



NOTE: Read the entire instruction manual before starting the installation.

SAFETY CONSIDERATIONS

All wiring must conform to local and national electrical codes. Improper wiring or installation may damage thermostat.

WARNING: Before installing thermostat, turn off all power to unit. There may be more than one power disconnect. Electrical shock can cause personal injury or death.

INTRODUCTION

The Standard Model thermostat is an electronic 24-vac, programmable, manual changeover wall mount thermostat. This thermostat uses two set points to maintain and control room temperature in both the heating and air conditioning modes. The thermostat is designed to maintain +/- 2°F accuracy. No batteries are required; temperature, fan, mode, and installer configuration settings are preserved with power off.

INSTALLATION CONSIDERATIONS

AIR CONDITIONER MODEL

The Standard Model AC thermostat may be wired with or without connecting a common wire between the indoor equipment and the thermostat. However, it is recommended to use a common wire whenever possible. Without a common wire this thermostat becomes "power stealing." This means it will need to steal a small amount of power from the equipment to which it is connected. When "power stealing" connection is used, the supplied 270 ohm resistor must be connected at the indoor unit.

NOTE: Not all HVAC equipment is compatible with "power stealing" type thermostats. Consult the system equipment Installation Instructions before applying this thermostat in a "power stealing" manner.

HEAT PUMP MODEL

The Standard Model HP thermostat is not "power stealing" and **MUST** have both R and C wires connected to operate properly.

INSTALLATION

I. THERMOSTAT LOCATION

Thermostat should be mounted

- approximately 5 ft. (1.5 m) from floor
- close to or in a frequently used room, preferably on an inside partitioning wall
- on a section of wall without pipes or duct work.

Thermostat should **NOT** be mounted

- close to a window, on an outside wall, or next to a door leading to the outside
- Exposed to direct light and heat from a lamp, sun, fireplace, or other heat-radiating object which may cause a false reading
- close to or in direct airflow from supply registers and return-air grilles
- In areas with poor air circulation, such as behind a door or in an alcove.

II. INSTALL THERMOSTAT

1. Turn off all power to unit.
2. If an existing thermostat is being replaced:
 - A. Remove existing thermostat from wall.
 - B. Disconnect wires from existing thermostat, one at a time. Be careful not to allow wires to fall back into the wall.
 - C. As each wire is disconnected, record wire color and terminal marking.
 - D. Discard or recycle old thermostat.

NOTE: Mercury is a hazardous waste and **MUST** be disposed of properly.

3. Separate the front and back pieces of plastic.

4. Route thermostat wires through hole in back piece of plastic. Level plastic against wall (for aesthetic value only - thermostat need not be leveled for proper operation) and mark wall through 2 mounting holes.
5. Drill two 3/16-in. mounting holes in wall where marked. (Note: Mounting holes on thermostat are designed to fit on a horizontal J-box).
6. Secure back plastic to wall with 2 anchors and screws provided making sure all wires extend through hole in plastic.
7. Connect wires to proper terminal location inside thermostat.
8. Push any excess wire back into wall. Excess wire inside the thermostat plastic case can interfere with proper air flow across the temperature sensor. Seal hole in wall to prevent air leaks. Leaks can affect operation.
9. Snap front and back pieces of plastic together.
10. If "power stealing" connection is used, be sure to attach 270-ohm resistor at indoor unit.
11. Turn on power to unit.

III. SET THERMOSTAT CONFIGURATION

Option 01: Anticipator adjustment

Option 02: Not available

Option 03: Fahrenheit or Celsius operation

Option 04: Enable fan (G) ON with heat (W)

Options 05 through 09: Not available

Option 10: O (reversing valve) On with Heat or Cool (present on Heat Pump model only)

Options 11 and 12: Not available

Option 13: Room temperature offset adjustment

An explanation for each of these and how to enter the configuration mode follows.

TO ENTER THE CONFIGURATION MODE:

Press and hold the FAN button for approximately 10 seconds until room temperature disappears and the display reads "01". You are now in the configuration mode.

NOTE: If the FAN button is pressed again or if no button is pressed for 2 minutes, the thermostat will exit the configuration mode and return to normal operation. To re-enter the configuration mode, the FAN button must be pressed and held for 10 seconds again.

WHILE IN CONFIGURATION MODE, THE FOLLOWING OPTIONS ARE AVAILABLE:

Option 01: Anticipator Value Adjustment

This adjustment controls the sensitivity and cycle rate of the thermostat. Higher numbers increase the cycle rate in cooling. Lower numbers increase the cycle rate in heating. However, a limiting feature will not allow more than 4 equipment cycles per hour, regardless of setting. Values can range from 1 to 3. Factory default setting is 2. This default selection will provide optimum performance in nearly all installations. Try it first. Do not change setting unless there is evidence or need to do so. Unlike conventional anticipators, this setting is not to be determined by current draw. There is no need to measure, know, or compensate for current.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use \wedge and \vee buttons to display 01.
3. Press TIME/TEMP button once to display current value 02.
4. Use \wedge and \vee buttons to move between values.
5. Press TIME/TEMP button to return to 01. \wedge and \vee buttons now move between option choices 01, 02, etc. or press HOLD/END button to exit configuration mode.

Option 03: Fahrenheit/Celsius Selection

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use \wedge and \vee buttons to display 03.
3. Press TIME/TEMP button once to display current selection.
4. Use \wedge and \vee buttons to change between F and C.
5. Press TIME/TEMP button to return to 03. \wedge and \vee buttons now move between option choices 01, 02, etc. or press HOLD/END button to exit configuration mode.

Option 04: G (FAN) On with W (HEAT) Selection

This selection determines whether the G (fan) output is to be ON or OFF when the W (furnace or strip heat) output is ON. Most furnaces and fan coils manage their own blowers and do not require a separate G signal. For these applications, select OFF. Some auxiliary heaters

require a separate G signal to turn on the blower. In this case, select ON.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use \wedge and \vee buttons to display 04.
3. Press TIME/TEMP button once to display current selection.
4. Use \wedge and \vee buttons to change between ON and OFF.
5. Press TIME/TEMP button to return to 04. \wedge and \vee buttons now move between option choices 01, 02, etc. or press HOLD/END button to exit configuration mode.

Option 10: O (RVS) On with Heat or Cool Selection

This selection is only available on heat pump thermostats. This selection determines whether the reversing value is energized in heating or cooling.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use \wedge and \vee buttons to display 10.
3. Press TIME/TEMP button once to display current selection.
4. Use \wedge and \vee buttons to change between 'H' and 'C'.
5. Press TIME/TEMP button to return to 10. \wedge and \vee buttons now move between option choices 01, 02, etc. or press HOLD/END button to exit configuration mode.

Option 13: Room Temperature Offset Adjustment

This option allows calibration of the room temperature sensor. There are various reasons why homeowners may want to have displayed temperature adjusted to a higher or lower value. The selected number is the number of degrees, plus or minus, which will be added to actual temperature. The numbers can range between -5 and +5.

TO SELECT:

1. Enter configuration mode (if not already there).
2. Use \wedge and \vee buttons to display 13.
3. Press TIME/TEMP button once to display current selection.
4. Use \wedge and \vee buttons to change between +5 and -5.
5. Press TIME/TEMP button to return to 13. \wedge and \vee buttons now move between option choices 01, 02, etc. or press HOLD/END button to exit configuration mode.

IV. THERMOSTAT OPERATION

TEMPERATURE DISPLAY

Thermostat will display room temperature until \wedge or \vee button is pressed. The word SET appears when these buttons are pressed and the current set point is displayed. If no buttons are pressed for 5 seconds, the display will change back to show room temperature.

TIMEGUARD TIMER

A 5-minute timeguard is built into the thermostat immediately upon power up, and any time the compressor turns off. The compressor will not turn on until the timeguard has expired. The timeguard affects only compressor operation. Pressing \wedge and FAN buttons simultaneously will override the timeguard for 1 cycle.

CYCLE TIMER

In normal heating and cooling operation the thermostat will not allow more than 4 equipment cycles per hour. Both the Y and W outputs have a 15-minute timer that starts counting down when the output is turned on. However, pressing \wedge and FAN buttons simultaneously or changing the set point will override the timer for 1 cycle.

MINIMUM ON TIMER

Once the equipment has turned on, it will remain on for a minimum of 3 minutes regardless of demand. However, the equipment can turn off in less than 3 minutes if a change in set point or a change in mode occurs.

STAGING TIMER

If the thermostat is a heat pump, it has a 2-stage heat capability. In normal operation there is a 15-minute delay between the first and second stages of heat. The Y output will energize first, then 15 minutes later W is allowed to come on if the thermostat determines it is not satisfying the demand. However, if the heating demand is greater than 5°, there will be only a 3-minute delay before bringing on W.

ERROR MESSAGES

E4 will be displayed if the thermostat has an internal memory failure. If E4 appears, replace thermostat.

-- (two dashes) will be displayed if the thermostat cannot properly read room temperature. If -- appears, replace thermostat.

V. CHECK THERMOSTAT OPERATION

FAN OPERATION

1. Press FAN button, starting fan operation. Fan annunciator turns on.
2. Press FAN button, stopping fan operation. Fan annunciator turns off.

HEATING OPERATION

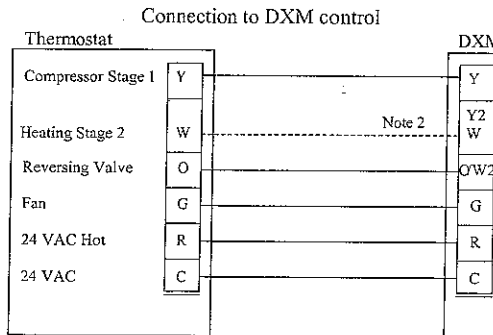
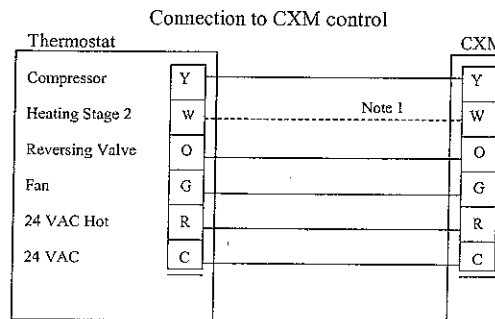
1. Press MODE button until HEAT is displayed.
2. Press \wedge button until LCD readout reads 10° above room temperature. Press \wedge and FAN simultaneously to defeat timers. Heating system should begin to operate immediately.
3. For HP thermostats only, press MODE button until EMHT (emergency heat) appears. Press \wedge and FAN buttons simultaneously to defeat timers. Emergency heating (W is ON, Y is OFF) should begin immediately.

COOLING OPERATION

1. Press MODE button until COOL is displayed.
2. Press \vee button until LCD readout reads 10° below room temperature. Press \wedge and FAN buttons simultaneously to defeat timers. Cooling system should begin to operate immediately.

VI. WIRING DIAGRAMS

1. If "power stealing" connection is used, leave off C connection between thermostat and equipment and add supplied 270 ohm resistor between W and C.



Note 1: Optional connection for Heating Stage 2 operation.

Note 2: Connect "W" thermostat output to "Y2" on the DXM if thermostat "Y2" option is configured as "Y2 = On" and the desired operation is for 2 stages of compressor with no electric heat. Connect "W" thermostat output to "W1" on the DXM if thermostat "Y2" option is configured as "Y2 = Off" and the desired operation is for 1 stage of compressor with electric heat for Heating stage 2.

STANDARD PROGRAMMABLE THERMOSTAT PROGRAMMING AND OPERATING INSTRUCTIONS

AT POWER UP

When power is first applied, AC or HP will appear for 5 seconds to tell you it is a heat/cool (AC) or a heat pump (HP) model. After this, the time display will flash to tell you the power has been off. The day and time will show within 10 minutes of when the power went off. Pressing any button will stop the flashing.

TO SET THE TIME

Press the TIME/TEMP button. The words SET TIME will flash on the display.

Press the \wedge or \vee button to move time forward or backward.

To quickly advance to the proper time press and hold the \wedge or \vee button.

Press the HOLD/END button when the correct time appears on the display.

Note: if you choose not to press the HOLD/END button, the thermostat will automatically exit the time setting mode after 10 seconds.

TO SET THE DAY OF THE WEEK

Press the DAY button to advance to the correct day.

MANUAL OPERATION

TO OPERATE MANUALLY (WITHOUT THE PROGRAMMED COMFORT SCHEDULE)

Press the HOLD/END button to make the HOLD icon appear. Then follow the four steps below.

SELECT THE MODE

Use the MODE button to move between the choices. OFF, HEAT, COOL, or EHEAT will appear on the display. EHEAT will only appear on heat pump models.

SELECT THE FAN OPERATION

Use the fan button to move between continuous fan (indicated by the FAN ON icon) and auto fan operation.

READ THE ROOM TEMPERATURE

The large display reads room temperature until a button is pressed.

ADJUST THE SET POINTS

The first press of the \wedge or \vee button does not change the set points. It displays the current set point, heating or cooling, depending on the selected mode, for a period of 5 seconds. Successive presses within this 5 seconds will adjust the set point and restart the 5 seconds. During the 5 seconds, the SET TEMP icon will be flashing.

PROGRAMMED OPERATION

The Standard Programmable Thermostat provides four periods per day (MORNING, DAY, EVE, NIGHT) and two schedules per week (MoTuWeThFr and SaSu). A separate time, heat set point, and cool set point can be set for each period and schedule. Before starting to program the thermostat, fill out the table below with the values you wish to program. The US Department of Energy recommended time and temperature values are already programmed for you as a starting point and are shown on the left side of the table.

PERIOD	US DoE TIME	US DoE COOL	US DoE HEAT	MoTuWeThFr TIME	COOL	HEAT	SaSu TIME	COOL	HEAT
MORNING	6:00 AM	78	68	1	2	3	13	14	15
DAY	8:00 AM	85	60	4	5	6	16	17	18
EVE	5:00 PM	78	68	7	8	9	19	20	21
NIGHT	10:00 PM	82	60	10	11	12	22	23	24

The first press of the PROGRAM button brings up the programming mode and places you at the current day and period. Successive pressing moves you between the four daily periods.

WHILE PROGRAMMING

The TIME/TEMP button moves between selections of SET TIME, SET TEMP and HEAT, and SET TEMP and COOL. These three numbers are to be programmed for each of the periods MORNING, DAY, EVE, and NIGHT. The DAY button moves between the weekdays (MoTuWeThFr) and the weekend (SaSu) selections. A different schedule may be set for the weekdays and the weekend. You may exit programming at any time by pressing the HOLD/END button.

PROGRAMMING A WEEKLY COMFORT SCHEDULE

- 1 Press the PROGRAM button. The word PROGRAMMING will appear on the display and the SET TIME icon will flash. MoTuWeThFr or SaSu and the present period icons will appear on the display. The current mode (HEAT or COOL) will also show. Use the DAY button to select weekdays and the PROGRAM button to select MORNING.
- 2 Press the \wedge or \vee button to set the start time for MORNING (box 1 value).
- 3 Press the TIME/TEMP button until COOL is on and SET TEMP is flashing.
- 4 Press the \wedge or \vee button to select the COOLing temperature setpoint (box 2 value).
- 5 Press the TIME/TEMP button to select the HEATing setpoint for this time period. SET TIME will flash and the COOL icon will be displayed.
- 6 Press the \wedge or \vee button to select the HEATing temperature setpoint (box 3 value).
- 7 Press the PROGRAM button to advance to the next time period. Enter time and temperature settings from boxes 4 through 12 for the periods DAY, EVE, and NIGHT by following steps 2 through 6 above.
- 8 Press the DAY button to change between weekday and weekend programming. To set the weekend schedule, repeat steps 2 through 6 using the values you entered in boxes 13 through 24.
- 9 Press END/HOLD to exit the programming mode.

MODIFYING YOUR WEEKLY COMFORT SCHEDULE

If you choose to change any of your weekly schedule, press PROGRAM at any time. You will enter the programming schedule at the present day, period, and mode. You are ready to set the new starting time for the present period. One press of the TIME/TEMP button and you are ready to set the new temperature. Press HOLD/END and you are finished.

OVERRIDING YOUR COMFORT SCHEDULE

Method I - Manual Operation

By pressing the HOLD/END button to turn on the HOLD icon, the thermostat will maintain the current temperature settings and ignore the comfort schedule for an indefinite period of time. The word HOLD will appear in the display. Press the HOLD/END button a second time and the thermostat will return the temperature settings to the programmed comfort schedule. Pressing HOLD/END will not alter your programmed comfort schedule.

Method II - Temporary Override

At the first press of the \wedge or \vee button, the current temperature setting will appear on the display. Pressing the \wedge or \vee button again will temporarily change the set point as needed. At the next programmed time, the programmed comfort schedule will resume.