

INSTALLATION AND OPERATION INSTRUCTIONS FOR RF WALL THERMOSTAT (OPTIONAL IR REMOTE TRANSMITTER)

The remote system will give you control of both the cooling and heating appliances from the comfort of your favorite chair. This remote control system has new features like ON/OFF timer, auto change over (optional with heat appliance) and dry mode (for humidity control).

Wiring is required between the thermostat and the HVAC unit. The thermostat wiring is field installed and must be considered before wall paneling and ceiling panels are in place. Wall thermostat controlled air conditioners are normally OEM (Original Equipment Manufacturer) installed. Wall thermostat controlled air conditioners may be installed for aftermarket applications, with additional considerations given to the thermostat wire routing.

The thermostat is equipped with a 3 amp fuse that will automatically reset.

INSTALLATION INSTRUCTIONS

BE SURE ALL ELECTRICAL POWER HAS BEEN DISCONNECTED FROM THE AIR CONDITIONER SYSTEM AND THE POWER SUPPLY.

These instructions are provided for the proper mounting of the thermostat itself. An Operation Chart and Terminal Cross Reference Chart are provided to show thermostat capabilities.

Wiring procedure is dependent upon the unit to be matched with this component.

A. RF Wall Thermostat Location

This thermostat is a sensitive instrument. For accurate temperature control and comfort, the following considerations should be taken into account:

1. Locate the thermostat on an inside wall about five feet above the floor. Pick a dry area where air circulation is good. The thermostat should be mounted within a reasonable distance from the appliance the thermostat will control. This will assure a more accurate temperature relationship between the thermostat and the appliance the thermostat will control.
2. Do not install the thermostat where there are unusual heating conditions; such as direct sunlight, heat producing appliances (television, radio, wall lamp, etc.) or a furnace or air conditioner supply register.

B. Routing the RF Wall Thermostat Wire Bundle

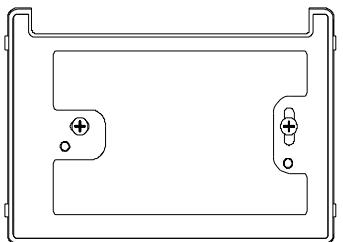
A separate wire bundle to power the 24 VAC thermostat will need to be routed between the thermostat and the power supply. Both **24 VAC (R)** and **Common (C)** must be brought up to the thermostat.

1. Route the wire bundle between the thermostat and the unit. Allow an additional 6 inches of length at the thermostat and 12 inches at the Ac unit. This will give the installer the required slack necessary for wiring.
2. Route the separate 2 wire thermostat bundle between the thermostat and the power supply. Allow 6 inches of additional wiring on both ends.
3. If stapling the wire bundle during the routing process, be careful not to pierce the thermostat wiring insulation.

C. Attaching the RF Wall Thermostat

1. Separate the thermostat body from the subbase by gently pulling at the top and bottom.
2. If this thermostat is a replacement thermostat for one which has failed or no longer meets the needs of the system: note the thermostat wiring on the back of the old thermostat subbase, and the system function each wire was operating. This will save time and trouble when rewiring the new thermostat. Before removing the thermostat wiring from the old thermostat, make sure the power supply to the thermostat is disconnected.
3. Attach the new thermostat subbase to the wall at the desired mounting location.

Mount the subbase to the wall before wiring the thermostat.



D. Wiring The RF Wall Thermostat

TO PREVENT POSSIBLE DAMAGE TO THE EQUIPMENT OR PERSONAL INJURY DUE TO ELECTRICAL SHOCK, BE SURE THAT ALL ELECTRICAL POWER TO THE THERMOSTAT HAS BEEN DISCONNECTED BEFORE BEGINNING WIRING PROCEDURE.

1. Strip the power wires ends, 24 VAC (R) and the Common (C) approximately 3/8 of an inch.
2. Use the Wire Reference Chart (Table 1) and connect the appropriate conductor to the wire which protrudes from the back of the thermostat. If this is a first time installation, note the thermostat wire color for future reference in order to properly connect the thermostat wiring to the ceiling assembly.
3. If the system has Heat Pump capability, strip and attach the Cool Active or Heat Active Reversing Valve wire (O or B), according with the system needs.
4. If a Gas Heat / Furnace system is to be operated from the thermostat, strip and attach the Furnace system wire (W2).
5. If an Electric Heater system is to be operated from the thermostat, strip and attach the Electric Heat wire (W1).
6. If the unit to be controlled by the thermostat has only one Fan speed, connect both fan wires, Low Fan (G) and High Fan (GH), together.
7. Any unused wire should have its end insulated, using a wire nut or crimp connector.
8. Gently push the excess thermostat wiring back into the wall opening. Because the wall may have a different temperature inside when compared to the outside, fill the wall opening with a noncombustible insulation. **Insure that wires cannot contact screws or sharp edges in the wall cavity.**
9. Snap the thermostat body onto the base.

DESCRIPTION	DESIG.	COLOR
24 VAC	R	Red
24 VAC - Commun	C	Blue
Low Fan	G	Green
High Fan	GH	Grey
Compressor 1	Y1	Yellow
Compressor 2	Y2	Purple
Electric Heat	W1	White & Black
Gas Heat / Furnace	W2	White
Cool Active Reverse Valve	O	Orange
Heat Active Reverse Valve	B	Black

TABLE 1

E. Selecting the Model for the RF Wall Thermostat

1. According with the system features that the RF Wall Thermostat is going to control, a Model Number must be assigned during the power up. See Table 2 for proper number.
2. When powering up the thermostat, hold the UP push button. Release the button. The display will be blinking, showing the factory default Model Number "15".
3. Use the UP button to change that number for the proper number for your installation (see Table 2).
4. After choosing the proper Model Number, wait about 6 seconds for the unit to restart, saving your configuration.

5. If no action is taken for 6 seconds after powering up the thermostat, it will restart without changing the Model Number.

Model Number	2 Stage Cool	Heat Pump	Electric Heat	Gas Heat / Furnace
0	NO	NO	NO	NO
1	YES	NO	NO	NO
2	NO	YES	NO	NO
3	YES	YES	NO	NO
4	NO	NO	YES	NO
5	YES	NO	YES	NO
6	NO	YES	YES	NO
7	YES	YES	YES	NO
8	NO	NO	NO	YES
9	YES	NO	NO	YES
10	NO	YES	NO	YES
11	YES	YES	NO	YES
12	NO	NO	YES	YES
13	YES	NO	YES	YES
14	NO	YES	YES	YES
15	YES	YES	YES	YES

TABLE 2

OPERATION INSTRUCTIONS

RF Wall Thermostat Buttons

Press the POWER button to turn the system ON or OFF. Press the UP (▲) button to adjust setpoint up. Press the DOWN (▼) button to adjust setpoint down. Press the MODE button to scroll through the modes: FAN ONLY - COOL - DRY AIR - GAS HEAT - AUTO CHANGEOVER and ELECTRIC HEAT

Power Up Down Mode

Press the FAN button to scroll through the fan speeds: LOW FAN - HIGH FAN - AUTO LOW FAN - AUTO HIGH FAN

Fan Speed

Press the TIMER button, then the TIMER button again to adjust the ON or OFF timer in 1 hour increments. The ON timer is set when the thermostat is in the OFF mode. The OFF timer is set when the thermostat is in the ON mode.

A. Cooling Operation

1. With the thermostat ON, press the MODE button until the COOL text is lit.
2. Select a fan speed that best satisfies your need by pressing the FAN button: Low, High, Auto Low or Auto High.
 - a. Low speed - Continuous low fan operation. Selected when room reaches desired comfort level and needs to be maintained. Normally this low speed is used for nighttime operation.
 - b. High speed - Continuous high fan speed operation. Selected when maximum cooling is required.
 - c. Auto low speed. Low fan cycles with the compressor.
 - d. Auto high speed. High fan cycles with the compressor.
3. Set temperature to the desired level by pushing the UP or DOWN button.

B. Gas Heat / Furnace Operation

1. Select Gas Heat by pressing the MODE button until the GAS HEAT text is lit.
2. Set temperature to the desired level by pushing the UP or DOWN button.

C. Dry Air Operation

1. Select the Dry Air mode by pressing the MODE button until the DRY AIR text is lit.
2. Set temperature to the desired level by pushing the UP or DOWN button.
3. In the dry-air mode, the Compressor & Low Fan will cycle ON and OFF at different timing intervals depending on the setpoint. If the temperature is above the setpoint, the on cycle is longer than the off

cycle to help maintain setpoint. If the temperature is below the setpoint, the off cycle is longer than the on cycle to help maintain setpoint.

D. Auto Change-Over Operation

1. Select the Auto Change over mode by pressing the MODE button until the AUTO CHG text is lit.
2. Set temperature to the desired level by pushing the UP or DOWN button.

(Note: In the Auto Change over mode the unit will maintain a comfortable temperature throughout the room without the trouble of having to select heat or cool mode.

E. Electric Heat Operation

1. Select Electric Heat by pressing the MODE button until the ELEC HEAT text is lit.
2. Set temperature to the desired level by pushing the UP or DOWN button.
3. In Electric Heat mode, if the electric heat appliance is unable to satisfy the setpoint, the gas heat output is energized. Both gas heat and electric heat appliances will run simultaneously until the setpoint is satisfied for auxiliary heat.

F. Fan Only Operation

1. Fan Only operation is selected by pressing the MODE button until the FAN ONLY text is lit.
2. Fan High or Low speeds are then selected by pressing the FAN button. Fan will run continually at the selected speed; it is not controlled by the setpoint.

I. Timer Operation

Note: Everytime the TIMER button is pressed, the display will blink for 6 seconds, alternating between the time and "hr", giving the operator enough time to start setting. If no button is pushed in 6 secs, the display will resume showing the temperature.

1. Setting the "ON" timer:
 - a) To set the "ON" timer, the unit must be OFF.
 - b) Set the timer by pressing the TIMER button, until the display indicates the desired delay, in hours, to turn the unit ON.
 - c) Wait 6 secs until the selection is stored. Display wil resume showing room temperature.
2. Setting the "OFF" timer:
 - a) To set the "OFF" timer, the unit must be ON.
 - b) Set the timer by pressing the TIMER button, until the display indicates the desired delay, in hours, to turn the unit OFF.
 - c) Wait 6 secs until the selection is stored. Display wil resume showing room temperature.

After set, a timer will repeat its operation each 24 hours. To turn a timer OFF, select "0" hours for the delay time.

The RF Wall Thermostat can be also controlled by a Z-Wave RF Remote Controller or an IR Handheld Remote.

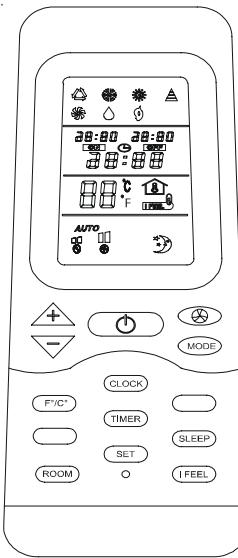
FCC

Class B Device Statement: (Section 15.105 (b) of the FCC Rules)

"Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

IR HANDHELD REMOTE



Buttons



POWER

The orange button is used for turning the unit "ON" and "OFF".



FAN SPEED

It is used for selecting fan auto/on & high/low.



UP/DOWN

The arrows are used for adjusting temperature, timer and clock.



MODE

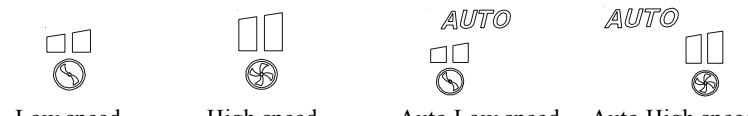
This button scrolls through all the programmed system operating functions.

Note:

1. All communications between the remote and IR thermostat are validated only when you hear a beep coming from the IR thermostat.
2. The operation of the unit is updated when the unit is "ON" and you hear a beep coming from the IR thermostat.
3. There are built-in time delays that may affect the mode of operation.

A. Cooling Operation (Cool symbol)

1. Using the handheld remote, select the cool symbol by pressing the "MODE" button until the cool symbol is displayed.
2. Select a fan speed that best satisfies your need by pressing the fan button located above the "MODE" button:



- a. Low speed - Continuous low fan speed operation. Selected when room reaches desired comfort level and needs to be maintained. Normally this low speed is used for nighttime operation.
- b. High speed - Continuous high fan speed operation. Selected when maximum cooling is required.
- c. Auto low speed. Low fan cycles with the compressor.
- d. Auto high speed. High fan cycles with the compressor.
3. Set temperature to the desired level by pushing the up (+) or down (-) button.

B. Gas Heat / Furnace Operation (Gas Heat symbol)

1. Select Gas Heat by pressing the "MODE" button until the gas heat symbol is displayed.
2. Set temperature to the desired level by pushing the up(+) or down(-) button.

C. Dry-Air Operation (Dry-Air symbol)

1. Select the dry-air mode by pressing the "MODE" button until the dry-air symbol is displayed.
2. Set temperature to the desired level by pushing the up(+) or down(-) button.
3. In the dry-air mode, the compressor & fan will cycle on and off at different timing intervals depending on the setpoint. If the temperature is above the setpoint, the on cycle is longer than the off cycle to help maintain setpoint. If the temperature is below the setpoint, the off cycle is longer than the on cycle to help maintain setpoint.

D. Auto Change-Over Operation (Auto change symbol)

1. Select the Auto Change over mode by pressing the "MODE" button until the auto change symbol is displayed.
2. Set temperature to the desired level by pushing the up(+) or down(-) button.

(Note: In the auto change over mode the unit will maintain a comfortable temperature throughout the room without the trouble of having to select heat or cool mode.)

E. Electric Heat Operation (Electric Heat symbol)

1. Select Electric Heat by pressing the "MODE" button until the heat symbol is displayed.
2. Set temperature to the desired level by pushing the up (+) or down (-) button.
3. In Electric Heat mode, if the electric heat appliance is unable to satisfy the setpoint, the gas heat output is energized. Both gas heat and electric heat appliances will run simultaneously until the setpoint is satisfied for auxiliary heat.



F. Sleep Operation (Sleep symbol)

1. In order for the sleep mode to function properly, you must select either a heat or cool mode of operation.
2. With the room set to a desired temperature, select the sleep mode by pointing to the IR thermostat and pressing the "SLEEP" button, the sleep symbol will display and a beep will sound indicating that the unit is in sleep mode.

(Note: In sleep mode the temperature will be offset by 2°F of set point after a 2 hour delay, which means, if the set point was 75°F at ten o'clock (for cooling operation) then in sleep mode it will automatically change to 77°F at twelve o'clock.)

G. Fan Only Operation (Fan symbol)

1. Fan only operation is selected by pressing the "MODE" button until the fan symbol is displayed.
2. Fan high or low speeds are then selected by pressing the fan button located above the "MODE" button. Fan will run continually at the selected speed; it is not controlled by the set point.



H. "I FEEL" Operation ("I FEEL" symbol)

1. For this mode to operate, the system would have to be selected for Electric Heat, Cool, Gas Heat or Auto Change over.
2. Select the "I FEEL" mode by pressing "I FEEL" button, the "I FEEL" symbol will display, a beep will indicate that the unit is in "I FEEL" mode.
3. In "I FEEL" mode the handheld remote then becomes the temperature sensor and therefore must be positioned in line of sight to send updated signals to the IR thermostat regularly.

4. The temperature can then be adjusted to the desired set point from the remote for that specific location. (Note: If the remote is placed in a location where the IR thermostat cannot receive a signal for more than sixteen minutes, the system will ignore the handheld remote and revert back to the IR thermostat as the temperature control device. The remote should not be positioned in an area that is in direct exposure to sunlight or any other form of heat source).
5. Battery life will be significantly reduced if unit is left in "I FEEL" mode for an extended amount of time.

I. Timer Operation

(Note: Everytime the "CLOCK" or "TIMER" button is pressed, the relevant display will blink for 15 seconds giving the operator enough time to start setting. If no button is pushed in 15 secs, the timer display will disappear.)

1. Setting the clock

a) When new batteries are installed, the clock will display 0:00

- b) This clock displays military/aviation time (24 hour format) only. See table to convert 24 hour to 12 hour format.
- c) Press the "CLOCK" button, the clock "display" should blink, press the up or down button to set the clock e.g. 1:00PM is 13:00
- d) Press the "SET" button.

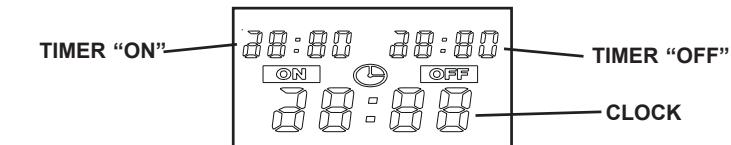
2. Setting the timer to "ON"

- a) Press the "TIMER" button, the timer "on" clock will turn on indicated by a blinking "on" symbol
- b) Set the timer by pressing the up or down button, when finished, point to the IR thermostat, press the "SET" button and listen for a beep to validate the timer.
- c) When the timer "on" mode is activated and the timer & clock are synchronized, the unit will turn "on" at the current selection as displayed on the remote at the selected time.
3. Setting the timer to "OFF"

- a) Press the "TIMER" button twice, the timer "off" clock will turn on indicated by a blinking "off" symbol.

- b) Set the timer by pressing the up or down button, when finished, point to the IR thermostat, press the "SET" button and listen for a beep to validate the timer.

- c) When the timer "off" mode is activated and the timer & clock are synchronized, the unit will turn off at the selected time.



4. Setting the timer to "ON" & "OFF"

- a) This mode allows the operator to set the system to run for a certain period of time.
- b) Press the "TIMER" button three times, the timer "on" clock will blink while the timer "off" clock is displayed solid on.
- c) Set the timer "on" by pressing the up or down button, when finished, press the timer button again to set timer "off".
- d) When timers are set, point to the IR thermostat, press the "SET" button and listen for a beep to validate the timer "on" and timer "off" settings.
- e) When the timer mode is activated and the timer & clock are synchronized, the unit will turn on and off at the selected times.

J. Room Temperature Display (Room Symbol)

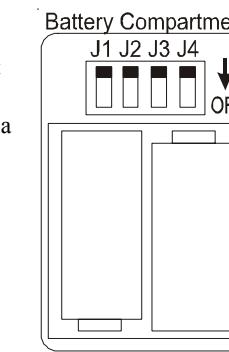
Press the (ROOM) button to display room temperature at the remote.

K. F°/C° Display

Press the (F°/C°) button to display temperature in either degrees Fahrenheit or Celsius.

L. Mounting and Configuring The Handheld Transmitter

1. To attaching the handheld transmitter on a wall separate the transmitter from the wall mount bracket. Then attach the wall mount bracket to the wall at the desired mounting location using the two screws provided.
2. To configure the handheld transmitter remove the battery compartment cover and batteries. It is optional to move the dip switch J2 to the "OFF" position for those applications without a gas appliance installed or to move the dip switch J4 to the "OFF" position for those



applications with no electric heat appliance installed. Then reinstall the batteries and cover.

3. Place the transmitter in the wall mount bracket and installation is now complete.

(Note: The temperature sensor in the transmitter can be affected by the surrounding conditions: such as direct sunlight, windows, outside doors, supply registers, or heat producing appliances (television, radio, wall lamp, etc.)

M. Trouble Shooting Guide

Symptom	Remedy
Remote does not turn on system	Check and replace remote batteries if the display fades while any button is activated, no display is present or the low battery indicator is displayed. Point remote towards IR thermostat during transmission.
System does not turn on & no beep	Check wiring. (see "wiring diagram"). Low or over voltage condition, check 24VAC at the thermostat or control box.
System runs continuously in the cool mode	Remote was set for "I feel" mode and is left in a heated environment (sun etc.)
System runs continuously in the heat mode	Remote was set for "I feel" mode and is left in a cool environment.

N. 24 Hour Clock Table

1. Table to convert the 24 hour clock format (military/aviation time) to the 12 hour clock format.

24H	12H	24H	12H
0:00	12:00 AM	12:00	12:00 PM
1:00	1:00 AM	13:00	1:00 PM
2:00	2:00 AM	14:00	2:00 PM
3:00	3:00 AM	15:00	3:00 PM
4:00	4:00 AM	16:00	4:00 PM
5:00	5:00 AM	17:00	5:00 PM
6:00	6:00 AM	18:00	6:00 PM
7:00	7:00 AM	19:00	7:00 PM
8:00	8:00 AM	20:00	8:00 PM
9:00	9:00 AM	21:00	9:00 PM
10:00	10:00 AM	22:00	10:00 PM
11:00	11:00 AM	23:00	11:00 PM
12:00	12:00 PM	24:00	12:00 AM