

ET 141 Electric Surface Mounted Thermostat



Description This electric surface mounted thermostat has a Single-Pole, Double-Throw (SPDT) contact mechanism and is designed especially for mounting on pipes.

Warning/Caution Notations

| | | |
|-----------------|--|---|
| WARNING: | | Personal injury or loss of life may occur if you do not perform a procedure as specified. |
| CAUTION: | | Equipment damage may occur if you do not perform a procedure as specified. |

Application

As a high event temperature control, the contacts that open on a rise in temperature are used. As a low event temperature control for use on unit heaters, the contacts that open on a decrease in temperature are used. It can also be used as a convector or fan coil changeover control to automatically select either the heating or cooling function of wall type SPDT heating and cooling thermostats.

NOTE: This surface mounted thermostat control is intended to control equipment under normal operating conditions. It is not intended to prevent unsafe operation of air conditioning, heating, air cooling, and ventilating systems.

WARNING:



Failure or malfunction of this unit could lead to an abnormal operating condition that could cause personal injury or damage to the equipment or other property, other devices (limit or safety controls) or systems (alarm or supervisory) intended to warn of or protect against failure or malfunction of the unit temperature control must be incorporated into and maintained as part of the control system.

| | | |
|-----------------------|---|------------------------------------|
| Product Number | 141-0522 | |
| Specifications | Switch Action | SPDT |
| | Scale Range | 50°F to 200°F (10°C to 93°C) |
| | Maximum Bulb Temperature | 240°F (115°C) |
| | Maximum case ambient temperature | 131°F (55°C) |
| | Electrical Ratings | See Table 1 |
| | Differential | Fixed 4°F (2.2°C) |
| | Cover Finish | Gray baked enamel galvanized steel |
| | Shipping Weight | 1.5 lb (0.68 kg) |
| | Dimensions | See Figure 6 |
| Agency certification | UL Listed: File E35198, CCN XAPX CSA Certified: File LR 948, Class 4813 02 | |

Table 1. Electrical Ratings.

| Max. Motor Ratings | 120 Vac | 240 Vac |
|--------------------|---------|---------|
| Full Load Amps | 10 | 6 |
| Locked Rotor Amps | 60 | 36 |

Installation

Installation Notes

- If the boiler manufacturer recommends a control location, follow such recommendations. If none is offered, the following information gives suggested locations. See Figure 1.
 - On **heating systems**, surface mounted controls can be attached to either a horizontal or a vertical riser approximately 18 inches above the boiler.
 - On **unit heater applications**, they can be attached to the supply or the return line.
- Do not install where the case temperature exceeds 131°F (55°C), or the sensing element temperature exceeds 240°F (115°C).

Boiler Application

NOTE: Do not install this control on a riser pipe containing a flow control device. The flow control device will prevent circulation of hot water unless circulator is operating.

Install the control on the vertical riser pipe from the boiler approximately two feet (0.6 m) above the boiler opening.

Unit Heater Control

Mount the control on the horizontal return line adjacent to the unit heater. In this position, it will close the contacts when hot condensate or hot water is leaving the unit heater.

Other Applications

This control can be mounted in any position on the pipe to sense pipe temperature. The control is not position sensitive. To mount the control, do the following:

1. If a pipe is insulated, remove a 5-inch (127 mm) section of insulation.
2. Scrape pipe surface clean, removing insulating material, scale, and rust.
3. Remove the cover from the control, and fasten the threaded flange of the strap to the control case using only three or four threads of the mounting screw. (See Figure 2.)

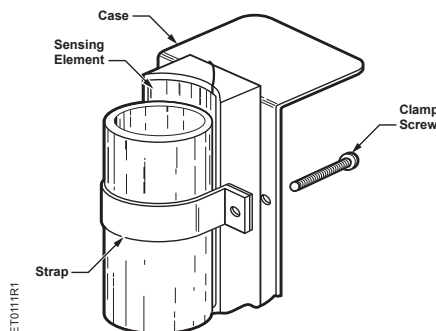


Figure 1. Skeleton View of Control Case, Temperature Sensing Element, and Mounting Strap.

Other Applications

4. Place the control on the pipe, wrap strap around pipe, and place the slot in the strap over the tab on the right side of the case.
5. Tighten the strap screw snugly. Clip off or bend back any excess strap outside the control cover.

**WARNING:**

Risk of electrical shock. Do not enclose any excess strap inside the enclosure when installing the cover. Doing so may result in the metal strap contacting the wiring terminals and cover, and may result in severe personal injury or death.

6. Replace the pipe insulation removed in Step 1.

NOTE: Insulation attached to the rear of the control minimizes the effect of ambient air temperature on the sensing element.

Operation and Adjustment

The setpoint adjustment screw (see Figure 2) permits screwdriver adjustment of the setpoint between 50°F and 200°F (10°C and 93°C).

The temperature differential is factory set, non-adjustable, and approximately 4°F (2.2°C), depending on the rate of temperature change.

Convertible adjustment models can be field converted from concealed screwdriver slot adjustment to knob adjustment or external screwdriver slot adjustment. For knob adjustment, remove the snap-in plug and assemble the knob to the slotted shaft. For external screwdriver slot adjustment, remove the snap-in plug.

On boiler applications where the control is used as a high temperature operating control, follow the boiler manufacturer's recommendations for temperature settings.

Temperature Setpoint Stop

The temperature setpoint stop is an integral part of these controls, and is field adjustable. To set the stop, do the following:

1. Set dial temperature at desired stop.
2. Remove control cover.
3. Loosen the stop screw, slide the screw to the front of the control against the plastic stop behind the dial, and tighten the screw (see Figure 2). Sometimes, an exact stop setting is not possible, and the stop must be set to the closest stop corresponding to the required dial setting.

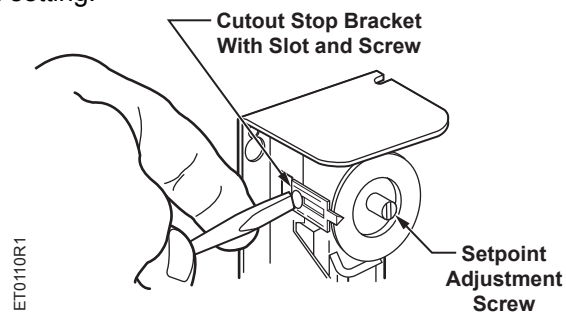


Figure 2. Setpoint Stop Screw.

Wiring Diagrams

All wiring should be done according to the National Electrical Code (NEC) and local regulations.

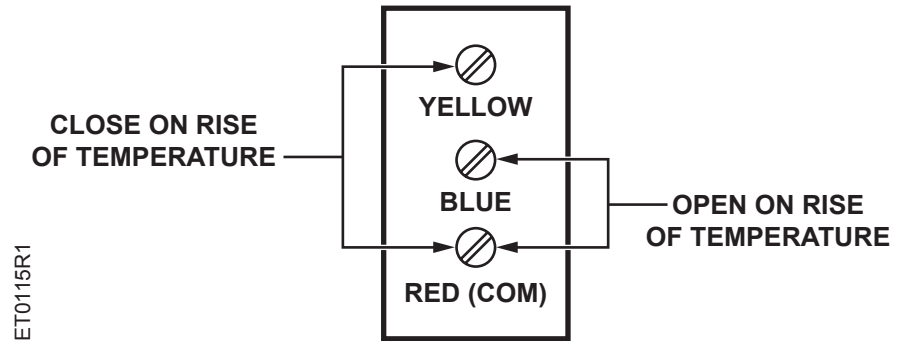


Figure 3. Terminal Identification.

This control has an SPDT snap action switch. The bottom terminal (red) is the common terminal. The middle terminal (blue) has an open-on-rise switch action. The top terminal (yellow) has a close-on-rise switch action. See Figure 3.

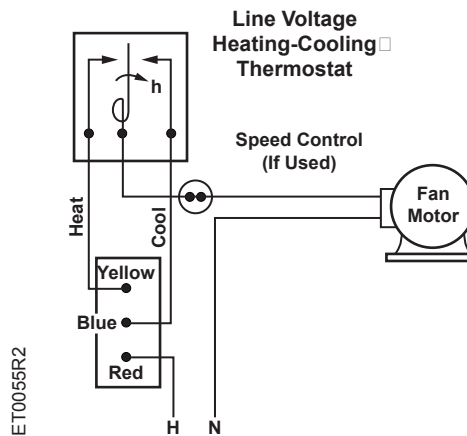
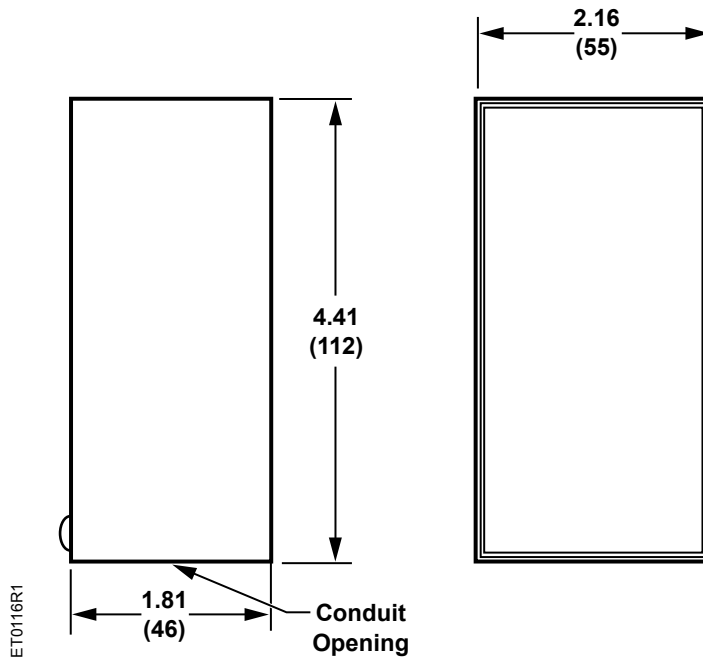


Figure 4. Typical Changeover Wiring.

Service

There is no servicing of this thermostat. Replace if inoperative.

Dimensions



**Figure 5. Dimensions in Inches.
(Millimeters in Parentheses).**

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