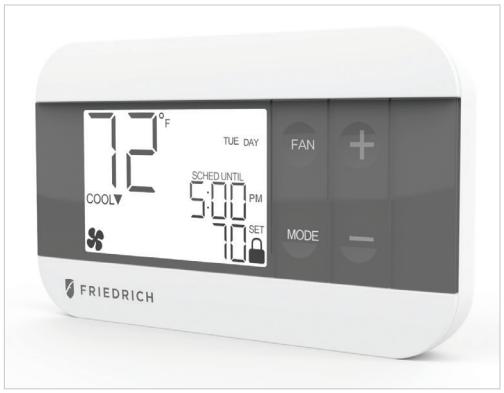
RT7P
Programmable Thermostat

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

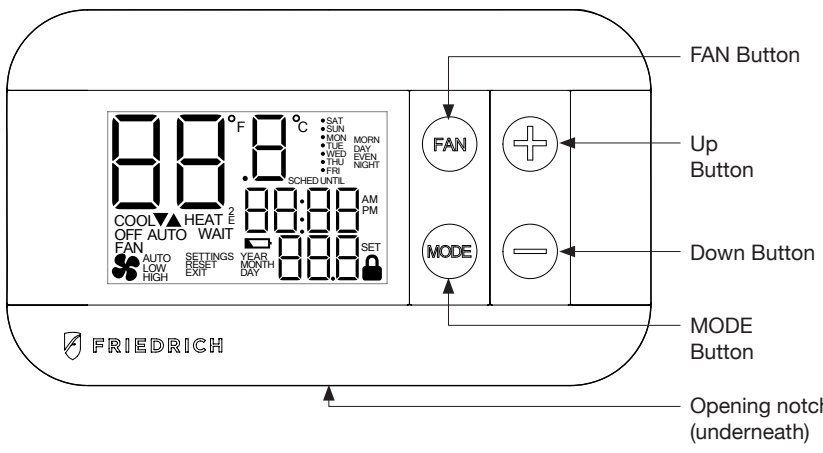
- **Single Stage Heat - Cool PTAC Units**
- **Singe Stage Heat Pump PTAC Units with or without Electric Heat**

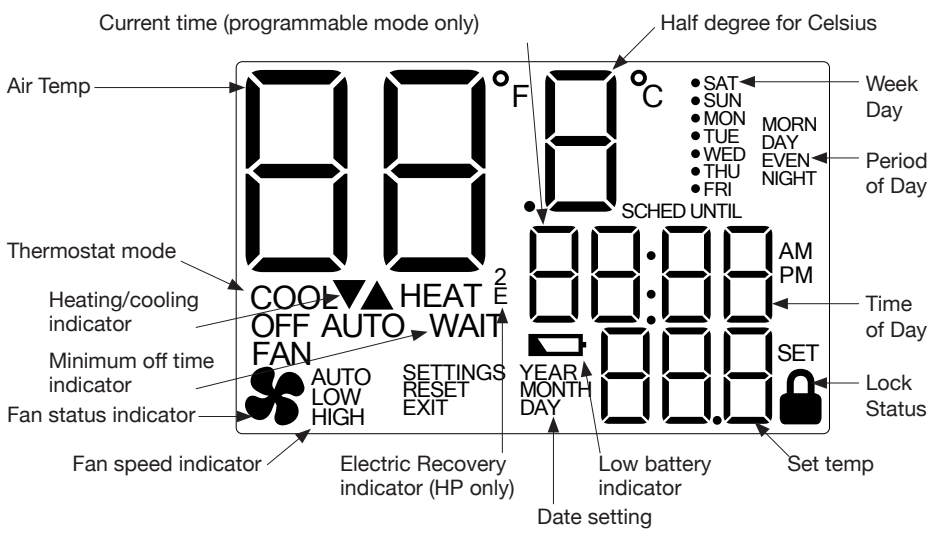


Installation and Operation Guide

FRIEDRICH

Parts Diagram





Included in Package

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

Installer Button Codes

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

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)

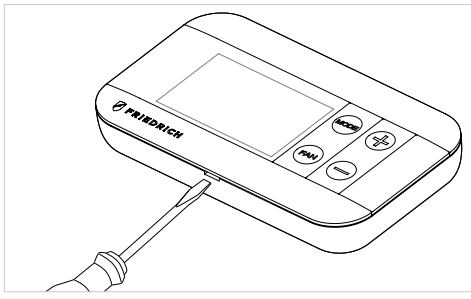
Safety Information

- 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.

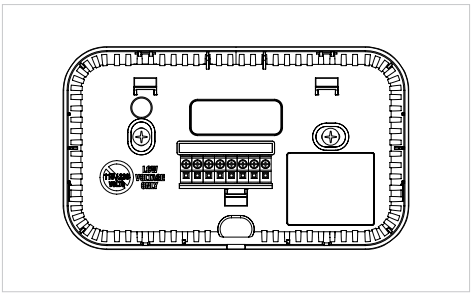
Installing the Thermostat

- 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

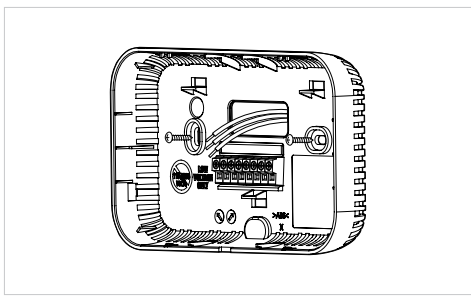
Mounting directly on the wall



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

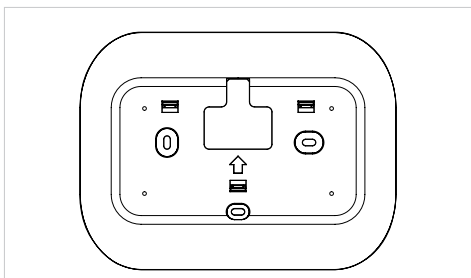


- If new mounting holes are needed, mark the placement of the new mounting holes through the thermostat base. Using a 3/16" drill bit, drill the holes you have marked and insert the supplied wall anchors.

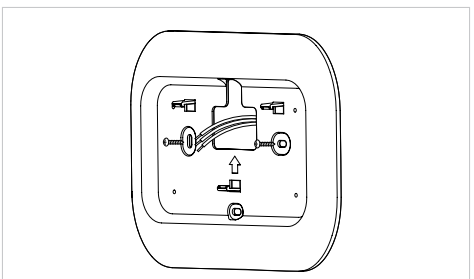


- Feed the wires through the hole in the back housing of the thermostat and then screw the back housing to the wall

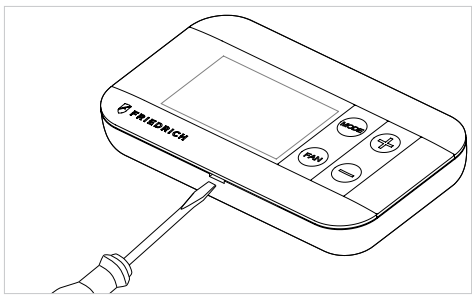
Mounting directly on wall with trim plate



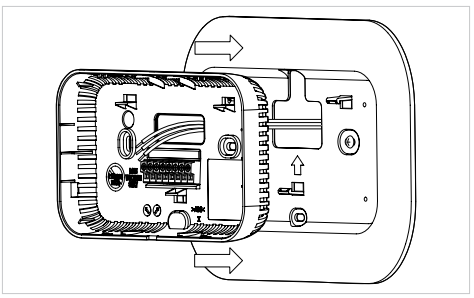
- If new mounting holes are needed, mark the placement of the new horizontal mounting holes through the trim plate base. Using a 3/16" drill bit, drill the holes you have marked and insert the supplied wall anchors.



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



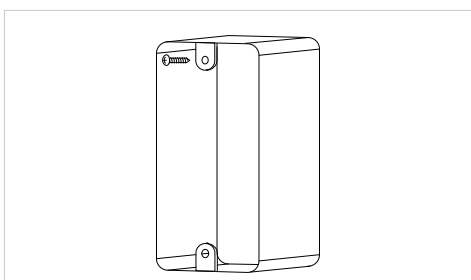
- Use a flat head screw driver to separate the front and back housing of the thermostat



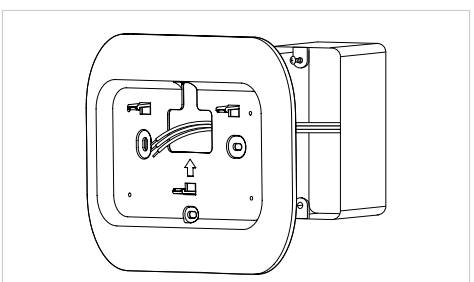
- Feed the wires through the back housing of the thermostat and then snap the back housing to the trim plate
- Your thermostat base should now be securely fixed to the wall

Mounting on Junction Box

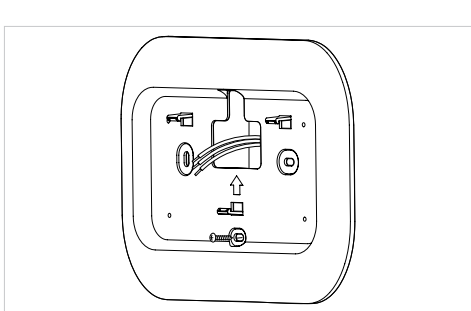
- Install junction box



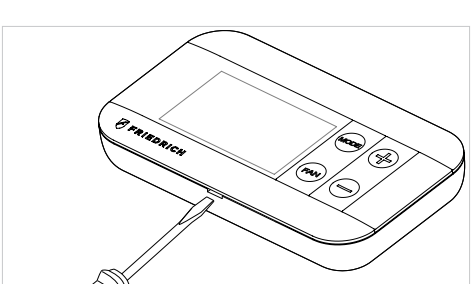
- Insert mounting screw into top of junction box until there is approximately 1/8" gap between the screw head and the wall



- Feed the wires through the hole in the trim plate and hang the trim plate on the top screw

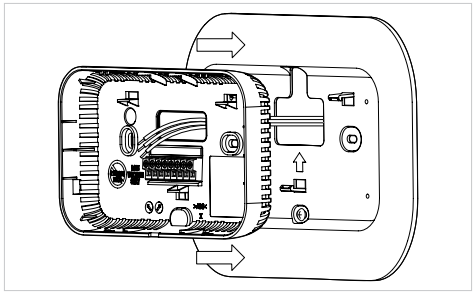


- Insert and tighten the lower screw
- Ensure that trim plate is securely fitted to the wall. If not, release lower screw and tighten top screw

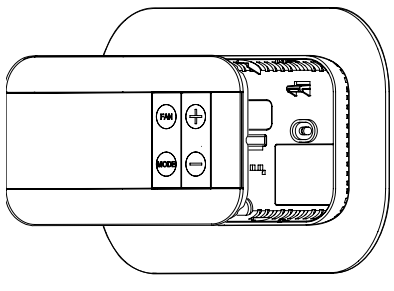


- Use a flat head screw driver to separate the front and back housing of the thermostat

Mounting on Junction Box (continued)

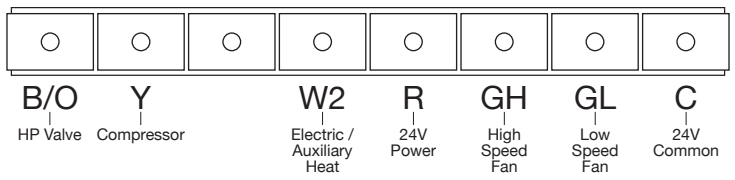


- Feed the wires through the back housing of the thermostat and then snap the back housing to the trim plate
- Your thermostat base should now be securely fixed to the wall



- 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.
- If using battery power, insert 2xAA brand name alkaline batteries now. If thermostat is wired with a c-wire, then AA batteries are not required for normal operation. If programming mode is used, AA batteries can 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 lead to 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.
- See **INSTALLER SETTINGS MENU** section, to adjust the required settings needed for each system type.

WIRING DIAGRAM: Heat Pump

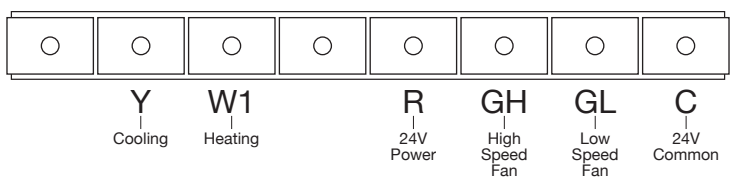


Note 1: Make the following Installer Settings for Heat Pump units

System Type	Changeover valve type	Required action
Heat Pump	B	1. Set Installer Settings Menu #06 to HP
	O	1. Set Installer Settings Menu #06 to HP 2. Set Installer Settings Menu #07 to O

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 not 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, the W1 and W2 wire terminals will not be used and Installer Settings menu 03 (Available Modes) should be set to “04: 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 Item 12 (High Fan) must be set to “OFF”.

INSTALLER SETTINGS

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

Menu Number	Function Description	User Option Number	Default setting
01	Temperature Scale	F: Fahrenheit C: Celsius	F
02	Temperature Calibration	+/- 5.4°F	0.0°F
03	Available modes	01 : Heat and Cool with auto 02 : Heat and Cool without auto 03 : Heat only 04 : Cool only	01
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	PTAC Type	H-C: Heat-Cool HP: Heat Pump	H-C
07	HP valve type	b: B Valve O: O Valve	b
08	Auto dead-band between heat and cool operation in AUTO mode	2 to 5°F (1°F step)	4°F
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	High FAN availability	ON: High fan available OFF: High fan not available	ON
13	Programming mode	OFF: Manual ON: Programmable	OFF
14	Clock Format (Programming mode only)	12 : 12 hour 24 : 24 hour	12
15	Periods per day (Programming mode only)	4: 4 periods per day 2: 2 periods per day 1: 1 period per day	2
16	Auto Daylight Savings (Programming mode only)	ON: Auto DST on OFF: Auto DST off	ON
17	Always On Backlight (C-wire only)	OFF: turns off after 10s 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

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 desired mode 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
- 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 mode is selected
  - **AUTO**: 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 introduced 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 backlight.
- 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
  - Set 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 value 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 16) option 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 days and press the **MODE** to select each day with a indicator dot. Press **FAN** to deselect any previously selected day. Once all desired days are selected, move blinking selection to “**SCHED**” 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 to set the 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 scheduled select “**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 “E” 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 “E” will disappear and only show “**HEAT**” to confirm regular Heat mode.

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Friedrich Air Conditioning Co.
10001 Reunion Pl Suite 500,
San Antonio, TX 78216
1-877-599-5665
www.friedrich.com