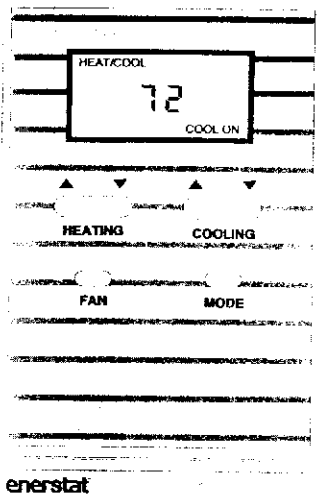


**DSP-400R  
OPERATING  
INSTRUCTIONS**



SEE OTHER SIDE FOR  
INSTALLATION INSTRUCTIONS

**OPERATING INSTRUCTIONS  
FOR MODEL DSP-400R**

Your new Digital Setpoint Thermostat has been designed to provide accurate control and display of room temperature. In addition, it will also display all relevant information pertaining to your Heat Pump system.

The clearly marked buttons and informative display make it extremely easy to understand and simple to use.

Please take a few moments to read the brief instructions and familiarize yourself with the various functions in order to obtain maximum benefit from this truly unique electronic control.

**GENERAL INFORMATION**

The thermostat normally displays room temperature, mode of operation and whether Cooling or Heating is currently on. The four buttons on the front of the unit allow complete control of your Heat Pump system.

You may select different heating and cooling setpoints for the system to maintain, eg. 70° in heating and 75° in cooling. Raising or lowering the setpoints in heating or cooling is as simple as pushing a button. In addition, you may choose °F or °C for the display.

The thermostat also allows you to select continuous fan operation (useful when using an air cleaner), or have the fan come on with the equipment.

**USER CONTROLS**

**MODE:**

Select the desired mode of operation by repeated pressing of the MODE button:  
COOL – controls cooling system only  
HEAT – controls Heating system only  
HEAT/COOL – controls both systems  
OFF – system will not operate

**COOLING:**

Select the temperature you want your Heat Pump to maintain while cooling by pressing and holding the COOLING button under the ▲ or ▼ until the desired temperature is displayed. When the display shows SET TEMP and COOL the temperature shown is the control temperature for Cooling. The display will show COOL ON when the system is operating in cooling mode.

**HEATING:**

Select the temperature you want your Heat Pump to maintain while heating by pressing and holding the HEATING button under the ▼ and ▲ until the desired temperature is displayed.

**USER CONTROLS (Cont'd)**

When the display shows SET TEMP and HEAT the temperature shown is the control temperature for heating. The display will show HEAT ON when the system is operating in heating mode.

**FAN:**

The Fan will come on automatically when the system is operating, but there is no indication of this on the display. To select continuous Fan operation, press the FAN button and the display will show FAN ON. This is recommended for electronic air cleaners and continuous ventilation requirements.

**OFF:**

When the word OFF is displayed, the Heat Pump will **not** operate. Display shows room temperature and FAN is operable.

*Avoid using the OFF mode during extremely cold weather to prevent damage from freezing.*

**USER CONTROLS (Cont'd)**

**HEAT/COOL:**

Selecting this mode of operation will control both Heating and Cooling functions. The thermostat will automatically switch from one to the other as determined by the selected setpoints in heating and cooling.

**NOTE:** The thermostat never allows less than 2°F (1°C) difference between the heating and cooling setpoints.

**SET TEMP:**

This is displayed when pressing the HEATING or COOLING button under the ▲ or ▼ symbols.

The number that is displayed when the button is released is the new setpoint or control temperature for the system. The display will then return to showing its normal readout of room temperature.

**POWER FAILURES**

Your thermostat employs the latest developments in solid state electronic technology. The innovative use of this technology has enabled us to provide features never before possible in an electronic thermostat.

One of the unique features of your thermostat is that there is no battery required to maintain your selected setpoints in the event of a power loss as the memory is unaffected by power failures of any duration.

When power is restored, the thermostat will continue operating as if the power had never been off.

**WARRANTY**

**LIMITED TWO YEAR WARRANTY**

Enerstat warrants to the original purchaser that its product and component parts will be free from defects in workmanship and materials for a period of two years from the date of purchase. Your dealer will provide free replacement of your Enerstat upon proof of purchase.

**EXCLUSIONS**

This warranty does not apply in the event of misuse, abuse or as a result of unauthorized alterations or repairs. Enerstat will not be liable for any consequential damages including, without limitation, damages resulting from defects, loss of use, or misuse.

*This equipment, if installed in strict accordance with the manufacturer's instructions, complies with the limits for a Class B computing device pursuant to Subpart J of Part 15 of FCC rules.*

### INSTALLATION INSTRUCTIONS

#### LOCATION:

To ensure proper operation, the thermostat should be mounted on an inside wall in a frequently occupied area of the building. In addition, its position must be at least 18" (46cm) from any outside wall, and approximately 5' (1.5m) above the floor in a location with freely circulating air of an average temperature.

#### BE SURE TO AVOID THE FOLLOWING LOCATIONS:

- behind doors or in corners where freely circulating air is unavailable
- where direct sunlight or radiant heat from appliances might affect control operation
- on an outside wall
- adjacent to, or in line with, conditioned air discharge grilles, stairwells, or outside doors
- where its operation may be affected by steam or water pipes or warm air stacks in an adjacent partition space, or by an unheated/uncooled area behind the thermostat

- where its operation will be affected by the supply air of an adjacent unit  
 - near sources of electrical interference such as arcing relay contacts.  
 You may wish to use a remote sensor if the most appropriate location for sensing temperature is not convenient or accessible. Request Enerstat part #RSK4 and use Belden Type 8760 shielded cable or equivalent.

1) Remove the mounting plate from the back of the thermostat by grasping the plate firmly and pulling it straight out.

2) Position the plate on the wall so that it appears level and with the large rectangular hole near the bottom with the wires from the equipment protruding through the hole. Mark the location of the two mounting holes on the wall and drill holes using a 3/16" (5mm) bit. Install supplied anchors and secure plate to wall with supplied hardware. The thermostat may also be mounted on a vertical 2x4 junction box using field supplied hardware.

3) Connect the wires from your system to the thermostat using the wiring diagram below. **The X terminal** (common side of 24Vac transformer) **is required.** Strip 1/4" (6 mm) of insulation from control wires (longer strip lengths may short.)

4) Carefully align the thermostat with the mounting plate ensuring that the surplus wire length is pushed into the wall cavity or junction box as the thermostat is pushed onto the mounting plate.

#### SLIDE SWITCH SETTINGS

Switch	Position	Function
1	OFF	Keyboard disable
	ON	Keyboard normal
2	OFF	Remote sensor
	ON	Internal
3	NOT USED	
4	NOT USED	
5	OFF	Rev. valve in cooling
	ON	Rev. valve in heating

**Note:** To change display between °F and °C, depress the Heat ▲ and Cool ▼ buttons simultaneously.  
 (Factory Set: °F)

#### Pushbutton Temperature Calibration:

To calibrate, perform the following steps:

- ensure 24Vac is present at terminals C & R
- determine correct space temperature
- depress and hold 'Calibrate' button
- depress HEAT ▼ or ▲ button until correct space temperature is displayed
- releasing 'Calibrate' button completes calibration

#### OUTPUT TERMINAL FUNCTIONS

- X** 24Vac common side of transformer
- R** 24Vac from system transformer
- HP** Energized when 1st stage heat pump is required.
- G** Energized when FAN is depressed or with equipment
- O/B** Energizes reversing valve
- 1** One wire from remote sensor
- 2** Other wire from remote sensor plus cable shield

#### SPECIFICATIONS

Rated Voltage	20-30 Vac, 24 nominal
Rated Current	0.01 to 3A continuous per output with surges to 5A. Maximum 3 Amp continuous total output.
Cycle Rate	3 CPH
Control Range	Heating 6-34°C (41-96°F) Cooling 7-35°C (43-98°F)
Measurement Range	5 to 41°C or 38 to 109°F
Control Accuracy	± 0.5°C at 20°C ± 1°F at 68°F
Minimum Deadband	(between heating and cooling) 2°F or 1°C
Minimum On/Off Times	4 minutes

**NOTE:** This thermostat contains electronic circuitry replacing the conventional mechanical anticipator.

#### Thermostat Terminal Connections

