RT4

Made in USA

Non-Programmable Electronic Thermostat

- **For use with Friedrich PTAC and Vert-I-Pak Systems**

- **30-Minute Power Loss Memory Retention**
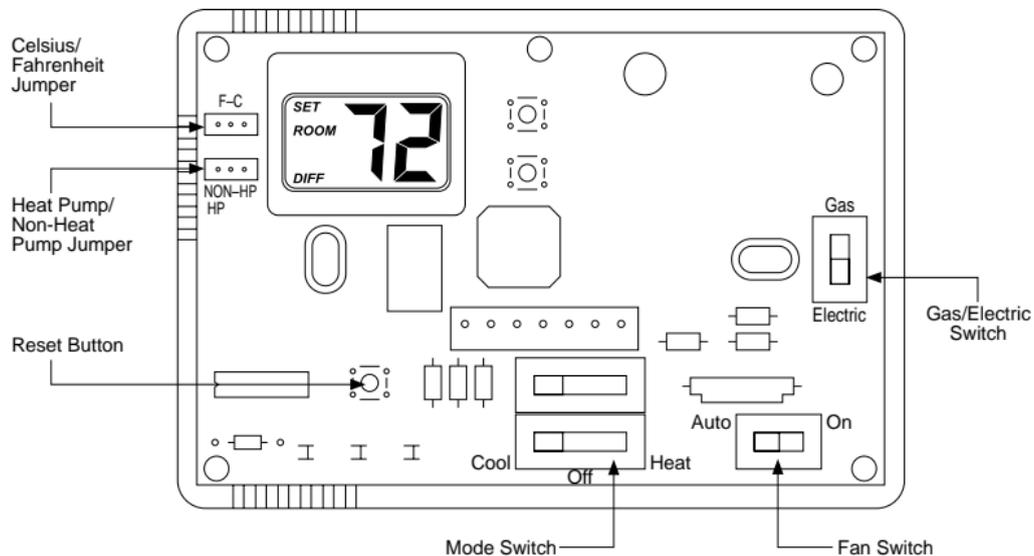
Installation, Operation & Application Guide   **Friedrich**

Table of Contents

CAUTION!: *This thermostat should be installed by trained technicians only. Adhere to all local and national codes. Disconnect all power to the system before installing, removing, or cleaning.*

Parts Diagram

Celsius/
Fahrenheit
Jumper

F–C

NON–HP
HP

Heat Pump/
Non-Heat
Pump Jumper

Reset Button

SET
ROOM

DIFF

72

Gas

Electric

Gas/Electric
Switch

Auto   On

Cool   Heat
Off

Mode Switch

Fan Switch

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Specifications

Input:
- **Voltage:** 18-30 VAC

Output:
- **Maximum:** 1 amp per terminal (3 amp total for all terminals)

Temperature Ranges:
- **Temperature control range:** 45°F to 90°F (7°C to 32°C)   **Accuracy:** ± 1°F (± 0.5°C)
- **Differential range:** 1°F to 3°F (0.5°C to 1.5°C)   **Accuracy:** ± 1°F (± 0.5°C)
- **System configurations:** Single stage heat pump
- **Terminations:** R, C, W, Y, B, O, G
- **Note:** This thermostat is designed for: Single stage electric heating, heating/cooling systems and heat pump systems. It will retain your setpoint temperatures in memory for up to 30 minutes during a power outage.

Room temperature setpoint ⟶ *SET*
Room temperature ⟶ *ROOM* 72
Temperature differential setting ⟶ *DIFF*

Important Safety Information

- Always turn off the thermostat before installing, removing, cleaning, or servicing; turn off the power at the main power source by unscrewing fuse or switching off circuit breaker
- Do not switch to "Cool" if outside temperature is below 50°F (10°C), this could damage your A/C system and cause injury
- Do not install on voltages higher than 30 VAC
- All wiring must conform to local and national building and electrical codes and ordinances
- While cleaning, do not get soap directly on thermostat switches or LCD readout; only use a damp cloth with a mild soap to wipe the outside of the thermostat cover

Package Contents/Tools Required

Package includes: RT4 non-programmable thermostat on base, thermostat cover, wiring labels, screws and wall anchors, Installation, Operation and Application Guide.

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

General Description

- The RT4 thermostat is a hardwired, digital, mercury-free, non-programmable, electronic thermostat
- Compatible with single stage heating/cooling systems, and heat pump systems
- Separate setpoints for heating and cooling
- **Freeze Protection Feature:** Protects pipes from freezing! If the room temperature drops to 40°F, the thermostat automatically turns on the heat; the thermostat must be in the Heat position
- **Built-in Compressor Protection** for Air Conditioners; to protect the A/C's compressor, there is a 5-minute delay between the system turning off and the A/C starting
- 30-minute power loss memory retention protection

To Remove Existing Thermostat

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

1. Turn off power to the heating and cooling system by removing the fuse or switching off the appropriate circuit breaker.
2. Remove cover of old thermostat. This should expose the wires.
3. **Label the existing wires with the enclosed wire labels before removing wires**. See table on Page 6 for old and new label identification.
4. After labeling wires, remove wires from wire terminals.
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 switching the appropriate circuit breaker to the OFF position before removing the existing thermostat.*

IMPORTANT: Thermostat installation must conform to local and national building and electrical codes and ordinances.

✳ **Note:** *Mount the thermostat about five 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 power to your system. Move the **Mode** switch to **Off**.
2. Move the **Fan** switch to **Auto**.
3. To remove cover, insert and twist a coin or screwdriver in the slots on the sides of the thermostat.

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To Install Thermostat (continued)

4. 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).
5. Mark the placement of the mounting holes.
6. Set thermostat base and cover away from working area.
7. Using a 3/16" drill bit, drill holes in the places you have marked for mounting.
8. Use a hammer to tap supplied anchors into mounting holes.
9. Align thermostat base with mounting holes and feed the control wires through wire opening.
10. Use supplied screws to mount thermostat base to wall.
    CAUTION!: *Be sure exposed portion of wires does not touch other wires.*
11. Tighten screws on terminal block. Gently tug wire to be sure of proper connection. Double check that each wire is connected to the proper terminal.
12. Seal hole for wires behind thermostat with non-flammable insulation or putty.
13. Set the **Gas/Electric** switch to **electric**, and heat pump jumper to **NON-HP**.
14. Set the temperature scale jumper to Fahrenheit or Celsius.
15. Replace cover on thermostat by snapping it in place.
16. Turn on power to the system at the main service panel.

Replacing Wiring Labels

Replace the old labels with the enclosed new labels:

Old	New	Type
F, G	G	Fan control relay
B	B	Heat active reversing valve
Y, Y6	Y	Cooling control
H, W, 4	W	Heating control
C	C	Transformer, common side
M, 4, RH, RS, R	R	Transformer, hot side

Operation

Setting the Room Temperature (Setpoint Temperature)
Step 1: Press the $\vee$ or $\wedge$ button; the current temperature setpoint displays.
Step 2: Press the $\vee$ or $\wedge$ button until the desired temperature setpoint displays.
The new temperature setting is automatically saved. After 5 seconds, the display returns to showing the current room temperature.

Setting a New Temperature Differential
The default temperature differential is 1°. When your room temperature varies by 1°F, the thermostat turns on your system. If you notice your system turning on and off too frequently, increase the temperature differential.
Step 1: Remove the cover and press the **Reset** button once.
Step 2: For the first 10 seconds of operation, the temperature differential is displayed.
Press the $\vee$ or $\wedge$ button to select desired setting.

Changing Fahrenheit to Celsius
The temperature displays in degrees Fahrenheit as a factory set default. Follow these steps to change to degrees Celsius:
Step 1: Remove the cover.
Step 2: Move the **F/C** jumper to the desired position, **F** or **C** using the center pin as a common.
Step 3: Press the **Reset** button once and reinstall the cover.
Your LCD readout changes accordingly.

Starting the Thermostat
Step 1: Move the **Fan Auto/On** switch into the **Auto** position.
Step 2: Move the **Mode** switch to **Heat** or **Cool,** depending on the season.

A Quick Test

CAUTION!: *Do not switch system to cool if the outdoor temperature is below 50°F (10°C). This can damage the air conditioning system and may cause personal injury.*

Action: Set the **Mode** switch to **Cool**. Press the ∨ button until the temperature setting is 3°F below the room temperature.
Result: The A/C system and fan should turn on.

Action: Set the **Mode** switch to **Off**.
Result: The A/C should turn off (there may be a fan delay).

Action: Set the **Mode** switch to **Heat**. Press the ∧ button until the temperature setting is 3°F above the room temperature.
Result: The heating systems and fan should turn on (there may be a time delay depending on your system).

Action: Set the **Mode** switch to **Off**.
Result: The heating system should turn off (there may be a fan delay).

Action: Set the **Fan** switch to **On** (continuous indoor fan operation).
Result: The blower fan should turn on.
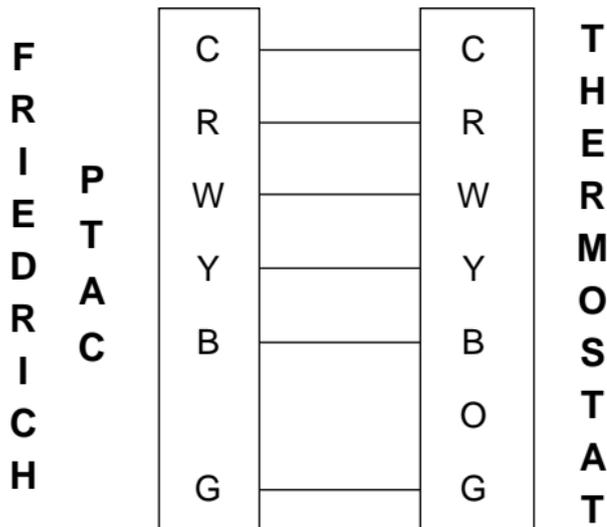
Action: Set the **Fan** switch to **Auto**.
Result: The blower fan should turn off.

If the above test was successful, you have a proper installation.

If not: *Double check that wires are securely connected and are connected to the proper terminals. Consult the troubleshooting section (see Page 10).*

HARDWIRED

FRIEDRICH	PTAC	C		C	THERMOSTAT
		R		R	
		W		W	
		Y		Y	
		B		B	
				O	
		G		G	

NOTE: B terminal used on heat pump models only

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Troubleshooting

Symptom	Remedy
The system is not turning on	Check the wiring (see Installation, Page 4)
LCD is blank	Check the wiring (see Installation, Page 4)
Thermostat is not properly controlling the fan	Check that the **Gas/Electric** switch is set to electric
Thermostat is continuously turning on and off	Increase the temperature differential (see Setting a New Temperature Differential, Page 7)
Temperature display is not accurate	Your thermostat has two options for temperature readout: Fahrenheit (default) or Celsius; check that the "jumper" is properly set to your preference Plug the hole for wiring behind the thermostat with non-flammable insulation to prevent airflow into the thermostat