SIEMENS

ET 141 Line Voltage Remote Bulb Thermostats

Description	The ET141 remote bulb thermostat incorporates a temperature-sensitive liquid-filled sensing element that actuates precision snap-acting switches through a diaphragm and linkage mechanism. The switches are Single-Pole, Double-Throw (SPDT) snap-acting type, totally enclosed, and are suitable for low or line voltage power switching.
Application	These remote bulb thermostats are commonly used for the control of temperature in heating and/or cooling installations. They are used to directly operate two-position damper motor actuators, motor actuated valves, relays, and other similar equipment. Applications include their use as high or low temperature control functions, summer-winter changeover, and the direct control of liquid or air temperatures where two-position (on-off) control is acceptable.

Product Number

Table 1.

Product Number	Description
141-0520	Remote Bulb Thermostat Range 30°F to 110°F (-1°C to 43°C)
141-0521	Remote Bulb Thermostat Range 100°F to 240°F (38°C to 116°C)

Specifications

(also See Table 2)

Switch Action	SPDT
Cover Finish	Gray baked enamel galvanized steel
Shipping Weight	1 lb (0.45 kg)
Dimensions	See Figure 5
Agency Certification	UL Listed: File E6688 CSA certified: File LR948

Siemens Industry, Inc.

Warning/Caution Notations

WARNING	⚠	Personal injury or loss of life may occur if you do not perform a procedure as specified.
CAUTION	⚠	Equipment damage or loss of data may occur if you do not follow a procedure as specified.

Table 2. Specifications.

Product Number	Scale Range	Bulb Size	Max. Bulb Temp.	Capillary Length	Switch Differential	Electrical Rating				
						Inductive				Resistive Amps
						Full Load Amps		Locked Rotor Amps		
						120 Vac	240 Vac	120 Vac	240 Vac	120 Vac
141-0520	30°F to 110°F (-1°C to 43°C)	4" × 0.38" (101 mm × 9.9 mm)	150°F (66°C)	6 Feet (183 cm)	Adj. 3.5°F to 14°F (1.4°C to 7.8°C)	16	8	96	48	16
141-0521	100°F to 240°F (38°C to 116°C)	2-3/8" × .29" (60.3 mm × 7.4 mm)	290°F (143°C)	6 Feet (183 cm)	Adj. 6°F to 24°F (3.3°C to 13.3°C)					

Accessories	Closed Tank Connector	141-351
	Duct Mounting Kit	808-517
	Wells	
	for 141-0520	141-338
	for 141-0521	141-337

Mounting and Installation

Controls are normally mounted to a flat surface by the mounting holes provided. See Figure 5. Mounting can be in any convenient position. Always bend the capillary tube by hand to avoid sharp bends or kinks.

⚠ **CAUTION:**

Do not dent or deform the sensitive bulb of this control. A dent or deformation will change the calibration and cause the control to cycle at a temperature lower than the dial setting.

Duct Installation Using Kit 808-517

General Guidelines

- Mount the thermostat with the remote bulb in the return air duct where there is free air circulation. Use remote bulb holder kit 808-517 which consists of a flange and bulb holder.

- Make sure the remote bulb does not come in direct contact with any metal surface that could cause excessive vibration and damage the element.

- The thermostat may be mounted on any wall surface.

Instructions

1. Attach the mounting bracket to the thermostat with the two round head screws provided.

2. Cut a one inch diameter hole in the duct. Use the flange to determine the screw hole positions and drill three holes.

3. Place the gasket against the duct. Align the holes in the gasket and duct mounting flange with the holes in the duct. Attach with sheet metal screws provided in the kit. See Figure 1.

4. Loosen the set screw at the hub of the mounting flange. Carefully insert the bulb into the remote bulb holder. Tighten the hub set screw.

5. Mount the thermostat to the duct or wall.
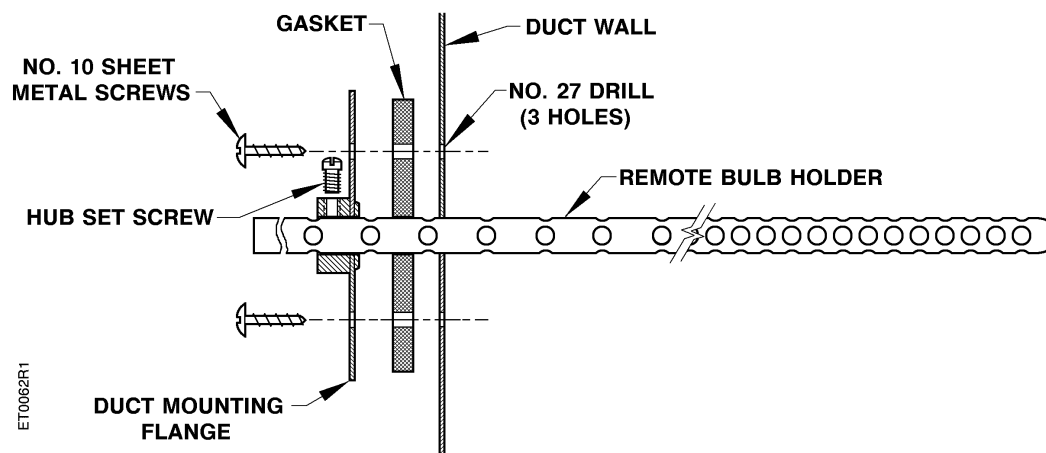
The installation is now complete.

Figure 1. Remote Bulb Holder Kit 808-517.

Mounting and Installation, continued

Well Mounting Using Kits 141-337 and 141-338

For use up to 300 psi @ 250°F (2,068 kPa @ 121°C)

1. Install the bulb well into the tank.

2. Remove the bushing from the bulb well and slide the bushing over the capillary.

3. Replace the bushing into the bulb well, gently pushing the bulb into position in the bottom of the well.

4. Tighten the set screw in the end of the adapter to hold the bulb in position.
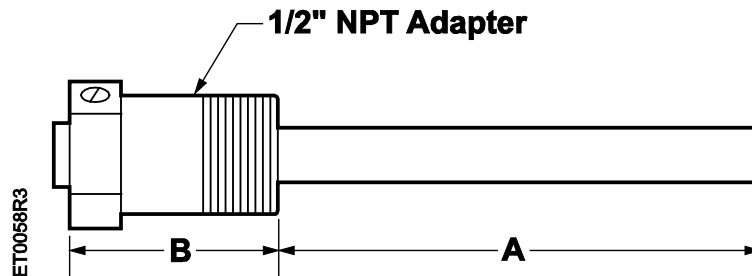
The installation is now complete.

Table 3. Well Mounting Kits.

Product Number	Use Bulb Well Part Number	Dimension "A"	Dimension "B"
141-0520	141-338	4-15/16" (125.4 mm)	1-13/16" (46 mm)
141-0521	141-337	2-3/8" (60.3 mm)	1-5/16" (33.4 mm)

Closed Tank Mounting Without Well Using Kit 141-351

The 141-351 packing nut consists of an immersion fitting with a 1/2-inch NPT connector for installing the thermostat sensing element in a liquid line.

1. Be sure the tank is drained so the liquid level is below the tank opening.

2. Place parts over capillary section of the element.

3. Place bulb into tank.

4. Screw packing nut into adapter with the retaining washers and packing in place as shown in Figure 2.
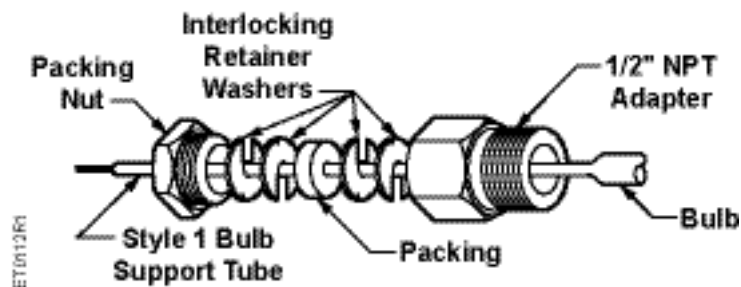
The installation is now complete.

Figure 2. Part Number 141-351 Closed Tank Connector.

Wiring Diagrams

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

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.
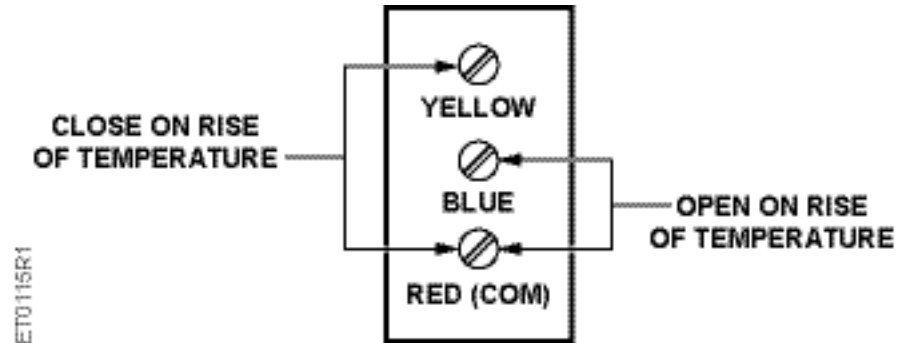
Figure 3. Wiring Diagrams.

Operation and Adjustment

The setpoint adjustment knob permits adjustment of the setpoint between 100°F and 240°F (38°C and 116°C) for 141-0521, and 30°F to 110°F (-1.1°C to 43°C) for 141-0520.

The temperature differential is adjustable: 3.5°F to 14°F (1.4°C to 7.8°C) for 141-0520, and 6°F to 24°F (3°C to 13.33°C) for 141-0521.

The standard model includes a knob for setpoint adjustment.

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.
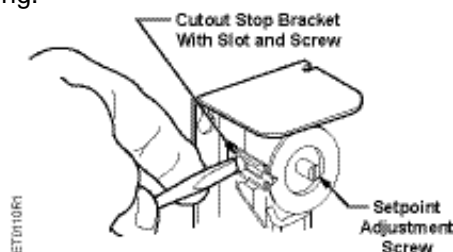
Figure 4. Setpoint Stop Screw.

Service

Thermostat is not repairable. Replace if inoperative.
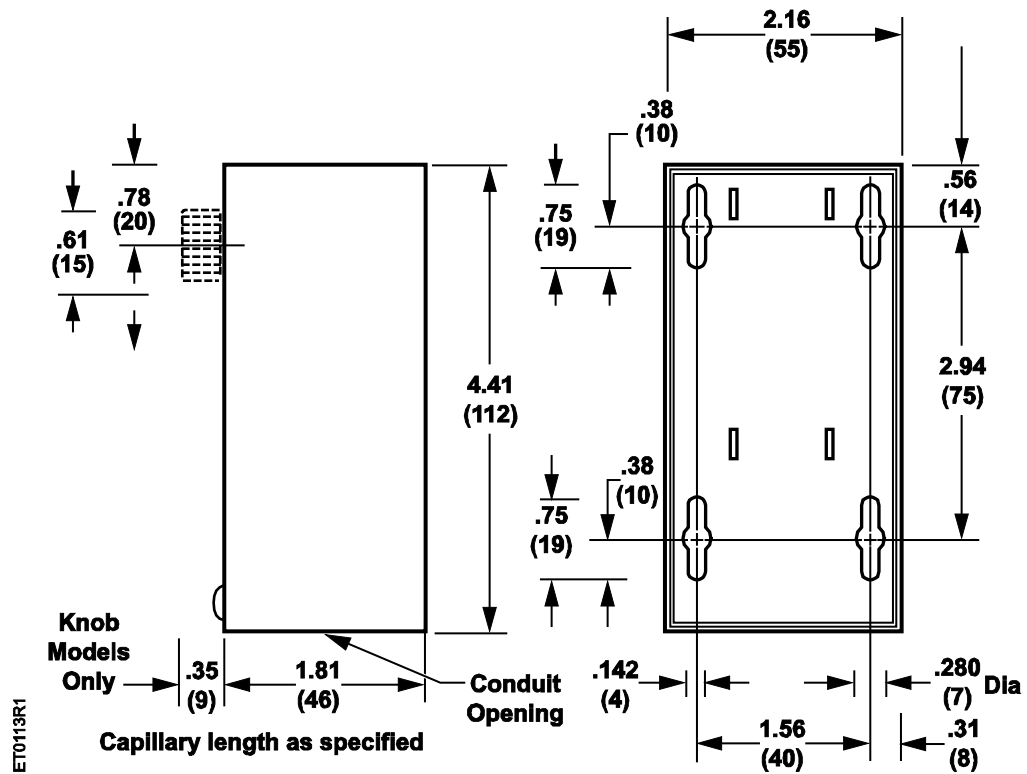
Dimensions

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