# Pressure Switches for Process Applications

## General Instructions

***NN***

These instructions provide information for electrical connection, installation, process connection, and calibration. If the switch is a pivot seal sensor type (piston 2 or 3), it is recommended for high-pressure fluid power applications where high-shock pressure and high-cycle rates are expected. Pivot seal sensors are designed specifically for those applications.

***RN***

***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.***

## Electrical Connection


***Electrical Power must be disconnected from explosion-proof models before the cover is removed. Failure to do so could result in severe personal injury or substantial plant damage.***

Storing excess wire or making wire lead splices inside the pressure switch housing will interfere with pressure switch operation.

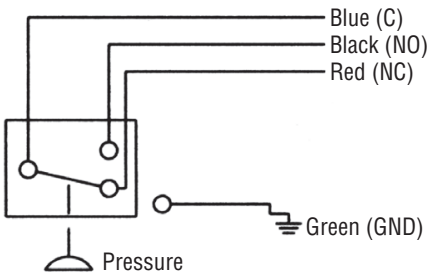
*Design and specifications are subject to change without notice. For latest revision, go to* ***SORInc.com***

### Table of Contents

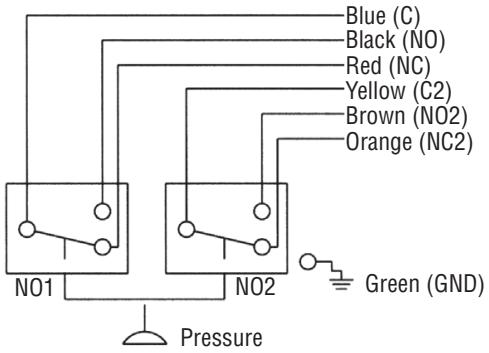
| Housing Type | Conduit Connection | Contact Termination | Contact Identification |
|---|---|---|---|
| Open bracket | None | Screw terminals | Stamped on insulation |
| | | Wire leads | Color coded and marked |
| All others | 3/4 NPT(F) or M20 x 1.5(F) unless optional adapter is specified | Screw terminals | Stamped on insulation |
| | | Wire leads | Color coded and marked |
| | | Terminal strip | Stamped on insulation |

## Wire Lead Color Code

### SPDT



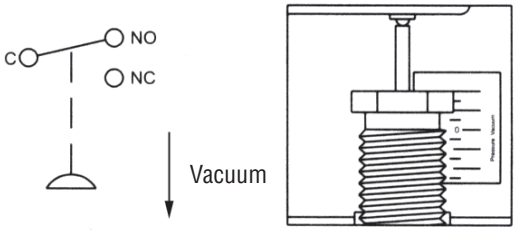

### DPDT (2-SPDT)



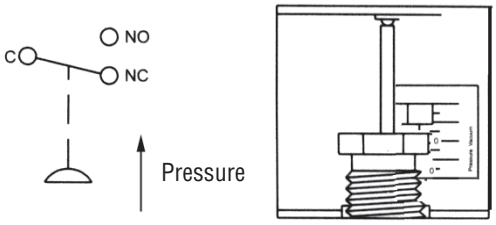

## Vacuum Switch

Wiring Schematics for Switching Elements in Compound Vacuum-Pressure Switches

When set point is calibrated to vacuum, use this schematic.




When set point is calibrated to positive gauge pressure, use this schematic.




## Installation

❶ Secure housing mounting pad to a bulkhead, panel rack or pipe stanchion with two suitable 1/4" bolts.

❷ Line mounting by either process connection or electrical conduit connection is not recommended.

❸ Suggested mounting orientation is electrical conduit connection at 6 o'clock to prevent condensate from collecting in the housing enclosure. However, the device can be mounted in any position.

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

## 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.



## Process Connection

Securely connect process line to pressure port using two wrenches: one to hold flats on pressure port, the other to tighten process pipe or tube fitting.


***Use care not to loosen pressure port from body or body from housing.***


***Failure to mount the housing on a flat mounting surface may result in torsional forces on the housing that could cause false trips or render the pressure switch inoperative.***

## Calibration


***Switching Element has been precisely positioned in the housing and overtravel adjusted at the factory for optimum performance. Any inadvertent movement or replacement in the field will degrade performance and could render the device inoperative, unless factory authorized procedures are followed.***

### Fixed Dead Band Models

Use 3/4" open-end wrench to turn hex adjusting nut clockwise to increase set point; counterclockwise to decrease Set Point. Approximate set point can be obtained by sighting across top of adjusting nut to calibration scale on interior wall of housing. If precise set point calibration is required, it will be necessary to use a regulated pressure source, a suitable continuity tester, and a 1/4% test gauge.

### Adjustable Dead Band Models

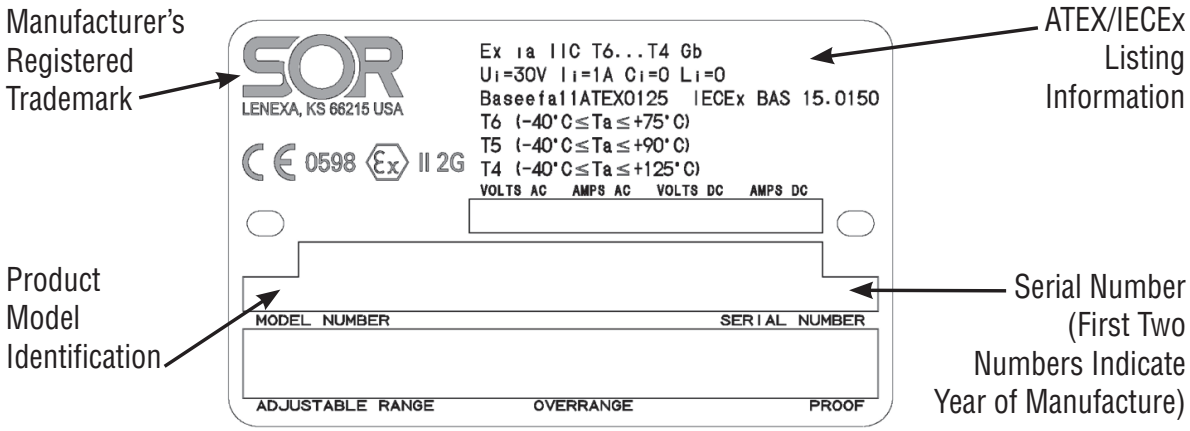
- Decreasing Pressure Set Point - use the fixed dead band procedure (above) to calibrate.
- Increasing Pressure Set Point - can then be adjusted by turning the white thumbwheel on the electrical switching element.
  - Smaller dead band turn wheel clockwise (left to right).
  - Bigger dead band turn wheel counter clockwise (right to left). Bigger dead band may degrade repeatability.

See SOR Catalog (Form 216) for reference dimension drawings.
For certified dimension drawings, contact the factory.

## ATEX/IECEx Marking Information

### Sample Nameplate

**Drawing 0720044**




***NOTE: The unit conforms to the requirements of clause 6.3.12, EN 60079-11: 2007. The unit is capable of withstanding a 500 Vrms isolation test between circuit and enclosure.***

# Declaration of Conformity

## For ATEX Certified Models

# EU Declaration of Conformity

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| | |
|---|---|
| **Product** | **R Series Pressure Switches** |
| **Manufacturer** | SOR Inc. |
| **Place of Issue** | 14685 West 105th Street<br>Lenexa, Kansas 66215-2003<br>United States of America |
| **Date of Issue** | **June 18, 2020** |
| **We declare under our sole responsibility that the above products conform to the following specifications and directives** | ATEX Directive (2014/34/EU) Equipment Intended for use in Potentially Explosive Atmospheres<br>EN 60079-0:2012 + A11:2013 IEC 60079-0:2011<br>EN 60079-11:2012 IEC 60079-11:2011 |
| **Carries the marking** | Ex **II 2 G Ex ia IIC T6...T4 Gb**<br>**T6** (-40°C ≤ Ta ≤ +75°C)<br>**T5** (-40°C ≤ Ta ≤ +90°C)<br>**T4** (-40°C ≤ Ta ≤ +125°C) |
| **Reference document** | **EC-Type Examination Certificate**<br>**Baseefa11ATEX0125** Issued February 16, 2012<br>**IECEx BAS 15.0150** Issued April 19, 2016 |
| **ATEX Notified Body** | **SGS Fimko Oy** (Notified Body No. 0598)<br>Takomotie 8<br>Helsinki, 00380<br>Finland |
| **Person responsible** | Michael J. Bequette (VP of Engineering) |

Michael J. Bequette

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

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