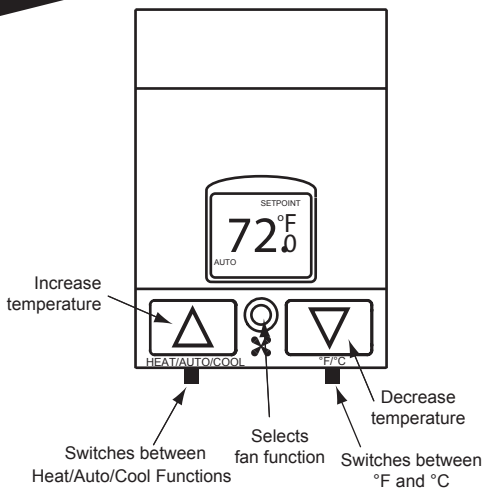
Installation and Operating Instructions
RF-PT



Application:
This thermostat is a battery operated Heating and Cooling Digital Temperature Control. It is designed for water source Heat Pump, PTAC, and PTHP systems with 1 or 2 fan speeds. This thermostat operates from a single setpoint with automatic or manual changeover from heating to cooling. There is built in programming to alter the control characteristics to suit energy conservation needs.

Installation Notice:
This high performance digital thermostat is designed to provide many years of superior comfort control when properly installed and maintained. To achieve maximum performance, this device is designed to draw room air into itself continuously. Reasonable care must therefore be taken with regard to air quality at the time of installation as well as during periods of normal use, see operating conditions below.

Operating Conditions:
The electronic mechanisms incorporated within this unit REQUIRE operating conditions similar to other electronic devices intended for INDOOR USE ONLY, such as would be acceptable for TV and similar household appliances. Relative humidity must be less than 95% and the atmosphere must be non-condensing. For operation in bathrooms, shower or pool areas, outdoor entryways, greenhouses and similar applications, order the RF-PTK. This product includes protection for coastal/tropical application, therefore it is suitable for use in high humidity environments. Air quality must be maintained FREE of heavy dust or debris which may infiltrate the interior of this device. Installation in any space which is unfinished or undergoing repainting or general rehabilitation is also considered product abuse. This device should be removed from service during any local construction activity.

Cleaning:
This device incorporates a high impact polycarbonate enclosure which is easily cleaned with a dry cloth or vacuum brush. Occasional soiling may be cleaned with a soft cloth lightly dampened with water and/or mild cleaning solution. IN NO CASE should this device be directly sprayed with or exposed to free flowing liquids, including water, which could penetrate its interior.

FAILURE TO OBSERVE ANY OF THE ABOVE CONDITIONS OF USE WILL COMPLETELY VOID THE SUPPLIER WARRANTY.

CAUTION

MAKE SURE UNIT IS PROPERLY CONNECTED. DAMAGE TO THE DIGITAL CONTROL CAN BE CAUSED BY MISWIRING, WHICH WILL VOID THE WARRANTY. FOR SAFETY REASONS ALWAYS USE WIRE NUTS ON ALL WIRE CONNECTIONS!!!

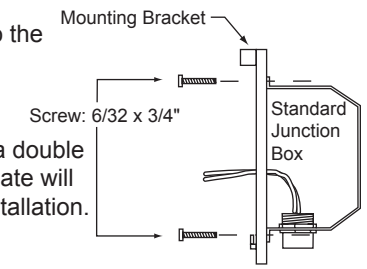
Specifications:
Temperature Monitor Range: 32.0°F to 99.9°F (0.0°C to 37.7°C)
Setpoint Range: 60.0°F to 85.0°F (15.5°C to 29.5°C)
***Setpoint Default:** 72.0°F (22.0°C)
***Comfort Conditioning Limit Defaults:** 65.0°F (18.5°C) cooling
85.0°F (29.5°C) heating
Display Format: Liquid Crystal Display (LCD)
Sampling Rate: Every 5 seconds
Accuracy: ± 1°F (0.5°C)
Power Source: 2 'C' Cell Batteries
Mode Select: Selectable: Heat/Auto/Cool
***Fan Control:** Selectable: Auto cycle, Low, High
Heat/Cool Control: 1 Compressor, 1 Auxiliary Heat, Programmable Reversing Valve
***Default Temperature Extreme Prevention Limits:**
Maintains room temperature between 60.0°F and 85.0°F (15.5°C and 29.5°C) when thermostat is in economy mode
***Fan Purge Timer:** 30 seconds default
programmable 0 to 180 seconds
Anti-short Cycle: 3 minute hold in no call state at all times
***Cycle Rate:** 6 cycles per hour
*Refer to field programming instructions

Installation:
This device should be installed and serviced by a qualified technician. Junction box mounting is highly recommended.
1. ⚠ **Caution:** Make sure that power has been disconnected.
2. All wiring must comply with applicable codes and ordinances.
3. A thorough check-out of the system should be made after installation is complete.
4. If retrofitting old thermostat, remove old thermostat from the junction box, carefully noting the wire connections on the old unit. Record wire color and terminal legends in spaces provided below.

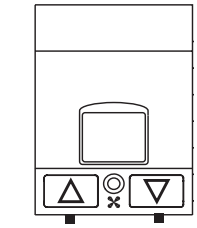
Old thermostat wire function	Cable wire color
24VAC Feed	_____
Common	_____
Auxiliary Heat	_____
Compressor	_____
Low Fan	_____
High Fan	_____
Reversing Valve	_____

Disconnect old thermostat and remove any existing backplate or mounting plate.

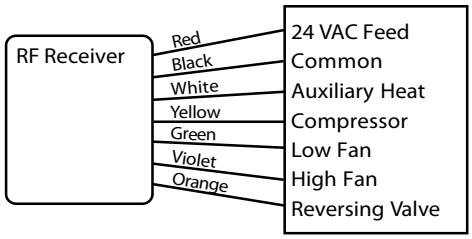
5. Install the mounting bracket to the junction box with the two long mounting screws provided. See mounting detail at right. **Note:** If application involves a double ganged junction box, a backplate will be required for a complete installation. Please consult your supplier.



User Note: The top of this unit will become warm to the touch. This is a normal operation. Internal heating is employed to continuously convect air upward through the thermostat, thereby improving room air temperature measurement. Direct conflict with a downward ceiling fan or system fan air flow may result in false temperature reading. Locate thermostat to avoid interference.

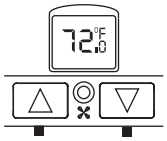


Thermostat - wireless

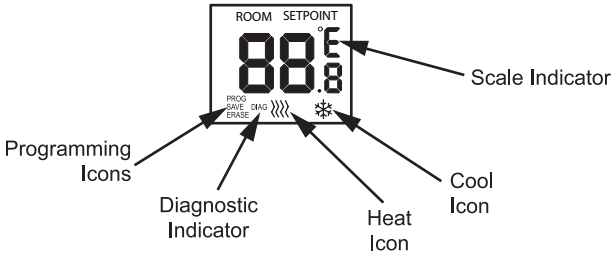


6. Connect the RF Receiver to the cable wires recorded in Step 6.
See document on connecting RF Receiver.

7. Turn power on.



BASIC FUNCTIONS



Adjust Temperature Setpoint:
Press up button (▲) to raise the temperature (warmer)
Press down button (▼) to lower the temperature (cooler)

Select Fan Operation:
Press fan button (✱) to select the following fan functions*
HIGH - Continuous HIGH speed fan
LOW -Continuous LOW speed fan
AUTO - auto on/off with automatic speed change
ECONOMY
*fan function sequence with auto as the starting point

Change Scale Units:
Slide the °F/°C switch to the left to display °F
Slide the °F/°C switch to the right to display °C
When the °F/°C switch is invoked, the thermostat will reset and display the default setpoint in the selected scale. The default setpoint (unprogrammed) is 72.0°F or 22.0°C.

Cycle Timing: (Anti-short cycle protection)
3 minute (minimum) dwell time in no-call states (both heat and cool).
1 minute (minimum) dwell time in call states (both heat and cool).
Temperature is sampled every 5 seconds.

SYSTEM CHECK:

Check Low Fan Function:
Fan should turn on immediately after power is applied.
Auto mode only: Low fan will turn off after the first initial 3 minutes or will remain on if the heat or cool symbol appears on the display.

Check High Fan Function:
Press and release the fan button until the fan indicator moves to the high fan position.
High fan will turn on.

Check Heating:

Move the "°F/°C" slide switch to the opposite side and then back to the desired scale.
The LCD will flash its legends and then the default setpoint.
Use the "up" button to adjust the setpoint until the heat symbol begins to flash on the display.
The compressor will activate within 3 minutes.

Check Cooling:

Move the "°F/°C" slide switch to the opposite side and then back to the desired scale.
The LCD will flash its legends and then the default setpoint.
Press "down" button to adjust the setpoint until the cool symbol flashes on the display.
The reversing valve will activate withing 3 minutes.
Within 15 seconds the compressor will turn on.

Function Test:

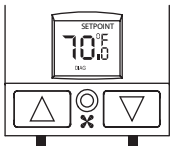
	SYSTEM			FAN SPEED		
Adjust setpoint as follows:	**HEAT**	**COMP**	**R VLV**	**AUTO**	**LOW**	**HIGH**
4°F (2°C) or more ABOVE room temperature	On	On		Hi	Lo	Hi
2°F to 4°F (1°C to 2°C) ABOVE room temperature		On		Lo	Lo	Hi
Within 0°F to 2°F (0°C to 1°C) of room temperature				Stop	Lo	Hi
2°F to 4°F (1°C to 2°C) BELOW room temperature		On	On	Lo	Lo	Hi
4°F (2°C) or more BELOW room temperature		On	On	Hi	Lo	Hi

NOTE: Above output chart is for the default reverse valve settings. Refer to configuration instructions to change to type “B” if required.

(Continue on page 3)

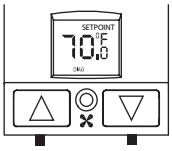
Diagnostic Mode:

Press and hold the "up" and "down" buttons together until "DIAG" appears on the display. Release the buttons.



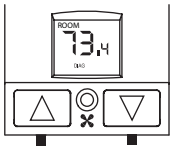
Current Setpoint Display

Diagnostic mode will alternately display setpoint and room temperature every 5 seconds. The current setpoint is displayed with the °F and "SETPOINT".



Room Temperature Display

The room temperature is displayed with the °F and "ROOM". Both setpoint and room room temperature displays will indicate the fan speed activity and "DIAG".



Economy Mode Display

To deactivate the diagnostic mode, press the "fan" button until the fan activity pointer moves to "ECONOMY". "DIAG" will disappear from the display. Diagnostic mode can also be deactivated by changing the °F/°C slide switch. Press the "fan" button again to return to operating mode.