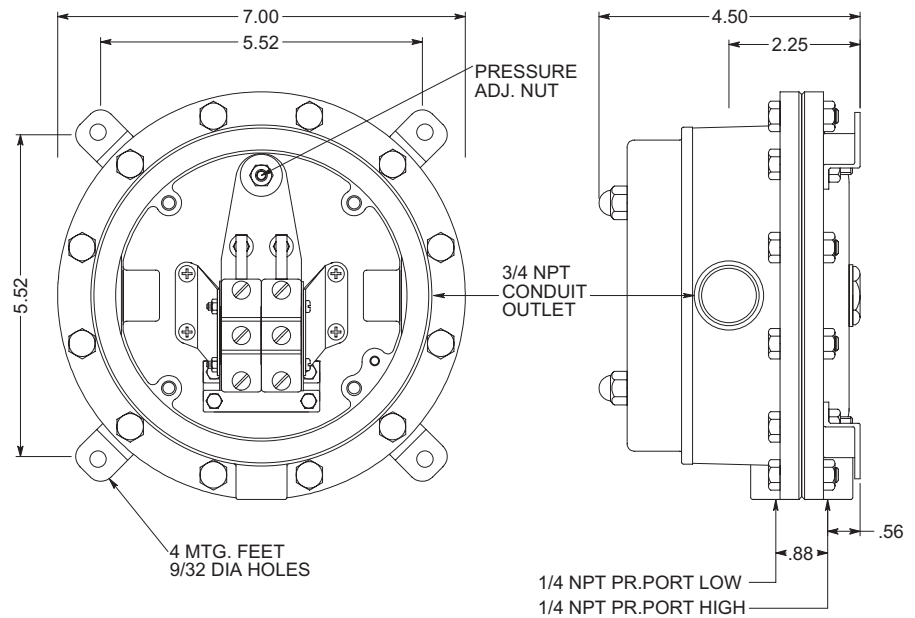




- Ranges 0-1.5 WC/DP TO 0-150 WC/DP
- Rugged NEMA 4X & 12 Housing Std.
- Class I, Div. I, Gr. C & D Available
- Up to Four SPDT Contacts
- Various Wetted Materials Available

## MODEL SERIES 7PSD Differential Pressure Switch Diaphragm Sensing Element



### GENERAL DESCRIPTION

The Model Series 7PSD Pressure Switch is designed for low differential pressure applications. This device employs Solon's sensitive and rugged switching mechanism. Unlike most "inline" pressure switch designs, the Solon mechanism is frictionless and amplifies the movement of a large area, differential pressure diaphragm assembly. This results in improved life, repeatability, and lower deadbands. The rugged, cast aluminum housing can be specified 7PSW, watertight; or 7PSX, explosion proof. The housing is large enough to accommodate up to four full size S.P.D.T. electric switches. These electric switches are available in a variety of configurations including adjustable switch differential (dead band), D.P.D.T., High-Low operation, and manual reset. In addition many switching configurations can be supplied with electric switches that have:

- Low switch differentials (dead band).
- High direct current ratings.
- Gold contacts.
- Hermetically sealed contacts.

The standard pressure-sensing element uses strong Buna N elastomer diaphragms. Other diaphragm materials are available. See the Special Features section on page 2 for other materials and other options that are useful for particular applications.

### SPECIFICATIONS

#### PHYSICAL DATA (Standard)

-see page 2 for special features

**Maximum Ambient Temperature:** 180°F

**Minimum Ambient Temperature:** -20°F

**Pressure Connection:** 1/4 NPT

**Electrical Connection:** 3/4 NPT

**Housing:** Cast Aluminum

**Deadband:** Fixed

**Sensitivity:** 1/2% of range (for one SPDT Switch)

**Drift:** <1% of range (100,000 operations)

**Weight:** Approx. 6 lbs.

**Contact Ratings:** 15A - 125, 250, 480 VAC

**Port Material:** Aluminum

**Diaphragm Material:** Buna N

**Set Point Adjustment:** Screw type, field adjustable

**No. Contacts:** 1, 2, 3 or 4 S.P.D.T or 1 D.P.D.T.

**Contact Listings:** UL Recognized, CSA Certified



Underwriters Laboratories, Inc. Listed:  
Industrial Controls Equipment Type 4 & 12, File E130423,  
Pressure Operated Switch for Hazardous Locations,  
Class I, Groups C & D; Class II, Groups E, F, & G File E65371.



Canadian Standards Association Certified:  
Industrial Control Equipment Type 4 & 12, LR88975.  
Switches Pressure Type for Hazardous Locations,  
Class I, Groups C & D; Class II, Groups E, F & G, LR88975.

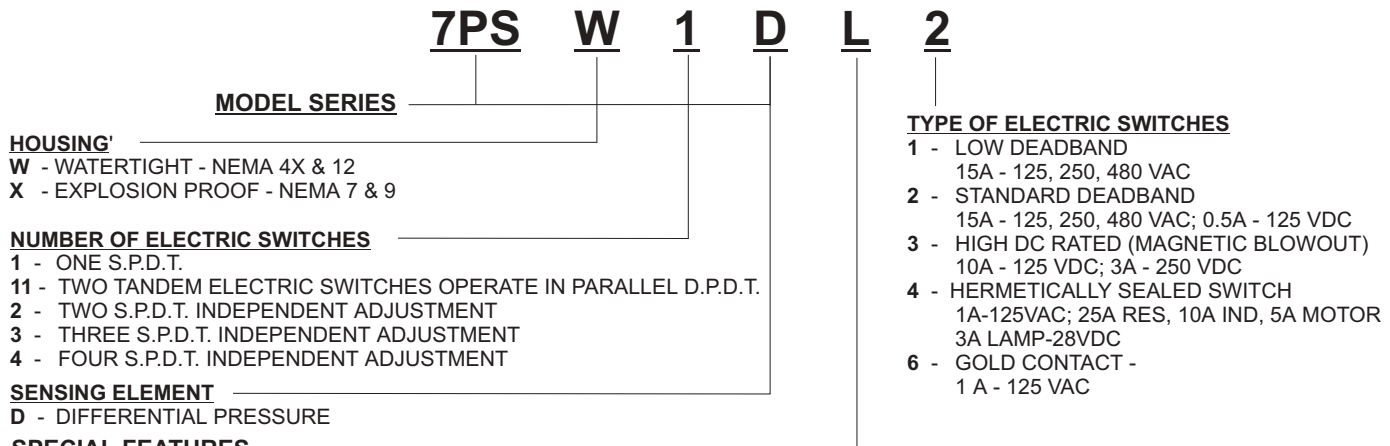
### Solon Manufacturing Company

425 Center Street, P.O. Box 207, Chardon, Ohio 44024  
(440) 286-7149 800-323-9717 FAX (440) 286-9047  
www.solonmfg.com

# ORDERING A SWITCH

# MODEL SERIES 7PSD Differential Pressure Switch Diaphragm Sensing Element

## 1. SPECIFY A MODEL NUMBER



### HOUSING'

- W - WATERTIGHT - NEMA 4X & 12
- X - EXPLOSION PROOF - NEMA 7 & 9

### NUMBER OF ELECTRIC SWITCHES

- 1 - ONE S.P.D.T.
- 11 - TWO TANDEM ELECTRIC SWITCHES OPERATE IN PARALLEL D.P.D.T.
- 2 - TWO S.P.D.T. INDEPENDENT ADJUSTMENT
- 3 - THREE S.P.D.T. INDEPENDENT ADJUSTMENT
- 4 - FOUR S.P.D.T. INDEPENDENT ADJUSTMENT

### SENSING ELEMENT

- D - DIFFERENTIAL PRESSURE

### SPECIAL FEATURES

- NO SPECIAL FEATURES
- A - ADJUSTABLE DEADBAND
- E - EXTERNAL PRESSURE ADJUSTMENT
- EE - TWO EXTERNAL PRESSURE ADJUSTMENTS
- G - DOUBLE DIAPHRAGM EXTRA SENSITIVE LOW PR
- L - ONE INDICATOR LIGHT (NOT ON X HOUSING)
- LL - TWO INDICATOR LIGHTS (NOT ON X HOUSING)
- M - MALE PIPE MOUNTING 1/2 NPT
- P - PANEL MOUNTING
- R> - MANUAL RESET, SWITCH ON INCR. PR.
- R< - MANUAL RESET, SWITCH ON DECR. PR.
- SS - SPECIAL TRIM BASE 316 STAINLESS STEEL - INCREASES MAX. WORKING PRESSURE TO 250 PSI (RANGES 0-15 WC/DP AND ABOVE)
- SN - SPECIAL TRIM BASE BRASS - INCREASES MAX. WORKING PRESSURE TO 250 PSI (RANGES 0-15 WC/DP AND ABOVE)
- SK - SPECIAL TRIM BASE ALUMINUM - INCREASES MAX. WORKING PRESSURE TO 250 PSI (RANGES 0-15 WC/DP AND ABOVE)
- SI - SPECIAL TRIM BASE TEFLON (NOT ON X SWITCHES) - DECREASES MAX. WORKING PRESSURE TO 25 PSI
- SY - SPECIAL TRIM BASE PVC (NOT ON X SWITCHES)
- T - TEFLON PROTECTED DIAPHRAGM
- U - ADDITIONAL PAINTING AFTER ASSEMBLY
- V - HIGH TEMPERATURE SERVICE - NOT A UL OR CSA LISTED FEATURE
- Z - VITON DIAPHRAGM

### TYPE OF ELECTRIC SWITCHES

- 1 - LOW DEADBAND  
15A - 125, 250, 480 VAC
- 2 - STANDARD DEADBAND  
15A - 125, 250, 480 VAC; 0.5A - 125 VDC
- 3 - HIGH DC RATED (MAGNETIC BLOWOUT)  
10A - 125 VDC; 3A - 250 VDC
- 4 - HERMETICALLY SEALED SWITCH  
1A-125VAC; 25A RES, 10A IND, 5A MOTOR  
3A LAMP-28VDC
- 6 - GOLD CONTACT -  
1 A - 125 VAC

\* SPECIAL FEATURES SUCH AS STAINLESS TAGGING, OR SPECIAL WETTED PARTS; KYNAR, KALREZ, HASTELLOY, ETC. ARE AVAILABLE ON REQUEST. CONSULT FACTORY FOR CAPABILITIES AND PRICING FOR ANY FEATURES NOT SHOWN.

## 2. SPECIFY A RANGE

| ADJUSTABLE PRESSURE RANGE | MAXIMUM DEADBAND WC |          | MAX. WORKING PRESSURE |
|---------------------------|---------------------|----------|-----------------------|
|                           | TYPE "1"            | TYPE "2" |                       |
| 0-1.5 WC/DP               | .17"WC              | -        | 50 PSI                |
| 0-3 WC/DP                 | .18"WC              | -        | 50 PSI                |
| 0-6 WC/DP                 | .23"WC              | .45"WC   | 50 PSI                |
| 0-15 WC/DP                | .33"WC              | .65"WC   | 50 PSI                |
| 0-30 WC/DP                | .6"WC               | 1.2"WC   | 50 PSI                |
| 0-60 WC/DP                | .7"WC               | 1.4"WC   | 50 PSI                |
| 0-100 WC/DP               | .8"WC               | 1.6"WC   | 50 PSI                |
| 0-150 WC/DP               | 1.2"WC              | 2.5"WC   | 50 PSI                |

## DEADBAND NOTES

The deadbands listed in the tables are the maximum switch differentials when the Type "1" or Type "2" electric switch is used.

Deadband is affected by the type of electric switch used. Each type of electric switch's effect on deadband is as follows:

**Type "1"** - *Low Deadband* - Use TYPE 1 table values.

**Type "2"** - *Std. Deadband* - Use TYPE 2 table values.

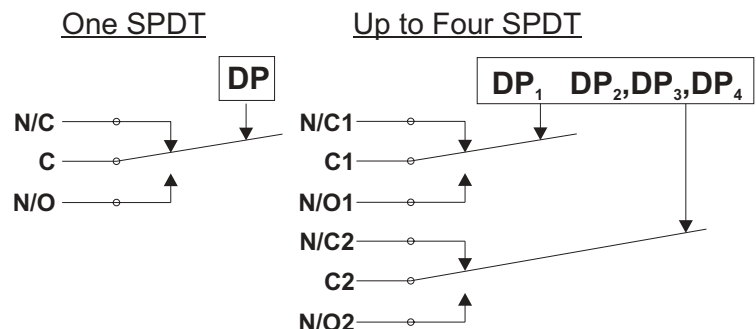
**Type "3"** - *High DC Rated* - Multiply TYPE 2 table values by two.

**Type "4"** - *Hermetically Sealed Switch* - Multiply TYPE 2 table values by six.

**Type "6"** - *Gold Contact* - Use TYPE 2 table values.

For D.P.D.T., 2, 3 or 4 S.P.D.T. switches multiply calculated value from above by 1.5 to 2.

## Wiring Schematic



## INSTALLATION NOTES

**Orientation** - The 7PSD will operate satisfactorily in any position, however, mounting the device vertically will allow the easiest adjustability and reduce sediment in the pressure chamber.

**Wiring** - Switches may be wired to 'normally open' or 'normally closed' terminals on electric switch(es).

**Pressure Connection** - 1/4 NPT female is standard. 1/2 NPT male is available ("M" option).

**Adjustment** - Turn pressure adjustment nut(s) clockwise to increase setpoint. Detailed installation & calibration instructions are provided for every shipment. Factory setting is available at no charge.