Pressure Detectors for Process Applications

General Instructions

NN

These instructions provide information for electrical connection, installation, process connection, and calibration. If the detector 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.

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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 detector housing will interfere with pressure detector operation.

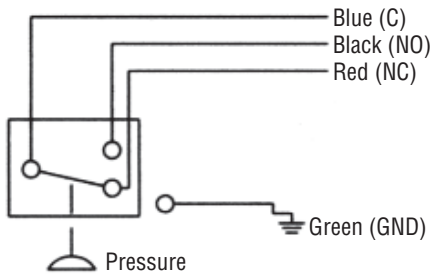
Design and specifications are subject to change without notice. For latest revision, go to ***www.sorfinc.net***

Table of Contents

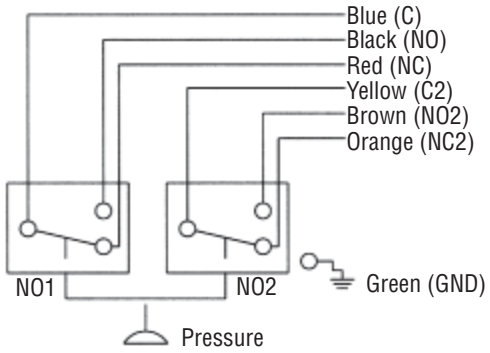
Housing Type	Conduit Connection	Contact Termination	Contact Identification
Open bracket	None	Screw terminals	Stamped on insulation
		Wire leads	Color coded and marked
All others	3/4 NPT(F) or M20 x 1.5(F) unless optional adapter is specified	Screw terminals	Stamped on insulation
		Wire leads	Color coded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

Wire Lead Color Code

SPDT



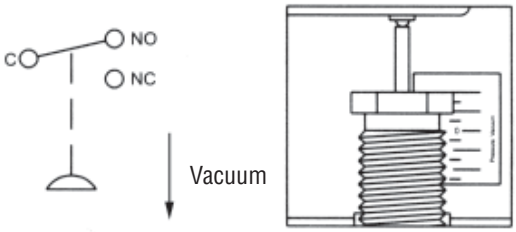
DPDT (2-SPDT)



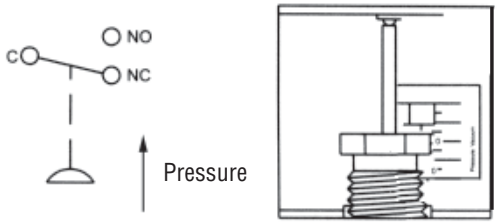
Vacuum Detector

Wiring Schematics for Detecting Elements in Compound Vacuum-Pressure Detectors

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 detectors 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 detector finoperatfive.

Calibration

detecting 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

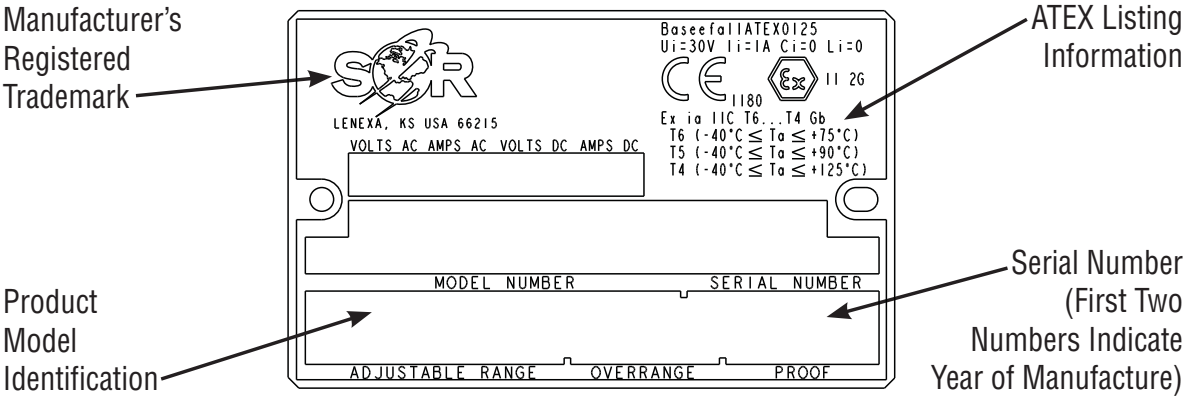
- Decreasing Pressure Set Point - use the fixed dead band procedure (above) to calibrate.
- Increasing Pressure Set Point - can then be adjusted by turning the white thumbwheel on the electrical detecting element.
  - Smaller dead band turn wheel clockwise (left to right).
  - Bigger dead band turn wheel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

Sample Nameplate

Drawing 072004x



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

EC Declaration of Conformity

CE

Product	**R Series Pressure Detectors**
Manufacturer	SOR Inc. 14685 West 105th Street Lenexa, Kansas 66215-2003 United States of America
Date of Issue	**November 12, 2012**
We declare that the above products conform to the following specifications and directives	ATEX Directive (94/9/EC) Equipment Intended for use in Potentially Explosive Atmospheres EN 60079-0: 2009 EN 60079-11: 2007
Carries the marking	**II 2 G Ex ia IIC T6...T4 Gb** **T6** (-40°C ≤ Ta ≤ 75°C) **T5** (-40°C ≤ Ta ≤ 90°C) **T4** (-40°C ≤ Ta ≤ 125°C)
Reference document	**EC-Type Examination Certificate Baseefa11ATEX0125** Issued February 16, 2012
ATEX Notified Body	**Baseefa Ltd.** (Notified Body No. 1180) Rockhead Business Park, Staden Lane, Buxton, Derbyshire SK17 9RZ United Kingdom Baseefa Customer Reference No. 1021
Person responsible	John J. Fortino (VP of Engineering)

John J. Fortino

Engineered to Order with Off-the-Shelf Speed

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Form 1539 (11.12) SOR Inc.

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