 24V return <b>24C:</b> 24V supply
8	DIP Switches	(2) Four-bank two-position DIP switches used to configure device settings; Refer to “DIP Switch Setup” which starts on page 11 for details
9	Power Switch	(1) Two-position slide switch used to configure power settings; Refer to “DIP Switch Setup” which starts on page 11 for details

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## Setup

### Identity Code

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**NOTE:** The latest software can be downloaded from the Crestron Web site ([www.crestron.com/software](http://www.crestron.com/software)).

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Every CHV-TSTATEX-FCU communicating via RF with a Crestron control system through a CEN-RFGW-EX wireless gateway or directly with an MC3 3-Series Control System requires a unique RF ID. The RF ID is a two-digit hexadecimal number that can range from 03 to FF. The RF ID of the unit, set using Crestron Toolbox™, must match the RF ID specified in the Crestron Studio or SIMPL Windows program.

### Supplied Hardware

The hardware supplied with the CHV-TSTATEX-FCU is listed in the following table.

*Supplied Hardware for the CHV-TSTATEX-FCU*

DESCRIPTION	PART NUMBER	QUANTITY
Screws, Zinc, Phillips, Pan Head, #06-32 x 1"	2007251	2
Batteries, AA, Alkaline	2001050	2

### Installation

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

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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 are required for installation:

- Standard 1-gang electrical box, mounted horizontally (not supplied)
- Phillips screwdriver (not supplied)
- Two 1-inch pan head Phillips screws (included)
- Two AA batteries (included)

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

1. Turn HVAC system power **OFF**.
2. Separate thermostat front plate from 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-TSTATEX-FCU after the thermostat is mounted.

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**CAUTION:** Excess wire pinched between the CHV-TSTATEX-FCU 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-TSTATEX-FCU.

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

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4. Make sure unit is correctly oriented and place it in the electrical box.
5. Attach the CHV-TSTATEX-FCU rear plate to the electrical box using the two included #06-32 x 1" pan head screws.

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

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6. Attach the front plate.
7. Carefully remove the warning label from the LCD display.
8. Insert batteries and attach the battery compartment cover.

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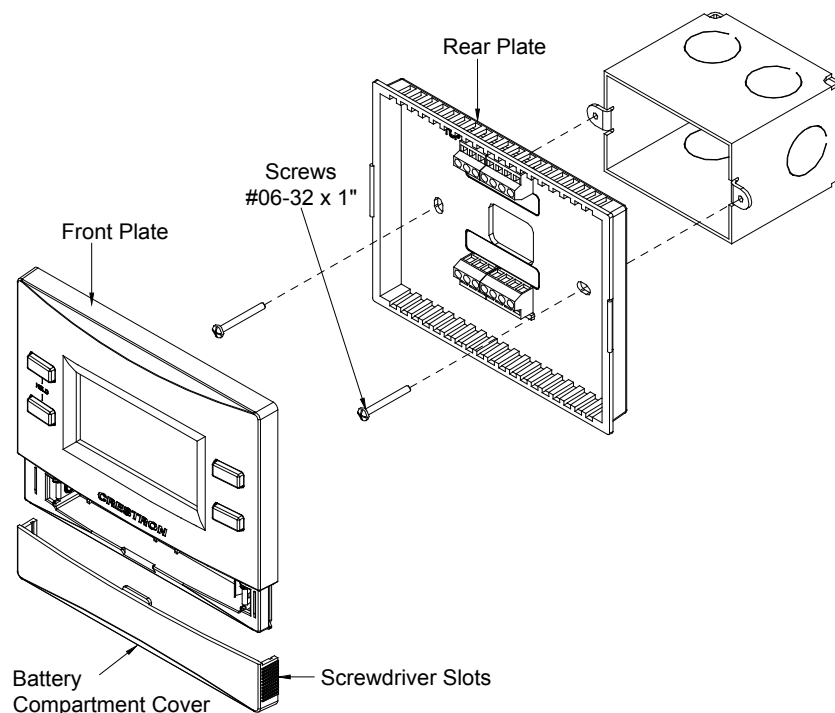
**CAUTION:** Replace all batteries in the device at the same time. Mixing old and new batteries in the device may result in battery leakage and equipment damage.

**NOTE:** Crestron has provided small slots on either side of the battery cover, designed to allow a flat head screwdriver to be inserted to assist in removal.

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9. Turn HVAC system power **ON**.

**Installation into Electrical Box**

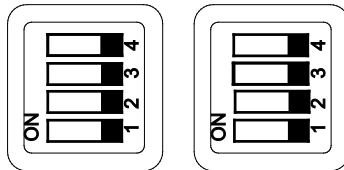


## DIP Switch Setup

The following describes the CHV-TSTATEX-FCU DIP switch settings.

1. Install two AA batteries (included) in the battery compartment.
2. Locate the DIP switches inside the unit and configure the parameters per the tables below.

### DIP Switch Settings



#### Left Switch

#	DESCRIPTION	ON	OFF
4	Lockout setup mode	Unlocked	Locked
3	<b>HOLD</b> button behavior	Toggles between F/C	Toggles <i>Hold</i> mode
2	Medium fan speed	Enabled	Disabled
1	Low fan speed	Enabled	Disabled

#### Right Switch

#	DESCRIPTION	ON	OFF
4	<i>Heat</i> mode	Enabled	Disabled
3	<i>Cool</i> mode	Enabled	Disabled
2	<i>Auto</i> mode	Enabled	Disabled
1	<i>Auto</i> mode behavior	Single setpoint	Dual setpoint

By default, the CHV-TSTATEX-FCU is configured to be powered by two AA alkaline batteries. To extend battery life, the device also receives power from the HVAC system by drawing a small amount of current through the heat or cool terminals. This is known as *Steal Power* mode.

To enable this feature, locate the power switch inside the unit and slide it to **STEAL** (This is the default factory setting on the CHV-TSTATEX-FCU).

#### Power Switch

STEAL  24VAC

**NOTE:** *Steal Power* mode does not draw enough current to cause the external heat or cool relays to close. More specifically, when the unit is not making a call for heat, it draws power through the R and W terminals. When the unit is making a call for heat, it draws power through the R and Y terminals. (This does not work if the thermostat has been wired for a cool only application.) The CHV-TSTATEX-FCU must be wired for heat control in order to take advantage of *Steal Power* mode.

**NOTE:** In *Steal Power* mode, even when an auxiliary power source is available, the unit continues to enter a communications sleep state, waking every 30 seconds or one minute (based on the infiNET EX Sleep Time setting) to exchange data with the control system. Refer to “Remote Operation” which starts on page 25 for details.

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**NOTE:** *Steal Power* mode may cause problems with some types of HVAC systems, such as indicating a false heat or cool call. If this occurs, do not use *Steal Power* mode.

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If the thermostat will be wired so that 24 volts ac are always be present on the **24C** terminal, slide the **POWER** switch to **24VAC**. No batteries are required in this mode.

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**NOTE:** When the unit detects 24 Vac, it no longer “sleeps”, meaning it offers real-time communication with the control system.

**NOTE:** When the unit is powered from a constant 24 Vac supply, there may be a slight discrepancy between the ambient temperature displayed on the thermostat and the actual room temperature. This discrepancy is also seen when switching from **STEAL** to **24VAC**. This is normal and the discrepancy disappears within approximately 10 minutes.

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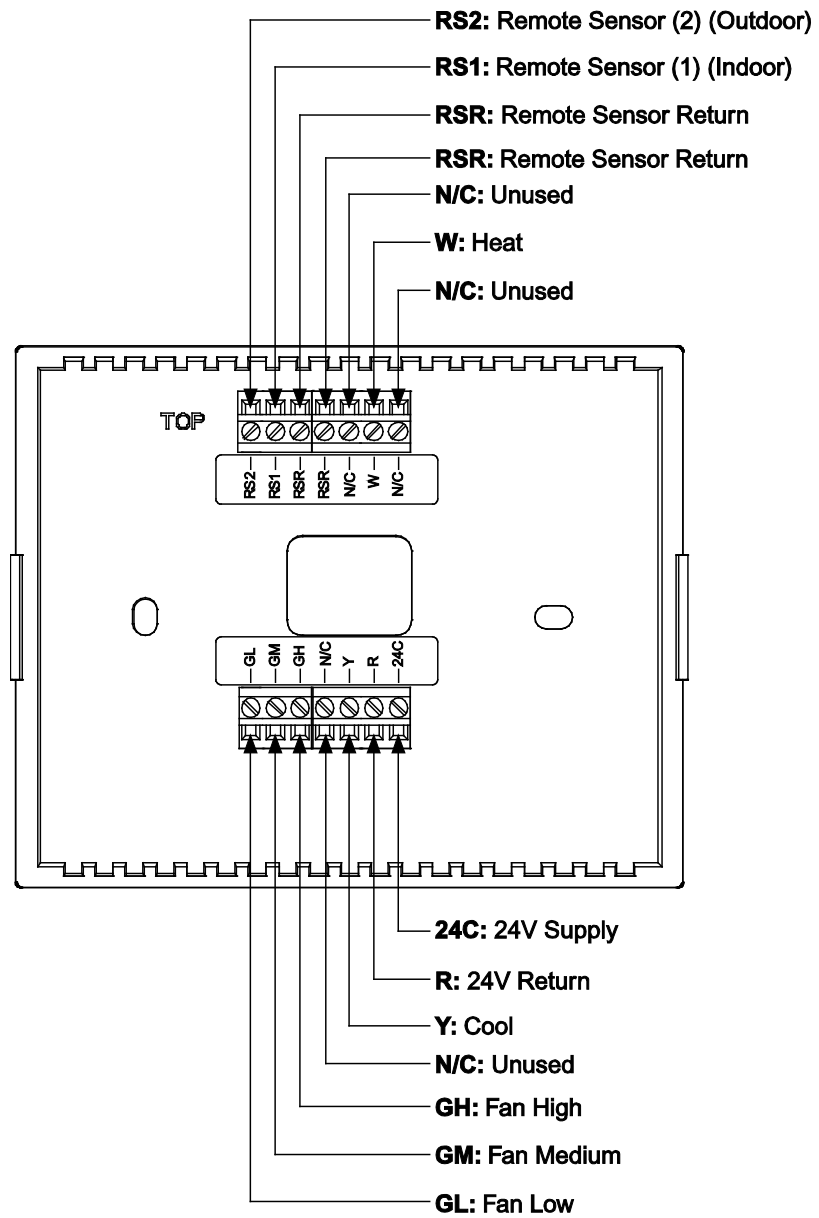
## **Wiring the CHV-TSTATEX-FCU to the HVAC System**

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

The illustrations on the following pages show examples for connection to various types of HVAC systems. If the system being connected does not match any of the systems described below, contact Crestron Technical Support for assistance.



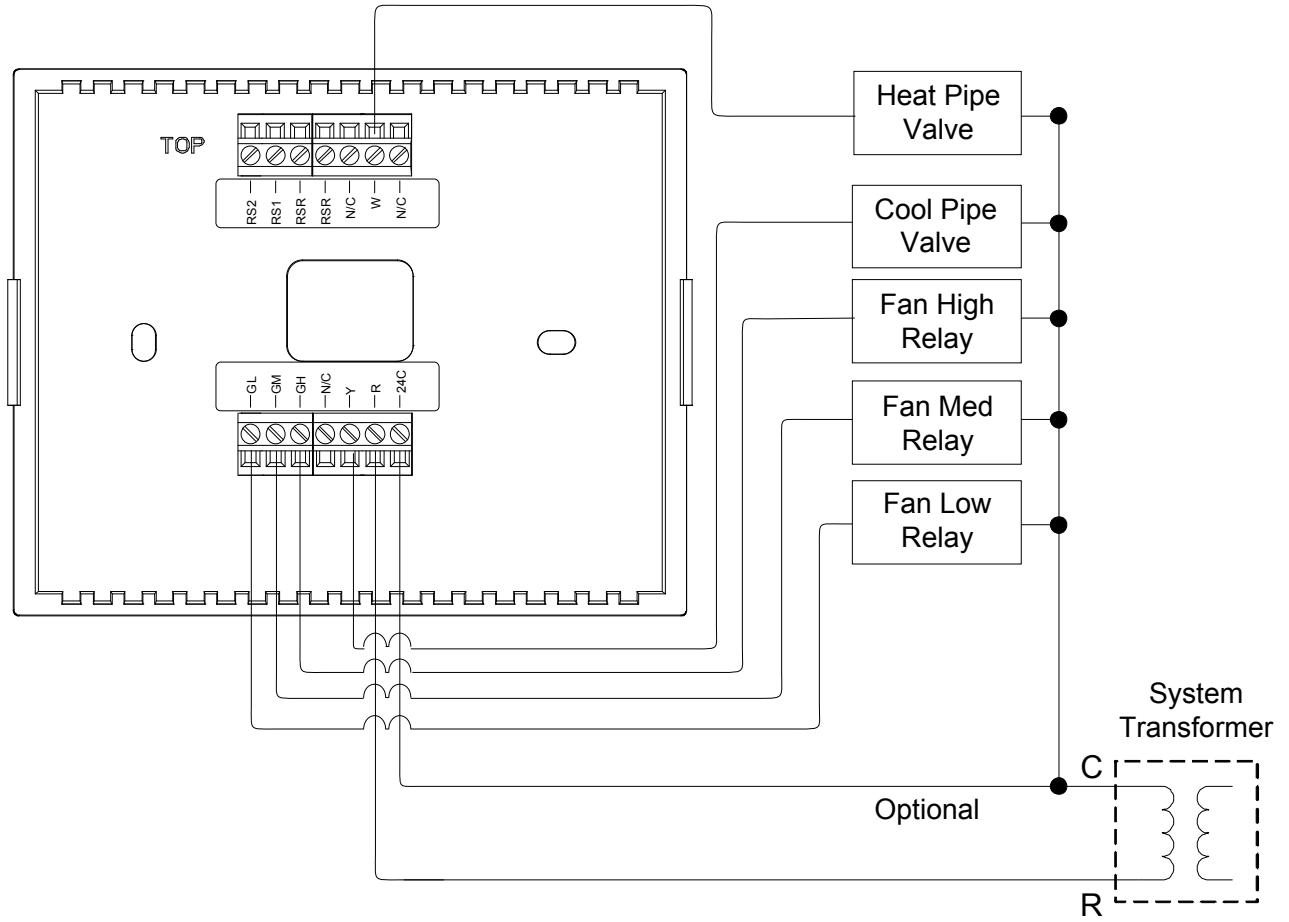
*Connections for the CHV-TSTATEX-FCU*



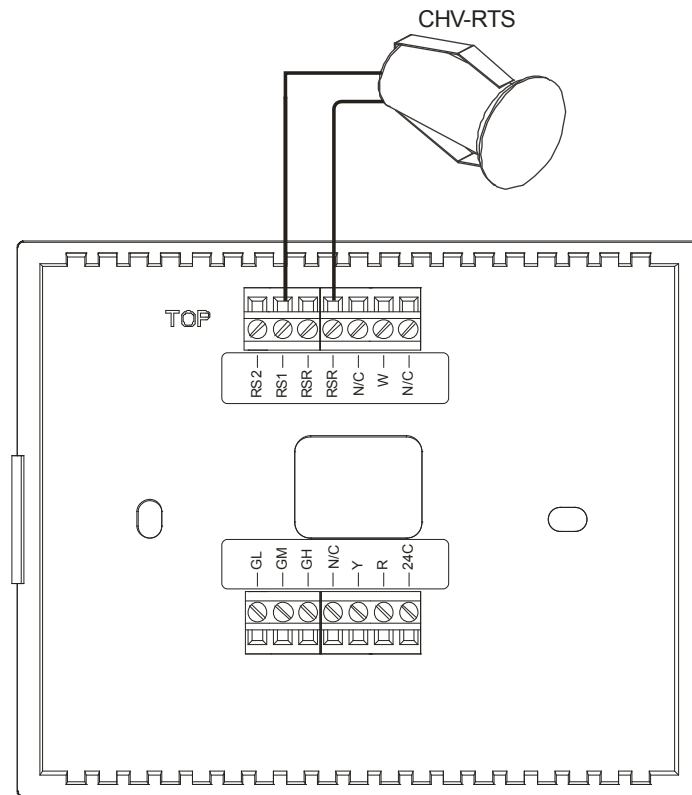
**NOTE:** 24 volt power is returned through the **R** connector. Refer to wiring diagrams on the following pages.

**NOTE:** Refer to “DIP Switch Setup” which starts on page 11 for DIP switch settings.

*CHV-TSTATEX-FCU Wiring Diagram*



*CHV-TSTATEX-FCU Sensor Wiring*



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## Basic Setup

### Basic Thermostat Setup

The following describes the most common setup requirements. For full details on all setup options, refer to “Advanced Setup” which starts on page 18.

Place the CHV-TSTATEX-FCU in the *Setup* mode by doing the following:

1. Press and hold the **FAN** button.
2. While the **FAN** button is being held, press and hold the **▲** and **▼** buttons simultaneously.
3. Hold all three buttons for 5 seconds, after which the unit enters *Setup* mode. The display shows the Temperature Scale function (*FC*).



Use **▲** or **▼** to choose the temperature units: *F* (setpoint in whole degrees Fahrenheit), *C1* (setpoint in whole degrees Celsius) or *C2* (setpoint in half degrees Celsius).

When setting parameters (such as when choosing between Fahrenheit or Celsius display), pressing the **▲** or **▼** button increments or decrements the value. Value change occurs when button is released.

### Joining an infiNET EX Network

Before a CHV-TSTATEX-FCU can be used on an infiNET EX network, it must first join an infiNET EX network by being acquired by an infiNET EX gateway (e.g., CEN-RFGW-EX).

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**NOTE:** A CHV-TSTATEX-FCU can be acquired by only one gateway.

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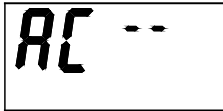
To acquire a CHV-TSTATEX-FCU, perform the following:

1. Put the CEN-RFGW-EX into *Acquire* mode, from the unit itself or from Crestron Toolbox, as described in the latest revision of the CEN-RFGW-EX Operations & Installation Guide (Doc. 6706), which is available from the Crestron Web site ([www.crestron.com/manuals](http://www.crestron.com/manuals)).

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**NOTE:** In an environment where multiple gateways are installed, only one gateway at a time should be in *Acquire* mode.

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A rectangular LCD display showing the text "id 03" in a monospaced font.A rectangular LCD display showing the text "AC --" in a monospaced font.

2. Ensure the unit is in *Setup* mode (refer to “Basic Setup - Basic Thermostat Setup” above or “Setup Mode” which starts on page 18) and that *Acquire* mode (*AC*) is selected.
3. Press **MODE** until the “infiNET EX ID” function is displayed (*id*). Use **▲** and **▼** to choose the infiNET EX ID.
4. Press **MODE** until the “Start infiNET EX Acquire” function is displayed (*AC*).
5. Press **▲** or **▼** on the CHV-TSTATEX-FCU to start the acquire process: The display shows flashing “—” (in progress). When finished, the display shows *00* (finished, found gateway) or “*E#*” (finished, could not find gateway), where # represents an error code.
6. Once all devices have been acquired, take the CEN-RFGW-EX out of *Acquire* mode by pressing its **ACQUIRE** button. Press **FAN** on the thermostat to exit *Setup* mode.

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**NOTE:** The acquire process can take up to 15 seconds. The acquire process cannot be aborted.

**NOTE:** *E1* indicates that search time has expired and no gateway was found. To enable the channel, refer to “Start infiNET EX Acquire” in “Setup Mode Parameters/Functions” which starts on page 19.

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## Leaving an infiNET EX Network

To leave a network, press and hold the **FAN**, **▲** and **▼** buttons simultaneously for 5 seconds. Press **MODE** until the unacquire function is displayed (*UA*). Press **▲** or **▼** on the CHV-TSTATEX-FCU to start the unacquire process. Refer to “Verifying Communication Status” on page 21 for a list of codes displayed once the process is completed. Press **FAN** on the thermostat to exit *Setup* mode.

## Advanced Setup

### Setup Mode

After the CHV-TSTATEX-FCU is installed, it is necessary to set it up for a particular heating/cooling system. Please note that some of the setup parameters listed below are not always shown since they are dependent upon other thermostat settings. Refer to “Setup Mode Parameters/Functions”, which starts on page 19 for details.

Place the CHV-TSTATEX-FCU in the *Setup* mode by doing the following:

1. Press and hold the **FAN** button.
2. While the **FAN** button is being held, press and hold the **▲** and **▼** buttons simultaneously.
3. Hold all three buttons for 5 seconds, after which the unit enters *Setup* mode.

Once in *Setup* mode, the display indicates the currently selected setup parameter/function. Press and release the **MODE** button quickly (it must be released within one second) to change to the next parameter/function in the list.

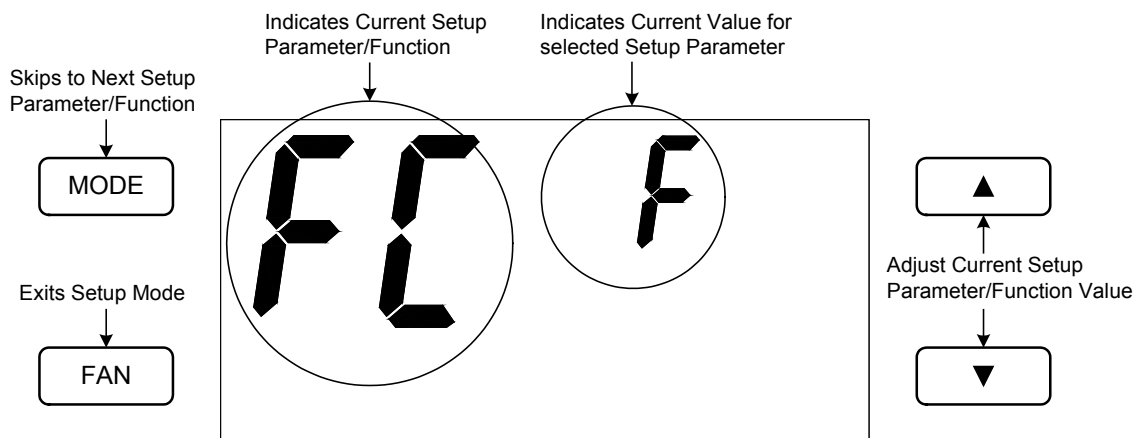
**NOTE:** Holding the **MODE** button for more than one second resets the currently selected parameter/function to its default value.

When setting parameters (such as when choosing between Fahrenheit or Celsius display), pressing the **▲** or **▼** button increments or decrements the value. Value change occurs when button is released.

When a function is selected (such as when starting an infiNET EX acquire), pressing either **▲** or **▼** executes the function.

To exit from *Setup* mode, press the **FAN** button on the CHV-TSTATEX-FCU.

**CHV-TSTATEX-FCU LCD Display (Setup Mode)**



**NOTE:** When the CHV-TSTATEX-FCU is in *Setup* mode the large 7-segment displays show the current setup parameter/function. The small 7-segment displays show the current value for the selected setup parameter, if applicable, or it displays “—” when a function is selected. All other display elements are hidden (refer to “LCD Display” which starts on page 26).

**NOTE:** While in *Setup* mode, a period of one minute with no button activity causes the CHV-TSTATEX-FCU to revert to standard operation, unless a function (such as an infiNET EX acquire) is executing.

## Setup Mode Parameters/Functions

The following table shows the available setup parameters/functions.

### *Setup Mode Parameters/Functions*

PARAMETER/ FUNCTION	CODE	VALID VALUES	DEFAULT VALUE	NOTES
Temperature Scale	FC	F, C	F	Sets units to use for temperature display (Fahrenheit or Celsius)
Backlight Timeout	bL	1 – 4 seconds or disabled (--)	4 seconds	Sets the number of seconds the backlight remains lit after a button press
Auto Dead Band	db	2 – 6 (for Fahrenheit) or 1 – 3 (for Celsius)	2	Used to set minimum separation between heat and cool setpoints (with dual setpoints) or maximum drift before system latches alternate mode (with single setpoint)
Heat Setpoint Limit	HL	50 – 90	80	Sets the highest heat setpoint that is allowed
Cool Setpoint Limit	CL	50 – 90	60	Sets the lowest cool setpoint that is allowed
Temperature Offset	to	-9 to +9 (for Fahrenheit) or -5 to +5 (for Celsius)	0	Permits recalibration of room temperature sensor; This is the number of degrees added to or subtracted from the actual temperature; This adjustment changes the actual regulation temperature, not just the display
Heat Anticipator	HA	1 – 6	3	Lower setting results in more frequent cycles and faster response (tighter regulation); Higher setting results in less frequent cycles and slower response (looser regulation); The default value should suffice in nearly all installations
Cool Anticipator	CA	1 – 6	3	Lower setting results in more frequent cycles and faster response (tighter regulation); Higher setting results in less frequent cycles and slower response (looser regulation); The default value should suffice in nearly all installations

*(Continued on following page)*

*Setup Mode Parameters/Functions (Continued)*

PARAMETER/ FUNCTION	CODE	VALID VALUES	DEFAULT VALUE	NOTES
Remote sensors	Sn	i, r, ir	i	<i>i</i> – internal sensor only (When no remote sensor is detected, only this option is available); <i>r</i> – remote sensor only (Only available when a remote sensor has been detected); <i>ir</i> – average internal and remote sensors
Check Firmware Version	rE	Firmware version is displayed in xx.yy.zz format. “—” can also be displayed.	--	When firmware version is not yet shown, display is “—”; Each press of the ▲ or ▼ button cycles to the next portion of the version number
infiNET EX ID (RF ID)	id	01 and 03 – FE	01	Sets the infiNET EX ID. Crestron Studio and SIMPL Windows restrict infiNET EX devices to an ID range of 03 – 20
infiNET EX Sleep Time	SL	Short (S) or Long (L)	L	Indicates thermostat update rate; Setting for fewer updates (L) conserves battery power.
Start infiNET EX Acquire	AC	Not started (--) In progress (flashing --) Finished, found GW (00) Finished, could not find GW (E#, where # represents an error code)	N/A	Refer to “Verifying Communication Status” which starts on page 21 for details
Unacquire Gateway	UA	Not started (--) In progress (flashing --) Finished, success (00) Finished, failed (E#, where # represents an error code)	N/A	Refer to “Verifying Communication Status” which starts on page 21 for details
Communications check	CC	Error (E# - where # is a number from 0 to 7) No problems (00)	N/A	Refer to “Verifying Communication Status” which starts on page 21 for details
Check Battery Life	bA	Not started (--) Estimated remaining battery life (0 – 99)	N/A	Gives estimated remaining battery life in percent
Restore Factory Defaults	Fd	Not started (--) In progress (blank or flashing --) Finished (00) Button not held long enough (Er)	N/A	Restores all setup parameters to their default settings; To prevent accidentally performing this action, press and hold either the ▲ or ▼ button for three seconds for this function to execute

*(Continued on following page)*



*Setup Mode Parameters/Functions (Continued)*

PARAMETER/ FUNCTION	CODE	VALID VALUES	DEFAULT VALUE	NOTES
Perform Heat Call Test (Toggle)	H	Not started/Heat call off (--) Heat call on (on) (also, "H" icon turns on)	N/A	Tests the heat call output; Bypasses short-cycle timers; Useful for technician system testing; Note that calling the heat may activate other relays in the thermostat as required, such as the fan output for heat pump or dual-fuel types
Perform Cool Call Test (Toggle)	C	Not started/Cool call off (--) Cool call on (on) (also, "C" icon turns on)	N/A	Tests the cool call output. Bypasses short-cycle timers; Useful for technician system testing; Note that calling the cooling may activate other relays in the thermostat as required, such as the fan output
Perform Fan Call Test (Toggle)	F	Not started/Fan call off (--) Fan call on (on) (also, "F" icon turns on)	N/A	Same as above, for fan; Note that only the fan relay can be activated for a fan call test
Perform Self Test	St	Not started (--) In progress (flashing --) Finished, self test ok (00) Finished, self test failed (E#, where # represents an error code)	N/A	Refer to "Self-Test Results" which starts on page 22 for details

### Verifying Communication Status

To verify communication status, enter *Setup* mode as described in "Basic Setup - Basic Thermostat Setup" which starts on page 16. Press **MODE** until the *AC*, *UA* or *CC* function is displayed. Press ▲ or ▼ on the CHV-TSTATEX-FCU to verify the communication status.

*Communication Error Codes*

Status/ Error Code	MEANING FOR ACQUIRE "AC"	MEANING FOR UNACQUIRE "UA"	MEANING FOR COMMUNICATION CHECK "CC"
00	Success	Success	No problems found
E1	No gateway found	Failed or no previous gateway information was present	No gateway information present
E2	GW found but rejected device	N/A	N/A
E3	Radio operation not available	Radio operation not available	Radio operation not available
E4	N/A	N/A	N/A
E5	N/A	N/A	N/A
E6	N/A	N/A	Network communication not possible
E7	N/A	N/A	Device not joined to a gateway

### Self-Test Results

These error/status codes are returned when performing a self-test operation, enter *Setup* mode as described in “Basic Thermostat Setup” which starts on page 16. Press **MODE** until the *AC*, *UA* or *CC* function is displayed. Press ▲ or ▼ on the CHV-TSTATEX-FCU to verify the communication status.

*Self-Test Error Codes*

<b>ERROR CODE</b>	<b>SUMMARY</b>	<b>CORRECTIVE ACTION</b>	<b>REMARKS</b>
00	Success	None	No detectable problems found.
E0	Low battery warning	Check and/or replace batteries	Error is only returned when current power configuration requires batteries
E1	24 Vac usage warning	Check power configuration	Error is set when 24 Vac appears to be available but is not configured properly (slide switch position)
E2	Display operation	Return unit	Device display may not be operating properly
E3	NV memory usage	Replace unit if feasible	Retention of non-volatile setup and operation parameters may be compromised
E4	Poor link quality	Perform general network debugging	Poor communication link to gateway may be consuming extra power and lowering battery life
E5	Gateway acquire information	Acquire device or check network	Device cannot communicate with a gateway. Normal result for unacquired device
E6	Network communication error	Additional network communication issues detected	Normal result for unacquired device
E7	Poor network communication	Additional indicator of poor communications link	Often associated with excessive network hops; Consider moving device closer to gateway or splitting network with additional gateways for better coverage

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## Operation

### System Mode

The **MODE** button on the CHV-TSTATEX-FCU cycles the unit through all available system modes in the following order: *Off*, *Heat*, *Emergency Heat* (for heat pump and dual-fuel systems), *Cool* and *Auto* (if enabled in Setup).

The system mode changes upon release of the **MODE** button and the selected mode becomes operational 5 seconds after the mode has been entered.

#### **Off Mode**

In *Off* mode, all HVAC systems are disabled.

#### **Heat Mode**

In *Heat* mode, the thermostat uses the heating system to maintain the setpoint temperature.

#### **Cool Mode**





In *Cool* mode, the thermostat uses the cooling system to maintain the setpoint temperature.

#### **Auto Mode**

In *Auto* mode, the thermostat allows the system to switch between *Heat* and *Cool* automatically as needed to maintain the setpoint temperature. By default, the CHV-TSTATEX-FCU has been configured with *Auto* mode disabled, meaning it is not available from the thermostat itself or via another interface such as a touch screen.

In order to enable *Auto* mode, enter *Setup* mode and change the *AU* setting from "--" to either *d* (dual setpoint) or *S* (single setpoint). Refer to "Setup Mode" which starts on page 18 for details.

Once *Auto* mode has been enabled, it can be accessed from the CHV-TSTATEX-FCU controls as follows:

1. Press the **MODE** button until both the flame  and snowflake  icons appear in the display. This indicates *Auto* mode is now active.
2. Use the **▲** and **▼** buttons to adjust the setpoint. Actual operation depends on whether single or dual setpoints are being used.
  - a. In dual setpoint *Auto* mode, the first press of the **▲** or **▼** buttons (or second press if the first press simply turned on the backlight) causes either the flame  or snowflake  icon to flash rapidly. This indicates which setpoint is adjusted by subsequent presses of the **▲** or **▼** buttons. To adjust or view the alternate setpoint, press the **MODE** button while the icon is flashing. This causes the alternate icon to flash and now the **▲** and **▼** buttons adjust that setpoint. The flashing icon times out after 5 seconds of no button activity.
  - b. In single setpoint *Auto* mode, use the buttons to adjust the setpoint as usual.

### Dual Setpoint Auto Mode (“AU” = “d” in Setup Mode)

In dual setpoint *Auto* mode, separate heat and cool setpoints are used. When the ambient temperature drops below the heat setpoint, the unit calls for heat to maintain the heat setpoint. When the ambient temperature rises above the heat setpoint, the unit does not call for cooling until the temperature exceeds the cool setpoint. When the ambient temperature drops below the cool setpoint, the unit does not call for heating until the temperature is below the heat setpoint.

When dual setpoint *Auto* mode has been enabled, the Auto Dead Band is used to maintain a minimum separation between the heat and cool setpoints. If this separation is violated by a setpoint adjustment, the other setpoint is automatically adjusted.

For example, if the heat setpoint is at 68 degrees, the cool setpoint is at 72 degrees and the Auto Dead Band is set to 4 degrees, if the cool setpoint is lowered to 71 degrees, the heat setpoint is automatically adjusted to 67 degrees to maintain the 4 degree Auto Dead Band separation.

In dual setpoint *Auto* mode, the CHV-TSTATEX-FCU display indicates whichever setpoint is closer to the ambient temperature. Both the heat and cool setpoints can be viewed simultaneously using a touch screen.

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**NOTE:** When using a Dual setpoint, the CHV-TSTATEX-FCU has a 20 minute change limiter to prevent system toggling.

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### Single Setpoint Auto Mode (“AU” = “S” in Setup Mode)

In single setpoint *Auto* mode, a single setpoint is used for regulation at all times, regardless of whether the system is heating or cooling. The Auto Dead Band (*db*) setup parameter is used to determine when to switch between heating and cooling.

For example, if the setpoint is at 70 degrees and the Auto Dead Band is set to 2 degrees, if the system is cooling, it does not start heating until the ambient temperature drops below 68 degrees (setpoint – Auto Dead Band). Once the unit has switched to heating, it does not resume cooling until the ambient temperature rises above 72 degrees (setpoint + Auto Dead Band).

A larger value for the Auto Dead Band setting results in less cycling between heating and cooling but can result in large temperature swings during the course of the day. Smaller values for the Auto Dead Band setting results in tighter temperature regulation but more frequent cycling between heating and cooling.

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**NOTE:** When using a single setpoint, the CHV-TSTATEX-FCU has a 20 minute change limiter to prevent system toggling.

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## Fan

The **FAN** button toggles the fan setting between fan *AUTO*, fan high (*F3*), fan medium (*F2*) and fan low (*F1*). When set to *AUTO*, a fan call is made whenever the system makes a cool call or when the system makes a heat call (if the DIP switch is set to “Enabled”). When set to *F3*, *F2* or *F1* the fan always runs.

## Setpoints

The setpoint is the user selectable temperature the system maintains.

The ▲ and ▼ buttons change the current setpoint by one degree F or C.

If the ▲ or ▼ button is held down for 2 seconds, the unit enters an auto-repeat state and the setpoint adjusts rapidly until the button is released or until the upper (or lower) limit is reached.

Some users want to have setpoints change automatically based on the day of the week and the time of day. For example, in the winter they may want to lower the heat setpoint while they sleep to lower heating costs. To accommodate this, the CHV-TSTATEX-FCU provides a “Scheduled Heat Setpoint” and a “Scheduled Cool Setpoint” which can be specified by the control system program. This is handled automatically by the “Crestron CHV-TSTATEX-FCU w/5-2 Scheduler” module provided with the Crestron Database. Refer to the Crestron Studio help file or the SIMPL Windows help file for details.

For dual setpoint operation, refer to “Auto Mode” which starts on page 23.

## Hold

*Hold* allows the user to adjust the setpoint and maintains that setpoint until the unit is taken out of *Hold*. This means that any change to the scheduled heat or cool setpoint that occurs while in *Hold* is ignored until the unit is taken out of *Hold*.

Pressing the **MODE** and **FAN** buttons simultaneously causes the unit to enter *Hold* if *Hold* is not yet active and the system mode is *Heat*, *Emergency Heat* or *Cool*.

Pressing the **MODE** and **FAN** buttons simultaneously when *Hold* is active causes the unit to exit from *Hold* and recall either the scheduled heat setpoint or scheduled cool setpoint as appropriate to the system mode.

If the system is in single setpoint *Auto* mode, exiting from *Hold* recalls the scheduled auto setpoint. If the system is in dual setpoint *Auto* mode, upon exiting from *Hold*, the auto cool setpoint becomes the scheduled cool setpoint and the auto heat setpoint becomes the scheduled heat setpoint.

Pressing the **MODE** and **FAN** buttons simultaneously when the system mode is *Off* has no effect.

When *Hold* is active, the unit continues to adjust the current setpoint when the ▲ or ▼ buttons are pressed. The unit also continues to adjust the current setpoint when the setpoint signal from the control system changes.

When the system mode changes to *Heat* or *Emergency Heat*, the current setpoint is set to the scheduled heat setpoint.

When the system mode changes to *Cool*, the current setpoint is set to the scheduled cool setpoint.

## Remote Operation

As an infiNET EX device, the CHV-TSTATEX-FCU can be controlled remotely via a Crestron control system. Most often, control of the thermostat is achieved via a touch screen or Web-based graphical interface. In order to extend battery life, the thermostat only communicates with the control system once every 30 seconds or one minute, based on the infiNET EX Sleep Time setting. Because of this, there is a noticeable delay between the time a button is pressed on a touch screen and when the thermostat reacts to the command. To account for this, the CHV-TSTATEX-FCU modules written by Crestron and provided in the Crestron Database mimic the feedback from the thermostat so that the user sees an immediate response on the touch screen.

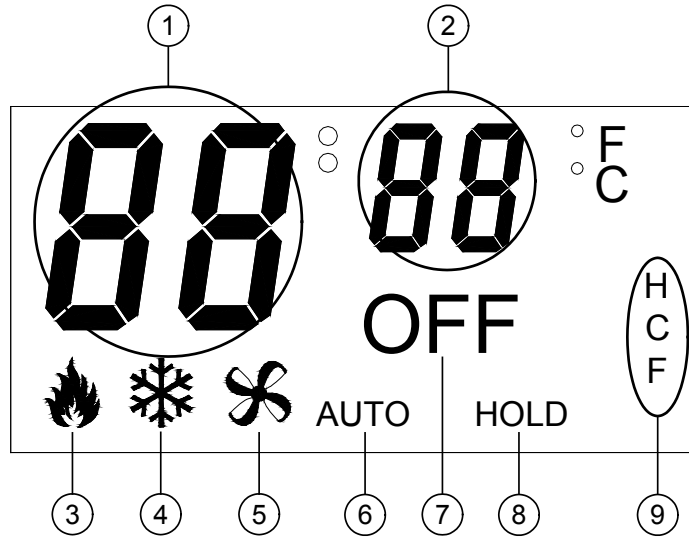
Likewise, pressing a local button on the thermostat (for example, setpoint raise or lower) does not cause an immediate change to the corresponding display on a touch

screen. Instead, the thermostat wakes up shortly after the last button press to send its updated status to the control system.

If the thermostat is wired to have the optional 24 Vac at the **24C** terminal and the power switch is set for 24 V, there is no delay in feedback.

### LCD Display

*CHV-TSTATEX-FCU LCD Display*



*LCD Display Elements*

#	LCD DISPLAY ELEMENT	DESCRIPTION
1	Large 7-segment digits	Indicates current ambient temperature*. In <i>Setup</i> mode, indicates current setup parameter/function; Display range is limited to –9° to 99° F (–9° to 43° C); If the ambient temperature is above 99°, the display indicates 99°; If the ambient temperature is below –9°, the display indicates –9°
2	Small 7-segment digits	Indicates current setpoint (in F or C) in whole degrees; In <i>Setup</i> mode, indicates current value for selected setup parameter
3	Flame icon	Displayed when the system mode is <i>Heat</i> ; Displayed with snowflake icon when system is in <i>Auto</i> mode
4	Snowflake icon	Displayed when the system mode is <i>Cool</i> ; Displayed with flame icon when system is in <i>Auto</i> mode
5	Fan icon	Displayed at all times
6	AUTO indicator	Displayed when FAN setting is <i>AUTO</i> If this is not displayed, FAN is always <i>ON</i>
7	OFF indicator	Displayed when the system mode is <i>Off</i>
8	HOLD indicator	Displayed when the HOLD setting is active
9	H, C & F indicators	<i>H</i> – Displayed whenever a Heat Call is being made; <i>C</i> – Displayed whenever a Cool Call is being made; <i>F</i> – Displayed whenever a Fan Call is being made

\* When the CHV-TSTATEX-FCU detects a low battery condition (approximately one month of battery life remaining), the display alternates “Lo” in place of the ambient temperature once per second.

## Uploading and Upgrading

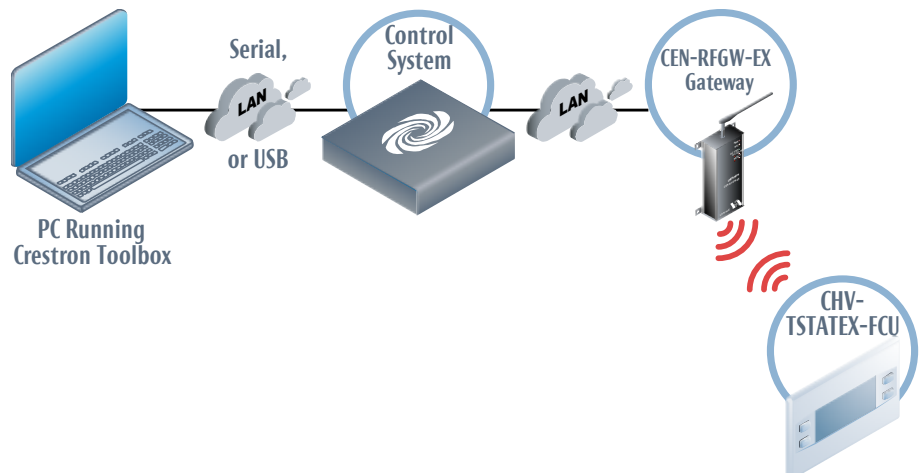
Crestron recommends using the latest programming software and that each device contains the latest firmware to take advantage of the most recently released features. However, before attempting to upload or upgrade it is necessary to establish communication. Once communication has been established, files (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 (CSP) only. New users must register to obtain access to certain areas of the site (including the FTP site).

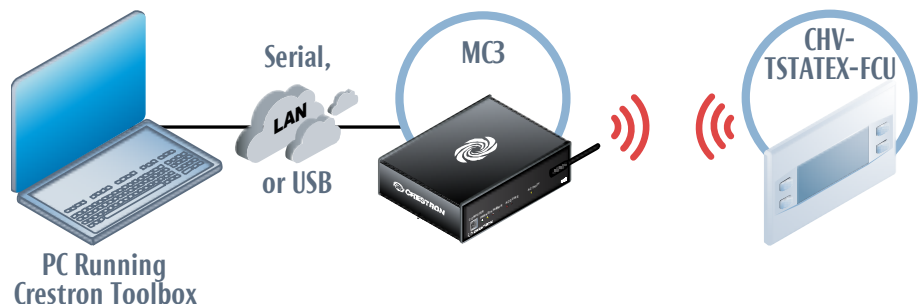
### Establishing Communication

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

#### *Indirect Communication*



#### *Indirect Communication with MC3*



The CHV-TSTATEX-FCU connects to the CEN-RFGW-EX (gateway), which connects to control system via Ethernet, or, the CHV-TSTATEX-FCU connects directly to an MC3 Control System.

Establish communications between the PC and the control system as described in the latest version of the 2-Series Control Systems Reference Guide (Doc. 6256). If



connecting to the MC3, refer to the latest version of the MC3 3-Series Control System Operations Guide (Doc. 7095).

## 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 Web site 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, the SIMPL Windows help file, or the Crestron Toolbox help file.

*Crestron Studio /  
SIMPL Windows*

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

*Firmware*

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

Upgrade CHV-TSTATEX-FCU firmware via Crestron Toolbox.

1. Establish communications with the CHV-TSTATEX-FCU and display the “System Info” window.
2. Select **Functions | Firmware...** to upgrade the CHV-TSTATEX-FCU firmware.

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**NOTE:** Since the CHV-TSTATEX-FCU might be “asleep”, there may be a delay of one minute or less before the update starts.

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## 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 and all infiNET devices that have been acquired by the gateway. Right-click on the CHV-TSTATEX-FCU to display actions that can be performed on the CHV-TSTATEX-FCU.

## 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-TSTATEX-FCU Troubleshooting*

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
No display.	No power from system.	Check for 24 Vac on <b>24C</b> connector. Check circuit breaker powering furnace or boiler. Check thermostat wiring. Check batteries (if on battery power).
	Incorrect mounting to back plate.	Check thermostat mounting.
Device does not follow control system commands.	Device is not communicating with the CEN-RFGW-EX.	Open Crestron Toolbox and select the Network Device Tree View. Expand the tree until the gateway to be managed is selected. Right-click the NET ID of the selected gateway to open the sub-menu and select <b>Functions   infiNET EX Gateway...</b> If device is not listed, acquire the device to the infiNET EX network (refer to "Joining an infiNET EX Network" which starts on page 16).
	RF ID of device (or the gateway ID) is not set to match the RF ID of the Crestron Studio or SIMPL Windows program.	Use the Network Device Tree infiNET EX network in Crestron Toolbox to poll the infiNET EX network. Verify that the RF ID for the infiNET EX device is set to match the RF ID specified in the Crestron Studio or SIMPL Windows program.
Heating/Cooling system is not operating.	No power to thermostat.	Check circuit breaker. Check for 24 Vac on <b>24C</b> connector. Check circuit breaker powering furnace or boiler. Recheck wiring connections. Check batteries, replace if necessary.
Cannot change setpoint setting.	The upper or lower temperature limits were reached.	Heat setpoint lower limit is 38° F (3° C). Cool setpoint high limit is 59° F (37° C). Heat setpoint high limit and cool setpoint low limit is user defined and is defined during setup in the "HL" and "CL" screens. Refer to "Setup Mode Parameters/Functions" which starts on page 19.

*(Continued on following page)*

*CHV-TSTATEX Troubleshooting (Continued)*

<b>TROUBLE</b>	<b>POSSIBLE CAUSE(S)</b>	<b>CORRECTIVE ACTION</b>
System cycles too quickly.	Anticipator setting is too low.	Reprogram anticipator setting (refer to "Setup Mode Parameters/Functions" which starts on page 19).
Poor battery life.	Ensure that the power switch selection position is proper for the expected conditions.	Using the <b>24VAC</b> position prevents power steal operation and causes a device to run on battery alone if no 24 V input is available.
		Using the <b>STEAL</b> position prevents the 24 V input from being used even if it is available.
		Cool-only applications with nothing connected to <b>R</b> or <b>W</b> cannot power-steal.
		Ensure heat system is available if using power steal or follow the cool-only notes in that section.
	Check for communication problems using standard RF troubleshooting.	Fringe communication and excessive gateway reconnect attempts cause extended runtime which consumes battery power more quickly.
	Unit is using remote sensors.	Avoid using remote sensors when running on battery alone. Setup system so that power-steal is available.
	A long backlight time is being used.	Avoid long backlight runtimes if the user interface is operated frequently.
Room has high temperature variance.	Anticipator setting is too high.	Reprogram anticipator setting (refer to "Setup Mode Parameters/Functions" which starts on page 19).
Wide temperature variance in single setpoint <i>Auto</i> mode.	Auto Dead Band setting is too high.	Reprogram Auto Dead Band ( <i>db</i> ) setting (refer to "Setup Mode Parameters/Functions" which starts on page 19).
Heating/Cooling not operating in single setpoint <i>Auto</i> mode.	20 minute system toggling lockout.	Reprogram Auto Dead Band ( <i>db</i> ) and anticipator settings for smoother operation (refer to "Setup Mode Parameters/Functions" which starts on page 19).
Cannot enter <i>Auto</i> mode.	<i>Auto</i> mode is disabled in setup.	Reprogram Auto mode setting ( <i>AU</i> ) to " <b>S</b> " (for single setpoint operation) or " <b>d</b> " (for dual setpoint operation) (refer to "Setup Mode Parameters/Functions" which starts on page 19).

*(Continued on following page)*

*CHV-TSTATEX Troubleshooting (Continued)*

TROUBLE	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Wrong temperature is displayed.	Wrong temperature scale.	Select <i>F</i> or <i>C</i> as necessary.
	A Temperature Offset has been applied.	Reset Temperature Offset (refer to "Setup Mode Parameters/Functions" which starts on page 19).
	Bad location.	Ensure the thermostat is located away from direct sunlight, drafts, doorways, skylights and windows or exterior walls.
	Incorrect sensor source.	Ensure that the settings on "ir" screen recall the temperature from the correct source. Refer to "Setup Mode Parameters/Functions" which starts on page 19 for additional information.
Heat or cool call occurs but device does not indicate a heat or cool call.	Steal power function may be causing problems with HVAC system.	Change Power DIP Switch to <b>24VAC</b> and ensure that two AA batteries are installed.
	Improper wiring connections.	Recheck wiring connections.

## Reference Documents

The latest version of all Documents mentioned within the guide can be obtained from the Crestron Web site (<http://www.crestron.com/manuals>).

### *List of Related Reference Documents*

DOCUMENT TITLE
2-Series Control Systems Reference Guide
CEN-RFGW-EX infiNET EX Wireless Gateway
MC3 3-Series Control System

## Further Inquiries

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

To post a question about Crestron products, log onto the Online Help section of the Crestron Web site ([www.crestron.com/onlinehelp](http://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-TSTATEX-FCU, 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 Web site periodically for manual update availability and its relevance. Updates are identified as an “Addendum” in the Download column.

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## Glossary

**Anticipators**

Used to anticipate the drop or rise in temperature and energize the appropriate system before reaching the setpoint. Anticipators affect how tightly the setpoint temperature is maintained.

**Auto Dead Band**

Sets the minimum separation in auto mode between heat and cool setpoints (with dual setpoints) or maximum drift before system latches alternate mode (with single setpoint).

**Blower (Fan)**

An air-handling device for moving air in a distribution system.

**Call**

A call is the action taken by the thermostat when it sends a signal to turn on the heating or cooling system.

**Extended Cool**

Extends the cool setpoint range to the full auto range of 38 to 99°F.

**Humidity**

The total amount of moisture in air. Relative humidity (RH) is the amount of moisture in air, relative to its total capability based upon its temperature (dew point). Moisture condenses on surfaces that are below this dew point.

**HVAC**

Heating, ventilation and air conditioning.

**Setpoint**

The user selectable temperature the system maintains.

**Time Delay (Timer Guards)**

Refers to a safety device or circuit that does not allow restart for 3 minutes.

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## 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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Specifications subject to  
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