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Electronic Dual Pressure Switch

BPS3000

Features

- Measuring range: gauge: 0 - 9000 psig, absolute: 0 - 150 psia
- One or two switch points
- Analog output 4 - 20 mA or 0 - 10 V
- Enclosure Rating: Type 4X (IP65) / Type 6 (IP67)
- Superior EMI protection
- Simple navigation menu
- Suitable for rapid cycling applications
- Display & electronic connection: rotatable by 320°
- IO-Link communication interface
- 0.50% accuracy

Applications

- Machine tool industry
- Factory Automation
- Injection molding machines
- Lubrication monitoring
- Pumps and compressors
- Hydraulic and pneumatic applications

General Specifications**

Sensor element:	Ceramic sensor (standard) Optional: piezoresistive sensor (For proper sensor selection see product configurator for more details.)
Materials: Wetted parts: Enclosure: Seals:	 304 Stainless steel; brass (if surge dampener is required) 304 Stainless steel, PBT FKM fluoroelastomer (standard) EPDM (optional)
Operating elements:	3 easy-response push-buttons
Enclosure rating:	Type 4X (IP65) / Type 6 (IP67)
Protection class:	III
Electrical connection:	Plug M12 x 1, 4-pin / 5-pin / 8-pin (see product configurator)
Process connection:	1/4" NPT, 1/2" NPT flush diaphragm, 7/16-20 (SAE), 7/16-20 (JIC 37°), G1/4" M, G1/2" flush diaphragm (only piezoresistive)
Dimensions:	1.6 Ø x 4.4 inches (without plug connector)
Weight:	Approx. 0.4 lb (200 g)
Proof pressure:	1.5X rated pressure
A/D-Converter: Resolution: Scanning rate:	 12 bit (4,096 steps per measure span) 1000/s
Linearity error:	< ±0.5 % f. s. at +25 °C
Temperature influence:	TC zero < ±0.2 % FSO / 10K TC span < ±0.3 % FSO / 10K
Compensation range:	14°F to 158°F (-10°C to +70°C)
Repeatability:	±0.1% f. s.
Temperature range: Media: Electronics[1]: Storage:	 -13°F to 212°F (-25°C to +100°C) 14°F to 158°F (-10°C to +70°C) -22°F to 176°F (-30°C to +80°C)
Power supply[1]:	15 to 32 V DC, reversed polarity protected (SELV, PELV), Class 2
Power consumption:	Approx. 50 mA (without load) Approx. 80 mA (Output Code 6)
Digital display: Display rate:	4-digit 14-segment LED red display, digit height .35 inches (9 mm) 20/s
Error display:	LED RED and alphanumeric display

Analog output: Current output: Scanning rate: Voltage output: Rating: Adjustment range:	 4-20 mA 2 ms 0 to 10 V DC max. 10 mA 25% to 100% f. s.	
Transistor switching outputs:		
Switching function	Normally open / normally closed, standard /window mode and diagnosis function adjustable	
Switching output:	PNP / NPN (field-selectable on IO-Link units)	
Adjustment range for switching point and hysteresis:	0% to 125% f. s.	
Switching frequency:	Max. 100 Hz	
Load:	Max. 500mA, short-circuit-proof IO-Link: Max. 250mA	
Delay:	0.0 s to 50.0 s adjustable	
Status display(s):	LED(s) red	
IO-Link Communication Interface		
Transmission type:	COM2 (38.4 kBaud)	
IO-Link revision:	1.1	
SDCI standard:	IEC 61131-9	
Profiles:	Smart Sensor, Process Data Variable, Device Identification, Device Diagnosis	
SIO modules:	Yes	
Required master port type:	A	
SIO output:	1 analog / 2 binary (switch points) [see product configurator]	
Min. process cycle time [ms]:	2.5	
Device ID:	0x011...	
Approvals[1]:	cULus[1] E42816, BV-50018/A0[2]	
EMI	EN 61000-4-2 ESD	4 kV CD / 8 kV AD
	EN 61000-4-3 HF radiated	10 V/m
	EN 61000-4-4 Burst	2 kV
	EN 61000-4-5-Surge	1/2 kV
	EN 61000-4-6 HF conducted	10 V
Shock resistance	DIN EN 60028-2-27	50 g (11 ms)
Vibration resistance	DIN EN 60028-2-26	20 g (10 to 2000 Hz)

** See product configurator for additional options.

[1] Condition of use with cULus: 140°F max. ambient; power supply: max. 28 V DC

[2] BV approval only with output code 1-5; for more details please see BV certification.

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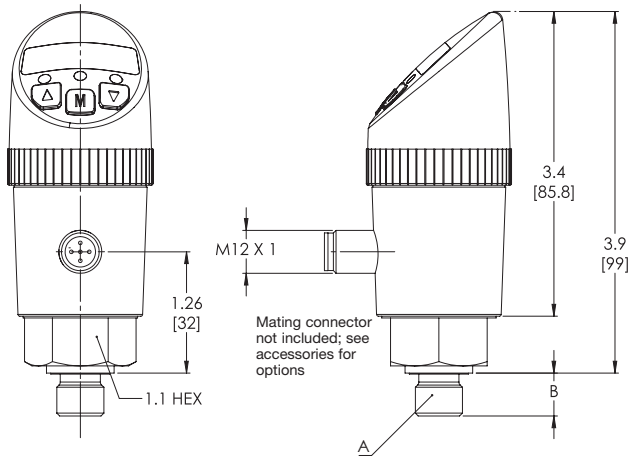
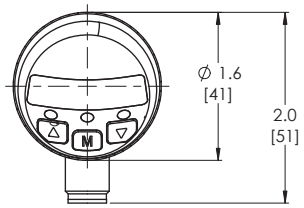
Technical Drawings





Process Connections "A"	Dimension "B"
1/4" NPT	.66" [16.9 mm]
1/2" NPT flush diaphragm seal	.83" [21 mm]
7/16-20 UNF (SAE 4)	.36" [9.1 mm]
7/16-20 UNF (JIC 37°)	.55" [14 mm]
G 1/4"	.47" [12 mm]
G 1/2"	.55" [14 mm]

Electrical Connection Chart

Pin	Signal Output Code 1 & 7	Signal Output Code 2 & 3	Signal Output Code 4 &5 & 8	Signal Output Code 6	
1	+Ub	+Ub	+Ub	+Ub	
2	SP2	Signal	Signal	SP1a	NC
3	0V	0V	0V	SP1b	
4	SP1/ IO-Link *	SP1	SP1/ IO-Link *	0V	
5	-	-	SP2	SP2a	NO
6	-	-	-	SP2b	
7	-	-	-	-	
8	-	-	-	Housing	

* IO-LINK ONLY FOR SIGNAL OUTPUT CODES 7 & 8

c UL us

Dimensions in inches [mm]

Product Configurator

Example	BPS3	8	N	V	M	9000P	P

Series:

BPS3	Series BPS3000, electronic dual pressure switch

Output:

1	Dual switch point
2	Single switch point plus 4-20mA (0-10V field selectable)
3	Single switch point plus 0-10V (4-20mA field selectable)
4	Dual switch point plus 4-20mA (0-10V field selectable)
5	Dual switch plus 0-10V (4-20mA field selectable)
6	Dual switch points (1 x NO SPST / 1 x NC SPST), requires piezo. sensor, not UL approved
7	IO-Link / Dual switch point
8	IO-Link / Dual switch point plus 4-20mA (0-10V field selectable)

* Highlighted options represent those most frequently used. Select these common options for improved availability. (5/21)

Process Connections*:

N	1/4" NPT male thread
3[1]	1/2" NPT flush diaphragm seal
E	7/16-20 UNF (SAE 4)
P	7/16-20 UNF male thread (JIC 37°)
G	G1/4" male thread
2[1]	G1/2" flush diaphragm seal

*Contact factory for a 40x40 Cetop/Manifold or G1/2 with Large Bore Diameter connection.

Electrical Connection:

M[2]	M12

Sealing:

V	FKM fluoroelastomer (standard)
E	EPDM (EPR) (optional)

Sensor:

Blank	Standard ceramic sensor
P	Piezoresistive sensor

Pressure Ranges[3]

0015PA[4, 5, 7]	0 - 15 psia (absolute)
0075PA[4, 5, 7]	0 - 75 psia (absolute)
0150PA[4, 5, 7]	0 - 150 psia (absolute)
0003P[4, 5, 7]	0 - 3 psig
0015P[4, 5, 7]	0 - 15 psig
0050P[4, 5, 7]	0 - 50 psig
0075P[4, 5, 7]	0 - 75 psig
0150P[8]	0 - 150 psig
0750P[8]	0 - 750 psig
1500P[8]	0 - 1500 psig
3000P[8]	0 - 3000 psig
6000P[8]	0 - 6000 psig
9000P[4, 8]	0 - 9000 psig

Accessories

Order Number	Description
239535-1M-R-S[6]	4 Pin M12 Female Right Angle Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239535-1M-S[6]	4 Pin M12 Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239537	4 Pin M12 Female Straight Connector
239236	4 Pin M12 Female Right Angle Connector
239546-1M-R-S[6]	5 Pin M12 Female Right Angle Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239546-1M-S[6]	5 Pin M12, Female Straight Plug Molded Cable, 3.28 Feet (1 Meter), Shielded
239548-S	5 Pin M12 Female Straight Connector
239548-R	5 Pin M12 Female Right Angle Connector

Note:
1. Only available from (0-150 psig) range up to (0-9000 psig) range. Piezoresistive sensor only.
2. Mating connector not included with unit; mating connectors are available and can be ordered as an accessory.
3. Contact factory for ranges not listed including BAR.
4. Pressure range requires piezoresistive sensor.
5. Units are rated at IP65 only.
6. See Cable Connectors & Accessories for more options.
7. Not available with process connections 3 & 2
8. Includes .2 mm Ø removable brass orifice

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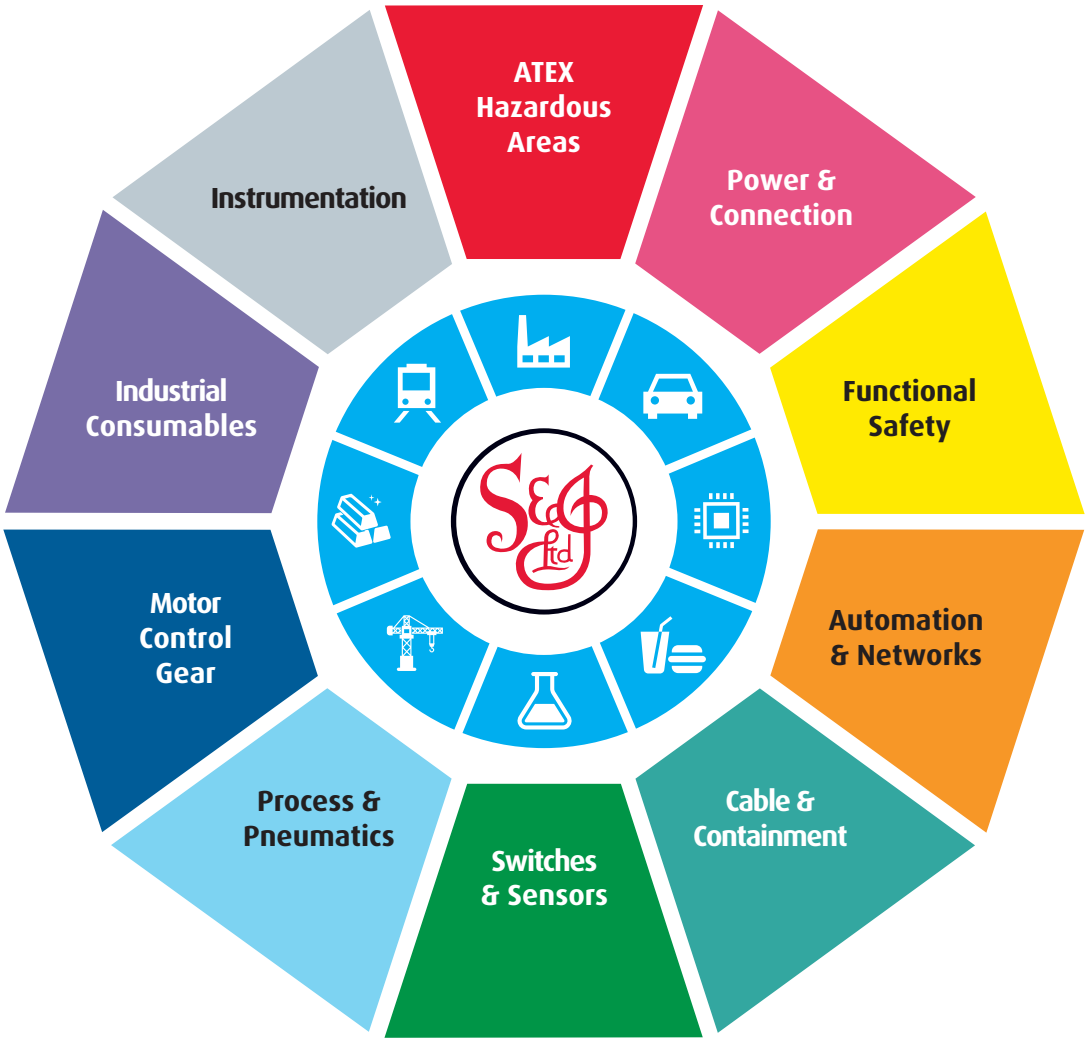

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