Robertshaw®

INTEGRATED COMFORT SOLUTIONS™

9520 DIGITAL NON-PROGRAMMABLE THERMOSTAT

H

HEAT PUMP

2 Heat / 2 Cool

User's Manual

Quick Start Installation

110-733D

⚠ 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 of the information in this manual before installing or programming this thermostat
- This is a 24V AC low-voltage thermostat. Do not install on voltages higher than 30V AC.
- 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

Features

- Multi-stage heating and cooling control
- Zone system compatible as a master thermostat
- Multi-colored LED indicators for system status
- Low battery indicator.
- Fahrenheit/Celsius display option.
- Adjustable from 45°F (4°C) to 90°F (32°C).
- Accuracy within ± 1 degree.
- Adjustable temperature differential: 1-3 degrees F.
- Automatic heating shutdown if temperature exceeds 90°F (32(C).

Step 1: Replacing Existing Thermostat

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

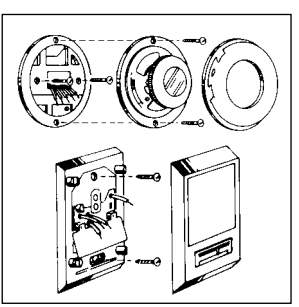


Figure 1

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.

- 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 Tech Support (800) 445-8299

4. Remove existing thermostat base from wall.

Table 1

Old Terminal	New Label	Description
R, V-VR or VR-R	R	24 VAC Return
Y, Y1 or M	Y	Stage 1 Cooling/Heating Circuit
O or R	O	Reversing Valve (Cooling Mode)
B	B	Reversing Valve (Heating Mode)
F or G	G	Fan Control Relay
Y2	Y2	2nd Stage Cooling Circuit
W1 or W2 or W-U	W2	2nd Stage Heating Control
L or X	L	System Monitor LED
E	E	Emergency Heating Circuit
C, X or B	C	24 VAC Transformer Common Side

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

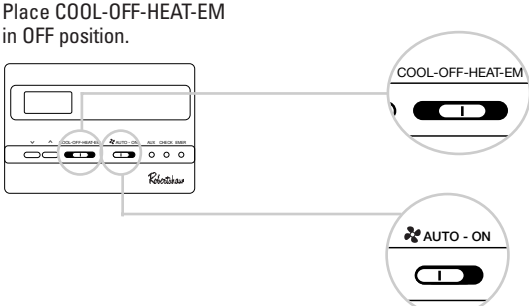
Recycling Thermostat

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 9520 Thermostat

NOTE: FOR NEW INSTALLATIONS, MOUNT THERMOSTAT ON INSIDE WALL, 4-5 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 PLACES WILL AFFECTS THERMOSTAT OPERATION.

1. Turn off power to the heating and cooling systems.
2. Place COOL-OFF-HEAT-EM in OFF position.



3. Place AUTO-ON switch into AUTO position.
4. Remove the cover using a coin or screwdriver

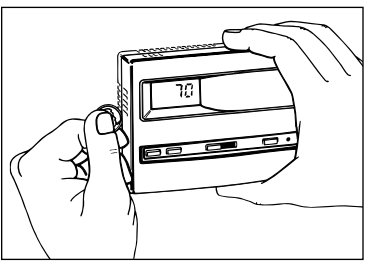


Figure 2

5. Place thermostat against the wall at desired location. Make sure wires will feed through opening on base of thermostat.
6. Mark placement of mounting holes. See Figure 3. Set base aside.

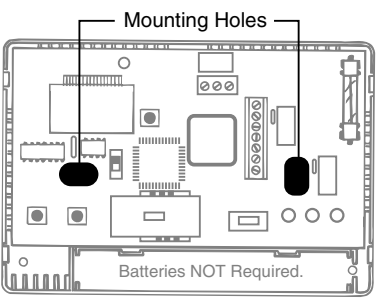


Figure 3

7. Drill the marked holes using a 3/16" drill bit. NOTE: Enclosed plastic anchors do not require a drilled hole for drywall.
8. Tap plastic anchors into the wall.
9. Align base with plastic anchors and feed wires through opening.
10. Secure base to wall with supplied screws.

11. Terminal screws are loosened. Insert wires into terminal strip (Figure 4) matching the label to the corresponding terminal (see Wiring Diagrams below). Tighten screws.

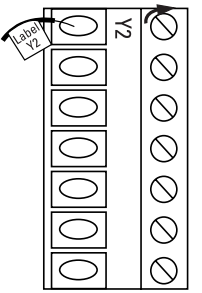
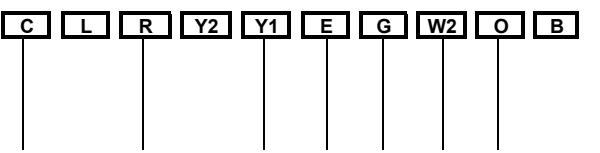


FIGURE 4

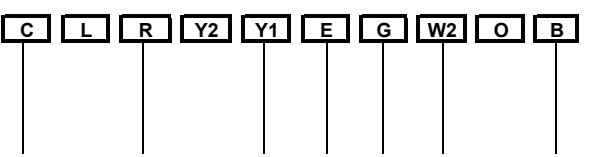
9520 WIRING SAMPLE #1

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



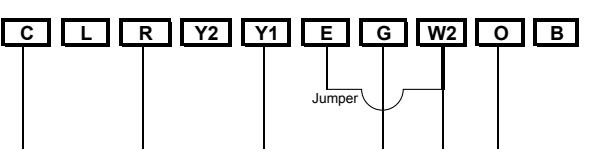
9520 WIRING SAMPLE #2

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



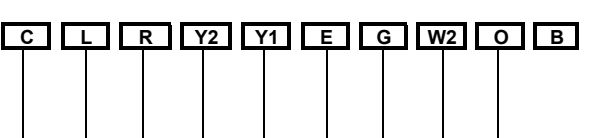
9520 WIRING SAMPLE #3

Typical heat pump with heat active reversing valve and auxiliary/emergency heat.
Does not have separate wire for emergency heat (jump W2 & E).



9520 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 - 9520			
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 connection 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 of heat (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* a heat active reversing valve. Use the appropriate terminal.

12. Put the °F/°C switch to either °F for Fahrenheit display or °C for Celsius display (see Figure 5).

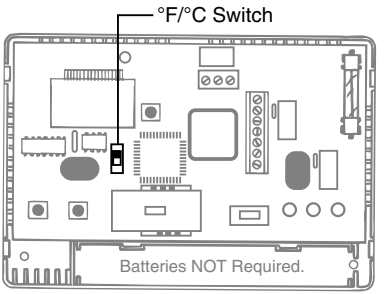


Figure 5

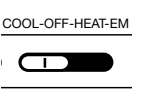
13. Replace cover on thermostat by snapping into place.
14. Turn on power to system . Test thermostat as described in the following section.

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.

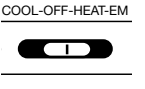
CAUTION: DO NOT SWITCH SYSTEM TO COOL IF THE TEMPERATURE IS BELOW 50°F (10°C). THIS CAN DAMAGE THE AIR CONDITIONING SYSTEM AND CAUSE PERSONAL INJURY.

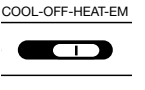
1. Place the COOL-OFF-HEAT-EM switch into the COOL position
2. Press the ∨ button until the temperature setting is at east 3 degrees below the room temperature. The air conditioning system should turn on within a few seconds.



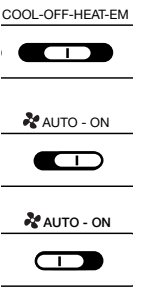
NOTE: Once the thermostat turns off when in the COOL mode, a built in 5-minute delay prevents the system from turning on again. This protects the compressor. No additional time delay relay is required. To override the 5-minute delay for installation, press the RESET button.

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





5. Press the ∧ 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 COOL-OFF-HEAT-EM 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 AUTO-ON switch to the ON position. The blower fan should turn on.
8. Put the AUTO-ON switch to the AUTO position. The blower fan should turn off.



Step 4: Customizing Your Thermostat

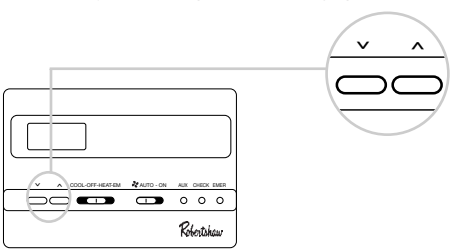
◆ Setting or Changing the Setpoint Temperature

Settings

System
Cool: The thermostat controls the cooling.
Off: The heating and cooling systems are off.
Heat: The thermostat controls the heat.
EM: The thermostat controls the second stage emergency heat.

Fan
Auto: Equipment controls the fan.
On: The fan operates continuously.

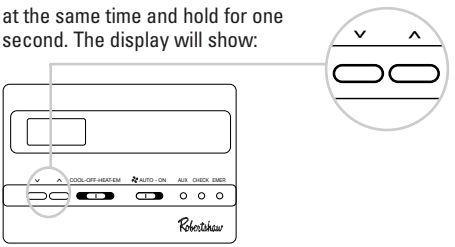
Temperature
The default setpoint temperature for heating is 70°F (21°C), and the default setpoint temperature for cooling is 78°F (25°C). After putting the system switch in heat, cool, or em, press either the ∨ or ∧ button to adjust the temperature setting up or down.



◆ Changing Temperature Differential

IMPORTANT: The temperature differential is factory set at 1 (1°). This means that whenever the room temperature changes by one half of a degree from the temperature setting, the system will turn on. If the system turns on too often, increase the temperature differential.

1. Press both ∨ and ∧ buttons at the same time and hold for one second. The display will show:



2. Press either the ∨ or ∧ button to adjust the temperature differential up or down.

The display will return to the room temperature five seconds after the last input.

◆ Changing Fahrenheit (F) to Celsius (C)

The thermostat is preset to display the temperature in degrees Fahrenheit. You may change the display to Celsius if desired.

1. Move the manual switch marked F (Fahrenheit) and C (Celsius) located at the top center of the circuit board to the desired setting (see page 7).
2. Press RESET button located to the right of the LCD display to register the change.

The display will change to show the temperature in your desired temperature scale. To return the thermostat to its original setting, repeat steps 1 and 2 above.

◆ LED Indicators

The LED indicators are used to indicate system activity. The AUX indicator illuminates during a call for second stage heating. The auxiliary stages are used to maintain comfort during extremes in weather conditions. If the AUX LED is illuminated too frequently during periods of moderate temperature, check the differential settings (see above).

The CHECK indicator is used to monitor system status. If the CHECK indicator is illuminated, call your local HVAC service provider.

The EMER indicator is illuminated only when the system switch is moved to the EM, emergency heat position. The EM position is used only when the primary stage of heat is not functioning or requires service.

Troubleshooting

Symptom	Remedy
Thermostat does not turn on system.	Check wiring. (See Installing Model 9520 Thermostat) Check fuse. Replace with 2 amp fuse if fuse has opened.
Thermostat turns on and off too frequently.	Increase temperature differential. (See Changing Temperature Differential)
Display is blank, flashing, or constant LO BAT.	Replace batteries.
System fan does not operate properly.	Move fan option switch to either gas or electric, to match system. (See Installing Model 9520 Thermostat)
Thermostat does not display proper room temperature.	Check F Fahrenheit/C Celsius switch located at top center of circuit board for proper position. If a new selection is made, press RESET button located to the right of the LCD display.

If problems with thermostat cannot be resolved, call:

Technical Support: (800) 445-8299

Monday-Friday 7:30-5:30 CST

Five Year Limited Warranty

Maple Chase Company 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 five (5) years from date of purchase. This warranty and our liability does not apply to batteries or the merchandise that has been damaged, caused by misuse, neglect, mishandling, alterations, improper installation, or use in a way other than in accordance with Maple Chase Company recommendations and instructions.

Maple Chase Company 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 Maple Chase Company.

Repair or replacement as provided under this warranty is the exclusive remedy of the consumer. **Maple Chase Company** 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:

Uni-Line North America
Warranty Claims Department
515 S. Promenade
Corona, CA 91719

invensys™

Maple Chase Company
2820 Thatcher Road
Downers Grove, Illinois 60515
United States of America

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