

# Robertshaw®

# 9560

DELUXE  
NON-PROGRAMMABLE  
THERMOSTAT



HEAT PUMP

2 Heat / 2 Cool  
with Auto Changeover

User's Manual  
Quick Start  
Installation



**NEW**



110-1033

## Application

The Robertshaw 9560 is a multi-stage auto changeover thermostat designed to control 24 VAC heat pump systems up to 2 stage heat and 2 stage cool. The 9560 requires the use of a common wire.

## Features

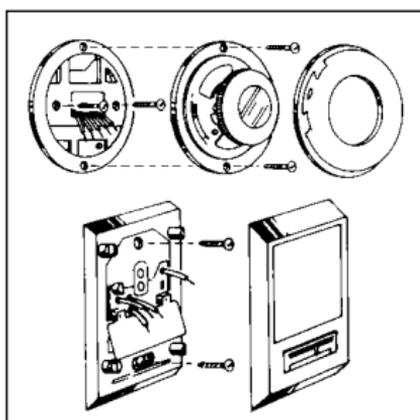
- Multi-stage control
- Auto changeover [deadband adjustable from 2°F to 8°F (1.0°C - 4.5°C)]
- Large back lit display
- Adjustable 1<sup>ST</sup> and 2<sup>ND</sup> stage temperature differential
- Compressor short cycle protection
- Adjustable fan delay on cooling
- LED indication of system status
- Zone system compatible as a master thermostat
- Battery-free EEPROM memory retention
- Optional temperature limiting settings
- Fahrenheit/Celsius display option
- Adjustable from 45°F to 90°F (7°C - 32°C)
- Quick wire terminal block

## **▲ IMPORTANT SAFETY INFORMATION WARNING:**

- Always turn off power at the main power source by unscrewing fuse or switching circuit breaker to the off position before installing, removing, cleaning, or servicing thermostat.
- Read all the information in this manual before installing or programming this thermostat.
- This is a 24 VAC low-voltage thermostat. Do not install on voltages higher than 30 VAC.
- All wiring must conform to local and national building and electrical codes and ordinances.
- Do not short (jumper) across terminals on the gas valve or at the system control to test installation. This will damage the thermostat and void the warranty.

## **Step 1: Replacing Existing Thermostat**

1. Turn off power to heating and cooling system.
2. Remove cover from old thermostat to expose wires (Figure 1).



**Figure 1**

3. Disconnect wires one at a time from existing terminals. Use enclosed labels to mark existing wires. Refer to cross references in Table 1 if existing wiring does not directly match the labels.

<b>Old Terminal</b>	<b>New Label</b>	<b>Description</b>
L	L	System Check
R, V-VR or VR-R	R	24 VAC, Return
Y, Y1 or M	Y1	1st Stage Cooling Control
O or R	O	Cool Active Reversing Valve
B	B	Heat Active Reversing Valve
F or G	G	Fan Control Relay
Y2	Y2	2nd Stage Cooling Control
W2 or W-U	W2	2nd Stage Heating Control
C, X or B	C	24 VAC, Transformer Common Side
W1 or W	E	Emergency Heating Relay

**NOTE: THIS THERMOSTAT REQUIRES A 24V COMMON WIRE FOR PROPER OPERATION.**

**Table 1**

- If you have any questions about cross referencing the old terminal to the new label, reference your equipment installation manual, a licensed contractor, or call Robertshaw Technical Support at (800) 445-8299.

4. Remove existing thermostat base from wall.

## Recycling Thermostat

If this thermostat is replacing a thermostat that contains mercury in a sealed tube, do not place your old thermostat in the garbage. Contact your local waste management authority for instructions regarding proper disposal of the thermostat. If you have any questions, call Robertshaw technical support at 1-800-445-8299.

## Step 2: Installing Model 9560 Thermostat

**NOTE: FOR NEW INSTALLATIONS, MOUNT THERMOSTAT ON INSIDE WALL, FIVE FEET ABOVE THE FLOOR. DO NOT INSTALL BEHIND A DOOR, IN A CORNER, NEAR AIR VENTS, IN DIRECT SUNLIGHT, OR NEAR ANY HEAT OR STEAM GENERATING FIXTURES. INSTALLATION AT THESE LOCATIONS WILL AFFECT THERMOSTAT OPERATION.**

1. Turn power off to the heating and cooling systems.
2. Place AUTO-HEAT-OFF-COOL in OFF position (Figure 2).
3. Place  -ON-AUTO switch into AUTO position (Figure 2).

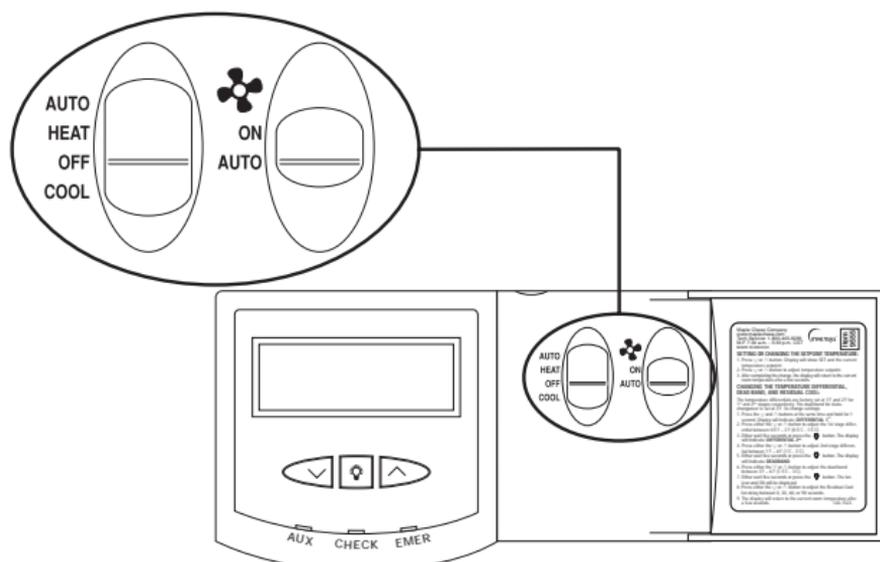


Figure 2

4. Remove the cover using a coin or screwdriver (Figure 3). Set aside.

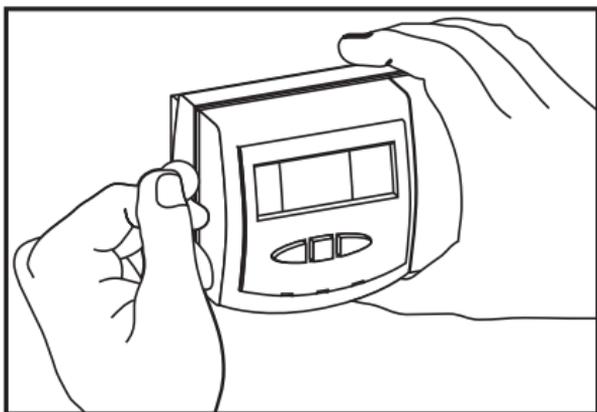


Figure 3

5. Place thermostat against the wall at desired location. Make sure wires will feed through opening (Figure 4) on base of thermostat.

6. Mark placement of mounting holes (Figure 4). Set base aside.

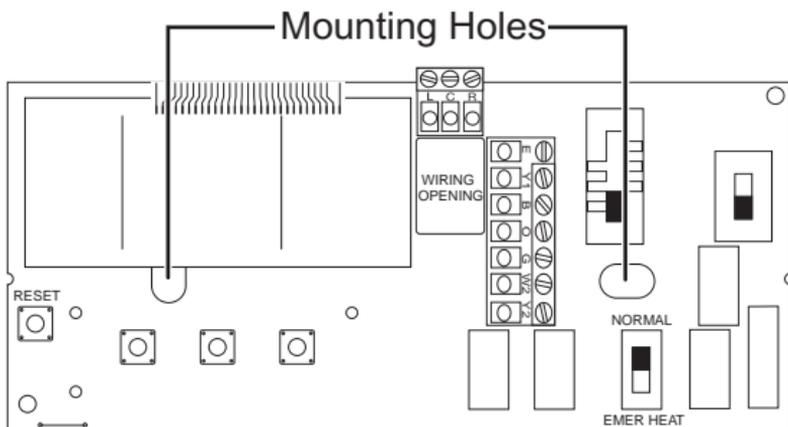


Figure 4

7. If mounting on drywall, tap plastic anchors into wall.

**NOTE: ENCLOSED PLASTIC ANCHORS DO NOT REQUIRE A DRILLED HOLE FOR DRYWALL.**

8. Drill the marked holes using a 3/16" drill bit if mounting on a surface other than drywall.

9. Align base with plastic anchors and feed wires through opening.

10. Secure base to wall with supplied screws.

**NOTE: THE THERMOSTAT WILL MOUNT HORIZONTALLY ON A SINGLE GANG JUNCTION BOX.**

11. Strip end of wires 5/16" if needed.

12. Terminal screws are already loose and ready for wire insertion.  
Insert wires into terminal strip (Figure 5) matching the label to the corresponding terminal (see **Wiring Diagrams** below). Tighten screws.
13. Make sure wire connections are secure.
14. Push access wire back through opening.

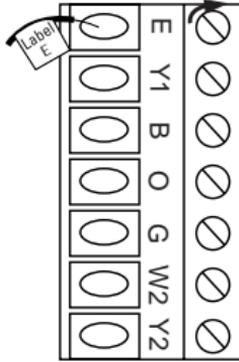
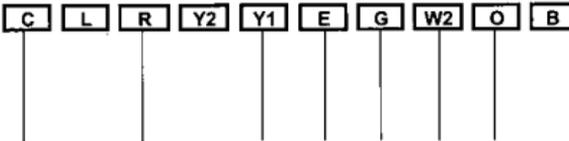


Figure 5

## Wiring Diagrams for 9560

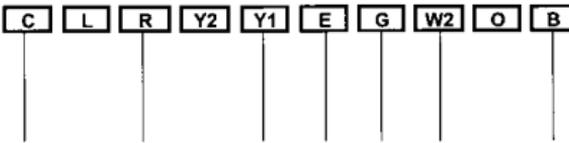
### 9560 WIRING SAMPLE #1

Typical heat pump with cool active reversing valve and auxiliary/emergency heat.



### 9560 WIRING SAMPLE #2

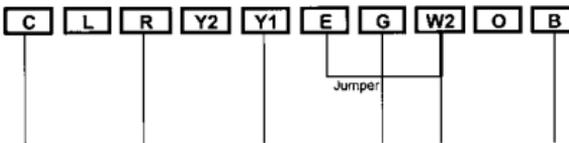
Typical heat pump with heat active reversing valve and auxiliary/emergency heat.



### 9560 WIRING SAMPLE #3

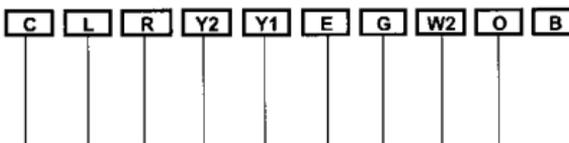
Typical heat pump with heat active reversing valve and auxiliary/emergency heat.

Does not have separate wire for emergency heat (Jump W2 & E).



### 9560 WIRING SAMPLE #4

Typical heat pump with cool active reversing valve, auxiliary/emergency heat and second stage of cooling. System fault indicator connected (L terminal).



TERMINAL LEGEND - 9560			
TERM	EQUIPMENT TO CONNECT	REQ?	TERMINAL FUNCTION
C	24VAC common connection	Yes	For input of 24VAC common side of transformer
L	System fault indicator connection	No	For input of system fault indicator (if present)
R	24VAC hot connection	Yes	For input of 24VAC hot side of transformer
Y2	Second stage cooling connection	No	Energizes on a call for second stage cooling
Y1	First stage compressor connection	Yes	Energizes on a call for first stage heating or cooling
E	Emergency heat connection	No*	Energizes on a call for heat in the EM mode only
G	Indoor fan connection	Yes	Energizes with E, Y1, Y2 and W2 terminals or with FAN option switched to the ON position
W2	Second stage heat connection	No*	Energizes on a call for second stage heating (auxiliary heat)
O	Cool active reversing valve connection	Yes**	Energizes when in the in COOL mode
B	Heat active reversing valve connection	Yes**	Energizes when in the HEAT or EM modes

\* For systems using a backup heat source. If separate E terminal connection is not available, jumper E and W2.

\*\* Most heat pump systems will have a cool active OR heat active reversing valve. Use the appropriate terminal.

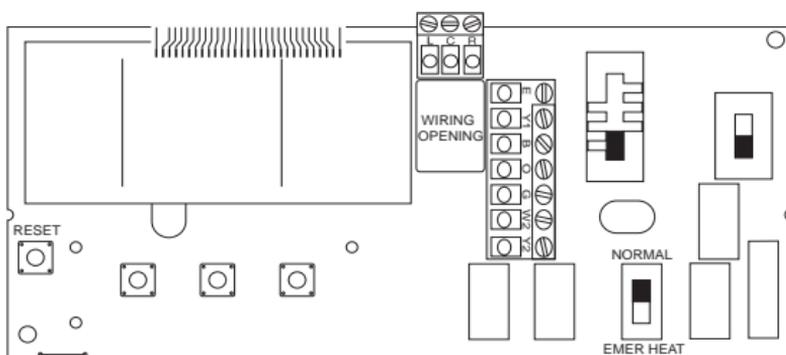


Figure 6

15. A temperature limiting jumper has been included in this thermostat. Cutting this jumper (J3) limits the heating setpoint to no greater than 72°F and the cooling setpoint to no lower than 78°F (Figure 7).

16. Replace thermostat cover by snapping into place.

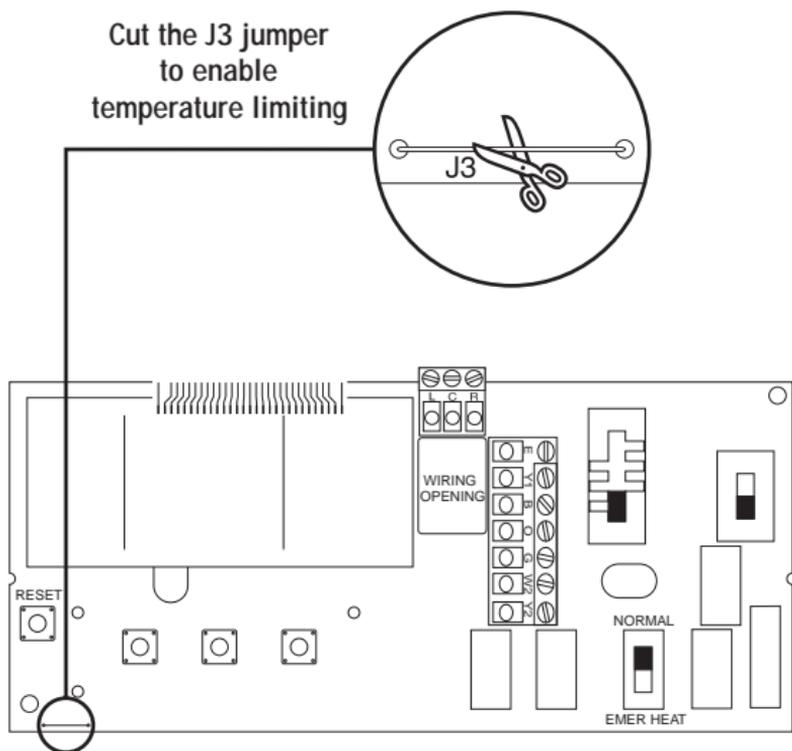


Figure 7

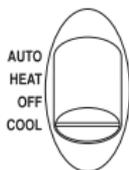
17. Turn on power to system. Test thermostat as described in the following section.

### Step 3: Testing the Thermostat

**⚠ WARNING:** DO NOT SHORT (JUMPER) ACROSS TERMINALS OF GAS VALVE OR SYSTEM CONTROL TO TEST OPERATION. THIS WILL DAMAGE THE THERMOSTAT AND VOID YOUR WARRANTY.

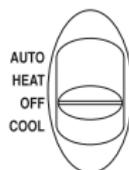
**CAUTION:** DO NOT SWITCH SYSTEM TO COOL IF THE TEMPERATURE IS BELOW 50°F (10°C). THIS CAN DAMAGE THE AIR CONDITIONING SYSTEM AND CAUSE PERSONAL INJURY.

1. Place the AUTO-HEAT-OFF-COOL switch into the COOL position.
2. Press the  button until the temperature setting is at least 3 degrees below the room temperature. The air conditioning system should turn on within a few seconds.

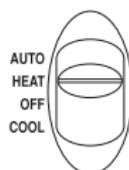


**NOTE:** ONCE THE THERMOSTAT TURNS OFF WHEN IN THE COOL MODE, A BUILT IN 5-MINUTE DELAY PREVENTS THE SYSTEM FROM TURNING ON AGAIN. THIS PROTECTS THE COMPRESSOR. NO ADDITIONAL TIME DELAY RELAY IS REQUIRED. TO OVERRIDE THE 5-MINUTE DELAY FOR INSTALLATION, PRESS THE RESET BUTTON.

3. Put the AUTO-HEAT-OFF-COOL switch into the OFF position. The air conditioning system should turn off.



4. Put the AUTO-HEAT-OFF-COOL switch into the HEAT position.

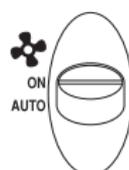


5. Press the  $\wedge$  button until the temperature setting is at least 3 degrees above room temperature. The heating system should turn on. The fan may not turn on immediately, depending on the fan delay built into the furnace.

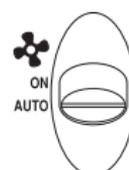
6. Put the AUTO-HEAT-OFF-COOL switch into the OFF position. The heating system should turn off. The fan may continue to run for a short period of time.



7. Put the  -ON-AUTO switch into the ON position. The blower fan should turn on.



8. Put the  -ON-AUTO switch into the AUTO position. The blower fan should turn off.



## Step 4: Customizing the Thermostat

### ◆ Settings

#### System

Cool: The thermostat controls the cooling.

Off: The heating and cooling systems are off.

Heat: The thermostat controls the heat.

AUTO: The thermostat automatically selects heat or cool depending on the temperature.

#### Fan

Auto: Equipment controls the fan.

On: The fan operates continuously.

#### Temperature

The default setpoint temperature for heating is 70°F (21°C), for cooling is 78°F (25°C), and for auto is 72°F (22°C). After putting the system switch in heat, cool, or auto, press either the  $\nabla$  or  $\wedge$  button to adjust the temperature setting up or down.

The display will return to the current room temperature five seconds after the last input and the new setpoint will be saved.

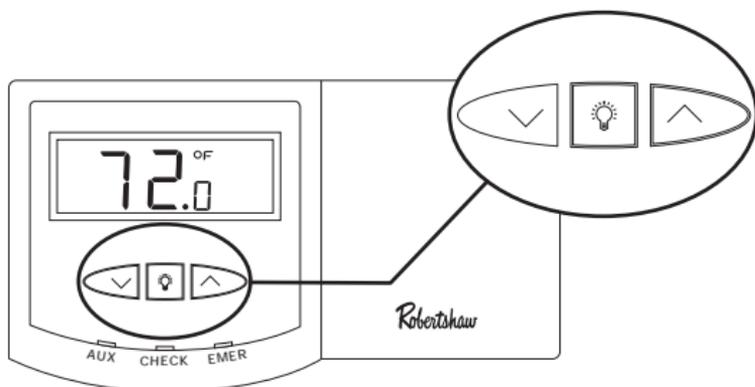


Figure 8

### ◆ Temperature Differential and Deadband

The temperature differential is factory set at 1°F (0.5°C) for the 1<sup>ST</sup> stage differential and 2°F (1.0°C) for the 2<sup>ND</sup> stage. This means that whenever the room temperature changes by one degree Fahrenheit from the temperature setting, the system will turn on. If the system turns on too often, increase the temperature differential.

The 2<sup>ND</sup> stage will turn on when the room temperature changes from the desired temperature by the sum of the 1<sup>ST</sup> and 2<sup>ND</sup> stage differential settings. The 2<sup>ND</sup> stage will also turn on if the temperature has not increased (or decreased in the event of cooling) for a period of twenty minutes.

Although programmed at the same time as the temperature differentials, the deadband is used only during the AUTO mode. In the AUTO mode, the thermostat will automatically cycle either the heating or cooling system to maintain optimal comfort. The deadband is the minimum allowable temperature which must occur to switch to the opposite mode. For example, if the deadband is set at 3°F and the setpoint is set at 70°F, the thermostat will switch to cooling mode when the temperature reaches 73°F.

**NOTE: IF THE TEMPERATURE LIMITING JUMPER J3 IS CUT (FIGURE 7), THE DEADBAND IS NOT ADJUSTABLE AND IS AUTOMATICALLY SET TO 6°F (3°C).**

## ◆ Changing Fahrenheit (F) to Celsius (C), Temperature Differential, Deadband, and Residual Cool

The temperature differential is factory set at 1°F (0.5°C) for the 1<sup>ST</sup> stage differential and 2°F (1.0°C) for the 2<sup>ND</sup> stage. The deadband for auto changeover is set at 3°F (1.5°C). To change settings:

1. The thermostat is preset to display the temperature in degrees Fahrenheit (U.S. models) or degrees Celsius (Canadian models). The temperature display can be changed. Press and hold both the  $\nabla$  or  $\Delta$  buttons for three seconds. The display will read **F** or **C**. Release the buttons. Press either the  $\nabla$  or  $\Delta$  button to change the display.
2. After three seconds, the display will switch to the differential settings. The display will read **DIFFERENTIAL 1<sup>ST</sup>**.
3. The temperature differential is factory set at 1°F (0.5°C) for the first stage. Press either the  $\nabla$  or  $\Delta$  button to adjust the 1<sup>ST</sup> stage differential between 0.5°F - 3°F.
4. Either wait three seconds or press the  button. The display will indicate: **DIFFERENTIAL 2<sup>ND</sup>**.
5. The 2nd stage differential is factory set at 2°F (1.5°C). Press either the  $\nabla$  or  $\Delta$  button to adjust the 2nd stage temperature differential between 1°F - 6°F (1°C - 3°C).
6. Press the  $\nabla$  or  $\Delta$  button to adjust the 2nd stage timed differential between 5 to 40 minutes. Either wait 5 seconds or press the  button.
7. Either wait three seconds or press the  button. The display will indicate: **AUTOCHANGE DEADBAND**.
8. Press either the  $\nabla$  or  $\Delta$  button to adjust the deadband between 2°F - 8°F (1.0°C - 4.5°C).
9. Either wait three seconds or press the  button. The fan icon and ON will be displayed.
10. Press either the  $\nabla$  or  $\Delta$  button to adjust the residual cool fan delay between 0, 30, 60, or 90 seconds.
11. The display will return to the original room temperature display after a few seconds.

## ◆ LED Indicators

The Robertshaw 9560 uses three LED indicators (in addition to icons on the LCD display) to indicate functionality of the thermostat. When illuminated, the right red LED indicates that the thermostat is calling for emergency heat. The left green LED indicates a call for auxiliary cool. When the middle amber LED is illuminated, the system is not functioning. Call your local HVACR service contractor.

## ◆ Backlit Display

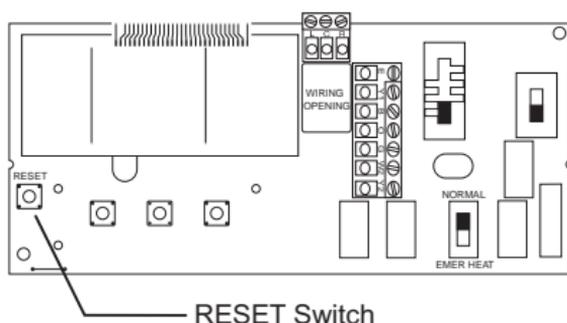
This thermostat is equipped with a backlight to make nighttime temperature adjustments quick and easy. Press the  button to activate the backlight. The backlight will turn off after about 15 seconds of inactivity.

## ◆ Emergency Heat

The Emergency Heat switch is located on the bottom right corner. To activate emergency heat, slide switch from NORMAL to EMER HEAT.

## ◆ Reset

To reset the thermostat to factory preprogrammed conditions, press the RESET button located beneath the lower left corner of the display.



## Step 5: Troubleshooting

Symptom	Remedy
Thermostat does not turn on system.	Check wiring (see <b>Installation</b> section).
Thermostat turns system on and off too frequently.	Increase temperature differential (see <b>Changing the Temperature Differential</b> section).
CHECK LED is lighted	Monitors system status. Call your local HVAC service provider.
Thermostat does not display proper room temperature.	Check Fahrenheit (F) / Celsius (C) settings (see <b>Changing Fahrenheit (F) to Celsius (C)</b> section).
Er on display	If error occurs after turning on EMERGENCY HEAT, make sure the system switch is in HEAT also. If <b>Er</b> is still on display, call technical service.

**If problems with thermostat cannot be resolved, call:**

Technical Support: (800) 445-8299  
Monday-Friday 7:30 AM - 5:30 PM CST

## Two Year Limited Warranty

**Climate Controls Americas** warrants to the original contractor installer, or to the original consumer user, each new Robertshaw thermostat to be free from defects in materials and workmanship under normal use and service for a period of two (2) years from date of purchase. This warranty and our liability does not apply to batteries or merchandise that has been damaged by misuse, neglect, mishandling, alterations, improper installation, or use in a way other than in accordance with **Climate Controls Americas** recommendations and instructions.

**Climate Controls Americas** agrees to repair or replace at its option any thermostat under warranty provided it is returned within the warranty period, postage prepaid, with proof of the date of purchase. Cost of thermostat removal or reinstallation is not the responsibility of **Climate Controls Americas**.

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. **Climate Controls Americas** shall not be liable for any incidental or consequential damages for breach of any express or implied warranty on this product, or under any other theory of liability. Except to the extent prohibited by applicable law, any implied warranty of merchantability or fitness for a particular purpose on this product is limited to the duration of this warranty.

Some states do not allow the exclusion or limitation of incidental or consequential damages, or allow limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For warranty returns, send thermostat, shipping prepaid to:

**Climate Controls Americas**  
Warranty Claims Department  
515 S. Promenade  
Corona, CA 91719



**Climate Controls Americas**  
191 E. North Avenue  
Carol Stream Illinois 60188  
United States of America