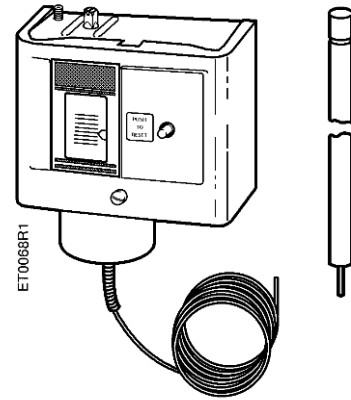


Powers™ Controls

TH 134 Pneumatic High And Low Temperature Detection Thermostats



Description

The TH 134 Pneumatic High and Low Temperature Detection Thermostats have an internal pneumatic switch that exhausts air from the line to a controlled device when the temperature reaches the set point. They require manual reset to close the switch.

Features



- Snap acting pneumatic switch - no leakage prior to opening
- Easy to adjust settings
- Normally closed 0.022- inch (0.6 mm) diameter restrictor air valve bleeds to less than 2 psig (13.8 kPa) when supplied with 20 psig (138 kPa) through 40 scim (11 ml/sec) restrictor when switch is open
- Barbed fitting for push-on connection of 1/4-inch OD plastic tubing

Product Number

Table 1.

Description	Product Number
Pneumatic Low Temperature Detection Thermostat	134-1700
Pneumatic High Temperature Detection Thermostat	134-1710
Accessories Remote Bulb Holder Kit for 134-1710 only	808-517

Warning/Caution Notations

WARNING:		Personal injury/loss of life may occur if a procedure is not performed as specified.
CAUTION:		Equipment damage, or loss of data may occur if the user does not follow procedure as specified.

Application

The pneumatic high and low temperature detection thermostats are used on pneumatic heating, cooling and air conditioning systems. These thermostats must be used in areas protected from the weather.

On a typical high temperature sensing application the thermostat shuts down air conditioning or ventilating fans when the duct temperature becomes excessively high.

The low temperature detection thermostat stops a fan or closes a damper when the temperature at any one-foot or greater section of the sensing element drops to or below the set point.



WARNING:

The pneumatic high and low temperature detection thermostats are designed for use only as operating controls. Where an operating control failure would result in personal injury and/or loss of property, it is the responsibility of the installer to add devices (safety, limit controls) or systems (alarm, supervisory systems) that protect against, or warn of control failure.

Piping Diagrams

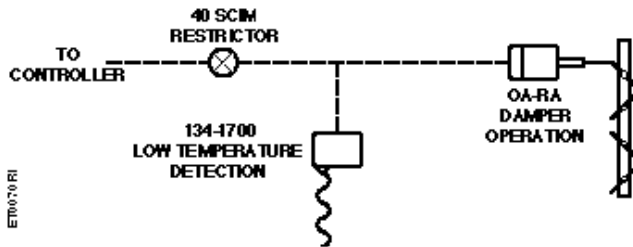


Figure 1. Mixed Air Low Temperature Detection.

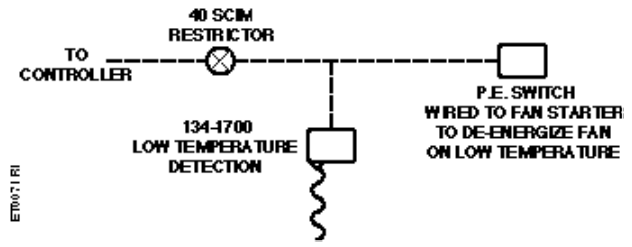


Figure 2. Mixed Air Low Temperature Detection.

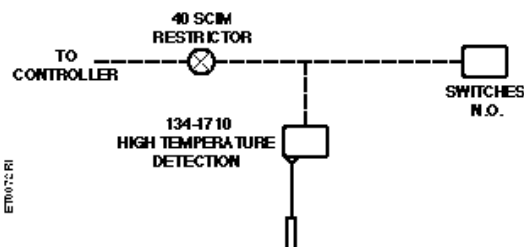


Figure 3. Discharge Air High Temperature Detection.

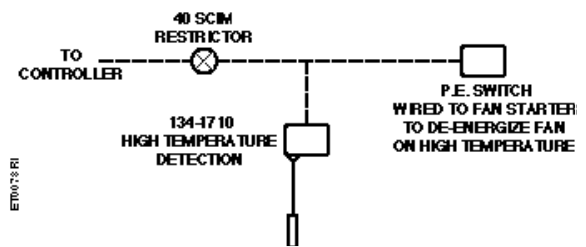


Figure 4. Return Air High Temperature Detection.

Specifications (Also See <i>Table 2</i>)	Material	
	Case	0.062-inch (1.6 mm) cold rolled steel
	Cover	0.028-inch (0.7 mm) cold rolled steel
	Pneumatic Switch	Normally closed, 0.022-inch (0.6 mm) dia. bleed restrictor
	Ambient temperature range	
	134-1700	Greater than set point to 140°F (60°C)
	134-1710	-40° to 140°F (-40° to 60°C)
Restrictor	40 scim (11 ml/sec)	
Shipping Weight	2.4 lbs. (1.1 kg)	
Dimensions	See <i>Figure 9</i>	

Table 2. Specifications.

Product Number	Type of Control	Range °F (°C)	Differential °F (°C)	Bulb & Capillary	Max. Bulb Temp. °F (°C)
134-1700	Low Temperature Lockout	15 to 55 (-9 to 12.8) with stop at 35 (1.67)	5* (2.8) Non-Adj.	1/8 in. OD x 20 ft. bulb	400 (204)
134-1710	High Temperature Lockout	100 to 170 (38 to 77)	10** (5.6) Non-Adj.	6 ft. cap. 3/8 in. OD x 10 in. bulb	250 (121)

*Temperature must increase 5°F (2.8°C) before pneumatic switch can be closed again.

**Temperature must decrease 10°F (5.6°C) before pneumatic switch can be closed again.

Operation

The pneumatic switch holds a dead ended line to approximately 25 psig (172 kPa) air pressure with zero bleed when in normally closed position.

These thermostats open a pneumatic switch when the sensed temperature reaches the set point.

NOTE: The reset button must be pressed manually and released to resume normal fan system operation.

Model 134-1700

The low temperature thermostat responds to the lowest temperature along the entire 20-foot sensing bulb or bellows cup. It opens the pneumatic switch when the temperature at any 1-foot length along the bulb reaches the control set point.

Model 134-1710

The high temperature thermostat responds to the remote bulb sensing air temperature in a duct. It opens a pneumatic switch when the sensed temperature reaches the control set point.

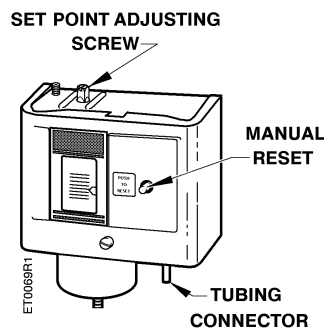


Figure 5. High/Low Temperature Detection Thermostat with Manual Reset.

Mounting and Installation

Low Temperature Detection

General Guidelines

- Locate the sensing element in the downstream side of the coil.
- Install as much of the bulb as possible in a horizontal plane. If too much of the bulb is vertical, it will not operate properly.
- Locate the case and bellows where the ambient temperature is always warmer than the bulb and capillary environment.
- Install the thermostat so that the reset button is readily accessible and the element bellows point down.
- Avoid sharp bends or kinks in the sensing element.

Large Walk-in Ducts (Figure 6)

1. Attach the mounting bracket to the thermostat using the two round head screws provided.
2. Mount the two perforated steel strap hangers inside the duct with the wide part of the hanger strap parallel to the air flow.
3. Drill a hole in the side of the duct. With the bulb still coiled, thread the bulb through the hole using a rotary movement.
4. Mount the thermostat on the duct.
5. Carefully uncoil the bulb avoiding sharp bends or kinks in the sensing element.
6. Mount the bulb in a horizontal serpentine manner. Attaching the bulb to the strap as shown in the detail in *Figure 6*.

The installation is now complete.

For an alternate method of mounting, use coil clips (part no. 356-115) in the coil fins to hold the bulb in a horizontal serpentine pattern.

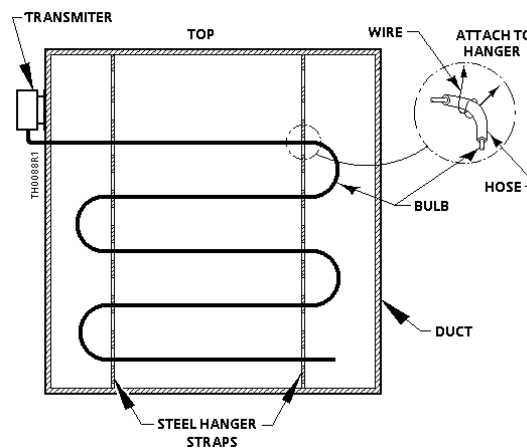


Figure 6. Typical Mounting in Large Walk-in Ducts.

Mounting and Installation, continued

Limited Access Ducts (Figure 7)

1. Attach the mounting bracket to the thermostat with the two round head screws provided.
2. Attach a mounting flange (part number 808-412) on the opposite side of the duct (near the bottom) from where the thermostat will be mounted.
3. Mount a second flange on an 8-inch by 4-inch sheet metal plate.
4. Cut an access opening for the bulb on the duct diagonally across from the duct-mounted flange. Drill mounting screw holes for the sheet metal plate.
5. Cut a length of copper tubing to fit diagonally across the duct. Stretch out the bulb and wrap it around the tubing. Attach the bulb to the copper tubing so that most of the bulb is close to horizontal when installed.
6. Insert the tubing and bulb through the access hole and into the duct-mounted flange. Fasten the 8-inch by 4-inch sheet metal plate to the duct.
7. Mount the thermostat to the duct.

The installation is now complete.

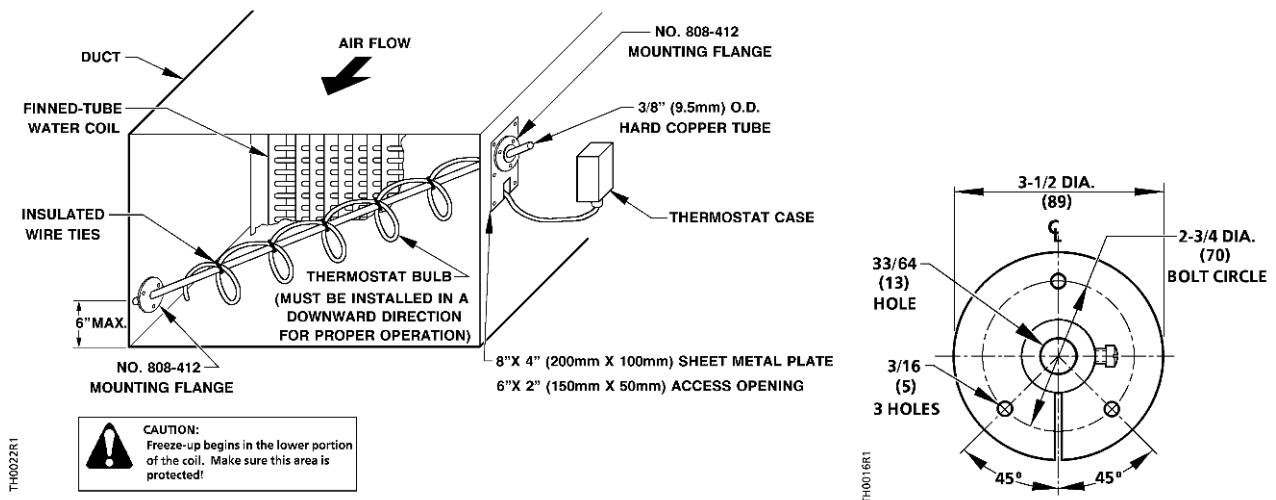


Figure 7. Bulb Mounting for Limited Access Ducts with Mounting Flange.

High Temperature Detection Thermostat (Figure 8)

- Mount the thermostat with the remote bulb in a return air duct where there is free air circulation. Use remote bulb holder kit 808-517.
- Make sure the remote bulb does not come in direct contact with any metal surface that could cause excessive vibration and damage the element.
- Install the thermostat so that the reset button is readily accessible.
- The thermostat may be mounted on any wall surface.

General Guidelines

Mounting and Installation, continued

Instructions

1. Attach the mounting bracket to the thermostat with the two round head screws provided.
2. Cut a 1-inch diameter hole in the duct. Use the flange to determine the screw hole positions and drill three holes. See the mounting flange inset in *Figure 7*.
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 8*.
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.

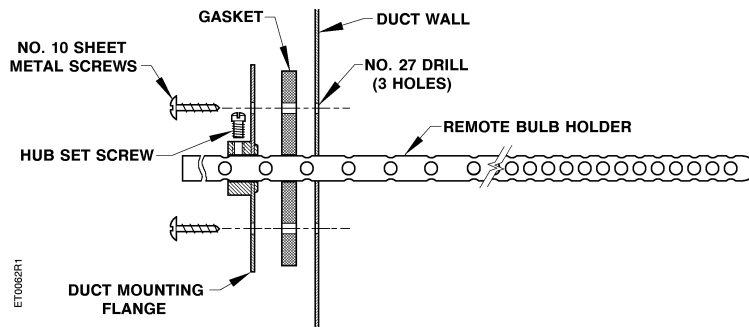


Figure 8. Remote Bulb Holder Kit 808-517.

Adjustment

Use a screwdriver to turn the set point adjustment screw (*Figure 5*). Clockwise rotation raises the set point.

Troubleshooting

Observe a complete operating cycle to be sure that all components function correctly.

Service

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

Dimensions

Dimensions in Inches
 (Millimeters in
 Parentheses)

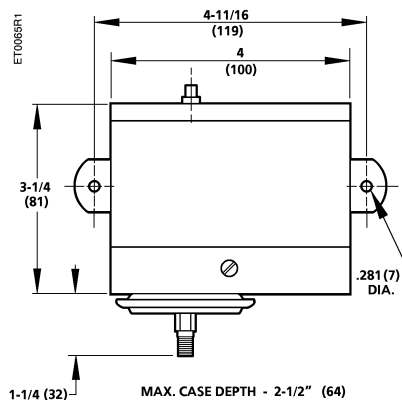


Figure 9. Dimensions of the 134-1700 and 134-1710 Thermostats.

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