Mode of Operation

RT6P is a 1-stage cool/2-stage heat thermostat. It functions with an air-conditioning, heat pumps, or electric heat systems. It is programmable for 7 days a week and is very user-friendly.

The thermostat Activates the heating appliance when the room temperature is below the set temperature (by the differential temperature). The thermostat will stop cycling when the call for heat has been satisfied.

When the room temperature is greater than the set temperature (by the differential temperature), the heating device is deactivated. The thermostat will stop cycling when the call for cooling is satisfied.

The thermostat will not let the compressor come on for 4 minutes after it turns off to protect your compressor.

When the room temperature is greater than the set temperature (by the differential temperature), the cooling device is activated. The thermostat will stop cycling when the call for cooling is satisfied.

Select whether the outputs for heating and cooling are staged off or not. Each stage operates after a delay of 4 minutes.

The program schedule can be overridden by changing the set temperature (up or down button). This stops the thermostat temporarily into a 0-hour mode. After 3 hours, it will automatically return to the program schedule.

Button Functions

UP – Used to increase the set temperatures and to adjust configuration settings.

DOWN – Used to decrease the set temperatures and to adjust configuration settings.

SYS (left) – Used to change from Off, Heat/Cool, and Heat/COOL, models.

FIN (right) – Used to turn on and off the indoor fan.

SYS (left) and FIN (right) – Used to enter and exit program operation.

To Remove Existing Thermostat

ELECTRICAL SHOCK HAZARD – Turn off power at the main service panel by removing the fuse or shutting the appropriate circuit breaker to the OFF position before removing the existing thermostat.

1. Turn off the power to the heating and cooling circuit by removing the fuse or shutting the appropriate circuit breaker off.

2. Remove cover of existing thermostat. This should expose the wires.

3. Label the existing wires with the enclosed wire labels before removing wires.

4. After labeling wires, remove_accuracy the wires from the thermostat.

5. Remove existing thermostat base from wall.

6. Refer to the following section for instructions on how to install this thermostat.

To Install Thermostat

ELECTRICAL SHOCK HAZARD – Turn-off power at the main service panel by removing the fuse or shutting the appropriate circuit breaker to the OFF position before removing the existing thermostat.

WARNING! This thermostat must conform to local and national building and electrical codes & ordinances.

Note: Mount the thermostat about 5 feet above the floor. Do not mount the thermostat on an outside wall, in direct sunlight, behind a door, or in an area affected by a vent or duct.

1. Turn off the power to the heating and cooling circuit by removing the fuse or shutting the appropriate circuit breaker off.

2. Select a good, flat surface on the wall that is level. This will be the location for your thermostat.

3. Put thermostat base against the wall where you plan to mount it. Be sure wires will feed through the wire opening in the base of the thermostat.

4. Remove anchors from wall or holes from wall, if used.

5. Using a 3/16” drill bit, drill holes in the places you have marked for mounting.

6. Using supplied screws to mount thermostat base to wall. See wiring diagrams for additional instructions.

7. Adjust baseline thermostat base and the fixed control wire through the hole in the thermostat base.

8. Adjusting temperature set point when in auto changeover mode.

9. Verify the RT6P thermostat is in the OFF mode.

To configure the thermostat for two-stage heat pump operation using the "O" terminal.

Heat Pump

Use the configuration mode to set the thermostat to match your heating/cooling system. The thermostat will not let the compressor come on for 4 minutes after it turns off to protect your compressor.

1. Verify the RT6P is in the OFF mode.

2. Press the SYS (left) button until mode displays.

3. Press the FIN (right) button to set.

4. Press the up or down button to change settings within each screen.

Configuration Mode Settings

1. System – Set for heat pump, non-heat pump, reversing valve operation.

2. Temperature Scale (F or C) – Choose Fahrenheit or Celsius. Press the up or down button to select. Press the right button to advance to the next screen.

3. 1st Stage Temperature Differential (1°F to 5°F) (0°C to 2.5°C) – Set the number of degrees between your "setpoint" temperature and your "turn off" temperature.

4. 2nd Stage Temperature Differential (1°F to 5°F) (0°C to 2.5°C) (For HP 0 and HP B only) – Set the number of degrees between when stage 1 turns on and when stage 2 turns on.

5. Staged Off Outputs (For HP B and HP 0 only) – Select whether the outputs for heating and cooling are staged off independently or on a staggered schedule. 1 = outputs staged off independently. 0 = outputs staggered.

6. Deadband (1°F to 5°F) (0°C to 2.5°C) – Select the minimum difference between heat set point and cool set point when in auto changeover mode.

7. Auxiliary Delay On (90-360 minutes) – Set the delay time in minutes for auxiliary heat to be locked-out after a call to stage 2. This extra saving feature is used to temporarily lock-out auxiliary heat devices, allowing just heat pumps to try to satisfy heat call.

8. Maximum Heat Setpoint (90°F to 90°F) (32°C to 32°C) – Adjust to control the maximum heat setpoint allowed.

9. Minimum Cool Setpoint (60°F to 90°F) (16°C to 32°C) – Adjust to control the minimum cool setpoint allowed.

10. Room Temperature Offset (31°F to 98°F) (−0.5°C to 37°C) – Adjusted to calibrated display temperature to match actual room temperature.

Note: Use only to alter set temperature or display temperature. Do not change for heating or cooling setpoints.

11. Staged Off Outputs (For HP B and HP 0 only) – Select whether the outputs for heating and cooling are staged off independently or on a staggered schedule. 1 = outputs staged off independently. 0 = outputs staggered.

12. Deadband (1°F to 5°F) (0°C to 2.5°C) – Select the minimum difference between heat set point and cool set point when in auto changeover mode.

13. Auxiliary Delay On (90-360 minutes) – Set the delay time in minutes for auxiliary heat to be locked-out after a call to stage 2. This extra saving feature is used to temporarily lock-out auxiliary heat devices, allowing just heat pumps to try to satisfy heat call.

14. Maximum Heat Setpoint (90°F to 90°F) (32°C to 32°C) – Adjust to control the maximum heat setpoint allowed.

15. Minimum Cool Setpoint (60°F to 90°F) (16°C to 32°C) – Adjust to control the minimum cool setpoint allowed.

16. Room Temperature Offset (31°F to 98°F) (−0.5°C to 37°C) – Adjusted to calibrated display temperature to match actual room temperature.

Note: Use only to alter set temperature or display temperature. Do not change for heating or cooling setpoints.

17. Gently log into the system of proper configuration. Double check that each wire is connected to the proper terminal.

18. Turn on the power to the main service panel.

19. Configure thermostat to match the type of system you have.

20. Replace cover on thermostat by tightening it place.

21. Test thermostat operation as described in “Testing the Thermostat”.

Configuration Mode

The thermostat configuration is for different systems. The configuration directly affects the outputs. Use the output chart to configure correctly and write the thermostat to your system.

Wiring Diagrams

The configuration mode is used to set the RT6P to match your heating/cooling system. The thermostat will not let the compressor come on for 4 minutes after it turns off to protect your compressor.

1. Verify the RT6P is in the OFF mode.

2. Press the SYS (left) button until mode displays.

3. Press the FIN (right) button to set.

4. Press the up or down button to change settings within each screen.

Configuration Chart

Wiring Diagrams

The thermostat configuration is for different systems. The configuration directly affects the outputs. Use the output chart to configure correctly and write the thermostat to your system.

To Install Thermostat

ELECTRICAL SHOCK HAZARD – Turn-off power at the main service panel by removing the fuse or shutting the appropriate circuit breaker to the OFF position before removing the existing thermostat.

1. Turn off the power to the heating and cooling circuit by removing the fuse or shutting the appropriate circuit breaker off.

2. Remove cover of existing thermostat. This should expose the wires.

3. Label the existing wires with the enclosed wire labels before removing wires.

4. After labeling wires, remove_accuracy the wires from the thermostat.

5. Remove existing thermostat base from wall.

6. Refer to the following section for instructions on how to install this thermostat.

7. Turn on power to the system at the main service panel.

8. Insert stripped, labeled wires in matching wire terminals.

9. Use supplied screws to mount thermostat base to wall.

10. Insert stripped, labeled wires in matching wire terminals.

11. Gently log into the system of proper configuration. Double check that each wire is connected to the proper terminal.

12. Turn on the power to the main service panel.

13. Configure thermostat to match the type of system you have.

14. Replace cover on thermostat by tightening it place.

15. Test thermostat operation as described in “Testing the Thermostat”.

Package Contents/Tools Required

Note: Use only to alter set temperature or display temperature. Do not change for heating or cooling setpoints.

17. Gently log into the system of proper configuration. Double check that each wire is connected to the proper terminal.

18. Turn on the power to the main service panel.

19. Configure thermostat to match the type of system you have.

20. Replace cover on thermostat by tightening it place.

21. Test thermostat operation as described in “Testing the Thermostat”.

Package includes:

RT6P thermostat, user guide, instructions, screws, and wall anchors. Installation, Operation and Application Guide

Tools required for installation: Drill with 3/16" bit, hammer, accessories

Important Safety Information

WARNING! This thermostat must conform to local and national electrical and building codes.

Do not use this thermostat in areas with air-conditioning below 50 degrees; this can damage your AC system and cause personal injuries.

Use the thermostat only as described in this manual.

Specifications

Electrical rating: 24 VAC (5-30 VAC)

± 1 stage maximum per terminal

± 2 stage maximum per terminal

Temperature control range: 40°F to 90°F (−5°C to 32°C)

Accuracy: ± 1°F (± 0.5°C)

System configurations: 2-stage heat, 1-stage cool, heat pump, electric heat

Timing: Anti-short Cycle: 4 minutes (bypass anti-short cycle delay by returning to OFF mode)

Anti-short Cycle: 4 minutes (bypass anti-short cycle delay by returning to OFF mode)

Configuration Mode

Set the delay time in minutes for auxiliary heat to be locked-out after a call to stage 2. This extra saving feature is used to temporarily lock-out auxiliary heat devices, allowing just heat pumps to try to satisfy heat call.

Configuration Mode

Adjust to control the minimum cool set temperature allowed.

Stage Temperature Differential

Adjust to calibrate displayed room temperature to match actual room temperature.

Staged Off Outputs

Select whether the outputs for heating and cooling are staged off independently or on a staggered schedule.

Deadband

Select the minimum difference between heat set point and cool set point when in auto changeover mode.

Auxiliary Delay On

Set the delay time in minutes for auxiliary heat to be locked-out after a call to stage 2. This extra saving feature is used to temporarily lock-out auxiliary heat devices, allowing just heat pumps to try to satisfy heat call.

Maximum Heat Setpoint

Adjust to control the maximum heat setpoint allowed.

Minimum Cool Setpoint

Adjust to control the minimum cool setpoint allowed.

Room Temperature Offset

Adjust to calibrated display temperature to match actual room temperature.
Setting the Time and Day of the Week

The time and day of the week must be set for your program schedule to operate correctly.

1. Press the SYS (left) button until you are in the OFF mode.
2. Press and hold the PROG button (SYS and FAN buttons pressed simultaneously) for 6 seconds.
3. Time displays (hour flashing).
   - Press the up or down button to adjust the hour.
4. Press the FAN (right) button once to select minutes (minute flashing).
   - Press the up or down button to adjust the minutes.
5. Press the FAN (right) button once to select week Day (TODAY flashing).
   - Press the up or down button to select current day of the week.
   - Press the SYS (left) button to return to previous screen.

Note: At any time, press the SYS (left) button to return to the previous screen or press the FAN (right) button to advance to the next screen.

The thermostat comes pre-programmed with the following schedule:

Monday: Heat
Tuesday: Cool
Wednesday: Heat
Thursday: Cool
Friday: Heat
Saturday: Heat
Sunday: Heat

The days of the week shown on the display will all be programmed simultaneously.

From any of the screens above, press the FAN (right) button to begin entering your program schedule.

- The days of the week shown on the display will be programmed simultaneously.

- Enter the current time shown on the display.

- Use the up or down button to select a different period (MORN, DAY, EVE, NITE,)
- Press FAN (right) button to advance to the next screen. Transition time displays.
- Use the up or down button to select different minutes.
- Press FAN (right) button to advance to the next screen. Cool set temperature displays.
- Use the up or down button to adjust the cold set temperature.
- Press FAN (right) button to advance to the next screen. Programmable fan displays.
- Use the up or down button to select:
- FAN: Programmable fan can be turned on and off in minutes. Use this button to advance to the next screen.
- FAN: Programmable fan can be turned on and off in minutes. Use this button to advance to the next screen.
- Press and hold the PROG button (SYS and FAN buttons pressed simultaneously) for 2 seconds to return to the OFF mode.

Operating Modes

There are three possible operational modes: heat, cool and heat&cool modes.

- Cool and Heat&Cool modes are accessed by pressing the SYS (left) button. The STB® also lets you operate in any mode as a programmable thermostat.

OFF Mode

- In this mode, the thermostat will not turn on the heating or cooling device.
- The indoor fan can be turned manually in every operating mode by pressing the FAN (right) button. The word FAN shows on the display and the fan icon appears when the fan operator is active.

Heat Mode

- In this mode, the thermostat controls the heating system. When the heat output is over the thermostat temperature, the Heat icon (T) appears on the display.
- Note: To avoid heat upsets, there is a four minute delay for your compressor to restart after it turned off. To bypass the compressor time delay, go to OFF mode for 5 seconds.

Cool Mode

- In this mode, the thermostat controls the cooling system. When the cooled output is below the thermostat temperature, the Cool icon (C) appears on the display.
- Note: There is a four minute delay for your compressor to restart after it turned off. To bypass the compressor time delay, go to OFF mode for 5 seconds.

Cool and Heat Mode (Auto Changeover)

- In this mode, the thermostat controls the cooling and heating systems, automatically changing over from one to the other as needed.
- The timing display alternates with the set temperatures every 10 seconds.

Program mode can function with heat mode, cool mode, or heat & cool mode. This program mode can function with heat mode, cool mode, or heat & cool mode. This program mode can function with heat mode, cool mode, or heat & cool mode. This program mode can function with heat mode, cool mode, or heat & cool mode.

Programmable fan operates in Program mode only.

Troubleshooting

Symptom | Remedy
---|---
No display | Check for 24 VAC at thermostat; display is blank when 24 VAC is not present.
All thermostats are inoperative | Verify 24 VAC is present; unit locks out when 24 VAC is not present.
No response with first button | First button press creates backlight only.
Thermal terms on and off too frequently | Adjust temperature differentially (see Configuration Mode Settings 3 & 4)
Fan runs continuously | Press FAN (right) button to turn fan off
Temperature is not correct | Heat or Cool not on coming
- Calibrate thermostat (see Configuration Mode Setting 10)
- Heat or Cool not on coming
- Cool setting too high
- Fan not running
- Check for 24 VAC at thermostat
- Programmable fan (PROG) on display
- Fan cannot be turned off
- Fan cannot be turned on
                                                
- Problem not listed above
- Reset button once*

* Reset Button function: Display is refreshed, configuration settings are unchanged.

Personal Program Schedule

<table>
<thead>
<tr>
<th>Monday</th>
<th>Heat</th>
<th>Heat</th>
<th>Cool</th>
<th>NITE</th>
<th>Heat</th>
<th>FAN</th>
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<tr>
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<td>TUESDAY</td>
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<tr>
<td>WEDNESDAY</td>
<td>Heat</td>
<td>Heat</td>
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<tr>
<td>THURSDAY</td>
<td>Heat</td>
<td>Heat</td>
<td>Cool</td>
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<td>SATURDAY</td>
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<tr>
<td>SUNDAY</td>
<td>Heat</td>
<td>Heat</td>
<td>Cool</td>
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</tbody>
</table>

From any of the screens above, press the FAN (right) button to begin entering your program schedule. The days of the week shown on the display will be programmed simultaneously.

- Use the up or down button to select a different period (MORN, DAY, EVE, NITE,)
- Press FAN (right) button to advance to the next screen. Transition time displays.
- Use the up or down button to select different minutes.
- Press FAN (right) button to advance to the next screen. Cool set temperature displays.
- Use the up or down button to adjust the cool set temperature.
- Press FAN (right) button to advance to the next screen. Programmable fan displays.
- Use the up or down button to select:
- FAN: Programmable fan can be turned on and off in minutes. Use this button to advance to the next screen.
- FAN: Programmable fan can be turned on and off in minutes. Use this button to advance to the next screen.
- Press and hold the PROG button (SYS and FAN buttons pressed simultaneously) for 2 seconds to return to the OFF mode.

Programmable Thermostat

This programmable thermostat has four periods (MORN, DAY, EVE, NITE) that are customizable for each day of the week. Each period will have a start time, heat temperature, cool temperature and the conditions you have chosen for each period in your program.

1. Press the SYS (left) button until you are in the OFF mode.
2. Press and hold the PROG button (SYS and FAN buttons pressed simultaneously) for 6 seconds.
3. Press the PROG button for 2 seconds to lock values into memory and return to the OFF mode or press the FAN (right) button once to enter programming.

Testing the Thermostat

1. Press SYS (left) button until heat mode is displayed.
2. Adjust the set temperature so it is 5 degrees above the room temperature.
3. Heat should come on within a few seconds.

Heat Test

1. Press SYS (left) button until heat mode is displayed.
2. Adjust the set temperature so it is 5 degrees above the room temperature.
3. Heat should come on within a few seconds.

Cool Test

1. Press SYS (left) button until cool mode is displayed.
2. Adjust the set temperature so it is 5 degrees below room temperature.
3. A/C should come on within a few seconds.
4. Adjust the set temperature 3 degrees above the room temperature and 3 degrees below the room temperature.
5. A/C should turn off after 3 seconds.

Off Test

1. Press FAN (right) button. Fan display, indoor fans turn ON.
2. Press FAN (right) button. Indoor fans turn OFF.