RT7P
Programmable Thermostat

The Friedrich RT7P is a programmable electronic thermostat, which can be used with the following heating/cooling applications:

- Single Stage Heat - Cool PTAC Units
- Single Stage Heat Pump PTAC Units with or without Electric Heat

Installation and Operation Guide

Specifications

- Input Voltage: 19 to 30 VAC
- Output Rating: Max. 1.5A per terminal (3A total)
- Temperature Control: 45°F to 90°F (7°C to 32°C)
- Temperature Accuracy: ± 1°F (± 0.5°C)

Safety Information

- This thermostat is for LOW voltage applications only.
- Turn OFF electricity to all heating and cooling components.
- All wiring must conform to applicable local and national building and electrical codes and ordinances.

Included in Package

- Dry wall anchors and mounting screws
- Wiring labels
- Thermostat
- J-Box mounting plate/ decorative trim plate
- J-box mounting screws
- Wiring labels

Installer Button Codes

<table>
<thead>
<tr>
<th>Function</th>
<th>Thermostat Mode</th>
<th>Key combination / method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installer menu</td>
<td>OFF mode</td>
<td>UP + FAN for 5s</td>
</tr>
<tr>
<td>Set time and program</td>
<td>OFF mode</td>
<td>UP + MODE for 5s</td>
</tr>
<tr>
<td>Installer menu (Installer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>menu 13 must be set to ON)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Toggle Keypad lock/unlock</td>
<td>HEAT or COOL modes</td>
<td>UP + FAN for 5s</td>
</tr>
<tr>
<td>Toggle EMER HEAT</td>
<td>HEAT mode</td>
<td>DOWN + MODE for 5 seconds</td>
</tr>
</tbody>
</table>

Mounting on Junction Box

- Insert mounting screw into top of junction box until there is approximately 1/8” gap between the screw head and the wall
- Feed the wires through the hole in the trim plate and hang the trim plate on the top screw

Mounting directly on wall

- Feed the wires through the hole in the back housing of the thermostat and then screw the back housing to the wall
- If new mounting holes are needed, mark the placement of the new mounting holes through the thermostat base. Using a 3/16” drill bit, drill the holes you have marked and insert the supplied wall anchors.

Mounting directly on wall with trim plate

- Feed the wires through the hole in the trim plate and screw the trim plate to the wall
- If new mounting holes are needed, mark the placement of the new mounting holes through the thermostat base. Using a 3/16” drill bit, drill the holes you have marked and insert the supplied wall anchors.

- Use a flat head screw driver to separate the front and back housing of the thermostat

- Ensure that trim plate is securely fitted to the wall. If not, release lower screw and tighten top screw
- Use a flat head screw driver to separate the front and back housing of the thermostat
- Using the WIRING DIAGRAMS section, wire each terminal on the thermostat base. Ensure that the bars are fully seated into the connector, then tighten securely. Pull gently on wires to ensure that connections are secure.

**Important:** For Heat Pump systems additional configuration steps are necessary. View the WIRING DIAGRAMS: Heat Pump section for details.

- If using battery power, insert 2 AA brand name alkaline batteries now. If thermostat is wired with a wire, then AA batteries are not required for normal operation. If programming mode is used, AA batteries will provide real time clock back-up during power outages.

**Important:** Alkaline batteries must be replaced once every 2 years regardless battery level. Failure to replace batteries can affect system battery acid leakage and product failure.

- Return the thermostat front cabinet to its base by hooking the top first and then gently swinging the bottom of the thermostat into place.
- Restore power back to heating and cooling components and thermostat.

### INSTALLER SETTINGS menu
- Adjust the required settings needed for each system type.

#### WIRING DIAGRAM: Heat Pump

Note 1: Make the following Installer Settings for Heat Pump units

<table>
<thead>
<tr>
<th>System Type</th>
<th>Changeover valve type</th>
<th>Required action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Heat Pump</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>1. Set Installer Settings Menu #06 to HP</td>
<td></td>
</tr>
<tr>
<td>O</td>
<td>1. Set Installer Settings Menu #06 to HP</td>
<td></td>
</tr>
</tbody>
</table>

Note 2: When configured for Heat Pump operation, the “Y” terminal will be called for during both cooling and first-stage heating operation. Do not connect any wires to the “W1” terminal.

**Note 3:** The “W2” terminal is used to call for Electric/ Auxiliary heat. If your Heat Pump PTAC does not have Electric heat, then the “W2” terminal should be used and Installer Settings menu 10 (Aux. Stage Offset) should be set to “OFF”.

**Note 4:** For PTAC units with only one fan speed (single “G” fan wire), use the “GL” terminal for wiring and Installer Settings menu 12 (High Fan) must be set to “OFF”.

### WIRING DIAGRAM: Heat - Cool

Note 1: If connecting to a Cool only PTAC unit, wire the W1 and W2 wire terminals will not be used and Installer Settings Menu 03 (Available Modes) should be set to “Cool Only”.

**Note 2:** For PTAC units with only one fan speed (single “G” fan wire), use the “GL” terminal for wiring and Installer Settings menu 12 (High Fan) must be set to “OFF”.

### HOW TO ENTER
- Set thermostat to OFF mode.
- Hold UP + FAN for 5 seconds

### HOW TO NAVIGATE
- Press UP or DOWN to change setting value
- Press MODE to save setting value and proceed to next setting option
- Press FAN to return to previous setting option

### HOW TO EXIT
- Press MODE until last setting page (99) has been saved or leave thermostat with no button press for 60 seconds.
- Note: You must press MODE to save each setting value

#### INSTALLER SETTINGS

<table>
<thead>
<tr>
<th>Menu Number</th>
<th>Function Description</th>
<th>User Option Number</th>
<th>Default setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Temperature Scale</td>
<td>F: Fahrenheit</td>
<td>F</td>
</tr>
<tr>
<td>02</td>
<td>Temperature Calibration</td>
<td>±0.5°F</td>
<td></td>
</tr>
<tr>
<td>03</td>
<td>Available modes</td>
<td>O1: Heat and Cool with auto</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>O2: Heat and Cool without auto</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>O3: Heat only</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>O4: Select Sun</td>
<td></td>
</tr>
<tr>
<td>04</td>
<td>Max Heat Set Temp</td>
<td>F: 60 to 90 (5°F step)</td>
<td></td>
</tr>
<tr>
<td>05</td>
<td>Min Cool Set Temp</td>
<td>F: 60 to 90 (5°F step)</td>
<td></td>
</tr>
<tr>
<td>06</td>
<td>PTAC Type</td>
<td>H: Heat-Cool</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H: Cool</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>H: Heat</td>
<td></td>
</tr>
<tr>
<td>07</td>
<td>HP valve type</td>
<td>O: Valve</td>
<td></td>
</tr>
<tr>
<td>08</td>
<td>Auto dead-band between heat and cool operation in AUTO mode</td>
<td>2 to 5°F (1°F step)</td>
<td></td>
</tr>
<tr>
<td>09</td>
<td>Stage 1 Temperature Control Setting</td>
<td>±25°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±15°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±10°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±5°F</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±2.5°F</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Auxiliary (Sub-Cut in Offset (only used for HP system type))</td>
<td>OFF: (Heat Electric / Auxiliary heat)</td>
<td></td>
</tr>
</tbody>
</table>

### CHANGING MODE
- Press MODE button to initiate mode selection menu.
- Press MODE button until desired system mode is blinking. After 2 seconds of no button press press button is selected.

### CHANGING SET TEMPERATURE
- Ensure thermostat is in correct system mode (Heat, Cool or Auto)
- Press UP or DOWN button. New set temperature will be displayed in large digits. After 2 seconds of no button press new set temperature is selected.

**Note:** If Programming mode is OFF, then new set temperature will be held indefinitely. If programming mode is ON (see below), then new set temperature will be held until next scheduled set-point change.

### CHANGING FAN SPEED
- Press FAN button to initiate fan speed selection menu.
- Press FAN until desired fan mode is selected. After 2 seconds of no button press desired fan speed mode is selected.

**Note:** Fan operates as needed during a call for heating or cooling activation only.
- LOW: fan operates continuously in low speed. Heat/Cool will turn on/off in background as needed.
- HIGH: fan operates continuously in high speed. Heat/Cool will turn on/off in background as needed.

### SETTING A KEYPAD / FRONT PANEL LOCKOUT
- While in any normal operating mode except OFF, a keypad lockout can be initiated which will prevent any mode change, fan change or temperature adjustment from being made by the user. Even when locked, any button press will illuminate the display backlit.
- To activate (and deactivate) the keypad lockout, set thermostat to heat, cool or auto mode then hold FAN + UP buttons for 5 seconds. When the keypad is locked, a padlock will appear in the lower left corner of the display.

### SET CLOCK AND TEMPERATURE PROGRAM SCHEDULE
- **Note:** After 60 seconds with no button presses thermostat will exit the settings menu.
- Set thermostat to OFF mode and hold MODE + UP buttons for 5 seconds. From this point you have the following options:
  - Select thermostat real-time clock
  - Set a heat schedule
  - Set a cool schedule
  - Use UP or DOWN buttons until desired section is blinking. Press MODE to enter selection.
  - To exit press FAN or select “Exit” and press MODE

### ADJUSTING THE REAL-TIME CLOCK
- Once the real-time clock menu has been selected use the UP or DOWN buttons to set each variable. MODE will save and proceed to next variable. FAN will return to prior variable.
- By default, the thermostat will automatically adjust the clock for Daylight Savings. This can be disabled by changing the Auto Daylight Savings setting (see option 16 in the installer menu)

### ADJUSTING THE HEAT OR COOL TEMPERATURE PROGRAM
- **Note:** Each period ends at the start time of the next upcoming period.
- **Note:** If configured to use only 2 periods, only DAY and NIGHT will be used, and the MORN and EVEN periods will not be used or visible. If you use 1 period and 7 day programming, then thermostat will reset to the desired set temperature at the same time each day.
- Once either HEAT or COOL programming sections has been selected, choose which day(s) to schedule together (i.e. all weekdays together, or each day separately). Use the UP or DOWN buttons to scroll through the blinking day and press the MODE to select each day with an indicator dot. Press FAN to deselect any previously selected day. Once all desired days are selected, move blinking selection to “SCHEDULE” and press the MODE button to proceed.
- Adjust the start time of the first period using UP or DOWN buttons and press the MODE button. Press the UP or DOWN buttons at set desired temperature for the first period. Press the MODE button to continue to the next period.
- Repeat until all periods have been set. Thermostat will return to day selection page.
- If all desired days have been selected schedule “EXIT” and press MODE. Otherwise use the UP and DOWN buttons to move blinking selection to desired days and press MODE to select day(s) for scheduling.

### ENTERING EMERGENCY HEAT MODE (HP UNITS ONLY)
- While in Heat mode, press DOWN + MODE for 5 seconds. The thermostat will show heat with “C” to confirm Emergency Heat mode. This will use only the W2 terminal as the heating source and will not call for compressor heating.
- To return to normal heating mode, set thermostat to heat mode, press and hold BOTH the MODE and DOWN buttons for at least 5 seconds until the screen changes. The “C” will disappear and only show “HEAT” to confirm regular Heat mode.