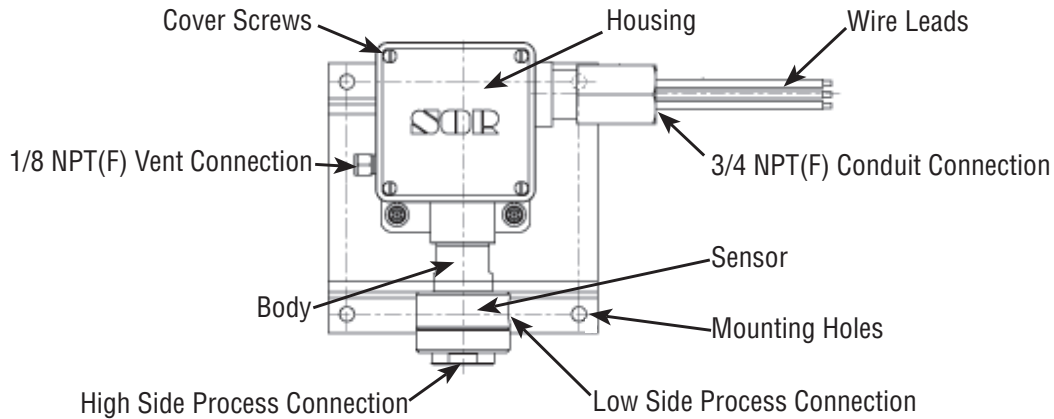




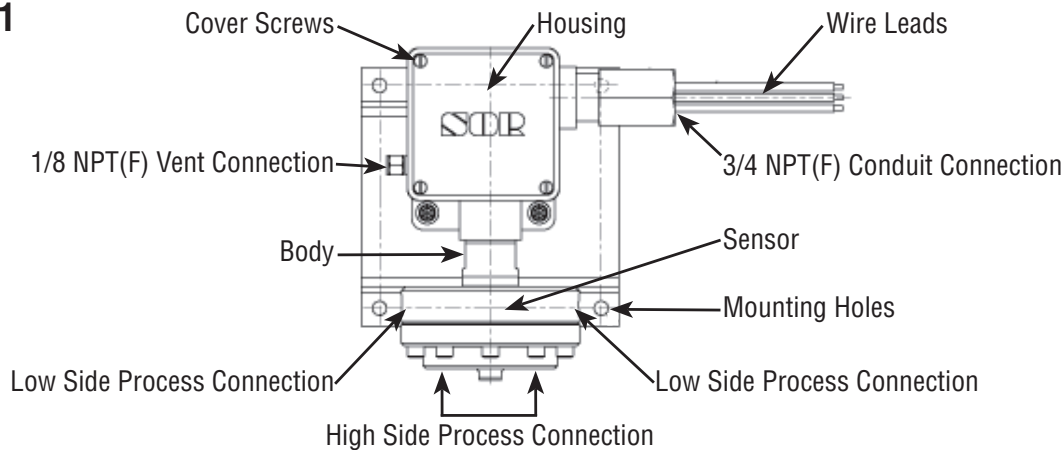
# Nuclear-Qualified Series 131/141 Differential Pressure Switches

## General Instructions

131



141



**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.

## Installation

Mount pressure switch to rigid vertical mounting surface with four 1/4-20 Grade 5 screws (not supplied). Torque screws to 70 - 85 in/lbs. The 141 series must be oriented with the sensor down (housing up).

*Design and specifications are subject to change without notice.  
For latest revision, go to [www.sorinc.com](http://www.sorinc.com)*

## Process Connection

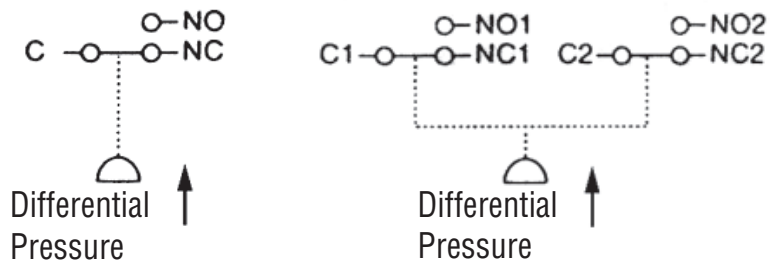
Be certain the process connection is tightened and positioned so bending and torsional forces imposed on pressure switch are minimal. Use care not to loosen sensor assembly from housing.

131 - One process connection is provided for the high-pressure side of the device and one for the low-pressure side.

141 - Two process connections are provided for the high-pressure side of the device and two for the low-pressure side. On liquid service, the extra process connections should be used to assist in bleeding the air out of the sensor. On gas service, they may be used to drain condensate or accumulated liquid.

## Electrical Connection

Electrical connections are marked on the insulation of the wire leads. Conduit should be installed without applying strain to the housing.



Minimum Bend Radius for Wire

Minimum Bend Radius for Wire	
Permanent Training	1/2"R
Pulling Tension	1"R
Terminating Junction	1/4"R

## Site Storage

Store switch in a dry area in the original shipping package. Shelf life is 10 years for a maximum ambient temperature of 80°F, based on aging data in SOR Test Report 9058-102.

## Calibration

This instrument may be calibrated as a pressure switch (low side vented); however, for best performance, calibrate under simulated operating conditions.

The 131 has a static shift of -1 psi per 100 psi applied static. If the unit is calibrated without static pressure applied, the set point should be adjusted to counter the actual static pressure.

To check the set point of a switch, monitor either the common (C) and normally open (NO) or the common (C) and normally closed (NC) contacts for change of state. Connect the process connection to a regulated hydraulic or pneumatic pressure source. Monitor with an accurate pressure measuring standard. Slowly increase or decrease the pressure to accurately capture the precise moment that the switch changes state. To assure the most accurate and repeatable results, the switch must be tested in an identical manner each time the calibration is checked.

### Increasing Set Points

If the normal operating pressure is below the set point, then the pressure should be increased from 0 PSI up to the increasing set point and then back down to the reset point. Repeat this cycle as necessary.

### Decreasing Set Points

If the normal operating pressure is above the set point, then the calibration should be checked by first pressurizing to the normal operating pressure, then reducing the pressure to the decreasing set point, and then increasing the pressure to the reset point. Repeat this cycle as necessary.

To adjust pressure at which switch will operate, remove cover and tighten the hex head adjusting nut with a 3/4" wrench to increase pressure; loosen to reduce pressure.

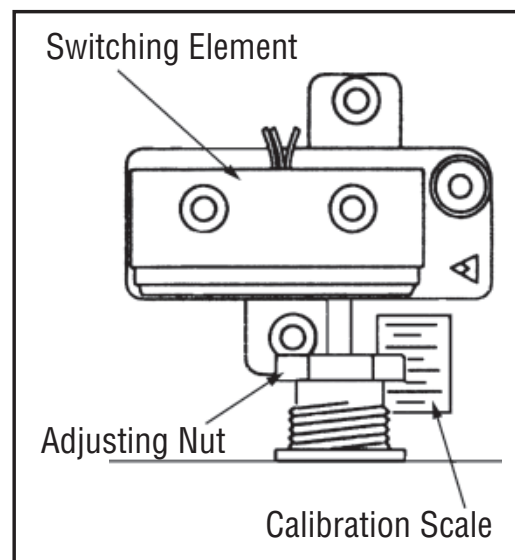
After calibration is complete, reinstall the cover with new gaskets as required by the Maintenance instructions.



***The switching element has been positioned with a dial indicator to a tolerance of  $\pm.002$  inches. Do not move this switching element! Its position has nothing to do with the set point adjustment. Any movement can either render the switch inoperative or cause the switching element to be damaged with overpressure.***



***Do not apply more than 300 psi positive differential to the switch. Do not apply a negative differential of more than 10 psi.***



## Maintenance

### Cover Gasket Replacement

SOR provides one new replacement gasket (SOR P/N 8923-180) for each new switch. It is recommended that the new gasket be installed upon installation of a new switch and the old gasket be discarded. After that time, the gaskets must be replaced based on the following schedule:

#### If Cover Is Not Removed

If the cover is not removed at any time, the gasket need not be replaced for up to five years. Replace the cover gasket on or before five years from the installation date of a new gasket.

#### If Cover Is Removed

The cover may be removed and reinstalled any number of times within a two-year window without replacing the cover gasket. If the cover is removed within this two-year window, the cover and gasket assembly must be reinstalled onto the same switch and it must be oriented in the same way. After two years, the cover gasket must be replaced if the cover is removed.

***NOTE: When removing the cover, if the cover gasket is going to be reused, do not remove the captive screws. Remove the cover, gasket, and captive screws as one assembly. Reinstall per the above guidelines (same switch- same orientation).***

### Instructions For Replacement

Remove the four cover screws. Remove the old gasket. Place new gasket between housing and cover. Line up holes in cover, gasket and housing. Insert the four screws and torque each to 7-10 in-lbs.

