



- Built to Customer Specifications
- Temperatures range -40F to 140F
- Up to four SPDT Snap Acting Switches
- Remote Temperature Sensor



## GENERAL DESCRIPTION

The series 6PS density switches are rugged temperature compensated pressure switches designed for use on:

- High Voltage Circuit Breakers.
- Gas Insulated Substations.
- Gas Insulated Bus Systems.

A remote bulb at the end of a capillary tube leading to the body where the switching mechanism is located senses the temperature of the gas. The temperature compensation feature allows the pressure switch to ignore pressure changes of the gas due to changing temperature and operate only when a loss of gas is detected indicating a change in density. The switching mechanism is located on a rugged cast aluminum body. This assembly can be installed in a convenient location as temperature surrounding the assembly does not affect the operation of the switch. The mechanism assembly can operate two, three or four full size SPDT electric switches. A cast aluminum cover may be provided to protect the mechanism and switch terminals.

All density switches are manufactured to customer specifications. Once installed, they require no maintenance or field calibration. Each device is factory tested at several temperatures that always include -40F. Solon has evolved the design of components used in these switches that can be combined to meet customer's requirements. This allows Solon to quickly develop new model variations to meet customer's changing specifications.

## MODEL SERIES 6PS SF<sub>6</sub> Gas Density Switch Bulb Design

## SPECIFICATIONS

### Switching

2, 3, or 4 S.P.D.T. snap acting switches

### Electrical Connection

Screw terminals standard

Pre-wired with 18" leads available

### Switch Contact Ratings

15A; 125, 480 VAC / 6A res.; 28 VDC std.

### Setpoint Adjustment

Factory set per customer specifications

### Temperature Range

-40°F to 140°F Ambient Standard

0°F to 180°F Available

### Accuracy (Standard)

± 1.5 PSI at 70°F

± 3 PSI at temperature extremes 140°F to -40°F

Higher accuracy devices are available

### Deadband (Switch Differential)

Fixed; 1-6 PSI Typical (per Cust. requirements)

### Pressure Sensing Element

Phosphor Bronze or Stainless Steel Bellows - 100% leak inspected with Helium mass spectrometry to  $9 \times 10^{-9}$  cc/sec.

### Pressure Adjustment Range

Phosphor Bronze Bellows: 5-100 PSI; 150 PSI max.

Stainless Stl. Bellows: 5-100 PSI; 300 PSI max.

150-500 PSI; 1000 PSI max.

### Pressure Port

¼ NPTF or 7/16-20 SAE are standard; Other port options are available.

### Enclosure (optional)

NEMA 1 design

Base material 356 cast aluminum

Cover material cast aluminum

### Weight

Approximately 3 lbs (1.4 kg).

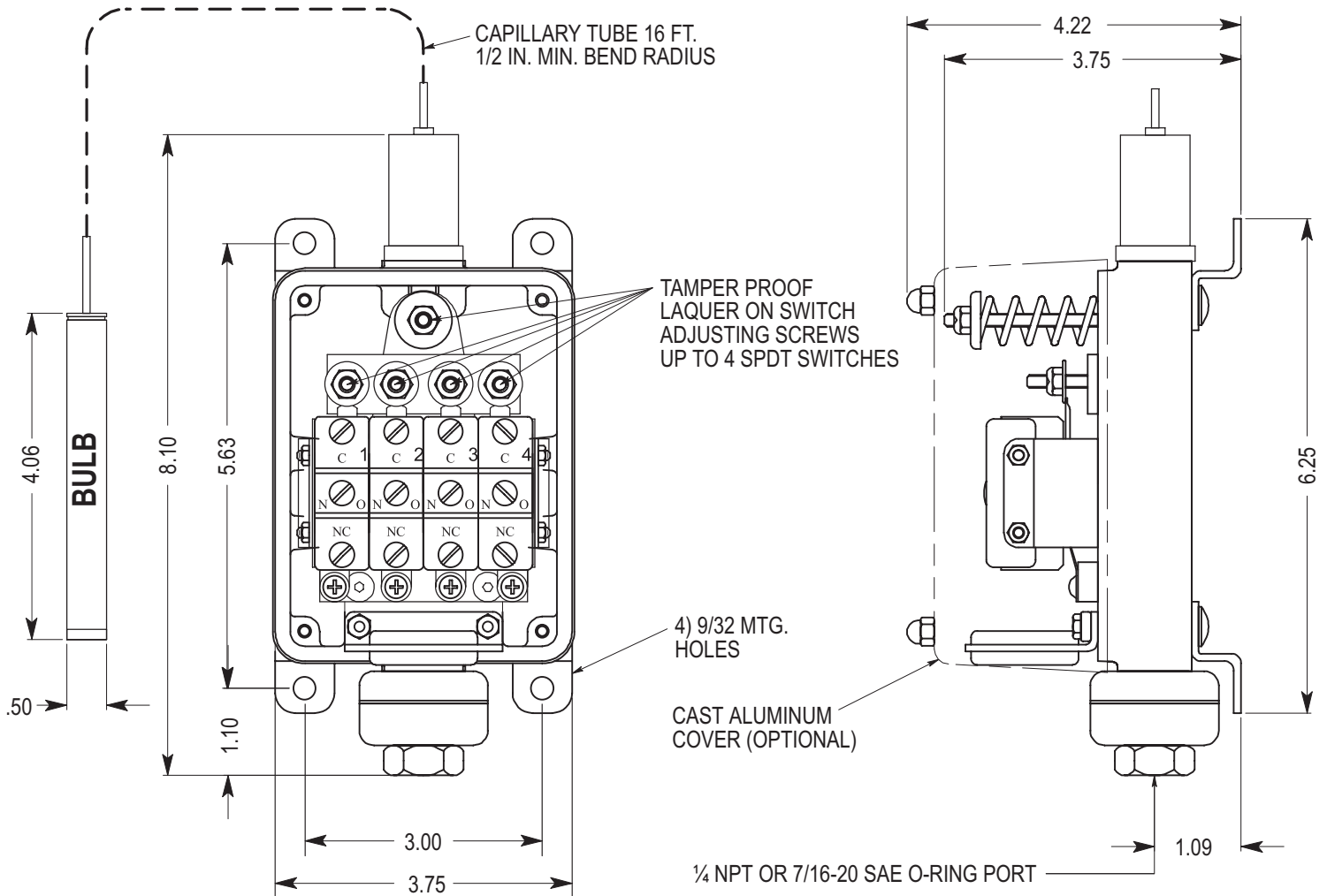
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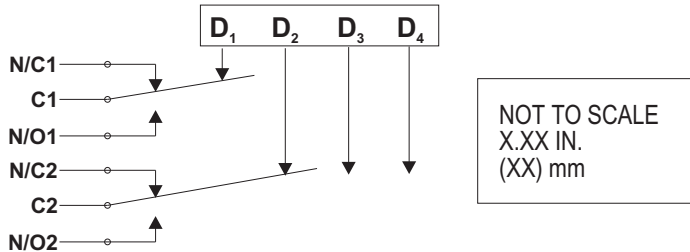
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## SWITCH DIMENSIONS



### Wiring Schematic



## SPECIFYING A SWITCH

1. Specify the set points for each switch. Set points should be given at room temperature (68F) and at either of the temperature extremes.
2. Designate the pressure port fitting.
3. Choose the type of electrical connection;
  - \* Screw terminals or,
  - \* Prewired - Color coded 18 GA. MTW, 18" Lg.
4. Describe other requirements such as special testing, labeling, tagging, packaging, etc.
5. Once a switch is specified and an order is placed, Solon Mfg. Co. will assign a "slant number" (6PS/XXX) to the switch. This ensures that the fit, form, and function of the device will not change.

## MODEL SERIES 6PS SF<sub>6</sub> Gas Density Switch Bulb Design

## INSTALLATION NOTES

- Orientation** - The 6PS will operate satisfactorily in any position.
- Location** - The bulb should be installed where it will follow the temperature of the SF<sub>6</sub> gas (out of direct sunlight.) The location of the switch housing does not effect performance.
- Capillary Tube** - The minimum bend radius for the capillary tube is 1/2 inch.
- Wiring** - No. 6 screw terminals are standard. Switches may be wired to 'normally open' or 'normally closed' terminals of the switch contacts. Always connect positive to the common terminal. Care should be taken so that wires do not contact the mechanism or spring.
- Piping** - Always use a wrench to hold the pressure port while the fitting is tightened (do not over-tighten). Thread sealant should always be used on NPT threads.
- Checking Calibration** - First, obtain a pressure vs. temp. curve. Second, accurately record the temperature of the bulb. Third, lower pressure slowly and record set points. Make certain that there is a load (8V or 150 mA min) on the switch. Finally, compare settings to the graph. **DO NOT ADJUST SETTINGS IN THE FIELD.**

**SOLON**   
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