Crestron CHV-TSTAT & CHV-THSTAT
Thermostats
Operations and Installation Guide
Regulatory Compliance

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

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

Industry Canada (IC) Compliance Statement

CAN ICES-3(B)/NMB-3(B)
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Quick Installation Reference

1. Select a suitable location and run the connecting wires from the heating/cooling system and the Cresnet® system. Refer to pages 7 and 8 for descriptions of the thermostat connectors. Refer to page 9 for Network wiring details.

   Use the appropriate wiring diagram:
   - Separately Powered Two Wire Heat Systems (Powered by an Independent Transformer) (Refer to page 12)
   - 1-Stage Heat Only (Refer to page 12)
   - 1-Stage Heat with Fan Control (Refer to page 13)
   - 1-Stage Cool Only (Refer to page 13)
   - 1-Stage Heat/Cool with Integrated Control Unit (Refer to page 14)
   - 1-Stage Heat/Cool with Separate Systems (Refer to page 15)
   - 1-Stage Heat Pump (Refer to page 16)
   - 2-Stage Heat Pump (Refer to page 17)
   - Slab 1, Slab 2, and Slab 3 (Floor Warming and/or Space Heating) (Refer to page 18)
   - Slab 4A 2-Stage Heat/1-Stage Cool Systems and Slab 5A Floor Warming with 1-Stage Space Heat/Cool (Refer to page 19)
   - Slab 4B 2-Stage Heat/1-Stage Cool System and Slab 5B 1-Stage Heat/Cool with Floor Warming (Refer to page 20)
   - General Humidifier Connections (Refer to page 21)

2. Separate the thermostat from the backplate to expose the connections and mounting holes.

3. Mount the thermostat backplate (60 inches (~1.6 meters)) above the finished floor) directly to the wall with wall anchors (not provided) and screws (not provided) or to a horizontally mounted 1-gang electrical box (not provided), and connect the wiring. Refer to page 22 for detailed mounting instructions and pages 7 and 8 for detailed connector information. If using a 5-sided box, fill with insulation material to minimize wall air ingress.

4. Install the thermostat on the backplate (refer to page 22).

5. Set up the thermostat (refer to page 24).
   - For Heat/Cool Radiant and Forced Air Systems, refer to page 27.
   - For Heat Pump Systems, refer to page 31.
   - For Slab Systems, refer to page 35.

6. Configure the thermostat (refer to “Thermostat Operation” which starts on page 63).
Thermostats: CHV-TSTAT and CHV-THSTAT

Introduction

The CHV-TSTAT and CHV-THSTAT from Crestron® are versatile heating and cooling thermostats designed for 1- and 2-stage control of forced air, radiant, and heat pump HVAC systems. The CHV-TSTAT provides temperature control, while the CHV-THSTAT provides temperature control with an integrated humidistat. Relative humidity capability can be added to the CHV-TSTAT through an external remote humidity sensor (sold separately).

Although functional as standalone thermostats, the CHV-TSTAT and CHV-THSTAT deliver greatly enhanced functionality as part of a complete Crestron Home® automation system. The thermostats are available in six different models:

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>MODEL NUMBER</th>
<th>COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heating/Cooling Thermostat</td>
<td>CHV-TSTATA</td>
<td>Almond</td>
</tr>
<tr>
<td></td>
<td>CHV-TSTATB</td>
<td>Black</td>
</tr>
<tr>
<td></td>
<td>CHV-TSTATW</td>
<td>White</td>
</tr>
<tr>
<td>Heating/Cooling and Humidity Thermostat</td>
<td>CHV-THSTATA</td>
<td>Almond</td>
</tr>
<tr>
<td></td>
<td>CHV-THSTATB</td>
<td>Black</td>
</tr>
<tr>
<td></td>
<td>CHV-THSTATW</td>
<td>White</td>
</tr>
</tbody>
</table>

Features and Functions

- User adjustable temperature and/or humidity control of 1- and 2-stage heating and cooling systems
- Supports seven slab system configurations
- 128 x 64 transflective 2.75 inch (70 mm) LCD display
- Fahrenheit or Celsius indication
- Four front panel buttons for setup, configuring and temperature/humidity adjustments
- Back light (with each button press) for night viewing
- Supports up to four remote temperature and/or temperature/humidity sensors
- Operates as a stand-alone device or in a Cresnet system
- Extended functionality as a Cresnet device for lighting control, alarms, etc.
Featuring a large backlit LCD display, the CHV-TSTAT and CHV-THSTAT thermostats are navigable using four simple push buttons which provide easy access to indoor and outdoor temperature and humidity readings, setpoint adjustments, system mode and fan status indicators, and setup menus. Climate control features include separate heating, cooling, and humidity setpoints with optional automatic changeover between heating and cooling modes. Adjustable anticipators prevent overshooting the set temperature, and continuous fan operation can be selected when needed for increased circulation.

Multiple Crestron thermostats may be networked via Cresnet to a PAC2®, PAC2M, or other 2-Series control system (all sold separately), enabling global temperature and humidity adjustment from any thermostat. Automation functions such as lighting, motorized blinds, or lawn sprinklers can be accessed through two custom remote function pages, and customized text messages can be sent to the LCD display to provide maintenance reminders and other alerts.

Its connection to the control system also enables full control and scheduling of the CHV-TSTAT/CHV-THSTAT from touch screens and computers throughout the home, and supports extensive flexibility for integration with other devices and systems. In the event that communication with the control system is disrupted for any reason, the CHV-TSTAT/CHV-THSTAT remains operable to control the HVAC system.

Optional remote temperature and humidity sensors can be connected to the CHV-TSTAT/CHV-THSTAT 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/CHV-THSTAT to be installed out of view. Outdoor climate can also be monitored, enabling outdoor low-temperature compensation to prevent condensation on windows during cold weather. The CHV-TSTAT/CHV-THSTAT accepts up to four remote temperature sensors, two remote temp/humidity sensors, or a combination of one temp/humidity and two temperature sensors.

**Firmware Versions**

The new features, and consequent changes to the SIMPL Windows symbol programming, for firmware version 2.0 and later make it incompatible for use with X-generation control processors. In addition, upgrading to release 2.0 and later from a previous release requires a complete re-programming of the thermostat.

**Remote Sensors**

Firmware version 2.0 and later supports up to four optional remote sensors, two for each input channel: temperature only (CHV-RTS), temperature/humidity (CHV-RTHS), and slab sensor (CHV-RSS) for both thermostats (all sold separately). Information from two sensors that share an input channel is averaged together in the temperature/humidity calculations.

Outdoor conditions, -40° to 170° F (-40° to 77° C), can be imported from the CHV-RSS slab sensor.

For additional information about the sensors, refer to the latest revision of the CHV-RTS & CHV-RTHS Installation Guide (Doc. 8189), and the CHV-RSS Installation Guide (Doc.6229) which are available from the Crestron Web site (www.crestron.com/manuals).
**Heating and Cooling Systems**

The CHV-TSTAT and CHV-THSTAT can control the following heating and cooling systems:

- 1-stage heat
- 1-stage heat, 1-stage cool
- 1-stage heat, 1-stage cool (heat pump with auxiliary heat)
- 2-stage heat
- 2-stage heat, 1-stage cool
- 1-stage heat, 2-stage cool
- 2-stage heat, 2-stage cool
- 2-stage heat, 2-stage cool (heat pump with auxiliary heat)
- Wide range cool option suitable for wine cellars or other chilling processes*
- Slab settings for heating and floor warming systems*

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**NOTE:**

2-stage heating – Unlike traditional furnaces that turn on and run at full capacity with each demand for heating, 2-stage heat operates like two separate furnaces to maintain more consistent comfort in the home. The unit starts out running in its first stage, and operates at a fraction of its heating capacity. This reduced capacity is sufficient to warm the home on mild winter days. But when the temperature outside goes very low, the furnace adjusts to full capacity (second stage) to meet the demand for heat within the home.

2-stage cooling – In warm weather, the first stage of the cooling equipment operates at a fraction of the total cooling capacity. On very hot days, the second stage of the cooling equipment energizes, and the cooling system operates at full capacity.

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*Firmware version 2.0 or higher.*
Specifications

The following table provides a summary of specifications for the CHV-TSTAT and CHV-THSTAT.

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Measurement Range</strong></td>
<td></td>
</tr>
<tr>
<td>Indoor Temperature</td>
<td>0° to 110° F (-18° to 43° C)</td>
</tr>
<tr>
<td>Outdoor Temperature</td>
<td>-40° to 170° F (-40° to 77° C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>0% to 100% RH</td>
</tr>
<tr>
<td><strong>Temperature Tolerance</strong></td>
<td></td>
</tr>
<tr>
<td>Over Full Range</td>
<td>±1° F (±0.5° C)</td>
</tr>
<tr>
<td>At Room Temperatures</td>
<td>±1° F (+0.1/0.4° C)</td>
</tr>
<tr>
<td><strong>Humidity Tolerance</strong></td>
<td>±5%</td>
</tr>
<tr>
<td><strong>Setpoint Range</strong></td>
<td></td>
</tr>
<tr>
<td>Auto Setpoint</td>
<td>38° to 99° F (3° to 37° C)</td>
</tr>
<tr>
<td>Heat Setpoint</td>
<td>38° to 89° F (3° to 32° C)</td>
</tr>
<tr>
<td>Cool Setpoint</td>
<td>59° to 99° F (15° to 37° C); 38° to 99° F (3° to 37° C) with extended cool mode enabled</td>
</tr>
<tr>
<td>Humidity Setpoint</td>
<td>5% to 90 % RH</td>
</tr>
<tr>
<td><strong>Relay Rating</strong></td>
<td>1 amp @ 40 volts dc or 24 volts ac (nominal)</td>
</tr>
<tr>
<td><strong>Power Requirements</strong></td>
<td></td>
</tr>
<tr>
<td>24V</td>
<td>2 watts (0.083 amps) @ 24 volts ac, supplied by heating or cooling system</td>
</tr>
<tr>
<td>Cresnet Power Usage</td>
<td>&lt;1 watt (&lt;0.05 amps @ 24 volts dc), required for Cresnet communication only</td>
</tr>
<tr>
<td><strong>Display</strong></td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Transflective LCD, backlit</td>
</tr>
<tr>
<td>Size</td>
<td>2.75 in (70 mm)</td>
</tr>
<tr>
<td>Resolution</td>
<td>128 x 64</td>
</tr>
<tr>
<td>Viewing Angle</td>
<td>±50° horizontal (@ 0° vertical), ±50° vertical (@ 0° horizontal)</td>
</tr>
<tr>
<td><strong>Default Net ID</strong></td>
<td>2A</td>
</tr>
<tr>
<td><strong>Environmental</strong></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>41° to 104° F (5° to 40° C)</td>
</tr>
<tr>
<td>Humidity</td>
<td>10% to 90% RH (non-condensing)</td>
</tr>
<tr>
<td><strong>Enclosure</strong></td>
<td>Plastic</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td></td>
</tr>
<tr>
<td>Height</td>
<td>3.75 in (96 mm)</td>
</tr>
<tr>
<td>Width</td>
<td>5.00 in (127 mm)</td>
</tr>
<tr>
<td>Depth</td>
<td>1.04 in (27 mm)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>6 oz (165 g)</td>
</tr>
</tbody>
</table>

(Continued on following page)
### CHV-TSTAT and CHV-THSTAT Specifications (Continued)

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>DETAILS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available Accessories</td>
<td></td>
</tr>
<tr>
<td>CHV-RSS</td>
<td>Remote Slab Sensor and Outdoor Temperature Sensor</td>
</tr>
<tr>
<td>CHV-RTS</td>
<td>Remote Temperature Sensor</td>
</tr>
<tr>
<td>CRESNET-HP-NP-[BK,OR,TL]</td>
<td>Cresnet &quot;High-Power&quot; Control Cable, non-plenum</td>
</tr>
<tr>
<td>CRESNET-NP-[BK,OR,TL,YL]</td>
<td>Cresnet Control Cable, non-plenum</td>
</tr>
<tr>
<td>CRESNET-P-[BK,OR,TL,YL]</td>
<td>Cresnet Control Cable, plenum</td>
</tr>
</tbody>
</table>

1. Humidity sensing (for the CHV-TSTAT) and outdoor temperature/humidity sensing require additional remote sensors, sold separately.
2. CHV-THSTAT only.
3. CHV-TSTAT only.

### Physical Description

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

**CHV-TSTAT and CHV-THSTAT Physical View**

![Physical View Image]
CHV-TSTAT and CHV-THSTAT Overall Dimensions (Front View)

CHV-TSTAT and CHV-THSTAT Overall Dimensions (Side and Rear Views)
# Connectors, Controls & Indicators

<table>
<thead>
<tr>
<th>#</th>
<th>Connectors, Controls &amp; Indicators</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MODE Button</td>
<td>Accesses user controls (system mode, fan mode, humidifier, Crestron system, and global update)</td>
</tr>
<tr>
<td>2</td>
<td>VIEW Button</td>
<td>Accesses humidity reading*, outdoor temperature reading*, system messages and remote functions</td>
</tr>
<tr>
<td>3</td>
<td>▲</td>
<td>Selects user modes and increments selection in setup modes</td>
</tr>
<tr>
<td>4</td>
<td>▼</td>
<td>Selects user modes and decrements selection in setup modes</td>
</tr>
<tr>
<td>5</td>
<td>LCD Display</td>
<td>Displays current indoor temperature and relative humidity*, outdoor temperature and relative humidity*, setpoints, activity, function, Cresnet system information, internal relay status, setup menus, and control system messages</td>
</tr>
</tbody>
</table>

(Continued on following page)
### Connectors, Controls & Indicators (Continued)

<table>
<thead>
<tr>
<th>#</th>
<th>CONNECTORS, CONTROLS &amp; INDICATORS</th>
<th>DESCRIPTION</th>
</tr>
</thead>
</table>
| 6 | Control Connections (System Dependent) | (2) 9-position terminal blocks  
  HUM: Energized to RHU during humidity call  
  RHU: Reference for humidifier  
  RH: Reference Heat, used for calls to heating system  
  RC: Reference Cool, used for calls to cooling system  
  G: Fan, energized to RC during fan call  
  Y/Y1: Compressor (stage one), energized to RC when compressor (or first stage) is run  
  Y2: Compressor (stage two), energized to RC on 2-stage systems on call for second stage  
  O: Changeover control, energized to RC during cooling modes  
  B: Energized to RC during non-cooling modes  
  W/W1: Heat (1-stage)/heat (stage one) energized to RH during a call for heat in heat/cool systems or aux heat in heat pump systems  
  W2: Heat (stage two), energized to RH during a call for second stage heat in heat/cool systems |
| 7 | Remote Sensing Connections (Optional) | RSR: Remote Sensor Returns – Common sensor terminal  
  RS1: Remote Sensor terminal – Connect the sensor from RS1 to RSR  
  RS2: Remote Sensor terminal – Connect the sensor from RS2 to RSR |
| 8 | Power Connections (Required) | 24 (C): 24 Vac common terminal supplies remote 24 Vac power to thermostat  
  24 (R): 24 Vac reference terminal—Can be connected to RH or RC by P4 jumper setting, or tied directly to power source (refer to “System Connections” on page 10) |
| 9 | Network (Optional) | (1) 4-position terminal block; Cresnet slave port, connect to Cresnet control network  
  24: Power (24 volts dc)  
  Y: Data  
  Z: Data  
  G: Ground |

1. Humidity sensing (for the CHV-TSTAT) and outdoor temperature/humidity sensing require additional remote sensors, sold separately.
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](http://www.crestron.com/calculators)).

For 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 76.

Identity Code

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

The Net ID of the CHV-TSTAT/CHV-THSTAT has been factory set to **2A**. The Net IDs of multiple CHV-TSTAT/CHV-THSTAT 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 72).

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.
System Connections

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

CHV-TSTAT and CHV-THSTAT Backplate – Front View With Cover Removed

- HUM - Energized (connected) to RHU during humidity call
- RHU - Reference for humidifier
- RSR - Remote Sensor Returns - Common sensor terminal
- RS1 - Remote Sensor terminal - Connect the sensor from RS1 to RSR
- RS2 - Remote Sensor terminal - Connect the sensor from RS2 to RSR
- 24(C) - 24 Vac common terminal supplies remote 24 Vac power to thermostat
- 24(R) - 24 Vac reference terminal - Can be connected to RH or RC by P4 jumper setting (refer to following page), or tied directly to power source
- W2 - Heat (stage two), energized (connected) to RH during a call for second stage heat in heat/cool systems
- W/W1 - Heat (single stage)/heat (stage one) energized to RH during a call for heat in heat/cool systems or aux heat in heat pump systems or Slab Heat in Slab Systems.
- B - Energized to RC during non-cooling modes
- O - Changeover control, energized to RC during cooling modes
- Y2 - Compressor (stage two), energized to RC on two-stage systems on call for second stage
- YY1 - Compressor (stage one), energized to RC when compressor (or first stage) is run
- G - Fan, energized to RC during call for fan
- RC - Reference Cool, used for calls to cooling system
- RH - Reference Heat, used for calls to heating system
Wiring Diagrams

The wiring diagrams that follow show connections for the CHV-TSTAT and CHV-THSTAT. The heating or cooling system can supply power to the thermostat, or a separate transformer can supply it. In many installations, spare conductors are available to supply 24 Vac to the thermostat, using the C (24 Vac common) connection on the HVAC equipment.

The P4 jumper internally connects either the RH (Reference Heat system) or RC (Reference Cooling system), relieving the installer from connecting a jumper from the 24(R) terminal to the RH or RC terminal.

If power is available from the HVAC system, follow the diagrams for the proper P4 jumper connection.

When power is not available from the HVAC system, a separate transformer, connected between 24(R) and 24(C) terminals, can provide power to the thermostat. When powered by a separate transformer, ensure that the P4 jumper is connected across pins 2 and 3 (No Connection) to prevent damage to the thermostat and the HVAC system.

CAUTION: The P4 Jumper Position on the Circuit Board is critical to proper operation. Improper P4 jumper position can cause equipment damage. The P4 jumper connects the 24(R) terminal to the RH, or RC connector. Refer to the following illustration.

P4 Jumper Position

1
2
3
4

CONNECTS 24(R) to RH
Connects 24(R) to RC
No Connection

NOTE: Ensure that the power circuits are shut off at the source before connecting the thermostat. Provide disconnect means and overload protection as required for the power supply.

NOTE: Ensure that the transformer has sufficient power for all the thermostats in the system, or use multiple transformers. Refer to the power requirements in “Specifications” on page 4.

The following diagrams are examples of connections for heat, heat/cool and 1-stage and 2-stage heat pump systems, and various slab systems. If the system being connected does not match any of the systems described below, contact Crestron Technical Support for assistance.

NOTE: Use either connector, O or B as required, for changeover control.
Separately Powered Two Wire Heat Systems
(Powered by an Independent Transformer)

Independent Transformer Connection – P4 Jumper Connects Pins 2 and 3

1-Stage Heat Only Systems

1-Stage Heat Only System Powered – P4 Jumper Connects Pins 1 and 2
1-Stage Heat with Fan Control Systems

1-Stage Heat with Fan Control – P4 Connects Pins 1 and 2 – Additional Jumper Connects RH to RC

1-Stage Cool Only Systems

1-Stage Cool Only – P4 Jumper Connects Pins 3 and 4
1-Stage Heat/Cool with Integrated Control Unit

Systems

1-Stage Heat/Cool with Integrated Control Unit – P4 Jumper Connects Pins 1 and 2 – Additional Jumper RH to RC
1-Stage Heat/Cool with Separate Systems

1-Stage Heat/Cool with Separate Systems – Heating System Powered – P4 Jumper Connects Pins 1 and 2
1-Stage Heat Pump Systems

1-Stage Heat Pump – P4 Jumper Connects Pins 3 and 4 – Additional Jumper RH to RC
2-Stage Heat Pump Systems

2-Stage Heat Pump System – P4 Jumper Connects Pins 3 and 4 – Additional Jumper RH to RC
Slab 1, Slab 2, and Slab 3 (Floor Warming and/or Space Heating) Systems

Slab 1, Slab 2, and Slab 3 Systems (Floor Warming and/or Space Heating) – P4 Jumper Connects Pins 1 and 2
Slab 4A 2-Stage Heat/1-Stage Cool Systems and Slab 5A Floor Warming with 1-Stage Space Heat/Cool Systems

Heat/Cool Style Connections

Slab 4A – P4 Jumper Connects Pins 1 and 2 – Jumper Connects RH to RC
Slab 4B 2-Stage Heat/1-Stage Cool System and Slab 5B 1-Stage Heat/Cool with Floor Warming Systems

Heat Pump Style Connections

Slab 4B – P4 Jumper Connects Pins 3 and 4 – Additional Jumper Connects RH to RC
General Humidifier Connections

General Humidifier Connections

Backplate

Humidifier Control
Installation

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 programming, and do not mount on an exterior wall. The thermostats may be mounted directly to drywall or to a 1-gang box.

Thermostats and sensors are mounted 60 inches (~1.6 meters) above the finished floor (HVAC industry standard).

The following tools and hardware are required for installation.

- Phillips screwdriver (not supplied)
- Two 6-32 x 1-inch panhead screws (included) for mounting to a 1-gang box
- 1-gang electrical box (not supplied)
- Wall anchors (not supplied) and screws (not supplied) for mounting directly to drywall

Refer to the following illustrations and use the following procedure to install the CHV-TSTAT or the CHV-THSTAT.

NOTE: When installing directly on drywall, use anchoring screws and hardware. Make sure the back of the thermostat is flush with drywall and the unit is level.

NOTE: If replacing an existing thermostat, make note of the wire colors and positions before removing the old thermostat.

1. Separate thermostat front plate from back plate (it may be necessary to exert force when removing the faceplate).
2. Turn off the circuit breaker when connecting power to the thermostat, and connect wiring as required (wiring goes through center hole on back plate).
   
   NOTE: Ensure the correct position of the P4 jumper; refer to pages 11 through 20.

3. Attach back plate to drywall with screws and anchors (anchor hardware not supplied) 60 inches (~1.6 meters) above the finished floor. Thermostat may also be mounted to a 1-gang electrical box, horizontally mounted, using the two included 6-32 x 1 inch panhead screws. If using a 5-sided 1-gang electrical box, fill with insulation material to minimize wall air ingress. Ensure that the thermostat is level and the ventilation holes in the backplate are not blocked.
4. Note orientation of front plate connection leads and reattach the front plate to the back plate (make sure front plate snaps in place and no wires are pinched).
   
   CAUTION: Do not press on the LCD display during installation, as this may cause the screen to crack.

5. Carefully remove the warning label from the LCD display.
Installing the CHV-TSTAT and CHV-THSTAT in a Horizontally Mounted 1-Gang Electrical Box

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

Installing the CHV-TSTAT and CHV-THSTAT Directly On the Wall

*Wall Anchors (not provided)*

*Mounting Screws (not provided)*

*Backplate*
Thermostat Setup

Setup Procedure

After the thermostat is installed, it is necessary to set it up for a particular heating/cooling system. There are nine types of heating and cooling systems. The available choices displayed on the setup screens depend on the type of system selected. Follow these directions to access the setup screens.

1. Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to access the setup menus.
2. Press VIEW to select the parameter. A box appears around the selected parameter.
3. Press the arrow keys (▲▼) to choose the value of the selected parameter.
4. Use the MODE button to advance to the next setup screen.

CHV-TSTAT and CHV-THSTAT Setup

Setup Notes

The following are general setup notes.

NOTE: Refer to “System Connections” on page 10 for remote sensor connections to the thermostat.

NOTE: The Offset option permits recalibration of the room temperature sensor. The offset is the number of degrees added to or subtracted from the actual temperature. The range is -6° to +6° F. Factory default is 0° F. This adjustment changes the actual regulated temperature, not just the display.

NOTE: The sensors are used for temperature and humidity averaging. Choose USE to include each sensor, or OMIT to exclude each sensor in the averaging equation. Sensors that have the same designation (for example, outdoor) are averaged together.

NOTE: The thermostat does not leave Setup mode unless a valid sensor selection is made.
NOTE: When the Reverse SMODE Dir (reverse system mode direction) selection is set to Yes on the “SCRN OPTIONS” (screen options) setup screen, the arrow keys (▲▼) can be used to select system mode functions in both directions.

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

NOTE: The screen options selected during setup are seen when the View key is pressed in normal operation.

System Types and Definitions

The first setup choice is the heat system type. There are three main types of heating/cooling systems:

1. Heat/Cool, Radiant Heat or Forced Air Heating/Cooling, 1 or 2 Stages
2. Heat Pump, 1 or 2 Stages, Auxiliary Heat or Dual Fuel
3. Slab System (Slab1 through Slab 5B)

1. Heat/Cool Systems Definitions

Radiant Heat: Radiant heat is a form of hydronic (hot water) heat that circulates hot water through pipes (baseboard radiation systems) or special tubing and installs on the perimeter of the house or underneath floors.

Forced Air: In a ducted heating/cooling system, a large fan (blower) forces heated air from the furnace into the ducts and enters the rooms through a register or grill in the floor or wall.

One or Two Stages: Unlike traditional furnaces that turn on and run at full capacity with each demand for heating, 2-stage furnaces operate like two separate furnaces. The unit begins to run in its first stage, and operates at a fraction of its heating capacity. This reduced capacity is sufficient on mild winter days. On very cold days, the furnace adjusts to full capacity (second stage) to meet the demand for heat.

Refer to “Heat/Cool, 1 or 2 Stages, Forced Air or Radiant” which begins on page 27.

2. Heat Pump Systems Definitions

A heat pump extracts available heat from one area and transfers it to another. Even cold air contains some heat, and heat pumps can extract heat from the outside air on a cold day and transfer it indoors to maintain a comfortable temperature. A heat pump also works in reverse during the summer, extracting heat from indoors and transferring it outdoors.

Dual Fuel: A dual fuel system combines an energy efficient air source heat pump with a new or existing oil, gas or propane furnace. The furnace runs in place of the heat pump in cold weather.

Aux (Auxiliary) Heat: When the heat pump can no longer efficiently transfer heat from the outside air, the thermostat automatically turns on a secondary heat source, such as electric resistive heat.

Refer to “Heat Pump, 1 or 2 Stages, Aux Heat or Dual Fuel” which begins on page 31.
3. **Slab Systems Definitions**

Slab heating works from the ground up. The heating components are installed below the floor or are embedded in a concrete slab. Heat radiates from the floor to warm the space above. The CHV-TSTAT and CHV-THSTAT support seven variations of slab heat systems.

**SLAB 1:** Floor warming only. Operates the slab heat to maintain a particular slab temperature. System mode is enabled/disabled with Floor Warming Heat and OFF inputs. Slab is maintained at the slab setpoint temperature value. Connection to the slab output relay is terminal W1. Refer to “Slab 1 – Floor Warming Only” which starts on page 35.

**SLAB 2:** 1-stage space heat with slab maximum. Maintains a particular air temperature using the slab to heat the space. Does not heat over the slab maximum temperature even if this results in the space being under-heated. Connection to the slab output relay is terminal W1. Refer to “Slab 2 – 1-Stage Space Heat with Slab Maximum” which starts on page 39.

**SLAB 3:** 1-stage space heat with slab maximum and slab minimum. Performs the same operation as SLAB 2, and also keeps the slab at least as warm as slab setpoint. This may result in the space being overheated to maintain the slab minimum temperature. Connection to the slab output relay is terminal W1. Refer to “Slab 3 – 1-Stage Heat with Slab Minimum/Maximum” which starts on page 43.

**SLAB 4A:** 2-stage space heat with slab maximum and 1-stage cool. Maintains the air temperature using the slab for heat, up to the slab maximum. Augments the air heating by using a second stage of heat (generally a forced air system). Allows the second stage to operate by itself should the slab reach its maximum temperature and shut off. Cools the space with cooling call. Intended for heat-cool type forced air systems, with relay output connections to terminal W1 for slab, terminal W2 for second stage heat, and terminal Y1 for cooling. Refer to “Slab 4A – 2-Stage Heat/1-Stage Cool with Slab Maximum” which starts on page 47.

**SLAB 4B:** Same operation as SLAB4A, but intended for a heat pump type second stage. Relay output connections are terminal W1 for slab heat, with heat pump-type connections on terminals Y1/O/G for cooling and heating calls. Aux heat is on terminal W2. Refer to “Slab 4B – 2-Stage Heat/1-Stage Cool with Slab Maximum (Heat Pump)” which starts on page 51.

**SLAB 5A:** 1-stage space heat and cool with floor warming. Combines the operation of a space heating/cooling thermostat with a floor-warming thermostat. Maintains the slab at slab setpoint, and maintains the space at the heat, cool, or auto setpoints. Systems effectively operate independently. Heat/Cool/Auto/Off sets the space control modes, and Floor Warming HEAT/OFF sets the slab mode. Intended for heat-cool style systems, with slab connection on terminal W1, space heat on terminal W2, and space cool on terminal Y1. Refer to “Slab 5A – 1-Stage Heat/Cool with Floor Warming” which starts on page 55.

**SLAB 5B:** Same as SLAB5A, but for heat pump space systems, with slab heat on terminal W1, and space heat/cool on terminals Y1/O/G. Aux heat is on terminal W2. Refer to “Slab 5B – 1-Stage Heat/Cool with Floor Warming (Heat Pump)” which starts on page 59.
Heat/Cool, 1 or 2 Stages, Forced Air or Radiant

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup.

**SETUP: SYSTEM**

- **Heat Sys Type:** H/C
- **# Heat Stages:** 2
- **# Cool Stages:** 2
- **Radiant / F. Air:** F.Air

Press **MODE** To Continue

**SETUP: SYSTEM PERFORMANCE**

- **Heat Anticipator:** 5
- **Cool Anticipator:** 2
- **Intrstg Differential:** 2.0°F

ADJUSTS HEAT SHUTOFF DYNAMICS

Press **MODE** To Continue

- **Heat Anticipator and Cool Anticipator:** Select 1 – 6. Low number = more frequent cycles, faster response. High number = less frequent cycles, slower response.

**NOTE:** A setting of 3 is recommended for most installations.

- **Intrstg Differential:** Select 0.5°F – 8.0°F. The proportional temperature error to trigger the second stage.

- **Staging Accum Thresh:** Select 1 – 6. The feature optimizes triggering of the second stage to meet demand in instances where the first stage cannot reach the interstage differential or achieve the desired setpoint.

- **Staging Accum Thresh:** 4

Low number = more aggressive trigger for second stage. High number = less aggressive trigger for second stage (6 disables this feature altogether).

**NOTE:** A setting of 3 is recommended for most installations.
SETUP: HUMIDITY OPTIONS

**Show Hum Mode Pg** and **Show Hum View Pg**: Select Y to show humidity page in normal operation.

**Cold Weather Comp**: Modifies the humidifier output to prevent condensation on windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

**Invert Hum Output**: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

**Call FAN in HUM**: Makes a fan call during humidity calls instead of having 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 OPTIONS

**Network 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**: Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

SETUP: SCREEN OPTIONS

Select options to be displayed when the VIEW button is pressed in normal operation:

**Disp Global Page**: Temperature and humidity selection for entire house (if part of a Cresnet system).

**Disp Outdoor Page**: 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 arrow keys to select mode functions in both directions.
**SETUP: DISPLAY OPTIONS**

**Temperature Units**: Display temperature units in (F) Fahrenheit or (C) Celsius.

**Temp Disp Offset**: Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

**Dual Setpoint Auto**: Enables 2-point auto mode.

**Main Scn Lwr Obj**: SB – Slab  OD – Outdoor  HM – Humidity  NA – None

**Use 0.5 Deg C Step**: Display in 0.5° C steps.

**SETUP: OTHER SETTIGNGS**

**Wide Range Cool**: Extends cool setpoint to full auto range of 38° – 99° F (3° – 37° C).

**Run Fan in Ht Calls**: Options available if # heat stages = 1:
- Y: Select if the heating system requires fan control.
- N: Disables fan call operation for heat calls.

Options available if # of heat stages = 2:
- --: Disables fan call operation for heat calls.
- 1/2: Fan called for first and second stage.
- 2: Fan called for second stage only.

**Auto DdBand Deg**: (2 – 6) The minimum differential between heating and cooling setpoints (Dual Setpoint Auto set to Y in “Display Options”).

**Disable Auto Mode**: Does not display Auto on “System Mode” screen and does not permit entering Auto mode even from Cresnet commands.

**SETUP: SENSORS**

**INTERNAL**: Choose USE or OMIT. Choose USE to permit temperature averaging.

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

**REMOTE 1 and 2**: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).
Thermostats

Crestron CHV-TSTAT and CHV-THSTAT

NOTE: REMOTE 1 and REMOTE 2 options do not appear on this screen if these sensors are not connected.

NOTE: Thermostat auto-detects connected remote sensors.

**SETUP: HUMIDITY SENSORS**

<table>
<thead>
<tr>
<th>SETUP: H-SENSORS</th>
<th>TRIM</th>
<th>% RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>REMOTE 1</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>REMOTE 2</td>
<td>0</td>
<td>30</td>
</tr>
</tbody>
</table>

TRIM: Select -9 – +9. Allows the user to calibrate 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 DEBUGGING**

<table>
<thead>
<tr>
<th>SETUP: SENSOR DBG</th>
<th>IST/ AVG F:</th>
<th>LOW/HI F:</th>
<th>COMM ERR:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75</td>
<td>74</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>74</td>
<td>75</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>76</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>76</td>
<td>75</td>
<td>0</td>
</tr>
</tbody>
</table>

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.

COMM ERR: Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

Press VIEW to run or stop sensor debugging. A completion progress bar indicates debugging status.

**SETUP: SERVICE/TEST**

<table>
<thead>
<tr>
<th>SETUP: SERVICE/TEST</th>
<th>Heat Call:</th>
<th>Cool Call:</th>
<th>Humidifier Call:</th>
<th>Fan Run Call:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OFF</td>
<td>OFF</td>
<td>OFF</td>
<td></td>
</tr>
</tbody>
</table>

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.

Heat Call: Select ON or OFF.

Cool Call: Select ON or OFF.

Humidifier Call: Select ON or OFF.

Fan Run Call: Select ON or OFF.

Press MODE to return to the first screen. Press and hold MODE and VIEW simultaneously for 5 seconds to exit Setup.

NOTE: Exit is not possible if the sensor setup does not meet system requirements.
Heat Pump, 1 or 2 Stages, Aux Heat or Dual Fuel

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter the setup mode.

**SETUP: SYSTEM**

| SETUP: SYSTEM | Heat Sys Type: | HPump |
| - | # of Stages: | 2 |
| - | HP/AUX or DF: | HP/Aux |

**Heat Sys Type:** HPump

**# of Stages:** Select 1 or 2 stages.

**HP/AUX or DF:** Dual fuel runs either the heat pump or the aux output, depending on outdoor temperature. The heat pump with aux can stage the heat when required to improve performance.

- **Dual Fuel:** A dual fuel system combines an energy efficient air source heat pump with a new or existing oil, gas or propane furnace. The furnace runs in place of the heat pump in cold weather.

- **Aux (Auxiliary) Heat:** When the a heat pump can no longer efficiently transfer heat from the outside air, the thermostat automatically turns on a secondary heat source, such as electric resistive heat.

**SETUP: SYSTEM PERFORMANCE**

| SETUP: SYSTEM PERF | Heat Anticipator: | 5 |
| - | Cool Anticipator: | 2 |
| - | Intrstg Differential: | 2.0º |

**Heat Anticipator** and **Cool Anticipator:** Select 1 – 6.

Low number = more frequent cycles, faster response.
High number = less frequent cycles, slower response.

**Intrstg Differential:** Select 0.5º – 8.0º F.

The proportional temperature error to trigger the second stage.

**HP Balance Pt:** Select 0º – 90º F or N/A. Minimum outdoor temperature at which the heat pump runs (requires an outdoor temperature source).

**AUX Balance Pt:** Select 0º – 90º F or N/A. Maximum outdoor temperature at which Aux heat system supplements the heat pump (requires an outdoor temperature sensor).

**Staging Accum Thresh:** Select 1 – 6.

The feature optimizes triggering of the second stage to meet demand in instances where the first stage cannot reach the interstage differential or achieve the desired setpoint.

Low number = more aggressive trigger for second stage.
High number = less aggressive trigger for second stage (6 disables this feature altogether).

**NOTE:** A setting of 3 is recommended for most installations.
**SETUP: HUMIDITY OPTIONS**

<table>
<thead>
<tr>
<th>SETUP: HUM OPTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Show Hum Mode Pg:</td>
<td>Y</td>
</tr>
<tr>
<td>Show Hum View Pg:</td>
<td>Y</td>
</tr>
<tr>
<td>Cold Weather Comp:</td>
<td>N</td>
</tr>
<tr>
<td>SYSTEM ENABLE/DISABLE PAGE</td>
<td></td>
</tr>
</tbody>
</table>

**Cold Weather Comp:** Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

**Invert Hum Output:** Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

**NOTE:** Most dehumidifier applications require the default setting.

**Call FAN in HUM:** Makes a fan call during humidity calls instead of having 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 OPTIONS**

<table>
<thead>
<tr>
<th>SETUP: DEVICE OPTS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Network ID:</td>
<td>2A</td>
</tr>
<tr>
<td>LCD Contrast:</td>
<td>5</td>
</tr>
<tr>
<td>CHV-THSTAT [v2.0, #D8000000]</td>
<td></td>
</tr>
</tbody>
</table>

**Network 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:** Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

**SETUP: SCREEN OPTIONS**

<table>
<thead>
<tr>
<th>SETUP: SCRN OPTIONS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Disp Global Page:</td>
<td>Y</td>
</tr>
<tr>
<td>Disp Outdoor Page:</td>
<td>Y</td>
</tr>
<tr>
<td>Disp Rem Func Pg1:</td>
<td>Y</td>
</tr>
<tr>
<td>Disp Rem Func Pg2:</td>
<td>Y</td>
</tr>
<tr>
<td>Reverse SMODE Dir:</td>
<td>N</td>
</tr>
</tbody>
</table>

Select options to be displayed when the VIEW button is pressed in normal operation:

**Disp Global Page:** Temperature and humidity selection for entire house (if part of a Cresnet system).

**Disp Outdoor Page:** Temperature and humidity selection for the outside sensor.

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

**Reverse SMODE Dir:** Allows arrow keys to select mode functions in both directions.
SETUP: DISPLAY OPTIONS

**Temperature Units**: Display temperature units in (F) Fahrenheit or (C) Celsius.

**Temp Disp Offset**: Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

**Dual Setpoint Auto**: Enables 2-point auto mode.

**Main Scrn Lwr Obj**: SB – Slab OD – Outdoor HM – Humidity NA – None

**Use 0.5 Deg C Step**: Display in 0.5° C steps.

SETUP: OTHER SETTINGS

**Wide Range Cool**: Extends cool setpoint to full auto range of 38° – 99° F (3° – 37° C).

**Run Fan in Ht Calls**: Options available if # heat stages = 1:

- Y: Select if the heating system requires fan control.
- N: Disables fan call operation for heat calls.

Options available if # of heat stages = 2:

- --: Disables fan call operation for heat calls.
- 1/2: Fan called for first and second stage.
- 2: Fan called for second stage only.

**Auto DdBand Deg**: Select 2 – 6. The minimum differential between heating and cooling setpoints (Dual Setpoint Auto set to Y in “Display Options”).

**Disable Auto Mode**: Does not display Auto on “System Mode” screen and does not permit entering Auto mode even from Cresnet commands.

SETUP: SENSORS

**INTERNAL**: Choose USE or OMIT. Choose USE to permit temperature averaging.

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

**REMOTE 1 and 2**: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).

**NOTE**: REMOTE 1 and REMOTE 2 options do not appear on this screen if these sensors are not connected.

**NOTE**: Thermostat auto-detects connected remote sensors.
**SETUP: HUMIDITY SENSORS**

<table>
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</thead>
<tbody>
<tr>
<td>INTERNAL:</td>
<td>5</td>
<td>45</td>
</tr>
<tr>
<td>REMOTE 1:</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>REMOTE 2:</td>
<td>0</td>
<td>30</td>
</tr>
</tbody>
</table>

*TRIM*: Select -9 to +9. Allows the user to calibrate 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.

Press **MODE** to continue.

**SETUP: SENSOR DEBUGGING**

<table>
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<th>SETUP: SENSOR DBG</th>
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<tr>
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<tr>
<td>COMM ERR:</td>
</tr>
</tbody>
</table>

Press **VIEW** 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.

*COMM ERR:* Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

Press **MODE** to continue.

**SETUP: SERVICE/TEST**

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<td>Heat Call:</td>
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</tr>
<tr>
<td>Humidifier Call:</td>
</tr>
<tr>
<td>Fan Run Call:</td>
</tr>
</tbody>
</table>

*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.

*Heat Call*: Select **ON** or **OFF**.

*Cool Call*: Select **ON** or **OFF**.

*Humidifier Call*: Select **ON** or **OFF**.

*Fan Run Call*: Select **ON** or **OFF**.

Press **MODE** to return to the first screen. Press and hold **MODE** and **VIEW** simultaneously for 5 seconds to exit Setup.

*NOTE:* Exit is not possible if the sensor setup does not meet system requirements.
Slab 1 – Floor Warming Only
Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter the setup mode.

**SETUP: SYSTEM**

<table>
<thead>
<tr>
<th>Heat Sys Type: SLAB 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slab Reg: 6</td>
</tr>
</tbody>
</table>

FLOOR WARMING ONLY (W1)

Press MODE To Continue

**SETUP: SYSTEM PERFORMANCE**

No applicable settings.

Press MODE To Continue

**SETUP: HUMIDITY OPTIONS**

Show Hum Mode Pg and Show Hum View Pg: Select Y to show humidity page in normal operation.

Cold Weather Comp: Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

Invert Hum Output: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

NOTE: Most dehumidifier applications require the default setting.

Call FAN in HUM: Makes a fan call during humidity calls instead of waiting for a heating or cooling call to trigger 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 OPTIONS**

- **Network ID:** 2A
- **LCD Contrast:** 5

CHV-THSTAT [v2.0, #D8000000]

Press **MODE** To Continue

**SETUP: SCREEN OPTIONS**

- **Disp Global Page:** Y
- **Disp Outdoor Page:** Y
- **Disp Rem Func Pg1:** Y
- **Disp Rem Func Pg2:** Y
- **Reverse SMODE Dir:** N

Press **MODE** To Continue

**SETUP: DISPLAY OPTIONS**

- **Temperature Units:** F
- **Temp Disp Offset:** 0°
- **Dual Setpoint Auto:** Y
- **Main Scn Lwr Obj:** HM
- **Use 0.5 Deg C Step:** Y

Press **MODE** To Continue

---

**Network 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:** Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

**Disp Global Page:** Temperature and humidity selection for entire house (if part of a Cresnet system).

**Disp Outdoor Page:** 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 arrow keys to select mode functions in both directions.

**Temperature Units:** Display temperature units in (F) Fahrenheit or (C) Celsius.

**Temp Disp Offset:** Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

**Dual Setpoint Auto:** Enables 2-point auto mode.

**Main Scn Lwr Obj:**
- **SB** – Slab
- **OD** – Outdoor
- **HM** – Humidity
- **NA** – None

**Use 0.5 Deg C Step:** Display in 0.5° C steps.
**SETUP: OTHER SETTINGS**

No applicable settings.

Press **MODE** To Continue

**SETUP: SENSORS**

*INTERNAL:* Choose *USE* or *OMIT*. Choose *USE* to permit temperature averaging.

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

*REMOTE 1 and 2:* Choose *USE*, *OMIT*, *OD* (outdoors), or *SLAB* (remote sensors only).

**NOTE:** *REMOTE 1 and REMOTE 2* options do not appear on this screen if these sensors are not connected.

**NOTE:** Thermostat auto-detects connected remote sensors.

Press **MODE** To Continue

**SETUP: HUMIDITY SENSORS**

*TRIM:* Select $-9$ – $+9$. Allows the user to calibrate 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.

Press **MODE** To Continue
**SETUP: SENSOR DEBUGGING**

Press **VIEW** 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**.
- **COMM ERR:** Displays the number of communication errors present for **RS1**, followed by the number of communication errors present for **RS2**. Values should be close to 0. If values are higher than 20, check wiring.

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

**SETUP: SERVICE/TEST**

- **Slab Heat Call:** Select **ON** or **OFF**.
- **Humidifier Call:** Select **ON** or **OFF**.
- **Fan Call:** Select **ON** or **OFF**.

Press **MODE** to return to the first screen. Press and hold **MODE** and **VIEW** simultaneously for 5 seconds to exit Setup.

**NOTE:** Exit is not possible if the sensor setup does not meet system requirements.
Slab 2 – 1-Stage Space Heat with Slab Maximum

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter the setup mode.

**SETUP: SYSTEM**

Heat Sys Type: SLAB 2

Slab MAX T: Select 39° – 122° F (39° – 50° C). Used to prevent the floor from becoming too hot on long heat calls.

**NOTE:** Slab mode 2 requires an air temperature source and a slab remote sensor (CHV-RSS, sold separately).

**SETUP: SYSTEM PERFORMANCE**

Heat Anticipator: Select 1 – 6.

Low number = more frequent cycles, faster response.
High number = less frequent cycles, slower response.

**SETUP: HUMIDITY OPTIONS**

Show Hum Mode Pg and Show Hum View Pg: Select Y to show humidity page in normal operation.

Cold Weather Comp: Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

Invert Hum Output: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

**NOTE:** Most dehumidifier applications require the default setting.

Call FAN in HUM: Makes a fan call during humidity calls instead of waiting for a heating or cooling call to trigger 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 OPTIONS**

**Network 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:** Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

**SETUP: SCREEN OPTIONS**

**Disp Global Page:** Temperature and humidity selection for entire house (if part of a Cresnet system).

**Disp Outdoor Page:** Temperature and humidity selection for the outside sensor.

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

**Reverse SMODE Dir:** Allows arrow keys to select mode functions in both directions.

**SETUP: DISPLAY OPTIONS**

**Temperature Units:** Display temperature units in (F) Fahrenheit or (C) Celsius.

**Temp Disp Offset:** Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

**Dual Setpoint Auto:** Enables 2-point auto mode.

**Main Scrn Lwr Obj:**
- SB – Slab
- OD – Outdoor
- HM – Humidity
- NA – None

**Use 0.5 Deg C Step:** Display in 0.5° C steps.
SETUP: OTHER SETTINGS

No applicable settings.

SETUP: SENSORS

INTERNAL: Choose USE or OMIT. Choose USE to permit temperature averaging.

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

REMOTE 1 and 2: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).

NOTE: REMOTE 1 and REMOTE 2 options do not appear on this screen if these sensors are not connected.

NOTE: Thermostat auto-detects connected remote sensors.

SETUP: HUMIDITY SENSORS

TRIM: Select -9 – +9. Allows the user to calibrate 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 DEBUGGING**

Press **VIEW** 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**.

**COMM ERR:** Displays the number of communication errors present for **RS1**, followed by the number of communication errors present for **RS2**. Values should be close to 0. If values are higher than 20, check wiring.

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

---

**SETUP: SERVICE/TEST**

**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.

**Slab Heat Call:** Select **ON** or **OFF**.

**Humidifier Call:** Select **ON** or **OFF**.

**Fan Call:** Select **ON** or **OFF**.

Press **MODE** to return to the first screen. Press and hold **MODE** and **VIEW** simultaneously for 5 seconds to exit Setup.

**NOTE:** Exit is not possible if the sensor setup does not meet system requirements.
Slab 3 – 1-Stage Heat with Slab Minimum/Maximum

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup mode.

**SETUP: SYSTEM**

- **Heat Sys Type:** SLAB 3
- **Slab MAX T:** 122°
- **Slab Reg:** 6
- **1 STG SPACE HEAT BY SLAB WITH SLAB MIN/MAX (W1)**

Heat Sys Type: SLAB 3

Slab MAX T: Select 39° – 122° F (39° – 50° C). Used to prevent the floor from becoming too hot on long heat calls.

Slab Reg: Select 1 – 6.

1 = Narrow temperature regulation
6 = Wide temperature regulation

**NOTE:** Slab mode 3 requires an air temperature source and a slab remote sensor (CHV-RSS, sold separately).

**SETUP: SYSTEM PERFORMANCE**

- **Heat Anticipator:** 5
- **ADJUSTS HEAT SHUTOFF DYNAMICS**

Heat Anticipator: Select 1 – 6.

Low number = more frequent cycles, faster response.
High number = less frequent cycles, slower response.

**SETUP: HUMIDITY OPTIONS**

- **Show Hum Mode Pg:** Y
- **Show Hum View Pg:** Y
- **Cold Weather Comp:** N
- **SYSTEM ENABLE/DISABLE**

*Show Hum Mode Pg and Show Hum View Pg:* Select Y to show humidity page in normal operation.

*Cold Weather Comp:* Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

*Invert Hum Output:* Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

**NOTE:** Most dehumidifier applications require the default setting.

*Call FAN in HUM:* Makes a fan call during humidity calls instead of waiting 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 OPTIONS

Network 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: Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

SETUP: SCREEN OPTIONS

Disp Global Page: Temperature and humidity selection for entire house (if part of a Cresnet system).

Disp Outdoor Page: 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 arrow keys to select mode functions in both directions.

SETUP: DISPLAY OPTIONS

Temperature Units: Display temperature units in (F) Fahrenheit or (C) Celsius.

Temp Disp Offset: Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

Dual Setpoint Auto: Enables 2-point auto mode.

Main Scn Lwr Obj:
SB – Slab    OD – Outdoor
HM – Humidity  NA – None

Use 0.5 Deg C Step: Display in 0.5° C steps.
**SETUP: OTHER SETTINGS**

No applicable settings.

Press **MODE** To Continue

**SETUP: SENSORS**

**INTERNAL**: Choose **USE** or **OMIT**. Choose **USE** to permit temperature averaging.

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

**REMOTE 1 and 2**: Choose **USE**, **OMIT**, **OD** (outdoors), or **SLAB** (remote sensors only).

**NOTE**: **REMOTE 1** and **REMOTE 2** options do not appear on this screen if these sensors are not connected.

**NOTE**: Thermostat auto-detects connected remote sensors.

Press **MODE** To Continue

**SETUP: HUMIDITY SENSORS**

**TRIM** (-9 – +9) Allows the user to calibrate 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 DEBUGGING**

Press **VIEW** 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**.

**COMM ER:** Displays the number of communication errors present for **RS1**, followed by the number of communication errors present for **RS2**. Values should be close to 0. If values are higher than 20, check wiring.

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

**SETUP: SERVICE/TEST**

Press **MODE** to return to the first screen. Press and hold **MODE** and **VIEW** simultaneously for 5 seconds to exit Setup.

**NOTE:** Exit is not possible if the sensor setup does not meet system requirements.
Slab 4A – 2-Stage Heat/1-Stage Cool with Slab Maximum

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup mode.

**SETUP: SYSTEM**

Heat System Type: SLAB 4A
Slab MAX T: Select 39° – 122° F (39° – 50° C). Used to prevent the floor from becoming too hot on long heat calls.

NOTE: Slab mode 4A requires an air temperature source and a slab remote sensor (CHV-RSS, sold separately).

**SETUP: SYSTEM PERFORMANCE**

Heat and Cool Anticipator: Select 1 – 6.
Low number = more frequent cycles, faster response. High number = less frequent cycles, slower response.

Interstage Differential: Select 0.5º – 8.0º F.
The proportional temperature error to trigger the second stage.

**SETUP: HUMIDITY OPTIONS**

Show Hum Mode Pg and Show Hum View Pg: Select Y to show humidity page in normal operation.

Cold Weather Compensation: Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS CHV-RTS, or CHV-RSS, sensors sold separately).

Invert Hum Output: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

NOTE: Most dehumidifier applications require the default setting.

Call FAN in HUM: Makes a fan call during humidity calls instead of waiting for a heating or cooling call to trigger 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 OPTIONS

Network 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: Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

SETUP: SCREEN OPTIONS

Select options to be displayed when the VIEW button is pressed in normal operation:

Disp Global Page: Temperature and humidity selection for entire house (if part of a Cresnet system).

Disp Outdoor Page: 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 arrow keys to select mode functions in both directions.

SETUP: DISPLAY OPTIONS

Temperature Units: Display temperature units in (F) Fahrenheit or (C) Celsius.

Temp Disp Offset: Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

Dual Setpoint Auto: Enables 2-point auto mode.

Main Screen Lower Object:

SB – Slab
OD – Outdoor
HM – Humidity
NA – None

Use 0.5 Deg C Step: Display in 0.5° C steps.
**SETUP: OTHER SETTINGS**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide Range Cool</td>
<td>N</td>
</tr>
<tr>
<td>Run Fan in Ht Calls</td>
<td>N</td>
</tr>
<tr>
<td>Auto OdBand Deg</td>
<td>2°</td>
</tr>
<tr>
<td>Disable Auto Mode</td>
<td>N</td>
</tr>
<tr>
<td>Extended Cool Setpoint</td>
<td>RANGE 38-99°F (3-37°C)</td>
</tr>
</tbody>
</table>

**Wide Range Cool:** Extends cool setpoint to full auto range of 38° – 99° F (3° – 37° C).

**Run Fan in Ht Calls:** If the heating system requires fan control, select Y.

**NOTE:** Most heating systems run the fan automatically.

**Auto Mode Dead Band:** Select 2 – 6. The minimum differential between heating and cooling setpoints (*Dual Setpoint Auto* set to Yes in “Display Options”).

**Disable Auto Mode:** Does not display *Auto* on “System Mode” screen and does not permit entering *Auto* mode even from Cresnet commands.

**SETUP: SENSORS**

**INTERNAL:** Choose *USE* or *OMIT*. Choose *USE* to permit temperature averaging.

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

**REMOTE 1 and 2:** Choose *USE*, *OMIT*, *OD* (outdoors), or *SLAB* (remote sensors only).

**NOTE:** *REMOTE 1* and *REMOTE 2* options do not appear on this screen if these sensors are not connected.

**NOTE:** Thermostat auto-detects connected remote sensors.

**SETUP: HUMIDITY SENSORS**

<table>
<thead>
<tr>
<th>Setting</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRIM (-9 – +9)</td>
<td>Allows the user to calibrate 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.</td>
</tr>
<tr>
<td>NOTE:</td>
<td>For best results, calibration should be performed when RH is 40% or higher.</td>
</tr>
<tr>
<td>INTERNAL</td>
<td>TRIM</td>
</tr>
<tr>
<td></td>
<td>5</td>
</tr>
<tr>
<td>REMOTE 1</td>
<td>0</td>
</tr>
<tr>
<td>REMOTE 2</td>
<td>0</td>
</tr>
</tbody>
</table>
SETUP: SENSOR DEBUGGING

Press VIEW 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.

**COMM ERR**: Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

SETUP: SERVICE/TEST

**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.

*Slab Heat Call*: Select ON or OFF.

*Space Heat Call*: Select ON or OFF.

*Space Cool Call*: Select ON or OFF.

*Aux Heat Call*: Select ON or OFF.

*Humidifier Call*: Select ON or OFF.

*Fan Call*: Select ON or OFF.

Press MODE to return to the first screen. Press and hold MODE and VIEW simultaneously for 5 seconds to exit Setup.

**NOTE**: Exit is not possible if the sensor setup does not meet system requirements.
Slab 4B – 2-Stage Heat/1-Stage Cool with Slab Maximum (Heat Pump)

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup mode.

**SETUP: SYSTEM**

Heat Sys Type: SLAB 4B

Slab MAX T: Select 39° – 122° F (39° – 50° C). Used to prevent the floor from becoming too hot on long heat calls.

HP/Aux or DF: Dual fuel runs either the heat pump or the aux output, depending on outdoor temperature. The heat pump with aux can stage the heat when required to improve performance.

- **Dual Fuel:** A dual fuel system combines an energy efficient air source heat pump with a new or existing oil, gas or propane furnace. The furnace runs in place of the heat pump in cold weather.

- **Aux (Auxiliary) Heat:** When the heat pump can no longer efficiently transfer heat from the outside air, the thermostat automatically turns on a secondary heat source, such as electric resistive heat.

**NOTE:** Slab mode 4B requires an air temperature source and a slab remote sensor (CHV-RSS).

**SETUP: SYSTEM PERFORMANCE**


Low number = more frequent cycles, faster response.

High number = less frequent cycles, slower response.

Intrstg Differential: Select 0.5° – 8.0° F.

The proportional temperature error to trigger the second stage.

HP Balance Pt: Select 0° – 90° F or N/A. Minimum outdoor temperature at which the heat pump runs (requires an outdoor temperature sensor).

AUX Balance Pt: Select 0° – 90° F or N/A. Maximum outdoor temperature at which Aux heat system supplements the heat pump (requires an outdoor temperature sensor).
SETUP: HUMIDITY OPTIONS

Show Hum Mode Pg and Show Hum View Pg: Select Y to show humidity page in normal operation.

Cold Weather Comp: Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

Invert Hum Output: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

NOTE: Most dehumidifier applications require the default setting.

Call FAN in HUM: Makes a fan call during humidity calls instead of having 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 OPTIONS

Network 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: (1 – 10) Lighter to darker screen.

This screen displays model number, firmware version and TSID.

SETUP: SCREEN OPTIONS

Select options to be displayed when the VIEW button is pressed in normal operation:

Disp Global Page: Temperature and humidity selection for entire house (if part of a Cresnet system).

Disp Outdoor Page: 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 arrow keys to select mode functions in both directions.
SETUP: DISPLAY OPTIONS

Temperature Units: Display temperature units in (F) Fahrenheit or (C) Celsius.

Temp Disp Offset: Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

Dual Setpoint Auto: Enables 2-point auto mode.

Main Screen Lower Object:
SB – Slab     OD – Outdoor
HM – Humidity  NA – None

Use 0.5 Deg C Step: Display in 0.5° C steps.

SETUP: OTHER SETTINGS

Wide Range Cool: Extends cool setpoint to full auto range of 38º – 99º F (3º – 37º C).

Run Fan in Heat Calls: If the heating system requires fan control, select Y.

Auto DdBand Deg: Select 2 – 6. The minimum differential between heating and cooling setpoints (Dual Setpoint Auto set to Y in “Display Options”).

Disable Auto Mode: Does not display Auto on “System Mode” screen and does not permit entering Auto mode even from Cresnet commands.

NOTE: Most heating systems run the fan automatically.

SETUP: SENSORS

INTERNAL: Choose USE or OMIT. Choose USE to permit temperature averaging.

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

REMOTE 1 and 2: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).

NOTE: REMOTE 1 and REMOTE 2 options do not appear on this screen if these sensors are not connected.

NOTE: Thermostat auto-detects connected remote sensors.
Thermostats

Crestron CHV-TSTAT and CHV-THSTAT

SETUP: HUMIDITY SENSORS

<table>
<thead>
<tr>
<th>SET UP: H-SENSORS</th>
<th>TRIM</th>
<th>% RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL:</td>
<td>-5</td>
<td>45</td>
</tr>
<tr>
<td>REMOTE 1:</td>
<td>0</td>
<td>50</td>
</tr>
<tr>
<td>REMOTE 2:</td>
<td>0</td>
<td>30</td>
</tr>
</tbody>
</table>

TRIM: Select -9 – +9. Allows the user to calibrate 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.

Press MODE To Continue

SETUP: SENSOR DEBUGGING

Press VIEW 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.

COMM ERR: Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

Press MODE To Continue

SETUP: SERVICE/TEST

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.

Slab Heat Call: Select ON or OFF.
Space Heat Call: Select ON or OFF.
Space Cool Call: Select ON or OFF.
Aux Heat Call: Select ON or OFF.
Humidifier Call: Select ON or OFF.
Fan Call: Select ON or OFF.

Press MODE to return to the first screen. Press and hold MODE and VIEW simultaneously for 5 seconds to exit Setup.

NOTE: Exit is not possible if the sensor setup does not meet system requirements.
Slab 5A – 1-Stage Heat/Cool with Floor Warming

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup mode.

**SETUP: SYSTEM**

**Heat System Type:** SLAB 5A

**Slab Regulation:** Select 1 – 6.

1 = Narrow temperature regulation
6 = Wide temperature regulation

**NOTE:** Slab mode 5A requires an air temperature source and a slab remote sensor (CHV-RSS, sold separately).

**SETUP: SYSTEM PERFORMANCE**

**Heat Anticipator and Cool Anticipator:** Select 1 – 6.

Low number = more frequent cycles, faster response.
High number = less frequent cycles, slower response.

**SETUP: HUMIDITY OPTIONS**

**Show Hum Mode Pg and Show Hum View Pg:** Select Y to show humidity page in normal operation.

**Cold Weather Comp:** Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

**Invert Hum Output:** Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

**Call FAN in HUM:** Makes a fan call during humidity calls instead of waiting for a heating or cooling call to trigger fan.

**NOTE:** Most dehumidifier applications require the default setting.

**NOTE:** Most dehumidifier applications automatically trigger fan operation.

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

**Network 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:** Select 1 – 10 to lighten or darken screen.

This screen displays model number, firmware version and TSID.

**SETUP: SCREEN OPTIONS**

Select options to be displayed when the **VIEW** button is pressed in normal operation:

- **Disp Global Page:** Temperature and humidity selection for entire house (if part of a Cresnet system).
- **Disp Outdoor Page:** 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 arrow keys to select mode functions in both directions.

**SETUP: DISPLAY OPTIONS**

**Temperature Units:** Display temperature units in (F) Fahrenheit or (C) Celsius.

**Temp Disp Offset:** Select -6° – +6° F. Allows the user to adjust the displayed and regulated temperature.

**Dual Setpoint Auto:** Enables 2-point auto mode.

**Main Scrn Lwr Obj:**
- **SB** – Slab
- **OD** – Outdoor
- **HM** – Humidity
- **NA** – None

**Use 0.5 Deg C Step:** Display in 0.5° C steps.
**SETUP: OTHER SETTINGS**

- **Wide Range Cool**: [N] Extends cool setpoint to full auto range of 38°F – 99°F (3°C – 37°C).
- **Run Fan in Ht Calls**: [N] If the heating system requires fan control, select Y.
- **Auto DdBand Deg**: 2° Select 2 – 6. The minimum differential between heating and cooling setpoints (Dual Setpoint Auto set to Y in “Display Options”).
- **Disable Auto Mode**: [N] Does not display Auto on” System Mode” screen and does not permit entering Auto mode even from Cresnet commands.

**NOTE:** Most heating systems run the fan automatically.

**SETUP: SENSORS**

- **INTERNAL**: Choose USE or OMIT. Choose USE to permit temperature averaging.
- **REMOTE 1 and 2**: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).

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

**REMOTE 1 and 2** options do not appear on this screen if these sensors are not connected.

**NOTE:** Thermostat auto-detects connected remote sensors.

**SETUP: HUMIDITY SENSORS**

- **TRIM**: Select -9 – +9. Allows the user to calibrate 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 DEBUGGING

Press VIEW 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.

COMM ERR: Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

SETUP: SERVICE/TEST

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.

Slab Heat Call: Select ON or OFF.
Space Heat Call: Select ON or OFF.
Space Cool Call: Select ON or OFF.
Humidifier Call: Select ON or OFF.
Fan Call: Select ON or OFF.

Press MODE to return to the first screen. Press and hold MODE and VIEW simultaneously for 5 seconds to exit Setup.

NOTE: Exit is not possible if the sensor setup does not meet system requirements.
Slab 5B – 1-Stage Heat/Cool with Floor Warming (Heat Pump)

Press and hold the MODE and VIEW buttons simultaneously for 5 seconds to enter setup mode.

**SETUP: SYSTEM**

- **Heat System Type:** SLAB 5B
- **Slab Reg:** Select 1 – 6.
  - 1 = Narrow temperature regulation
  - 6 = Wide temperature regulation

**HP/Aux or DF:** Dual fuel runs either the heat pump or the aux output, depending on outdoor temperature. The heat pump with aux can stage the heat when required to improve performance.

- **Dual Fuel:** A dual fuel system combines an energy efficient air source heat pump with a new or existing oil, gas or propane furnace. The furnace runs in place of the heat pump in cold weather.
- **Aux (Auxiliary) Heat:** When the heat pump can no longer efficiently transfer heat from the outside air, the thermostat automatically turns on a secondary heat source, such as electric resistive heat.

**NOTE:** Slab mode 5B requires an air temperature source and a slab remote sensor (CHV-RSS).

**SETUP: SYSTEM PERFORMANCE**

- **Heat Anticipator and Cool Anticipator:** Select 1 – 6.
  - Low number = more frequent cycles, faster response.
  - High number = less frequent cycles, slower response.

**Intrstg Differential:** Select 0.5º – 8.0º F.

The proportional temperature error to trigger the second stage.

- **HP Balance Pt:** Select 0º – 90º F or N/A. Minimum outdoor temperature at which the heat pump runs (requires an outdoor temperature sensor).
- **AUX Balance Pt:** Select 0º – 90º F or N/A. Maximum outdoor temperature at which Aux heat system supplements the heat pump (requires an outdoor temperature sensor).
SETUP: HUMIDITY OPTIONS

Show Hum Mode Pg: Y
Show Hum View Pg: Y
Cold Weather Comp: N

Cold Weather Compensation: Modifies the humidifier output to prevent condensation on the windows. Requires an outdoor temperature source (CHV-THSAT or CHV-TSTAT with CHV-RTHS, CHV-RTS or CHV-RSS, sensors sold separately).

Invert Hum Output: Reverses the logic controlling the switching of the HUM relay (NO/NC). May be useful when using to control a dehumidifier.

NOTE: Most dehumidifier applications require the default setting.

Call FAN in HUM: N

Press MODE To Continue

SETUP: DEVICE OPTIONS

Network ID: 03 to FE in hex to match the network ID set for the thermostat in Crestron Studio or SIMPL Windows.

LCD Contrast: Select 1 – 10 to lighten or darken screen.

Network 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: Select 1 – 10 to lighten or darken screen.

Press MODE To Continue

SETUP: SCREEN OPTIONS

Disp Global Page: Y
Disp Outdoor Page: Y
Disp Rem Func Pg1: Y
Disp Rem Func Pg2: Y
Reverse SMODE Dir: N

Disp Global Page: Temperature and humidity selection for entire house (if part of a Cresnet system).

Disp Outdoor Page: 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 arrow keys to select mode functions in both directions.

Press MODE To Continue
SETUP: DISPLAY OPTIONS

Temperature Units: Display temperature units in (F) Fahrenheit or (C) Celsius.

Temp Disp Offset: (-6° – +6° F) Allows the user to adjust the displayed and regulated temperature.

Dual Setpoint Auto: Enables 2-point auto mode.

Main Screen Lower Object:
SB – Slab  OD – Outdoor
HM – Humidity  NA – None

Use 0.5 Deg C Step: Display in 0.5° C steps.

SETUP: OTHER SETTINGS

Wide Range Cool: Extends cool setpoint to full auto range of 38º – 99º F (3º – 37º C).

Run Fan in Heat Calls: If the heating system requires fan control, select Y.

NOTE: Most heating systems run the fan automatically.

Auto DdBand Deg: Select 2 – 6. The minimum differential between heating and cooling setpoints (Dual Setpoint Auto set to Y in “Display Options”).

Disable Auto Mode: Does not display Auto on “System Mode” screen and does not permit entering Auto mode even from Cresnet commands.

SETUP: SENSORS

INTERNAL: Choose USE or OMIT. Choose USE to permit temperature averaging.

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

REMOTE 1 and 2: Choose USE, OMIT, OD (outdoors), or SLAB (remote sensors only).

NOTE: REMOTE 1 and REMOTE 2 options do not appear on this screen if these sensors are not connected.

NOTE: Thermostat auto-detects connected remote sensors.
**SETUP: HUMIDITY SENSORS**

**SETUP: H-SENSORS**

<table>
<thead>
<tr>
<th>TRIM</th>
<th>% RH</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERNAL:</td>
<td>45</td>
</tr>
<tr>
<td>REMOTE 1:</td>
<td>0</td>
</tr>
<tr>
<td>REMOTE 2:</td>
<td>0</td>
</tr>
</tbody>
</table>

**TRIM**: Select -9 to +9. Allows the user to calibrate 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.

Press **MODE** to Continue

---

**SETUP: SENSOR DEBUGGING**

**SETUP: SENSOR DBG**

| IST/ AVG F: | 75 | 74 | 76 | 76 |
| LOW/HI F: | 74 | 75 | 75 | 76 |
| COMM ERR: | 1 | 1 | 0 | 0 |

**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.

**COMM ERR**: Displays the number of communication errors present for RS1, followed by the number of communication errors present for RS2. Values should be close to 0. If values are higher than 20, check wiring.

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

Press **VIEW** to run or stop sensor debugging. A completion progress bar indicates debugging status.

Press **VIEW** to run or stop sensor debugging. A completion progress bar indicates debugging status.

---

**SETUP: SERVICE/TEST**

**SETUP: SERVICE/TEST**

| Slab Heat Call: | OFF |
| Space Heat Call: | OFF |
| Space Cool Call: | OFF |
| Aux Heat Call: | OFF |
| Humidifier Call: | OFF |
| Fan Call: | OFF |

**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.

**Slab Heat Call**: Select ON or OFF.

**Space Heat Call**: Select ON or OFF.

**Space Cool Call**: Select ON or OFF.

**Humidifier Call**: Select ON or OFF.

**Fan Call**: Select ON or OFF.

Press **MODE** to return to the first screen. Press and hold **MODE** and **VIEW** simultaneously for 5 seconds to exit Setup.

**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:

H1 – Heat System or Stage 1 Heat System
H2 – Stage 2 Heat System
AX – Auxiliary Heating System
C1 – Cooling System or Stage 1 Cooling System
C2 – Stage 2 Cooling System
SB – Slab heat system
HM – Humidifier

Main Screen

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: If Y was selected in “DISP OPTIONS” (display options) screen for Dual Setpoint Auto, pressing MODE toggles between the heat and cool setpoints while they are flashing. Pressing MODE does not change the screen until the setpoint has stopped flashing.

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

Pressing the **VIEW** button allows the user to access the following screens:

**NOTE:** If enabled, the **VIEW** button also allows access to the remote button function screens. When part of a Cresnet system, the up ▲ and down ▼ arrow buttons can be used to enable other functions (i.e., lighting control, alarm system, etc).

**“Humidity” Screen**

Press the **VIEW** button to display the “Humidity” screen. The setpoint adjustment range is 5 – 90%.

Use the up ▲ and down ▼ arrow buttons to adjust the humidity setpoint level.

**NOTE:** This page only appears if enabled in the “HUM OPTS” setup screen.

**NOTE:** CHV-TSTAT requires additional remote humidity sensor (CHV-RTHS, sold separately).

**NOTE:** If a CHV-RTHS temperature/humidity sensor is installed, a CHV-TSTAT can import and display the humidity.

**“Outdoor” Screen**

Press the **VIEW** button again to display the “Outdoor” screen. This allows the user to view the outdoor temperature (if an outdoor sensor has been installed) and outdoor humidity (if available). Outdoor temperature/humidity can come from an outdoor sensor wired directly to the thermostat or through the Cresnet system from another source. This page is only displayed if enabled in the “SCRN OPTIONS” setup screen.

**NOTE:** This is only a display and not for system activation. This display can be shown on either the CHV-TSTAT or the CHV-THSTAT.

**“Messages” Screen**

Press the **VIEW** button again to display the “Messages” screen. This screen allows the user to view any text messages sent from the control system (only when part of a Cresnet system). Text messages are limited to four lines, approximately 20 characters per line (including spaces). Allow for word wrap by staying within the 20 characters/spaces per line maximum. The thermostat auto-hyphenates when nearing the end of a line. Carriage returns can be used to force a line change.

**NOTE:** This page is only seen when a message has been sent to the thermostat.

Press the **MODE** button to clear (**CLR**) the message(s). This acknowledges to the control system that the message has been read.
Mode Button Menus

Heat/Cool, Heat Pump and Slab 4 Systems

Pressing the MODE button allows the user to access the following screens when the thermostat is configured for Heat/Cool, Heat Pump and Slab 4 Systems.

“System Mode” Screen

The “System Mode” screen appears when the MODE button is initially pressed.

Use the up ▲ and down ▼ arrow buttons to select HEAT, COOL, AUTO, OFF or AUX HEAT ONLY.

NOTE: The AUTO selection allows the system to switch between heat and cool automatically as needed to maintain the temperature.

NOTE: The AUX HEAT ONLY is for the backup heating system on heat pump based systems only. It allows the backup system to operate without operating the heat pump.

“Fan Mode” Screen

Pressing the MODE button again displays the “Fan Mode” screen.

Use the up ▲ and down ▼ arrow buttons to select AUTO or ON.

NOTE: In AUTO, the fan runs only when the system calls for heat or cool. In ON, the fan runs continuously.

“Humidifier” Screen

Pressing the MODE button again displays the “Humidifier” screen.

NOTE: This page only appears if enabled in the “HUM OPTS” setup screen.

NOTE: CHV-TSTAT requires additional remote humidity sensor (CHV-RTHS, sold separately).

Use the up ▲ and down ▼ arrow buttons to select ENABLED or DISABLED.
“Crestron System” Screen

Pressing the MODE button again displays the “Crestron System” (Crestron system) screen.

Use the up ▲ and down▼ arrow buttons to select ONLINE or HOLD.

- **ONLINE**: Data flows both ways, to and from the thermostat, enabling adjustment from a remote location.
- **HOLD**: Data flows one way, from the thermostat, blocking system commands to change the temperature and humidity when the current settings should not be reset. Restores to the last command sent when online is re-engaged.

“Global Update” Screen

Pressing the MODE button again displays the “Global Update” screen.

This feature allows a single thermostat location to update the current temperature settings to all other thermostats on the system, provided that this function has been defined in the Crestron program.

Press the down▼ button to send the update.

Pressing the MODE button again displays the main screen.
Slab 5 Systems

Pressing the MODE button allows the user to access the following screens when the thermostat is configured for Slab 5 Systems.

“Floor Warming” Screen

The “Floor Warming” screen appears when the MODE button is initially pressed. This screen displays current floor warming temperature and setpoint.

“Air System Mode” Screen

Pressing the MODE button again displays the “Air System Mode” screen. Use the up ▲ and down ▼ arrow buttons to select HEAT, COOL, AUTO, OFF.

NOTE: The AUTO selection allows the system to switch between HEAT and COOL automatically as needed to maintain the temperature.

“Slab System Mode” Screen

Pressing the MODE button again displays the “Slab System Mode” screen. Use the up ▲ and down ▼ arrow buttons to select HEAT or OFF.

“Fan Mode” Screen

Pressing the MODE button again displays the “Fan Mode” screen. Use the up ▲ and down ▼ arrow buttons to select AUTO or ON.

NOTE: In AUTO, the fan runs only when the system calls for heat or cool. In ON, the fan runs continuously.
“Humidifier” Screen

Pressing the MODE button again displays the “Humidifier” screen.

NOTE: This page only appears if enabled in the “HUM OPTS” setup screen.

NOTE: CHV-TSTAT requires additional remote humidity sensor (CHV-RTHS, sold separately).

Use the up ▲ and down ▼ arrow buttons to select ENABLED or DISABLED.

“Crestron Sys” Screen

Pressing the MODE button again displays the “Crestron Sys” (Crestron system) screen.

Use the up ▲ and down ▼ arrow buttons to select ONLINE or HOLD.

- ONLINE: Data flows both ways, to and from the thermostat, enabling adjustment from a remote location.
- HOLD: Data flows one way, from the thermostat, blocking system commands to change the temperature and humidity when the current settings should not be reset. Restores to the last command sent when online is re-engaged.

“Global Update” Screen

Pressing the MODE button again displays the “Global Update” screen.

Allows a single thermostat location to update the current temperature settings to all other thermostats on the system, provided that this function has been defined in the Crestron program.

Press the down ▼ button to send the update.

Pressing the MODE button again displays the main screen.
**Slab 1 and Slab 2 Systems**

Pressing the **MODE** button allows the user to access the following screens when the thermostat is configured for Slab 1 and Slab 2 systems.

**“Slab System Mode” Screen**

The “Slab System Mode” screen appears when the **MODE** button is initially pressed.

Use the up ▲ and down ▼ arrow buttons to select **HEAT** or **OFF**.

**“Fan Mode” Screen**

Pressing the **MODE** button again displays the “Fan Mode” screen.

Use the up ▲ and down ▼ arrow buttons to select **AUTO** or **ON**.

**NOTE:** In **AUTO**, the fan runs only when the system calls for heat or cool. In **ON**, the fan runs continuously.

**“Humidifier” Screen**

Pressing the **MODE** button again displays the “Humidifier” screen.

**NOTE:** This page only appears if enabled in the “HUM OPTS” setup screen.

**NOTE:** CHV-TSTAT requires additional remote humidity sensor (CHV-RTHS, sold separately).

Use the up ▲ and down ▼ arrow buttons to select **ENABLED** or **DISABLED**.

**“Crestron System” Screen**

Pressing the **MODE** button again displays the “Crestron Sys” (Crestron system) screen.

Use the up ▲ and down ▼ arrow buttons to select **ONLINE** or **HOLD**.

- **ONLINE:** Data flows both ways, to and from the thermostat, enabling adjustment from a remote location.
- **HOLD:** Data flows one way, from the thermostat, blocking system commands to change the temperature and humidity when the current settings should not be reset. Restores to the last command sent when online is re-engaged.
Pressing the MODE button again displays the “Global Update” screen.

This feature allows a single thermostat location to update the current temperature settings to all other thermostats on the system, provided that this function has been defined in the Crestron program.

Press the down ▼ button to send the update.

Pressing the MODE button again displays the main screen.

**Slab 4 Systems**

Pressing the MODE button allows the user to access the following screens when the thermostat is configured for Slab 4 systems.

**Floor Warming Screen**

The “Floor Warming” screen appears when the MODE button is initially pressed.

This screen displays current floor warming temperature and setpoint.

**System Mode Screen**

Pressing the MODE button again displays the “System Mode” screen.

Use the up ▲ and down ▼ arrow buttons to select HEAT or OFF.

**Fan Mode Screen**

Pressing the MODE button again displays the “Fan Mode” screen.

Use the up ▲ and down ▼ arrow buttons to select AUTO or ON.

**NOTE:** In AUTO, the fan runs only when the system calls for heat or cool. In ON, the fan runs continuously.
Pressing the MODE button again displays the “Humidifier” screen.

**NOTE:** This page only appears if enabled in the “HUM OPTS” setup screen.

**NOTE:** CHV-TSTAT requires additional remote humidity sensor (CHV-RTHS, sold separately).

Use the up ▲ and down ▼ arrow buttons to select ENABLED or DISABLED.

Pressing the MODE button again displays the “Crestron Sys” (Crestron System) screen.

Use the up ▲ and down ▼ arrow buttons to select ONLINE or HOLD.

- **ONLINE:** Data flows both ways, to and from the thermostat, enabling adjustment from a remote location.
- **HOLD:** Data flows one way, from the thermostat, blocking system commands to change the temperature and humidity when the current settings should not be reset. Restores to the last command sent when online is re-engaged.

Pressing the MODE button again displays the “Global Update” screen.

Allows a single thermostat location to update the current temperature settings to all other thermostats on the system, provided that this function has been defined in the Crestron program.

Press the down ▼ button to send the update.

Pressing the MODE button again displays the main screen.
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 Web site are for authorized Crestron dealers and Crestron Service Providers (CSPs) only. New users may be required to 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/CHV-THSTAT; refer to the Crestron Toolbox help file for details. There is a single method of communication: indirect serial communication.

**Indirect Communication**

CHV-TSTAT/CHV-THSTAT connects to control system via Cresnet:

1. Establish communication between the PC and the control system as described in the latest version of the 2-Series Control Systems Reference Guide (Doc. 6256).
2. Use the Address Book in Crestron Toolbox to create an entry for the CHV-TSTAT/CHV-THSTAT using the expected communication protocol (indirect). Select the Cresnet ID of the CHV-TSTAT/CHV-THSTAT and the address book entry of the control system that is connected to the CHV-TSTAT/CHV-THSTAT.
3. Display the CHV-TSTAT/CHV-THSTAT’s “System Info” window (click the icon); 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 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 may be required to register to obtain access to certain areas of the site, including the FTP site.) Upgrade CHV-TSTAT/CHV-THSTAT firmware via Crestron Toolbox.

1. Establish communication with the CHV-TSTAT/CHV-THSTAT and display the “System Info” window.
2. Select **Functions | Firmware…** to upgrade the CHV-TSTAT/CHV-THSTAT firmware.

**NOTE:** Firmware version 2.40 is not compatible with SIMPL Windows programs that have used firmware version 1.1 and earlier.

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/CHV-THSTAT to display actions that can be performed on the CHV-TSTAT/CHV-THSTAT.
## Problem Solving

### Troubleshooting

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

**CHV-TSTAT/CHV-THSTAT Troubleshooting**

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>No display</td>
<td>No power from system</td>
<td>Check for +24 V on pins 24(C) and 24(R)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check circuit breaker powering furnace or boiler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check P4 jumper on thermostat board</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check thermostat wiring</td>
</tr>
<tr>
<td>Incorrect mounting to backplate</td>
<td></td>
<td>Check thermostat mounting</td>
</tr>
<tr>
<td>Heating/Cooling system not operating</td>
<td>No power to thermostat</td>
<td>Check circuit breaker</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check 24 V connection at thermostat and at furnace/air conditioner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Check circuit breaker powering furnace or boiler</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Recheck wiring connections</td>
</tr>
<tr>
<td>Flashing system indicator - Short</td>
<td>Timer Guards are a safety feature that</td>
<td>Wait five minutes and/or consult HVAC contractor</td>
</tr>
<tr>
<td>cycle timer not satisfied</td>
<td>prevents rapid switching between different</td>
<td></td>
</tr>
<tr>
<td></td>
<td>cycles; H1, H2, C1, C2, SB, HM, and AX flash</td>
<td></td>
</tr>
<tr>
<td></td>
<td>when the three-minute timer guards</td>
<td></td>
</tr>
<tr>
<td></td>
<td>have not been satisfied</td>
<td></td>
</tr>
<tr>
<td>Cannot change temperature setting</td>
<td>The upper or lower temperature limits</td>
<td>Setpoint heat range is 38 – 90°F (3-38°C)</td>
</tr>
<tr>
<td></td>
<td>were reached</td>
<td>Setpoint cool range is 59-100°F (15 – 38°C)</td>
</tr>
<tr>
<td>System cycles too quickly</td>
<td>Anticipator/Regulation setting too low</td>
<td>Reprogram anticipator/regulator setting</td>
</tr>
<tr>
<td>High temperature variance</td>
<td>Anticipator/Regulation setting too high</td>
<td>Refer to “Thermostat Setup”, on page 24</td>
</tr>
</tbody>
</table>

*(Continued on following page)*
### CHV-TSTAT/CHV-THSTAT Troubleshooting (Continued)

<table>
<thead>
<tr>
<th>TROUBLE</th>
<th>POSSIBLE CAUSE(S)</th>
<th>CORRECTIVE ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide temperature variance in single-setpoint auto mode</td>
<td>Auto deadband setting too high</td>
<td>Adjust auto deadband setting in setup</td>
</tr>
<tr>
<td>Heating/Cooling not operating in single-setpoint auto mode</td>
<td>20-minute system toggling lockout</td>
<td>Adjust auto deadband and anticipator settings for smoother operation</td>
</tr>
<tr>
<td>Displays Error Message and equipment not operating</td>
<td>Temperature sensors are disabled or have failed</td>
<td>Refer to “Local Error Messages” on page 77.</td>
</tr>
<tr>
<td>Displays Error Message</td>
<td>Bad communications</td>
<td>Check wiring – Use low capacitance twisted-pair wiring</td>
</tr>
<tr>
<td>Main Screen Lower Object field displays ERR when hardware configuration appears functional</td>
<td>Setting indicated in the “Main Scn Lwr Obj” does not have a local or network source for the data</td>
<td>Set field to N/A</td>
</tr>
<tr>
<td>Wrong temperature displayed</td>
<td>Wrong units</td>
<td>Select F or C as necessary</td>
</tr>
<tr>
<td></td>
<td>Incorrect sensor setup</td>
<td>Check sensor setup</td>
</tr>
<tr>
<td></td>
<td>Temperature Offset</td>
<td>Reset Temperature Offset</td>
</tr>
<tr>
<td></td>
<td>Bad location</td>
<td>Ensure that thermostat is located out of direct sunlight, drafts, doorways, skylights, and windows</td>
</tr>
<tr>
<td>Displays “NetDown”</td>
<td>No Crestron program or the program does not have a device at this net address included in this system</td>
<td>Check ID in program</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fix program, if one is needed</td>
</tr>
<tr>
<td>Cannot leave setup</td>
<td>n/a not valid</td>
<td>Ensure sensor setup meets system requirements. Refer to Sensor Setup screen</td>
</tr>
<tr>
<td>Cannot enter Auto mode</td>
<td>Auto mode disabled in setup</td>
<td>Select N for the Disable Auto Mode item on the “Other Settings” setup page</td>
</tr>
<tr>
<td>Cresnet Balance Point values out of range</td>
<td>Values of -1°, 91° F represent “Off” settings</td>
<td>Verify intended balance point settings</td>
</tr>
<tr>
<td>Temperature offset value not affecting Cresnet outputs</td>
<td>Offset is only added to ”RegulationTemp”</td>
<td>Add offset in SIMPL program</td>
</tr>
<tr>
<td>Cannot change screens or setpoints</td>
<td>Local operation locked out</td>
<td>Remove lockout from network</td>
</tr>
</tbody>
</table>
Control System Error Log Message Formats

When a remote sensor that has been designated as USE, SLAB, or OD in the Setup Sensors screen (refer to “Thermostat Setup”, which begins on page 24) generates an error, a message is sent to the error log. Retrieve this message using the System Info tool in Crestron Toolbox:

1. Using Crestron Toolbox, select Tools\System Info.
2. Select the control system from the address bar and examine the Error Log.

**Error Message Format**

```
Sensor <channel> type <designator> <CHA errors>, <CHB errors> Errors @ <cycle count>
```

Where:
- **channel** is the sensor channel string
- **designator** is the sensor setup designation
- **CHA errors/CHB errors** are the number of errors on each sub-channel
- **cycle count** is the number of read cycles that have occurred.

**NOTE:** Both sub-channels have their error count reported, regardless of the sensors connected.

This message is sent upon the first error detected on the channel, as well as every 100 errors detected thereafter. When only one sensor is connected to a remote interface, its values assume the <CHA> position. The values for the <CHB> position are not used. When two sensors are connected to a remote interface, the <CHA> position indicates the errors for the first sensor, and the <CHB> position indicates the errors for the second sensor.

The following is an example output, as seen in Crestron Toolbox, when a single outdoor sensor connected to RS1 accumulates 101 read failures:

```
Error: Message from device Slot-09.ID-2A: Sensor R1T type OD: 101,3922 Errors @ 3922 (0056:0000:0056)
```

The following is an example output, as seen in Crestron Toolbox, when two air space sensors are connected to RS1 and the first sensor encountered a read failure:

```
Error: Message from device Slot-09.ID-2A: Sensor R1T type USE: 1,0 Errors @ 5943 (0056:0000:0056)
```
Local Error Messages

When a critical sensor fails and prevents the safe or intended operation of the HVAC equipment, an error message flashes on the main screen.

This error message appears as a text message under the line that normally reads **ON LINE** and **VIEW MSG**. The thermostat messages are shown as follows in descending priority.

<table>
<thead>
<tr>
<th>ERROR</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>ERR! NO AT SRC</td>
<td>Indicates that no air temperature source is present, because all available sensors designated USE have generated errors during the current read cycle. HVAC operation is suspended and relays are cleared, except on SLAB1 type. SLAB1 type cannot generate this error because it does not have an air temperature USE type.</td>
</tr>
<tr>
<td>ERR! NO SB SRC</td>
<td>Indicates that no slab temperature source is present, because all available sensors designated SLAB have generated errors during the current read cycle. HVAC operation is suspended on all slab modes (1, 2, 3, 4A, 4B, 5A, 5B).</td>
</tr>
<tr>
<td>ERR! NO HM SRC</td>
<td>Indicates that no humidity sources are present, because all available sensors designated USE have generated errors during the current read cycle. Humidifier operation is suspended and HUM relay is cleared.</td>
</tr>
<tr>
<td>ERR! NO OD SRC</td>
<td>Indicates that no outdoor source is present and the setup says at least one remote is supposed to be providing OD data (designated OD). This error does not disable HVAC operation because it is not absolutely essential. All heatpump modes that use outdoor temperature for balance point operation eventually stage or switch to auxiliary heat and thus prevent the space from freezing.</td>
</tr>
</tbody>
</table>

**NOTE:** All of these conditions are self-healing if the sensor begins sending valid data.

Check Network Wiring

**Use the Right Wire**
In order 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](http://www.crestron.com/calculators)).

When calculating the length of wire for a particular Cresnet run, the wire gauge and the Cresnet power usage of each network unit to be connected must be taken into consideration. Use Crestron Certified Wire only. If Cresnet units are to be daisy chained on the run, the Cresnet power usage of each network unit to be daisy
chained must be added together to determine the Cresnet power usage of the entire
chain. If the unit is home-run from a Crestron system power supply network port, the
Cresnet power usage of that unit is the Cresnet power usage of the entire run. The
wire gauge and the Cresnet power usage of the run should be used in the following
equation to calculate the cable length value on the equation’s left side.

Cable Length Equation

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

Where:
- \( L \) = Length of run (or chain) in feet
- \( R \) = 6 Ohms (Crestron Certified Wire: 18 AWG (0.75 MM²))
- or 1.6 Ohms (Cresnet HP: 12 AWG (4 MM²))
- \( P \) = 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 +24V conductor and the GND conductor and the other twisted
pair is the Y conductor and the Z conductor.

Strip and Tin Wire

When daisy chaining Cresnet units, strip the ends of the wires carefully to avoid
nicking the conductors. Twist together the ends of the wires that share a pin on the
network connector and tin the twisted connection. Apply solder only to the ends of
the twisted wires. Avoid tinning too far up the wires or the end becomes brittle.
Insert the tinned connection into the Cresnet connector and tighten the retaining
screw. Repeat the procedure for the other three conductors.

Add Hubs

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

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

List of Related Reference Documents

<table>
<thead>
<tr>
<th>DOCUMENT TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Series Control Systems Reference Guide</td>
</tr>
<tr>
<td>CHV-RTS &amp; CHV-RTHS</td>
</tr>
<tr>
<td>CHV-RSS</td>
</tr>
</tbody>
</table>

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) 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). 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/CHV-THSTAT, 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.
Appendix A: About Heat Pumps

A heat pump extracts available heat from one area and transfers it to another. Even cold air contains some heat, and heat pumps can extract heat from the outside air on a cold day and transfer it indoors to maintain a comfortable temperature. A heat pump also works in reverse during the summer, extracting heat from indoors and transferring it outdoors.

In the heating mode, the efficiency of a heat pump decreases as the outdoor air temperature decreases.

Heat Pump Operation

Heat flows naturally from a warm area to a cooler area, and the heat pump takes advantage of this principle. The heat pump essentially consists of a compressor, an inside coil and fan, and an outside coil and fan. A refrigerant flows inside the coils, under pressure applied by the compressor.

The refrigerant boils at a very low temperature (as low as -15° F) and becomes a vapor, just as water becomes a vapor (steam) when boiled. This vapor is sucked into the compressor where it becomes a high pressure, high temperature vapor.

When heating, the refrigerant is then forced through a coil within part of the heat pump located indoors. A fan blows cool air over the coil, the vapor cools, turns back to a liquid, releasing heat that is blown through a duct system to heat the house.

The cycle begins again as the cooled liquid refrigerant is pumped back outside after releasing its heat. On the way, it passes through an expansion valve, lowering the refrigerant's pressure and temperature again so it can boil more easily in the outdoor coil.

In its cooling mode the heat pump system works in reverse, extracting available heat from indoors and transferring it outside.

Heat pumps are most economical when they can be used year-round for both winter heating and summer cooling.

The efficiency of a heat pump varies significantly with the outdoor temperature. While a heat pump may be twice as efficient as a conventional heating system at 50° F, when the outdoor temperature drops to less than 30° F, the heat pump must be supplemented with an auxiliary heating system such as electric resistance. At temperatures of 15° F or less the heat pump may shut off and the backup heating system takes over. This is the heat pump balance point. In a dual-fuel system, the heat pump is supplemented with a standard furnace, which takes over when it becomes more efficient than the heat pump at very low temperatures.
Glossary

Anticipators
Used to anticipate the drop or rise in temperature and energize the appropriate system before reaching the setpoint.

Auto Dead Band Degree (Auto DdBand Deg)
Sets the minimum separation in auto mode between the heat and cool setpoints, or the changeover band in 1-point auto mode.

Balance Point
The lowest outdoor temperature at which the refrigeration cycle of a heat pump supplies the heating requirements without the aid of a supplementary heat source.

Blower (Fan)
An air handling device for moving air in a distribution system.

Btu - British Thermal Unit
In scientific terms, it represents the amount of energy required to raise one pound of water one degree Fahrenheit. One Btu is the equivalent of the heat given off by a single wooden kitchen match.

Call
A call is when the thermostat requests the heating or cooling system to turn on.

Damper
Found in ductwork, this movable plate opens and closes to control airflow. Dampers are used effectively in zoning to regulate airflow to certain rooms.

Dead Band
The minimal differential between heating and cooling.

Dual Fuel
A heat pump used in conjunction with an existing furnace.

Dual Setpoint Auto
Enables the 2-point to mode.

Emergency Heat (Supplementary Electric Heat)
The auxiliary (AUX) or emergency heat provided at temperatures below a heat pump's balance point. It is usually electrical resistance heat.

Forced Air
A type of heating system that uses a blower motor to move air through the furnace and into the ductwork.

Furnace
Equipment used to convert heating energy, such as fuel, oil, gas or electricity, to usable heat. It usually contains a heat exchanger, a blower and the controls to operate the system.

Heat Exchanger
A device for the transfer of heat energy from the source to the conveying medium of air or water. Most common combinations are: Refrigerant to air or Refrigerant to water (DX), Water to air (hydronic), Steam to air, Steam to water.
Heat Pump
A unit that both cools and heats. A heat pump system can be either a split system or a packaged system. A heat pump can be used in conjunction with a gas/oil/LP furnace (using the furnace instead of electric resistance heat when temperatures fall below about 35° 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 (dewpoint). Moisture condenses on surfaces that are below this dewpoint.

HVAC
Heating, ventilation and air conditioning.

Interstage Differential
The proportional temperature error (0.5 to 3.0°) to trigger the second stage (2-stage only).

Main Screen Lower Object (Main Screen Lwr Obj)
Selects the data item displayed at the bottom of the main screen. Choice of: none, slab temperature, outdoor temperature, or indoor humidity.

Run Fan in Heat Calls (Run Fan in Ht Calls)
A device setting that activates the fan output with W1/W2 heat calls. Does not enable operation on slab systems on the slab (W1) call.

Setpoint
The thermostat temperature or humidity adjustment setting.

Time Delay (Timer Guards)
Refers to a safety device or circuit that does not allow restart for three minutes.

2-Stage Heating
The heating unit starts out running in its first stage, and operates at a fraction of its capacity. When the temperature outside goes very low, the system adjusts to full capacity (second stage) to meet the demand.

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