

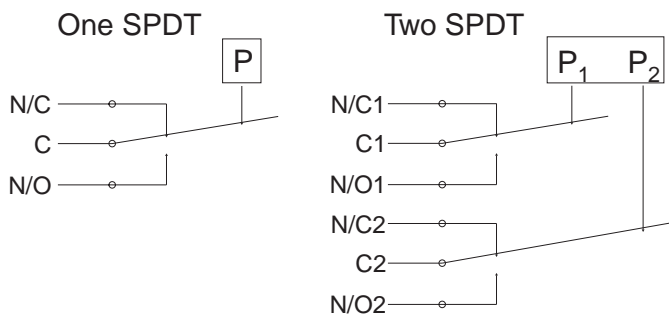
2WPS Series

PRESSURE SWITCH - BELLOWS ACTUATED



- Ranges from 10 to 3000 PSI
- Rugged NEMA 4X, 12 & 13 Housing
- One or Two SPDT Contacts
- All Metal Sensing Element
- Calibrated Setpoint Scale Available

Wiring Schematic



INSTALLATION NOTES

Orientation - The 2WPS Bellows 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). Single switch units have screw terminals while dual switch versions use a screw terminal block.

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. Adjustment setting is available at no charge.

Description

The Series 2WPS Pressure Switch (Bellows Sensing) features a rugged, compact, sensitive switching mechanism actuated by a bellows assembly. This mechanism can be supplied with one S.P.D.T. electric switch or two S.P.D.T. electric switches that are independently adjusted. The 2WPS (Bellows Sensing) can be supplied as a basic unit with no housing, or enclosed in a rugged die cast NEMA 4X, 12 and 13 housing. With the cover of the enclosure removed, the terminals of the electric switch/s, and the pressure adjustments are exposed for easy wiring and adjustment of the pressure setting. The die cast cover is equipped with captive stainless steel screws that retain the cover gasket when the cover is removed. A useful feature of the single switch enclosed model is a calibrated pressure adjustment that aligns with a numerical pressure indicating scale showing the set point range. The bellows pressure sensing elements are constructed from stainless steel and are sized for a wide variety of pressure ranges. Other useful options can easily be specified with this model.

Common applications include: Tank and compressor level and precision control, hydraulic systems, pumping controls and hazardous area lift station controls.

Specifications - 2WPS (Bellows Actuated)	
Housing:	Diecast Aluminum
Pressure Connection:	1/4" NPT
Electrical Connection:	1/2" NPT
Port Material:	Stainless with Silver Braze
Bellows Material:	Stainless Steel
Deadband:	Fixed
Sensitivity:	1/2% of range (for SPDT)
Drift:	<1% of range (100,000 operations)
Contact Ratings:	15A - 125, 250, 480 VAC
Set Point Adjustment:	Screw type, field adjustable
No. Contacts:	One or Two S.P.D.T.
Contact Listings:	UL Recognized, CSA Certified
Maximum Ambient Temperature:	180°F
Minimum Ambient Temperature:	-40°F
Weight:	Approx. 1.8 lbs.



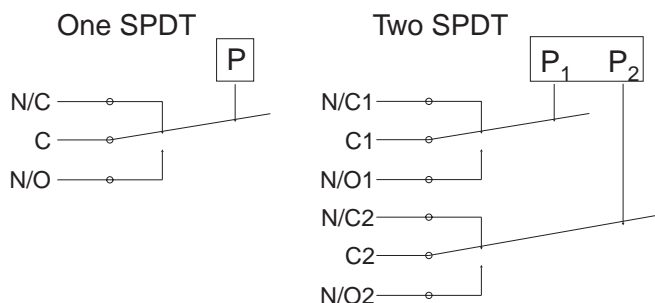
2WPS Series

PRESSURE SWITCH - DIAPHRAGM ACTUATED



- Ranges from 2 to 300 PSI
- Rugged NEMA 4X, 12 & 13 Housing
- One or Two SPDT Contacts
- Various Wetted Materials Available
- Calibrated Setpoint Scale Available

Wiring Schematic



INSTALLATION NOTES

Orientation - The 2WPS 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). Single switch units have screw terminals while dual switch versions use push-on connectors.

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. Adjustment setting is available at no charge.

Description

The Series 2WPS Pressure Switch (Diaphragm Actuated) features a rugged, compact, sensitive switching mechanism actuated by a diaphragm assembly. This mechanism can be supplied with one S.P.D.T. electric switch or two S.P.D.T. electric switches that are independently adjusted. The unit can be supplied with no housing, or enclosed in a rugged die cast NEMA 4X, 12 and 13 housing. With the cover of the enclosure removed, the terminals of the electric switch(es), and the pressure adjustment(s) are exposed for easy wiring and adjustment of the pressure setting. The die cast cover is equipped with captive stainless steel screws that retain the cover gasket when the cover is removed. A useful feature of the single switch enclosed model is a calibrated pressure adjustment that aligns with a numerical pressure indicating scale showing the set point range. Other useful options can easily be specified with this model.

Common applications include: Tank and compressor level and precision control, hydraulic systems, pumping controls and hazardous area lift station controls.

Specifications - 2WPS (Diaphragm Actuated)

Housing:	Diecast Aluminum
Pressure Connection:	1/4" NPT female
Electrical Connection:	1/2" NPT
Port Material:	Brass & Aluminum
Diaphragm Material:	Buna N
Deadband:	Fixed
Sensitivity:	1/2% of range (for SPDT)
Drift:	<1% of range (100,000 operations)
Contact Ratings:	15A - 125, 250, 480 VAC
Set Point Adjustment:	Screw type, field adjustable
No. Contacts:	One or Two S.P.D.T.
Contact Listings:	UL Recognized, CSA Certified
Maximum Ambient Temperature:	180°F
Minimum Ambient Temperature:	-20°F
Weight:	Approx. 1.5 lbs.



2WPS Series

PRESSURE SWITCH - DIAPHRAGM ACTUATED

How To Order: Specify Product Code

2WPS
W
1
SST
2

SERIES _____

HOUSING _____
 ' ' - NO HOUSING
 W - WATERTIGHT - NEMA 4X,12 & 13

NUMBER OF ELECTRIC SWITCHES _____
 1 - ONE S.P.D.T.
 2 - TWO S.P.D.T. - (SWITCH TYPE "5" ONLY)

SPECIAL FEATURES _____
 M - 1/2 NPT MALE PIPE MOUNTING
 O - HIGH OVERPRESSURE - INCREASES MAX. PRESSURE TO 1000 PSI FOR RANGES 0-2 PSI TO 0-20 PSI; MAX. PRESSURE IS 1500 PSI FOR RANGES 0-50 PSI AND UP
 Q - DOUBLE SNAP ACTING BELLEVILLE SPRING - TO PROVIDE POSITIVE SETPOINT ACCURACY IN HIGH VIBRATION APPLICATIONS
 SS - STAINLESS STEEL WETTED TRIM MATERIAL
 SN - BRASS WETTED TRIM MATERIAL
 SI - TEFLON WETTED TRIM MATERIAL
 SY - PVC WETTED TRIM MATERIAL
 T - TEFLON PROTECTED DIAPHRAGM
 U - SPECIAL EPOXY PAINT
 Z - VITON DIAPHRAGM MATERIAL

TYPE OF ELECTRIC _____
 1 - LOW DEADBAND
 15A - 125, 250, 4
 2 - STANDARD DEA
 15A - 125, 250, 4
 3 - HIGH DC RATED
 10A - 125 VDC; 3
 5 - SUB MINIATURT
 5A - 125, 250 VA
 6 - GOLD CONTACT
 1 A - 125 VAC

* SPECIAL FEATURES SUCH AS S' SPECIAL WETTED PARTS; KYNAR ETC. ARE AVAILABLE ON REQUES CAPABILITES AND PRICING FOR / SHOWN.

Ranges

DIAPHRAGM ACTUATED

Adjustable Pressure Range	Maximum DEADBAND		Maximum Working Pressure
	Type "2"	Type "5"	
PRESSURE			
0-2 PSI	.25	.23	20
0-5 PSI	.27	.50	20
0-10 PSI	.34	.90	50
0-20 PSI	.50	1.9	50
0-50 PSI	1.6	6	250
0-100 PSI	1.9	8.3	250
0-200 PSI	4.4	16	500
0-300 PSI	5.3	22	500

VACUUM

Range	Type "2"	Type "5"	Maximum Working Pressure
0-5 IN / HG	.27"	.35"	20
0-15 IN / HG	0.34	0.67	20
0-30 IN / HG	0.45	0.9	20
30P-30V/ HG	0.7	1.4	20

HIGH OVER-PRESSURE

Range	Type "2"	Type "5"	Maximum Working Pressure
0-10 PSI	.25#	.50#	1000
0-20 PSI	.30	.60	1000
0-50 PSI	1.0	2.0	1500
0-100 PSI	1.2	2.5	1500
0-200 PSI	1.5	3.0	1500
0-300 PSI	1.8	3.6	1500

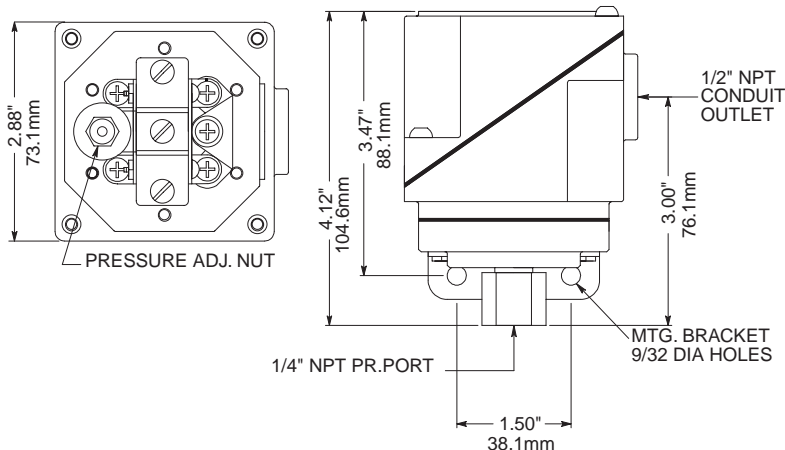
DEADBAND NOTES

The deadbands listed in the tables are the maximum switch differentials when the standard (Type "2" or Type "5") electric switch is used.

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

- Type "1" - Low Deadband - Use 1/2 TYPE 2 table values.
- Type "2" - Std. Deadband - Use table values.
- Type "3" - High DC Rated - Multiply TYPE 2 table values by two.
- Type "5" - Sub Miniature - 2 S.P.D.T. - Use TYPE 5 table values.
- Type "6" - Gold Contact - Use TYPE 2 table values.

Please note that Type "5" is the only available option on 2WPS Switches that requires two Electric Switches.



2WPS Series

PRESSURE SWITCH - BELLOWS ACTUATED

How To Order: Specify Product Code

2WPS W 1 B U 2

MODEL SERIES

HOUSING

' ' - NO HOUSING

W - WATERTIGHT - NEMA 4, 12 & 13

NUMBER OF ELECTRIC SWITCHES

1 - ONE S.P.D.T.

2 - TWO S.P.D.T. - (SWITCH TYPE "5" ONLY)

SENSING ELEMENT

B - BELLOWS SENSING ELEMENT (STANDARD)

SPECIAL FEATURES

M - 1/2 NPT MALE PIPE MOUNTING

Q - DOUBLE SNAP ACTING BELLEVILLE SPRING - TO PROVIDE POSITIVE SETPOINT

ACCURACY IN HIGH VIBRATION APPLICATIONS

U - SPECIAL EPOXY PAINT

V - HIGH TEMPERATURE SERVICE - INCREASED FROM 180°F TO 250°F AMBIENT

TYPE OF ELECTRIC SWITCHES

1 - LOW DEADBAND

15A - 125, 250, 480 VAC

2 - STANDARD DEADBAND

15A - 125, 250, 480 VAC; 0.5A - 125 V

3 - HIGH DC RATED (MAGNETIC BLOW)

10A - 125 VDC; 3A - 250 VDC

5 - SUB MINIATURE SWITCH - 2 S.P.D.T.

5A - 125, 250 VAC; 0.5A - 125 VDC

6 - GOLD CONTACT -

1 A - 125 VAC

Ranges

Bellows Actuated

2 W P S 1 B

Adjustable Pressure Range	Fixed Switch Dead Bands		Maximum Pressure PSI
	Low	STD	
0-10 psi	.40#	.80#	300
0-20 psi	.45	.90	300
0-50 psi	.50	1.0	300
0-100 psi	.75	1.5	300
0-250 psi	3.0	6.0	1500
0-500 psi	4.0	8.0	1500
0-750 psi	8.0	16.0	2500
0-1000 psi	9.5	19.0	2500
0-1500 psi	29.0	58.0	5000
0-3000 psi	33.0	66.0	5000

DEADBAND NOTES

The deadbands listed in the tables are the maximum switch differentials when the standard (Type "2" or Type "5") electric switch is used.

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

Type "1" - Low Deadband - Use 1/2 TYPE 2 table values.

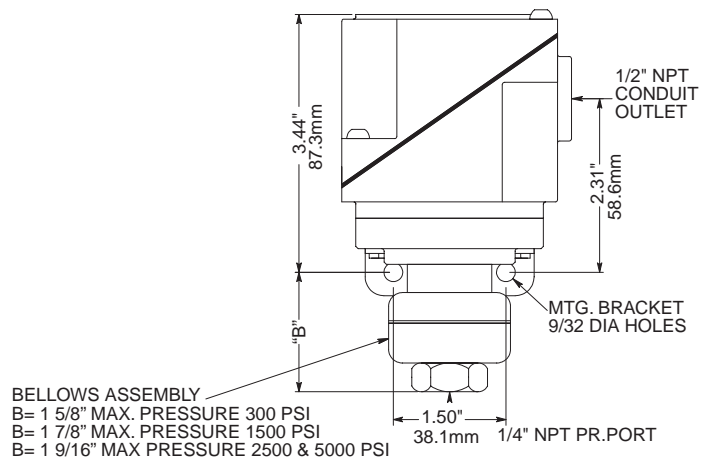
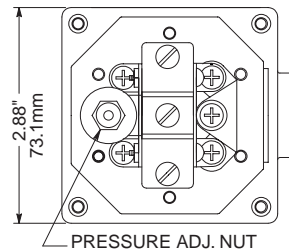
Type "2" - Std. Deadband - Use table values.

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

Type "5" - Sub Miniature - 2 S.P.D.T. - Use TYPE 5 table values.

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

Please note that Type "5" is the only available option on 2WPS Switches that requires two Electric Switches.



2WPS Series

DIFFERENTIAL PRESSURE SWITCH - DIAPHRAGM ACTUATED



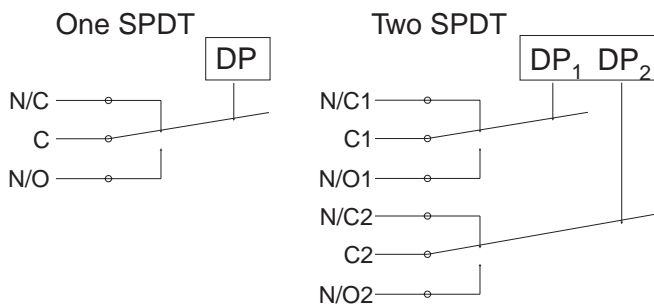
- Ranges from 10 to 100 PSID
- Rugged NEMA 4X, 12 & 13 Housing
- One or Two SPDT Contacts
- Various Wetted Materials Available
- Calibrated Setpoint Scale Available

Description

The Series 2WPS Differential Pressure Switch features a rugged, compact, sensitive switching mechanism actuated by a differential diaphragm assembly. This mechanism can be supplied with one S.P.D.T. electric switch or two S.P.D.T. electric switches that are independently adjusted. The mechanism, when attached to the differential diaphragm pressure sensing element, can be supplied as a basic unit with no housing, or enclosed in a rugged die cast NEMA 4X, 12 and 13 housing. The enclosed model is designated 2WPS (Differential). With the cover of the enclosure removed, the terminals of the electric switch/s, and the pressure adjustment/s are exposed for easy wiring and adjustment of the differential pressure setting. The die cast cover is equipped with captive stainless steel screws that retain the cover gasket when the cover is removed. Other useful options can easily be specified with this model including the DO option for applications requiring higher working pressures.

Common applications for the 2WPS (Differential) include: pump/compressor activation and filtration processing.

Wiring Schematic



INSTALLATION NOTES

Orientation - The 2WPS Differential 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 Connections - 1/8 NPT female is standard.

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

Specifications - 2WPS (Differential)

Housing:	Diecast Aluminum
Pressure Connections:	1/8" NPT female
Electrical Connection:	1/2" NPT
Port Material:	Aluminum
Diaphragm Material:	Buna N
Deadband:	Fixed
Sensitivity:	1/2% of range (for SPDT)
Drift:	<1% of range (100,000 operations)
Contact Ratings:	15A - 125, 250, 480 VAC
Set Point Adjustment:	Screw type, field adjustable
No. Contacts:	One or Two S.P.D.T.
Contact Listings:	UL Recognized, CSA Certified
Maximum Ambient Temperature:	180°F
Minimum Ambient Temperature:	-20°F
Weight:	Approx. 2 lbs.



2WPS Series

DIFFERENTIAL PRESSURE SWITCH - DIAPHRAGM ACTUATED

How to Order: Specify Product Code

2WPS W 1 D SST 2

MODEL SERIES

HOUSING
 ' ' - NO HOUSING
 W - WATERTIGHT - NEMA 4X, 12 & 13

NUMBER OF ELECTRIC SWITCHES
 1 - ONE S.P.D.T.
 2 - TWO S.P.D.T. - (SWITCH TYPE "5" ONLY)

SPECIAL FEATURES
 O - HIGH OVERPRESSURE - INCREASES MAX. STATIC PRESSURE TO 300 PSI
 Q - DOUBLE SNAP ACTING BELLEVILLE SPRING - TO PROVIDE POSITIVE SETPOINT ACCURACY IN HIGH VIBRATION APPLICATIONS
 SS - STAINLESS STEEL WETTED TRIM MATERIAL
 SN - BRASS WETTED TRIM MATERIAL
 SI - TEFLON WETTED TRIM MATERIAL
 SY - PVC WETTED TRIM MATERIAL
 T - TEFLON PROTECTED DIAPHRAGM
 U - SPECIAL EPOXY PAINT
 Z - VITON DIAPHRAGM MATERIAL

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
 5 - SUB MINIATURTE SWITCH - 2 S.P.D.T.
 5A - 125, 250 VAC; 0.5A - 125 VDC
 6 - GOLD CONTACT
 1 A - 125 VAC

* SPECIAL FEATURES SUCH AS STAINLESS TAGGING, OR SPECIAL WETTED PARTS; KYNAR, KALREZ, HASTELLO, ETC. ARE AVAILABLE ON REQUEST. CONSULT WINTERS FOR CAPABILITES AND PRICING FOR ANY FEATURES NOT SHOWN.

Ranges			
DIFFERENTIAL PRESSURE (DP)			
Adjustable Pressure Range	Maximum Deadband	Max. Working Pressure	
	Type "2"	Type "5"	
0-10 PSID	.40	1.0	100
0-20 PSID	.53	2.3	100
0-50 PSID			
DIFF. PR. (DP) HIGH MAX. PR.			
0-10 PSID	.20#	.40#	300
0-20 PSID	.26	.53	300
0-50 PSID	.45	.90	300
0-100 PSID	.70	1.3	300

DEADBAND NOTES

The deadbands listed in the tables are the maximum switch differentials when the standard (Type "2" or Type "5") electric switch is used.

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

Type "1" - Low Deadband - Use ½ TYPE 2 table values.
 Type "2" - Std. Deadband - Use table values.
 Type "3" - High DC Rated - Multiply TYPE 2 table values by two.
 Type "5" - Sub Miniature - 2 S.P.D.T. - Use TYPE 5 table values.
 Type "6" - Gold Contact - Use TYPE 2 table values.

Please note that Type "5" is the only available option on 2WPS Switches that requires two Electric Switches.

