RT7
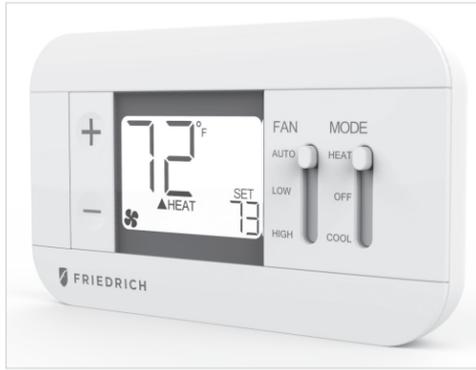## Manual Thermostat

The Friedrich RT7 is a non-programmable electronic thermostat, which can be used with the following heating/cooling applications:
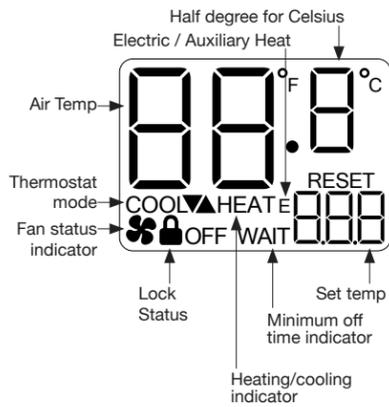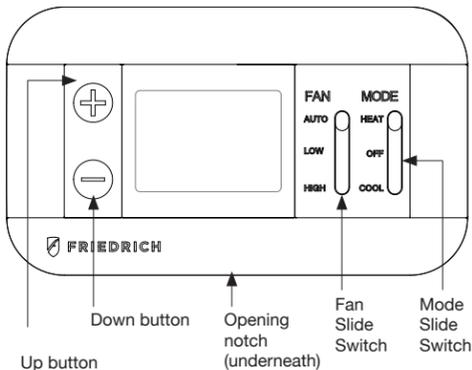
- **Single Stage Heat - Cool PTAC Units**
- **Singe Stage Heat Pump PTAC Units with or without Electric Heat**

Installation and Operation Guide

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Parts Diagram

Down button · Up button · Opening notch (underneath) · Fan Slide Switch · Mode Slide Switch

Half degree for Celsius · Electric / Auxiliary Heat · Air Temp · Thermostat mode · Fan status indicator · Lock Status · Heating/cooling indicator · Minimum off time indicator · Set temp · RESET · WAIT

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

- Thermostat
- J-Box mounting plate/ decorative trim plate
- J-box mounting screws
- Dry wall anchors and mounting screws
- Wiring labels
- GL to GH Jumper wire

Installing the Thermostat

- If painting or construction is still ongoing, cover the thermostat completely or wait until work is complete before mounting thermostat.
- Mount the thermostat on an inside wall about five feet above the floor in an area that has good circulation but is not directly affected by a vent or duct.
- Ensure power is switched OFF at the PTAC unit
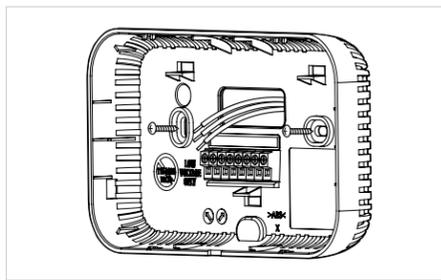
Mounting directly on the wall
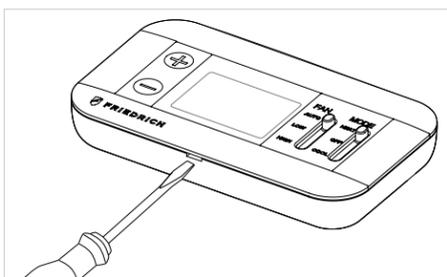
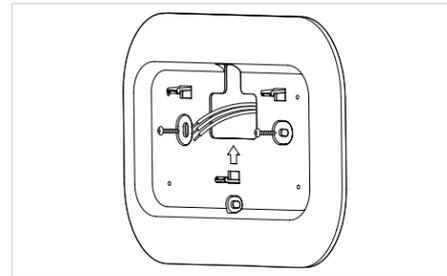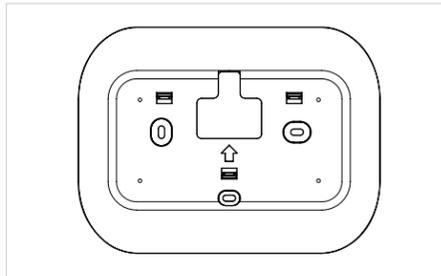- Use a flat head screw driver to separate the front and back housing of the thermostat
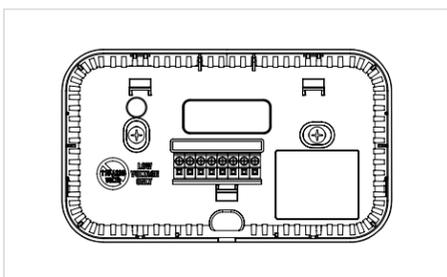
- If new mounting holes are needed, mark the placement of the new mounting holes through the thermostat base. Using a 3/16" drill bit, drill the holes you have marked and insert the supplied wall anchors.

- Feed the wires through the hole in the back housing of the thermostat and then screw the back housing to the wall

### Mounting directly on wall with trim plate

- If new mounting holes are needed, mark the placement of the new horizontal mounting holes through the trim plate base. Using a 3/16" drill bit, drill the holes you have marked and insert the supplied wall anchors.

- Feed the wires through the hole in the trim plate and screw the trim plate to the wall

- Use a flat head screw driver to separate the front and back housing of the thermostat
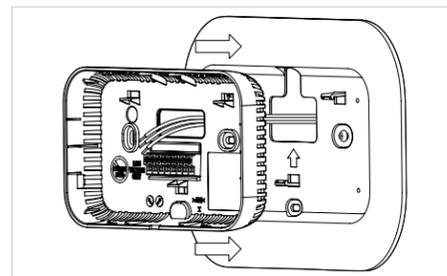
- Feed the wires through the back housing of the thermostat and then snap the back housing to the trim plate
- Your thermostat base should now be securely fixed to the wall

Mounting on Junction Box

- Install 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

- Insert and tighten the lower screw
- 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
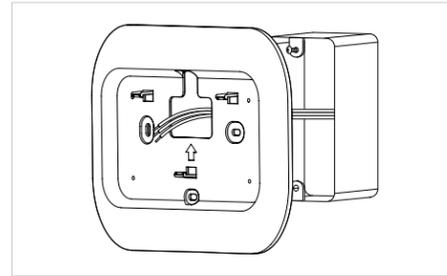

- Feed the wires through the back housing of the thermostat and then snap the back housing to the trim plate
- Your thermostat base should now be securely fixed to the wall

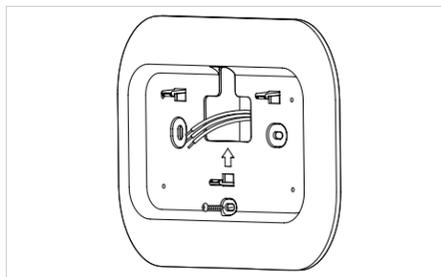- Using the **WIRING DIAGRAMS** section, wire each terminal on the thermostat base. Ensure that the bare end is fully seated into the connector, then tighten securely. Pull gently on wires to ensure they are secure.

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

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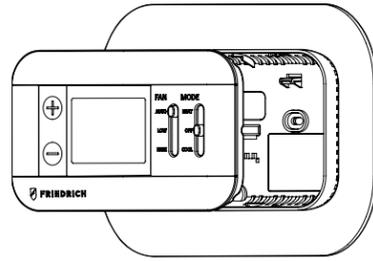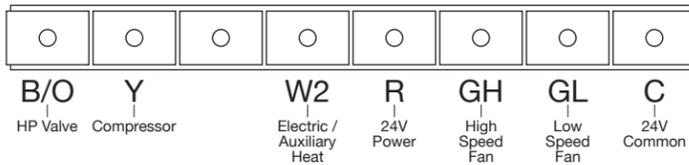
- Restore power back to heating and cooling components and thermostat.

- See **INSTALLER SETTINGS MENU** section, to adjust the required settings needed for each system type.

WIRING DIAGRAM: Heat Pump

B/O	Y		W2	R	GH	GL	C
HP Valve	Compressor		Electric / Auxiliary Heat	24V Power	High Speed Fan	Low Speed Fan	24V Common

Note 1: Make the following jumper position changes and Installer Settings for Heat Pump units

System Type	Changeover valve type	Required action
Heat Pump	B	1. Move yellow PCB jumper to HP position 2. Set Installer Settings Menu #06 to HP
	O	1. Move yellow PCB jumper to HP position 2. Move blue PCB jumper to O position 3. Set Installer Settings Menu #06 to HP

Move blue jumper down for O valve

Move yellow jumper down for Heat Pump
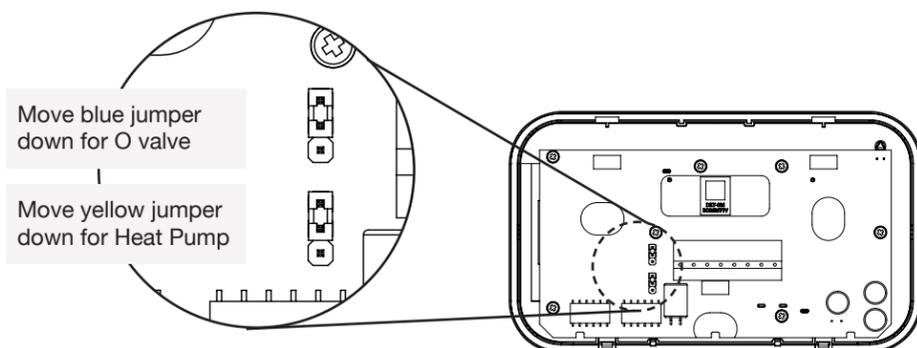
Note 2: The "W2" terminal is used to call for Electric/Auxiliary heat. If your Heat Pump PTAC does not have Electric heat, then the "W2" terminal should not be used and Installer Settings menu 10 (Aux. Stage Offset) should be set to "OFF".

Note 3: For PTAC units with only one fan speed (single "G" fan wire), add a jumper wire to bridge together "GH" and "GL". Connect your fan wire to either terminal after jumper wire has been added.

WIRING DIAGRAM: Heat - Cool

Y	W1		R	GH	GL	C
Cooling	Heating		24V Power	High Speed Fan	Low Speed Fan	24V Common
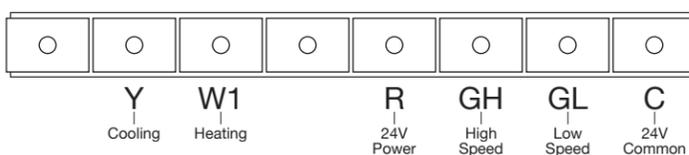
Note 1: If connecting to a Cool only PTAC unit, the W1 wire terminals will not be used.

Note 2: For PTAC units with only one fan speed (single "G" fan wire), add a jumper wire to bridge together "GH" and "GL". Connect your fan wire to either terminal after jumper wire has been added.

INSTALLER SETTINGS

HOW TO ENTER
- Place the Mode Slide Switch to **OFF** mode
- Hold **UP** for 5 seconds to enter the installer setting

HOW TO NAVIGATE
- Press **UP** or **DOWN** to change the setting value
- Hold **UP** or **DOWN** for 2 seconds to save the setting value and proceed to the next setting option

HOW TO EXIT
- When finished, leave thermostat without pressing any buttons for 60 seconds or change Mode Slide Switch position
- Note: You must hold **UP** or **DOWN** for 2 seconds to save setting value

Menu Number	Function Description	Selectable Options	Default setting
01	Temperature Scale	F: Fahrenheit C: Celsius	F
02	Temperature Calibration	+/- 5.4°F	0.0°F
03	(Not Used)		
04	Max Heat Set Temp	F: 60 to 90 (5°F step)	80°F
05	Min Cool Set Temp	F: 60 to 80 (5°F step)	65°F
06	System Type	H-C: Heat-Cool HP: Heat Pump	H-C
07	(Not Used)		
08	(Not Used)		
09	Stage 1 Temperature Control Swing	±0.25°F ±0.50°F ±1.00°F ±2.25°F	0.50°F
10	Auxiliary Stage Cut-In Offset (only used for HP system type)	OFF (No Electric / Auxiliary heat) -3.0 to -8.0°F (1°F step)	-4.0°F
11	(Not Used)		
12	(Not Used)		
13	(Not Used)		
14	(Not Used)		
15	(Not Used)		
17	Always On Backlight	OFF: 10s timeout ON: always ON	OFF
18	Reset to default set temperatures after each mode change	ON: uses default temperatures after each mode change (see menu 19 and 20) OFF: Maintain last set temperature for each mode	ON
19	Default heat mode set temperature	60°F to Max Heat Set Temp	70°F
20	Default cool mode set temperature	Min Cool Set Temp to 80°F	74°F
98	Minimum off time - Compressor protection	NO: Immediate off/ on switching YES: 3-minute minimum off time enforced	NO
99	Reset	NO: no reset YES: ex-factory reset	NO

NORMAL OPERATION

THERMOSTAT SYSTEM MODE SWITCH POSITIONS:
- **HEAT:** thermostat permits heating operation
- **OFF:** thermostat stops all heating or cooling functions
- **COOL:** thermostat permits cooling operation

THERMOSTAT FAN SWITCH POSITIONS:
- **AUTO position:** fan operates in low speed mode as needed during a call for heating or cooling activation only.
- **LOW position:** fan operates continuously in low speed. Heat/Cool will turn on/off in background as needed.
- **HIGH position:** fan operates continuously in high speed. Heat/Cool will turn on/off in background as needed.

THERMOSTAT BUTTONS:
- **UP / DOWN:** used for raising or lowering the target set temperature and selecting user options and settings in the display screen.
- **Note:** to adjust the target set temperature, first ensure that the thermostat is in either **HEAT** or **COOL** mode and press either **UP** or **DOWN** until the desired target temperature is reached. Pressing **UP** or **DOWN** will have no effect when the thermostat is in **OFF** mode.

SETTING A KEYPAD / FRONT PANEL LOCKOUT:
- While in either **HEAT** or **COOL** mode, a keypad lockout can be introduced which will prevent any temperature adjustment from being made by the user. Even while locked, any button press will illuminate the display backlight.
- To activate (and deactivate) the keypad lockout, set Mode Slide Switch to either **HEAT** or **COOL**, hold UP for 5 seconds . When the keypad is locked, a padlock will appear in the lower left corner of the display.

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