Installation of 4-1/2 (114 mm) Dial Temperature Gage
Model SPLC and SPLFC Series

Please read the following instructions and warnings before installation. Visually inspect the product for any damage that may have occurred during shipping.

The SPLC and SPLFC gage instruments have high and low limit contacts to monitor, alarm or shutdown. The SPLC has a flanged case and is the surface-mount version of the gage. For these models the gage pointer makes with two adjustable contacts to complete a pilot-duty circuit. The SPLFC has a round case and is the panel-mounting version of the SPLC. A method to override the low limit contact for startup is provided on most models (see Operation Test Instructions).

Options:
-OS (oil sealed case) - liquid filled case for resistance against corrosion, environment and vibration
-EX (explosion proof) - gage enclosed within explosion-proof case for Class 1, Division 1, Groups C and D
-EL (EXLC) - explosion-proof less case: internal parts for EX Model

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Warnings	Before beginning installation of this product: • Disconnect all electrical power to the machine • Make sure the machine cannot operate during installation • Follow all safety warnings of the machine manufacturer • Read and follow all installation instructions
Precautions	• Do NOT exceed rated temperature range • Use shock mounts as necessary to protect from vibration • Cutting or sharp bending the capillary will cause permanent damage to the gage and will void the warranty • Excess capillary should be carefully coiled and secured away from damage • Do not route capillary along exhaust manifold • Avoid routing capillary at level higher than gage mounting

CE [1]
CSA [2]

1 Products covered by this bulletin comply with EMC Council directive 89/336/EEC regarding electromagnetic compatibility except as noted.
2 Selected configurations are CSA approved. Consult factory for details.

Case Mounting

Wall Mount

Flanged case design intended for wall mount. Shown with shock mounts (optional).
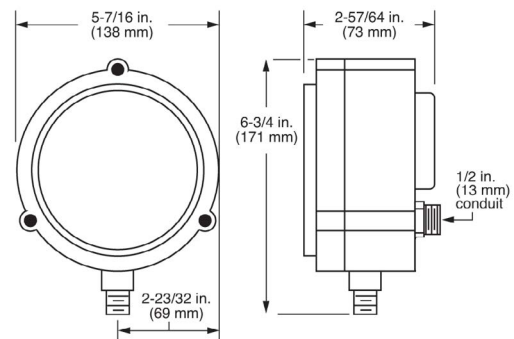

DETAIL
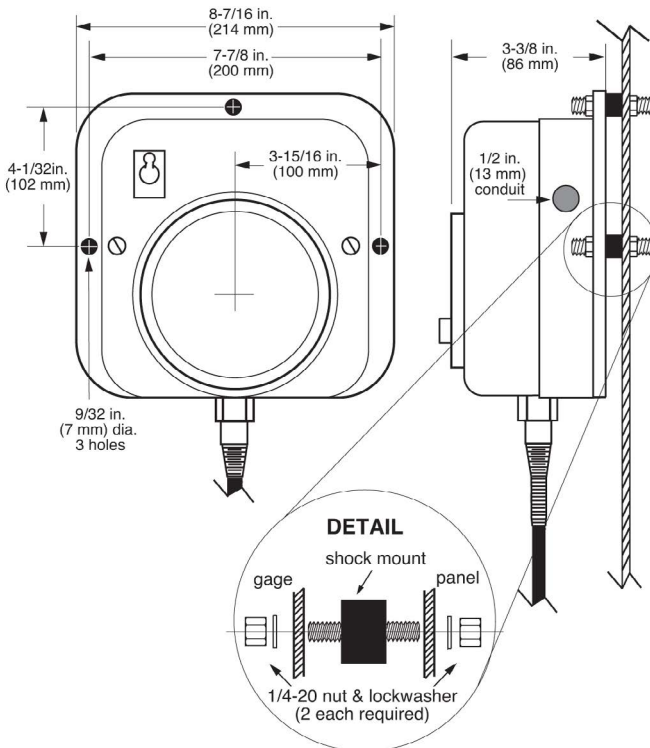
Flush Mount

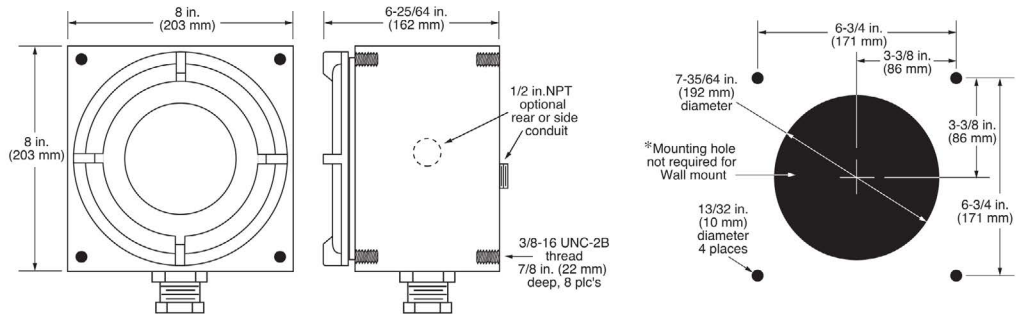A round case design to be mounted within a panel from 1/32 in. (1 mm) to 1/8 in. (3 mm) thick.
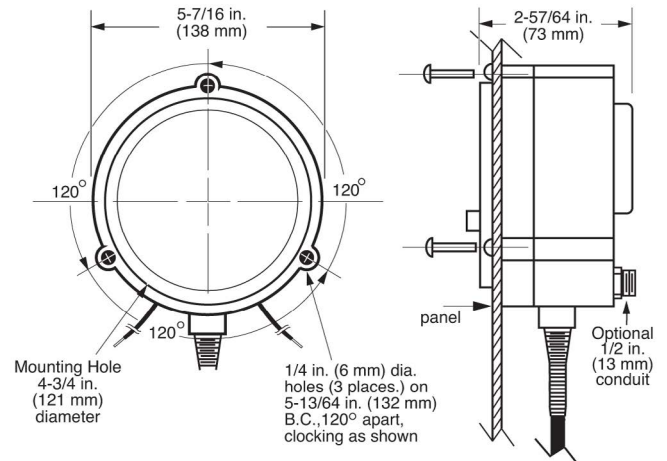
Options -OS for Flush Mount Case

Explosion-proof Case Mount

Explosion-proof case can be mounted from face or rear.

Flush mount/Wall mount

Sensing Bulb and Thermowell Installation

| **Precautions**	Cutting or sharp bending the capillary will cause permanent damage to the gage and will void the warranty. Excess capillary should be carefully coiled and secured away from damage. Do not route capillary along exhaust manifold. Avoid routing capillary at a level higher than gage mounting.

Installing Sensing Bulb

1. Install the 1/2 NPT adapter into the application.
2. Slip compression nut and ferrule onto bulb.
3. Insert the sensing bulb directly through the adapter and fully immerse it into the process without interference. Be sure to leave enough of the bulb to allow the compression nut and ferrule to be tightened.
4. Keep the bulbs active section in the middle of the process flow.
5. Tighten the compression nut and ferrule. This will keep the bulb in place and obtain a full seal.

Installing Thermowell

NOTE: The use of temperature transmitter grease or silicon grease on the tip of the sensing bulb is recommended to facilitate heat transfer to sensing bulb junction. Thermowell is recommended for high pressure applications or corrosive environments.
It also allows temperature sensor to be changed or adjusted without opening connection to process.
1. First screw the thermowell into the process (pipe line).
2. Pass the sensing bulb through the nut and ferrule.
3. Fully insert the sensing bulb into the thermowell housing and secure it with the compression nut.
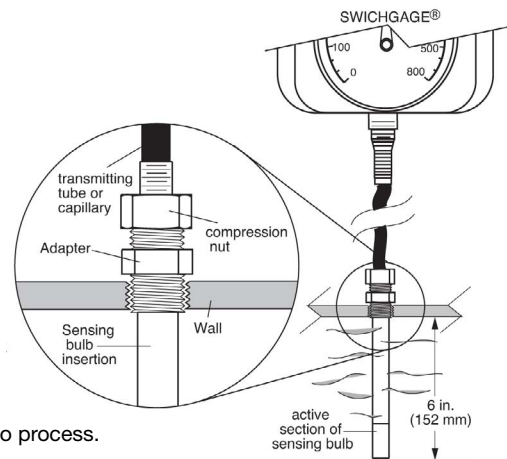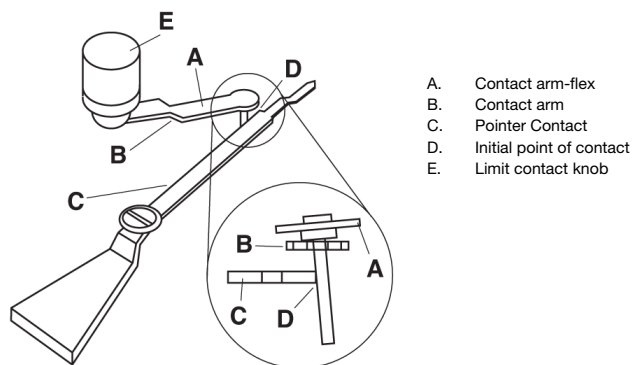

Limit Contacts / Indication Pointer Adjustments

Limit Contact Adjustments

Facing the dial, left side knob is Low limit contact. Right side is High limit contact.
To set limit contact, turn the knob to the desired point on the scale.

Limit Contact Wiping Feature

The force of pointer causes the flexible contact arm (A) to tilt resulting in a wiping action (D). This clears away film or corrosion formed on the contact surfaces.


A. Contact arm-flex
B. Contact arm
C. Pointer Contact
D. Initial point of contact
E. Limit contact knob

Indication pointer Adjustments

To reset to zero or to a known value proceed as follows:
1. Turn off power. Remove the snap ring and the lens/contact assembly (or open hinged cover).
2. Hold the pointer hub with thumb and forefinger then turn screw to desired point. Avoid touching the gold flashed, silver contact areas. See DETAIL "A". Replace lens contact assembly and snap ring (or close hinged cover), and turn on power.

NOTE: Span adjustments and recalibration must be performed by an authorized instrument technician with calibration equipment or return the unit to factory.

DETAIL "A"
Turn to lower pointer
Turn to raise pointer
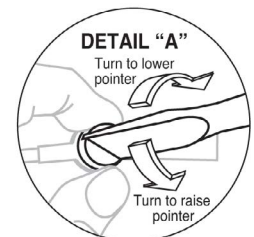
Operation Test Instructions

SPLC and SPLFC Series

1. Perform operation test after the unit is installed and wired appropriately (see Typical Electrical Diagrams).
2. When temperature is applied to the sensing bulb the pointer will travel in a clockwise direction. (Adjust contacts to desired set points.)
3. Place the toggle switch (SPLC Series only) in the start position or otherwise override low contact. After the indication pointer rises past the low limit contact, return the toggle switch to the run position.
4. To test the limit contacts, turn the limit contact to be tested until it touches the pointer. That will trip the control circuit.
5. Reset the shutdown or alarm circuit device.

Specifications

Dial: White on black, dual scale, °F and °C standard, 4-1/2 in. (114 mm) diameter

Case: Die cast aluminum, surface or panel mount

Capillary: PVC armored copper tube, 5 ft. (1.5 m) long standard

Sensing Bulb:

  Copper bulb std.: 1/2 in. (13 mm) OD; Length 7 in. (178 mm)

  Pressure rating: 600 psi (4.1 MPa) [41 bar]

  Connection: 1/2 NPT compression fitting

  NOTE: Use of thermowell is highly recommended

Switch Reset Deadband: Approximately 10% FS

Wire Connections (Surface Mount): 1/2 NPTF conduit/terminal block

Wire Connections (Panel Mount): Wire leads, 18 AWG (1.0 mm^2) x 9 in. (229 mm) long

Wire Connections (-OS): 1/2 NPTM conduit and wire leads, 18 AWG (1.0 mm^2) x 9 in. (229 mm) long

Overrange: Do not exceed 10% FS above full range

Item Weight: 8 lbs (3.6 kg) approx. Explosion-proof models: 22 lb. (10 kg) approx

Item Dimensions: 16 x 11 x 5-1/2 in. (406 x 279 x140 mm) approximately. Explosion-proof: 12 x 12 x 9 in. (305 x 305 x 229 mm) approximately

Accuracy Chart:

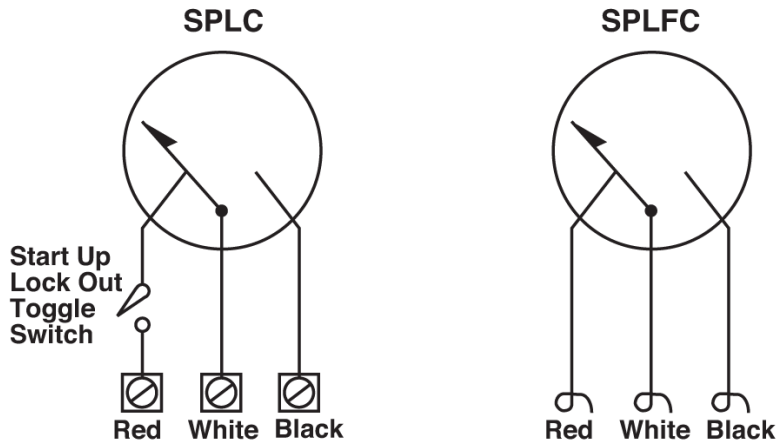| Temperature Range	First 1/3	Middle 1/3	Upper 1/3
15 to 250°F (9 to 121°C)	± 8°F (± 4°C)	± 2°F (± 1°C)	± 2°F (± 1°C)
130 to 350°F (54 to 177°C)	± 8°F (± 4°C)	± 2°F (± 1°C)	± 3°F (± 1.5°C)

Typical Electrical Diagrams

WARNING	Perform the wiring operation with the power source OFF. Make sure the voltage and current requirements are within the gage ratings. Before wiring determine voltage and polarity for the application. Use the appropriate wire size. All connections should be made using a spade (forked) or ring terminals. For pigtail connections use wire nuts. Conduit is recommended to protect wires from damage.

SPLC and SPLFC

Contact Ratings: 1 SPDT, Center off; 2 A, 30 VDC / 0.1 A, 125 VAC pilot duty

SPLC

Start Up Lock Out Toggle Switch

Red   **White**   **Black**

SPLFC

Red   **White**   **Black**

NOTE: Diagram shown with the pointer in the at rest (shelf) position.