

## P-Series Explosion Proof Pressure Switches

### FEATURES

- Precision SPDT snap-acting micro switch
- Setpoint adjustable from 15-100% of range
- Single or dual adjustable set points
- Fixed or adjustable deadband
- Wide selection of switch elements
- Fixed or adjustable deadband

### TYPICAL USES

- Refineries
- Chemical and Petrochemical Plants
- Steel Mills
- Water and Sewage Treatment Plants
- Pumps, Compressors and Turbines
- Boilers and Burners
- Reverse Osmosis Systems and Filters



**P-Series**  
Explosion-Proof Enclosure



**P-Series**  
Explosion-Proof Enclosure  
Differential Pressure Switch



### SPECIFICATIONS

Set Repeatability (Accuracy):	±1% of span (Additional setpoint shift of ±1% of range per 50°F from initial setpoint set at 70°F typical)
Switch Type:	SPDT or 2 SPDT with independent setpoints
Setpoint:	Single setpoint, fixed deadband Single setpoint, adjustable deadband Dual independent setpoints, fixed deadband
Deadband:	Fixed or adjustable deadband
Enclosure Ratings:	NEMA 7 & 9, IP66
Enclosure Material:	Epoxy coated aluminum
Process Connection:	¼ NPT Female, ½ NPT Female, ¼ NPT Female and ½ NPT Male Combination
Electrical Termination:	¾ NPT Female

### APPROVALS

Explosion Proof:	UL, CSA  CLASS I DIV 1 GROUPS B, C, & D CLASS II DIV 1 GROUPS E, F, & G
Standard:	CRN

### KEY BENEFITS

- Epoxy-coated aluminum enclosures provide added protection in harsh environments
- Dual chamber design provides safe setpoint adjustment even with power connected
- Designed for use in wide range of applications
- Easily configurable to meet your application requirements
- Hermetically sealed micro switches offer improved reliability and safety (UL Class I Div II approval)

### WETTED COMPONENTS

Actuator Seal	Process Connection:	
Buna-N®, Teflon®, Viton®, 316L SS, or Monel®	<b>Pressure Switches</b> 316L SS or Monel® for psi ranges Epoxy coated carbon steel or 316L SS for IW ranges	<b>Differential Switches</b> Nickel plated brass or 316L SS for psid ranges Epoxy coated carbon steel or 316L SS for IWD ranges

# Data Sheet

## P-Series Explosion Proof Pressure Switches

ORDERING CODE	Example:	PPSN7	G	S	25	X6B	100#
<b>Enclosure – Pressure Switch</b>							
PPSN7 - Single setpoint, fixed deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2		PPSN7					
PPDN7 - Two independent adjustable setpoints, fixed deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2							
PPAN7 - Single setpoint, adjustable deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2							
<b>Enclosure – Differential Pressure Switch</b>							
PDSN7 - Single setpoint, fixed deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2							
PDDN7 - Two independent adjustable setpoints, fixed deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2							
PDAN7 - Single setpoint, adjustable deadband, N7-NEMA 7 & 9, IP66, explosion proof Div, 1 & 2							
<b>Switch Elements For Single Setpoint with Adjustable Deadband - UL/CSA Listed</b>							
H - General purpose, 10A - 125/250 Vac. ½A, 125Vdc, ¼A, 250Vdc							
J - Hermetically sealed, general pupose - 11A, - 125/250 Vac, 5A, 30Vdc							
<b>Single/Dual Switch Setpoint with Fixed Deadband - UL/CSA Listed</b>							
C/CC - Heavy duty ac, 22A - 125/250 Vac							
E/EE - Manual reset acutates on decreasing pressure 15A, 125/250 Vac 6A, 130 Vdc (no hazardous approval)							
F/FF - Sealed environment proof, 15A - 125/250 Vac. (estimated dc rating - 4A, 28Vdc, not UL listed)							
G/GG - General purpose, 15A - 125/250/480 Vac, ½A - 125 Vdc, ¼A - 250 Vdc (not listed at 480 Vac)			G				
H/HH - General purpose, 10A - 125/250 Vac 10A, Vdc							
J/JJ - Hermetically sealed switch, general purpose, 11A, 125/250 Vac, 5A, 30 Vdc							
K/KK - Narrow deadband, 15A - 125/250 Vac. (estimated dc rating, 0.4A, 120 Vdc, not UL listed)							
L/LL - Hermetically sealed switch, gold contacts, 1A - 125 Vac							
M/MM - Low level (gold) contacts, 1A - 125 Vac							
P/PP - Hermetically sealed AC - 5A, 125/250 Vac. (estimated dc rating - 2.5A, 28Vdc, not UL listed)							
S/SS - Heavy duty dc, 10A - 125 Vac or dc, ½ HP - 125 Vac or dc.							
U/UU - Manual reset actuates on increasing pressure 15A, 125/250 Vac, 6A, 130Vdc (no hazardous approval)							
Y/YY - High temperature 300°F (148°C) ambient, 15A, 125/250 Vac							
W/WW - Ammonia service - 5A, 125/250 Vac, 6A, 30 Vdc							
<b>Actuator Seal</b>							
	Temperature Limits						
Material	Ambient	Process					
B - Buna-N®	-20°F to 150°F	0°F to 150°F					
V - Viton®	-20°F to 150°F	20°F to 300°F					
T - Teflon®	-20°F to 150°F	0°F to 150°F					
S - 316L SS	-20°F to 150°F	20°F to 300°F	Not available in vacuum, & inches of water ranges or pressures above 1,000 psi	S			
P - Monel®	-20°F to 150°F	20°F to 300°F	Not available in vacuum, & inches of water ranges or pressures above 1,000 psi				
<b>Process Connections</b>							
25- ¼ NPT Female					25		
06- ¼ NPT Female and ½ NPT Male combination							
07- ½ NPT Female							
<b>Options - Select from Table 4 on page 4 (If choosing an option(s) must include an "X")</b>							
6B - Cleaned for oxygen service						X _ _	6B
<b>Pressure Range (select from pressure range tables on page 3)</b>							
100# - 100 psi							100#

# Data Sheet

## P-Series Explosion Proof Pressure Switches

TABLE 1 - PRESSURE/VACUUM RANGES				Approximate Deadband Switch Element for Buna-N® Diaphragm									
Nominal Ranges		Overpressure Ratings		See multiplier TABLE 3 for additional material multipliers									
				PPA		PPS				PPD			
		Proof psi	Minimum Burst psi	Switch Element									
J, H	G			J, H	K, F	P	GG	JJ, HH	KK, FF	PP			
<b>Vacuum</b>													
30IMV	-760mmHg	-100 kPa	250	400	7-26	3-5	3-6.5	1-2	1-2.5	3-5	4-6.5	1-2	1-2.5
<b>Compound</b>													
30IMV/ 15#	-760mmHg/ 1.0 kg/cm <sup>2</sup>	-100 kPa 100 kPa	250	400	10-25 4-13	3-5 1-2	4-6 1-3.5	1-2 0.5-1	1-2.5 0.5-1.2	3-5 2-4	2.5-4.5 1.3	1-2 0.5-1	1-2.5 0.5-1.2
<b>Pressure</b>													
30IW	750mmH <sub>2</sub> O	7.5 kPa	20	35	4-27	1.5-3.5	2-5	0.5-1	0.5-2	1.5-3.5	2-5	0.5-1	0.5-2
60IW	1,500mmH <sub>2</sub> O	15 kPa	20	35	5-54	1.5-3.5	2.5-5	0.5-1.3	1-2	1.5-3.5	2.5-5	0.5-1.3	1-2
100IW	2,500mmH <sub>2</sub> O	25 kPa	20	35	8.5-90	4-6	4-8.5	1-2	1-3	4-7	4-8.5	1-2	1-3
150IW	3,750mmH <sub>2</sub> O	37 kPa	20	35	18-135	5.0-11	10-18	1.5-3	2-6	8-14	10-18	1.5-3	2-6
15#	1.0 kg/cm <sup>2</sup>	100 kPa	500	1,500	2.5-13	1-2	1-3	0.5-1	0.5-1.2	1-2	1-3	0.5-1	0.5-1.2
30#	2.0 kg/cm <sup>2</sup>	200 kPa	500	1,500	3-26	1-2.5	2-4.5	0.5-1.5	0.5-1.5	1-2.5	2-4.5	0.5-1.5	0.5-1.5
60#	4.0 kg/cm <sup>2</sup>	400 kPa	500	1,500	5-54	2-4	4-7	1-2	1-2.5	2-4	4-7	1-2	1-2.5
100#	7.0 kg/cm <sup>2</sup>	700 kPa	1,000	3,000	10-90	5-7	5-10	1-2.5	2-4	5-7	5-10	1-2.5	2-4
200#	14 kg/cm <sup>2</sup>	1,400 kPa	1,000	3,000	20-180	10-15	10-18	1-4	5-8	10-20	15-35	3-6	5-8
400#	28 kg/cm <sup>2</sup>	2,800 kPa	2,400	3,000	45-360	16-30	16-45	4-8	5-15	16-30	16-45	4-8	5-15
600#	42 kg/cm <sup>2</sup>	4,200 kPa	2,400	3,000	75-540	16-50	20-75	5-15	6-25	16-50	20-75	5-15	6-25
1000#	70 kg/cm <sup>2</sup>	7,000 kPa	12,000	14,000	160-900	75-130	50-160	7-30	10-85	75-130	50-160	7-30	10-85
2000#	140 kg/cm <sup>2</sup>	14,000 kPa	12,000	14,000	350-1,800	150-200	150-350	20-50	25-110	150-200	150-350	20-50	25-110
3000#	210 kg/cm <sup>2</sup>	21,000 kPa	12,000	14,000	400-2,600	180-250	180-400	30-70	50-250	180-250	180-400	30-70	50-250

TABLE 2 - DIFFERENTIAL PRESSURE RANGES				Approximate Deadband Switch Element for Buna-N® Diaphragm									
Nominal Ranges		Overpressure Ratings		See multiplier TABLE 3 for additional material multipliers									
				PDA		PDS				PDD			
		Static psi	Minimum Proof psi	Switch Element									
J, H	G			J, H	K, F	P	GG	JJ, HH	KK, FF	PP			
<b>Differential Pressure</b>													
30IWD	-760mmHg	5.4	21.6	5.5-27	3-5	4-6.5	0.5-1	0.5-2	3-5	4-6.5	0.5-1	0.5-2	
60IWD	1,500mmH <sub>2</sub> O	5.4	21.6	5.5-54	3-5	4.5-6.5	0.5-1.3	1-2	3.5	4-6.5	0.6-1.3	1-2	
100IWD	2,500mmH <sub>2</sub> O	5.4	21.6	8.5-90	4-6	4.0-8.5	1-2	1-3	4-7	4-8.5	1-2	1-3	
150IWD	3,750mmH <sub>2</sub> O	5.4	21.6	18-135	5-11	10-18	1.5-3	2-6	8-12	10-18	1.5-3	2-6	
30#D	1.0 kg/cm <sup>2</sup>	500	1,500	2.5-13	1-2	1-3	0.5-1	0.5-1.2	1-2	1-3	0.5-1	0.5-1.2	
60#D	2.0 kg/cm <sup>2</sup>	500	2,000	6.5-54	1-2.5	2-4.5	1-1.5	1-1.5	1-2.5	2-4.5	0.5-1.5	0.5-1.5	
100#D	7.0 kg/cm <sup>2</sup>	1,000	4,000	10-90	5-7	5-10	1-2.5	2-4	5-7	5-10	1-2.5	2-4	
200#D	14 kg/cm <sup>2</sup>	1,000	4,000	20-180	10-15	10-18	1-4	5-8	10-20	10-18	3-6	5-8	
400#D	28 kg/cm <sup>2</sup>	1,000	8,000	45-360	16-30	16-45	4-8	5-15	16-30	16-45	4-8	5-15	

TABLE 3 - DEADBAND MULTIPLIER TABLE		
Diaphragm Material	Multiply	Notes
Buna-N®	1.0	Multiplier table for additional diaphragm materials
Viton®	1.4	
Teflon®	1.7	
316 SS	1.7	
Monel®	1.7	

## P-Series Explosion Proof Pressure Switches

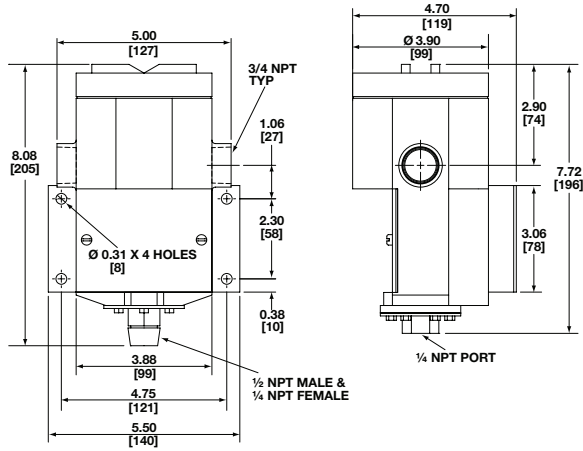
TABLE 4 - OPTIONS		Pressure		Differential Pressure	
Code	Description	psi	inH <sub>2</sub> O	psid	inH <sub>2</sub> O
CH	Chained cover	•	•	•	•
FP	Fungus proofing	•	•	•	•
FS	Factory adjusted setpoints (Supply static pressure for D/P switches)	•	•	•	•
G9	Fire safe actuator	•			
	High operating pressure for inH <sub>2</sub> O ranges				
	40 psi Static (Pressure and D/P)				
HX	100 psi Proof (Pressure)		•	•	
	160 psi Proof (D/P)				
JL	¾" to ½" Reducing bushing	•	•	•	•
K3	Terminal blocks	•	•	•	•
NH	Tagging SS	•	•	•	•
PM	¾" Sealed conduit connection with 16" lead wires	•	•	•	•
TA	316 SS pressure connection for H <sub>2</sub> O ranges		•		•
UD	316 SS Pressure Connection for psid ranges			•	
C8	CSA approval	•	•	•	•
6B	Cleaned for oxygen service	•		•	
FM	FM Approval	•	•	•	•
HS	High static operating pressure for psi range D/P			•	
D2	Dual seal rating (must order with XC8 as well)	•			•

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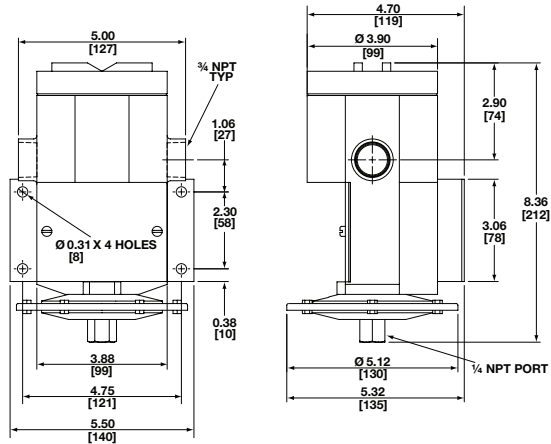
**DIMENSIONS** in [ ] are millimeters

For reference only, consult Ashcroft for specific dimensional drawings

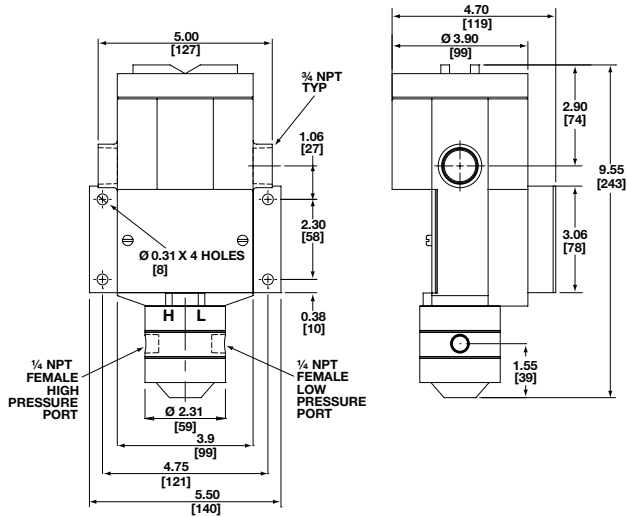
**PRESSURE SWITCH – PSI RANGES**



**PRESSURE SWITCH – INCHES OF WATER RANGES**



**DIFFERENTIAL PRESSURE SWITCH – PSI DIFFERENTIAL RANGES**



**DIFFERENTIAL PRESSURE SWITCH – INCHES OF WATER RANGES**

