



# Mini-Hermet Pressure Switches

with Hermetically Sealed  
Electrical Switching Elements

## General Instructions

These instructions cover installation, process connection, electrical connection and calibration of the SOR® Mini-Hermet explosion proof pressure switches.

The switching element is hermetically sealed in an explosion proof capsule that is UL Listed and CSA Certified for hazardous locations Class I, Groups A, B, C & D; Class II, Groups E, F & G; Divisions 1 & 2 and SAA Approved for Ex s IIC T6 IP65 Class 1, Zone 1. When certain options are ordered, the **Pressure Switch** may be ATEX/IECEx Certified Ex db IIC or UL Listed and CSA Certified Class I, Groups A, B, C & D; Class II, Groups E, F & G; Divisions 1 & 2.



### Static O-Ring Type (prefaced by 1, 5, 6, 9, 10 or 56)

Typical Model No. **6**AG-EF3-N4-C1A

The static o-ring type pressure switch with optional wetted parts is suitable for a wide variety of process applications. This type is not recommended for high-pressure fluid power applications where high shock pressure and high cycle rates are expected. Use SOR pivot seal type for fluid power applications.

### Pivot Seal Type (prefaced by 2 or 3)

Typical Model No. **3**AH-EF45-P1-C1A

The pivot seal type pressure switch is generally suitable for fluid power hydraulic applications where high shock pressures and high cycle rates are expected and where only normally industrial clean hydraulic fluid is used. Use static o-ring type for other process applications.

**NOTE: If you suspect that a product is defective, contact the factory or the SOR Representative in your area for a return authorization number (RMA). This product should only be installed by trained and competent personnel.**

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*Design and specifications are subject to change without notice.*

*For latest revision, go to **SORInc.com***

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## Installation

When rigid process piping or electrical conduit is not available, the pressure switch should be clamped in the area between the set point adjustment protrusion and the pressure port to a suitable component in the application.

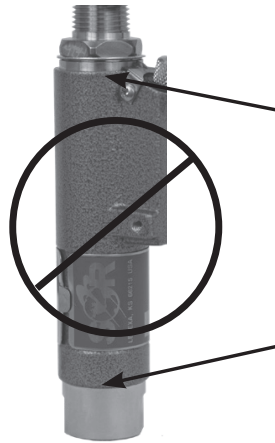


***It is important that **NO** bending or torsional forces are imposed on this pressure switch when making the PROCESS and ELECTRICAL connections.***

***The hermetically sealed switch element capsule has been precisely positioned and locked during manufacture.***

***Excessive force could overcome the lock and cause movement which will adversely affect proper operation or render the pressure switch inoperative.***

***Should movement occur, factory calibration must be performed in order to restore normal operation.***



### **DO NOT USE**

***A pipe wrench or strap wrench on the round body while installing the PROCESS or ELECTRICAL conduit connection.***

## Process Connection

Use two wrenches when connecting to the process pipe or tube fitting.

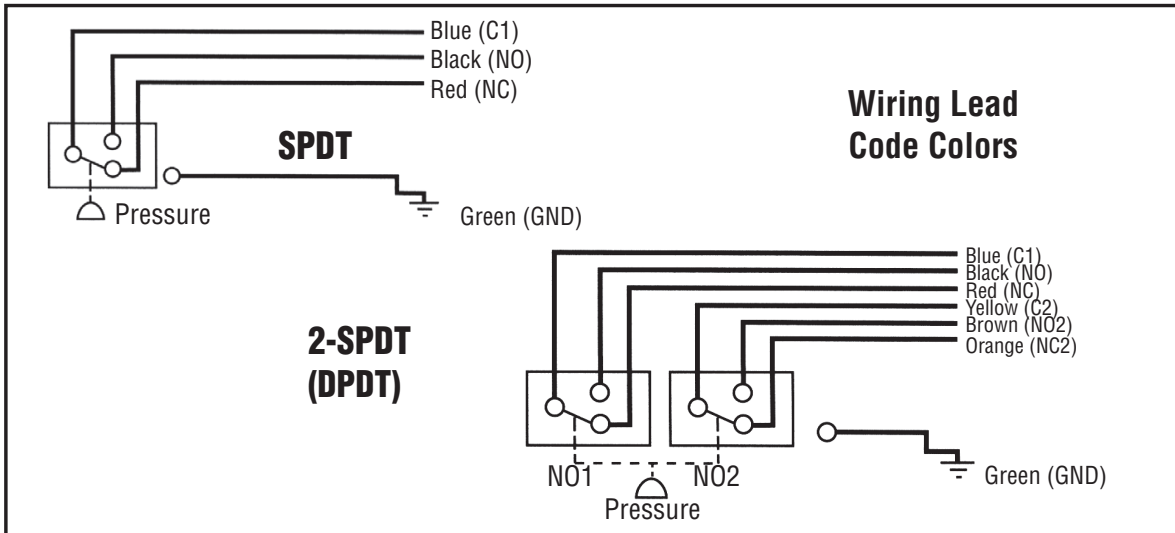
- 1.** A 1-1/8 inch open-end wrench to HOLD the pressure port
- 2.** The other wrench to TURN the process pipe or tube fitting



# Electrical Wiring and Connection

## WIRING

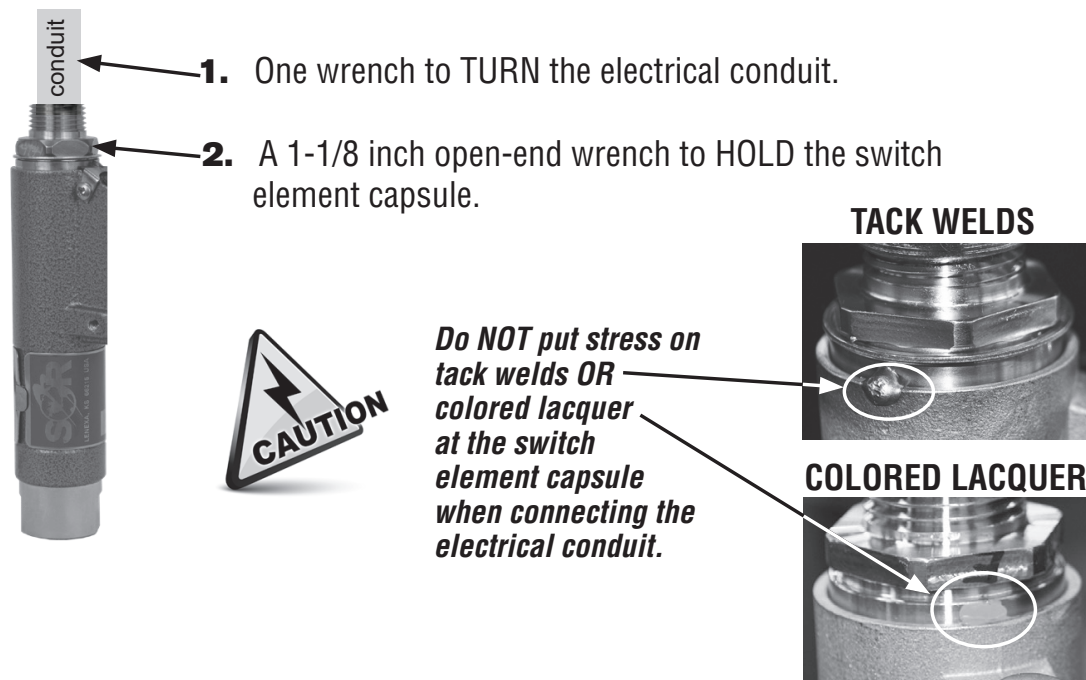
Ensure that wiring conforms to all applicable local and national electrical codes and install unit(s) according to relevant national and local safety codes.



The electrical switch element capsule assembly contains UL Listed and CSA Certified factory-sealed leads. A conduit seal is not required to preserve explosion proof integrity. Electrical leads are marked NC (Normally Closed), NO (Normally Open) and C (Common). Electrical switch elements are snap-action and are either 1-SPDT or 2-SPDT (DPDT) set to actuate simultaneously.

## CONNECTION

Use two wrenches when connecting to the electrical conduit or conduit fitting.



## Safety Integrity Level (SIL) Installation Requirements

The SOR pressure switches have been evaluated as Type-A safety related hardware. To meet the necessary installation requirements for the SIL system, the following information must be utilized:

- Proof Test Interval shall be one year.
- Units may only be installed for use in Low Demand Mode.
- Products have a HFT (Hardware Fault Tolerance) of 0, and were evaluated in a 1oo1 (one out of one) configuration.

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## Calibration

Mini-Hermet Pressure Switches are field adjustable across the entire cataloged range for a particular piston/spring combination. Field adjustable models have a set point adjustment under the removable weathertight cover screw.

It is not necessary to disconnect the electrical power, since the electrical switching element is inside the hermetically sealed explosion proof capsule, thereby maintaining explosion proof integrity.

- ① Remove knurled weathertight cover screw.
- ② Use 1/8 inch hex (Allen type) wrench to turn adjusting screw to achieve desired set point. Turn adjusting screw clockwise (in) to increase set point; turn adjusting screw counterclockwise (out) to decrease set point. Use an external pressure measuring device to accurately calibrate set points.



***Do not unthread the adjusting screw more than two threads below the flush point of housing as calibration could be adversely affected.***

- ③ After the set point has been calibrated, replace the cover screw tightly to ensure the weathertight integrity of the device.

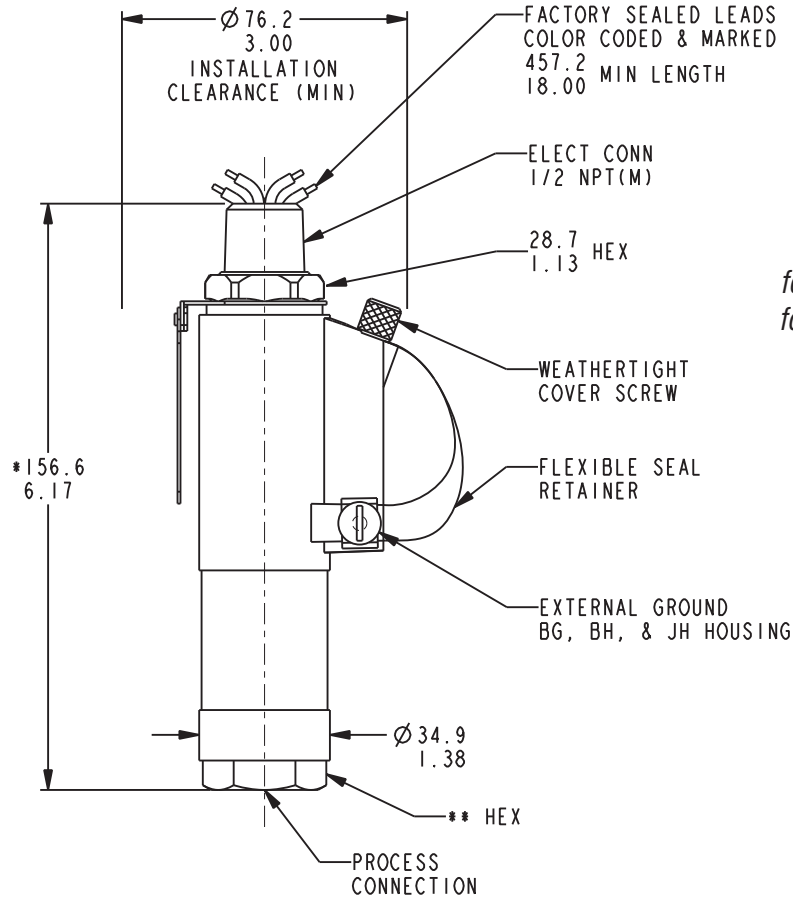
SOR discourages field modifications, change-out of wetted parts or repair. It is recommended that products be returned to SOR Inc. for inspection and necessary repair work. Any field work should be performed by a qualified instrument technician following formal SOR procedures.

***NOTE: UL Listed models are suitable for handling petroleum-based, flammable and combustible liquids and gases, air, oxygen and water at fluid temperatures not exceeding 40°C and designed for ambient temperatures not exceeding 75°C.***



***Units in hazardous locations - Prior to removal from service, make sure that the work area is declassified. Failure to do so could result in severe personal injury or substantial property damage.***

# Dimensions



*Dimensions are for reference only. Contact the factory for certified drawings for a particular model number.*

Linear = mm/inches

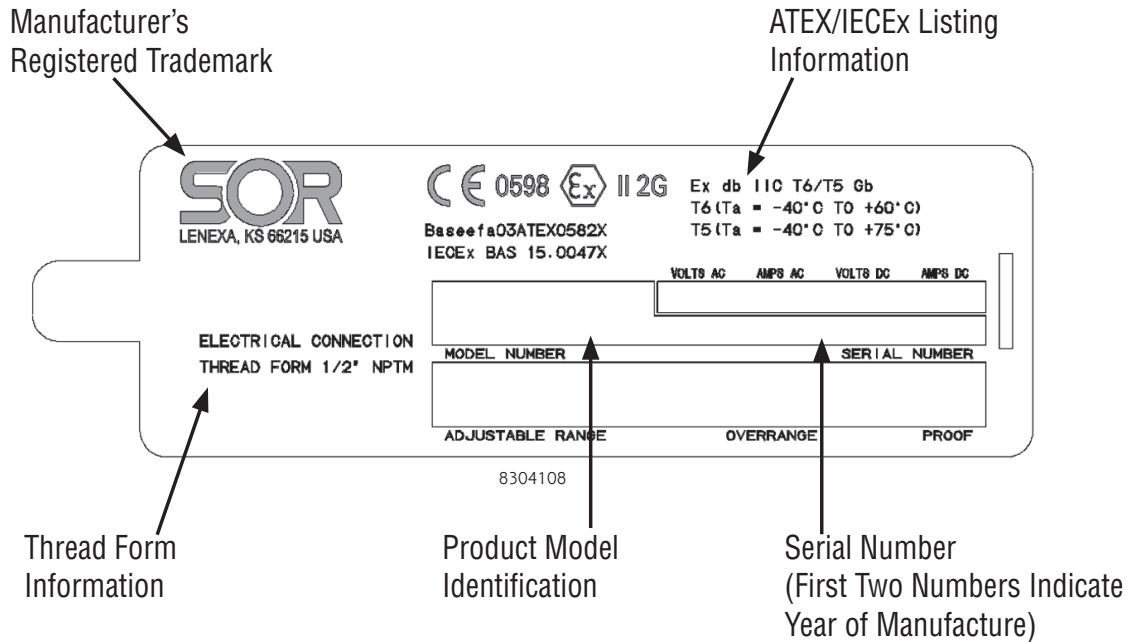
**Drawing 0090119**

PROCESS CONN SIZE	* LENGTH 1, 5, 6, 9	* LENGTH 2, 3	* LENGTH 56	** HEX 1, 5, 6, 9, 56	** HEX 2, 3
1/4 NPT(F)	SHOWN	ADD 14.0 0.55	ADD 18.3 0.72	28.7 1.13	28.7 1.13
1/2 NPT(F)	ADD 13.2 0.52	ADD 24.1 0.95			38.1 1.50
9/16 SAE	SHOWN	ADD 14.0 0.55	N/A		28.7 1.13
3/4 NPT(M)	ADD 23.1 0.91	N/A		N/A	

## Special Conditions for Safe Use ATEX/IECEX units

- The permanently attached cables are to be suitably terminated and protected from impact and UV light.
- Flameproof joints are not intended to be repaired.
- To minimize the risk of electrostatic discharge, clean only with a damp cloth.
- The switch capsule has an expected life cycle of  $1 \times 10^5$ , therefore end user shall ensure the switch capsule does not exceed the stated life cycle.

## ATEX/IECEX Marking Materials




Drawing 8304108

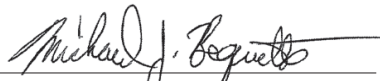
# Declaration of Conformity

For ATEX/IECEx Certified Models

## EU Declaration of Conformity



<b>Product</b>	<b>2 Wire RF Admittance Transmitter Model 651</b>
<b>Manufacturer</b>	SOR Inc.
<b>Place of Issue</b>	14685 West 105 <sup>th</sup> Street Lenexa, Kansas 66215-2003 United States of America
<b>Date of Issue</b>	<b>June 18, 2020</b>
<b>We declare under our sole responsibility that the above products conform to the following specifications and directives</b>	ATEX Directive (2014/34/EU) Equipment Intended for use in Potentially Explosive Atmospheres EN 60079-0:2018 IEC 60079-0:2017 EN 60079-11:2012 IEC 60079-11:2011
<b>Carries the marking</b>	 <b>II 2G Ex ib IIB T4 Gb</b> (-40°C ≤ Ta ≤ +80°C)
<b>Reference document</b>	<b>EC-Type Examination Certificate</b> <b>Baseefa 12ATEX0084X</b> Issued October 2, 2012 <b>IECEx BAS 05.0054X</b> Issued August 16, 2005
<b>ATEX Notified Body</b>	<b>SGS Fimko Oy</b> (Notified Body No. 0598) Takomotie 8 Helsinki, 00380 Finland
<b>Person responsible</b>	Michael J. Bequette (VP of Engineering)

  
Michael J. Bequette

**Engineered to Order with Off-the-Shelf Speed**



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