



## Installation and Operation Instructions

A/FS-1, A/FS-1A, A/FS-2, A/FS-2A,  
A/FS-3, A/FS-3A, A/FS-4, A/FS-4A,  
A/FS-5, A/FS-5A, A/FS-6, A/FS-6A

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### Carefully Read These Instructions Before Installation!

#### **Description**

Electro-mechanical, low-temperature limit/cut-out thermostat with a 20 ft, 10 ft or 6 ft capillary sensing element, auto- or manual reset, and 1-SPDT or 2-SPDT switched output.

#### **Applications**

The thermostat and its capillary sensing element provide an antifreeze function. It detects temperature drops below a fixed safety value (setpoint), i.e. heaters in A/C units, exchangers in cooling systems, etc.

#### **Operation**

Any 1-foot length of the sensing element subjected to temperatures below the low cut-out setpoint setting of the thermostat will actuate the thermostat switch mechanism regardless of the temperature being sensed by the remainder of the element.

The low cut-out setpoint is factory set and can be adjusted by turning the slotted screw on top of the enclosure.

**NOTICE:** The Freeze Thermostat is factory set at 40°F. This is the ideal setting that will provide the best protection while avoiding nuisance trips.

Auto-reset types will automatically switch back to the normal position if the temperature returns to normal conditions.

Manual-reset types will switch back only if both the temperature returns to normal conditions and the reset button (at the enclosure's front) is manually pushed.

#### **Wiring**

All wiring should comply with National and Local Electrical Codes.

A M20 watertight fitting is installed in the ½" conduit knockout. If the ½" knockout is needed, remove the M20 fitting and install the appropriate conduit fitting in the 0.830" knockout in the bottom of the enclosure.

Maximum wire size is 14 AWG (2.5mm) two copper wires. Use a screwdriver to loosen the terminal connections screws. Strip wire ends 3/8" and insert into box connectors on the switch block and securely retighten the screws.

Now replace the cover and tighten the screw on the front cover.

**NOTICE:** The Freeze Thermostat is factory set at 40°F. This is the ideal setting that will provide the best protection while avoiding nuisance trips.

#### **Installation**

Locate the sensing element where it can sense the average temperature of the space to be controlled.

**Locate the thermostat case where the ambient temperature is always warmer than the set point.**

Thermostat enclosure to be surface mounted; **avoid locations subject to excessive vibration.**

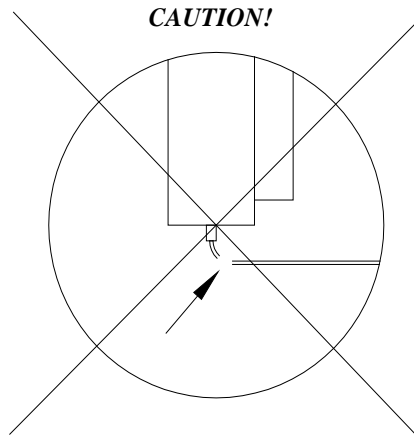
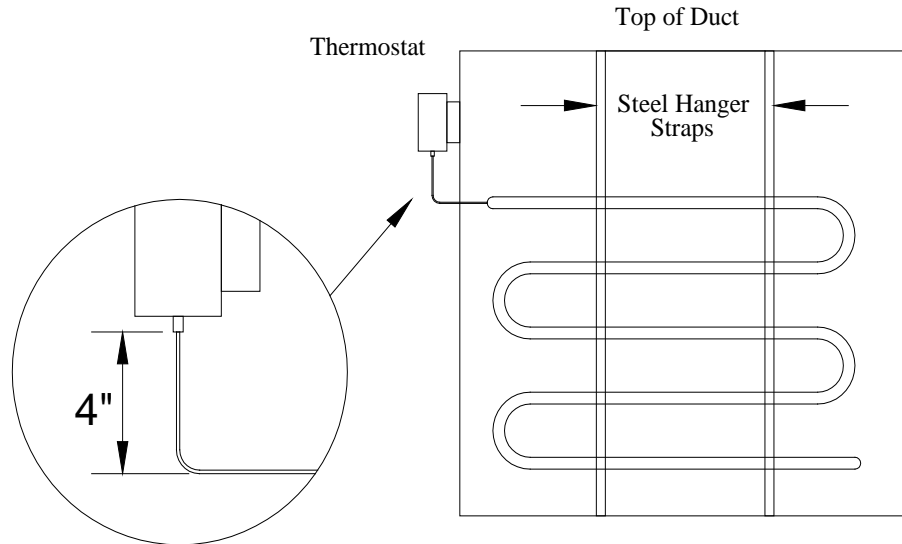
Mount to flat surface using oval holes only. (See Wiring Diagrams) **Mounting with round holes in middle of freeze stat may damage the instrument and cause improper operation.**

Install the capillary sensing element across the face of the coil, horizontally serpentine only. If too much of the element is vertical, it will not operate properly.

Avoid sharp bends or kinks in the sensing element.

Install the thermostat in an upright position so that the bellows point down and the capillary tube exits the bottom of the unit.

## Typical Mounting Solution



### CAUTION

Do not uncoil more element or capillary than is required for the application.

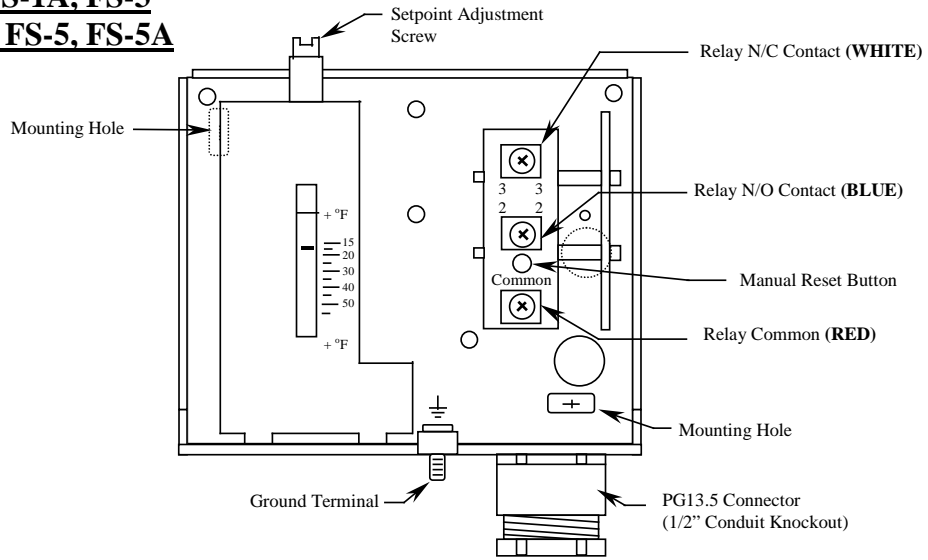
Do not sharply bend the element or capillary more than necessary bending hardens the element and makes it brittle. If the element or capillary can be subjected to vibration, protect any surface that makes contact.

### Mounting the Element,

Strap the element on a coil; for example, in an area where freezing can occur, or mounted in a duct. Use as much of the element as necessary for maximum protection. Use metal straps to fasten the element to the coil to be controlled. Use clips for mounting the element in a duct.

**Wiring Diagrams**

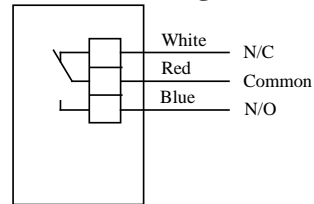
**FS-1, FS-1A, FS-3**  
**FS-3A, FS-5, FS-5A**



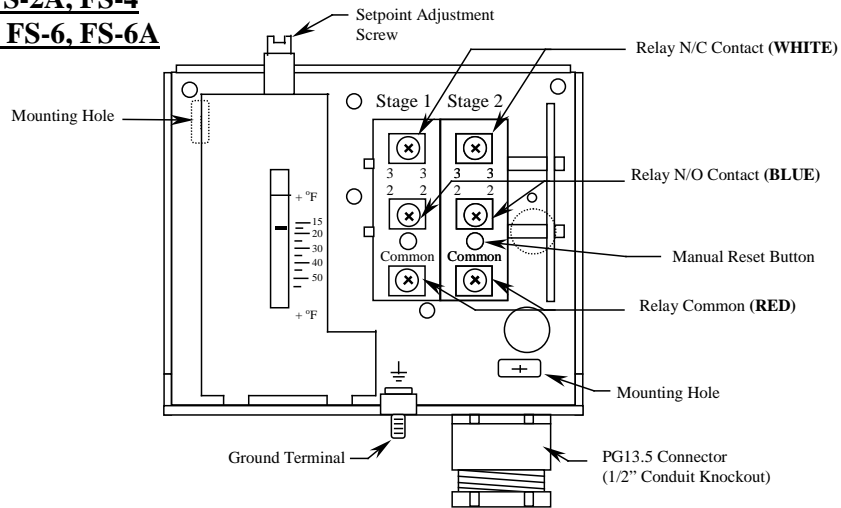
**Note: Falling Temperature and attained low cut-out point**

**Contact Connection: Red to Blue**

**Schematic Diagram**



**FS-2, FS-2A, FS-4**  
**FS-4A, FS-6, FS-6A**



**Note: Falling Temperature and attained low cut-out point**

**Contact Connection: Red to Blue**

**Schematic Diagram**

