

# Electr. Dual Pressure Switch

# BPS3000

## Features

- ▶ Measuring ranges: 0 ... -1 bar to 0 ... 600 bar gauge
- ▶ Max. 2 switch points
- ▶ Analog output 4 - 20 mA or 0 - 10 V
- ▶ Rotatable 320° display & electrical connection
- ▶ Menu navigation refers to VDMA standard
- ▶ IO-Link communication interface

## Applications

- ▶ Pressure control for:
  - Hydraulics & Pneumatics
  - Lubrication system
  - Cooling



## Technical Data

<b>Sensor element:</b>	Ceramic sensor optional: piezoresistive sensor
<b>Materials:</b>	
<b>Wetted parts:</b>	Stainless steel, mat. no. 1.4301, brass MS58*
<b>Electronics housing:</b>	Stainless steel, mat. no. V2A, PA / PC
<b>Seals:</b>	FKM, EPDM
<b>Operating elements:</b>	3 easy-response pushbuttons
<b>System of protection:</b>	IP65, IP67
<b>Protection class:</b>	III
<b>Electrical connection:</b>	Plug M12 x 1, 4-pin / 5-pin (depending on output code)
<b>Process connection:</b>	see order code
<b>Dimensions:</b>	110 x 41 mm (without plug connector)
<b>Weight:</b>	approx. 200 g
<b>A/D converter:</b>	
<b>Resolution:</b>	12 bit (4096 steps per measuring span)
<b>Scanning rate:</b>	1000 / s
<b>Linearity error:</b>	< ± 0.5 % v. f. s. at +25 °C
<b>Temperature influence:</b>	TC zero < ±0.2 % FSO / 10K TC span < ±0.3 % FSO / 10K
<b>Compensation range:</b>	-10 °C... +70 °C
<b>Repeatability:</b>	±0.1 % FSO
<b>Temperature range:</b>	
<b>Medium:</b>	-25 °C... +100 °C
<b>Electronics:</b>	-10 °C... +70 °C <sup>1)</sup>
<b>Storage:</b>	-30 °C... +80 °C
<b>Power supply:</b>	15... 32 V DC, reversed polarity protected (SELV, PELV)
<b>Digital display:</b>	4-digit 14-segment LED display, red, digit height 9 mm
<b>Error display:</b>	LED red and alphanumeric display
<b>Power consumption:</b>	approx. 50 mA (without load)
<b>Analog output:</b>	
<b>Current output:</b>	4...20 mA
<b>Load:</b>	max. RI = (Ub-12V) / 20 mA RI = 600 Ohm at Ub = 24 V DC
<b>Scanning rate:</b>	2 ms
<b>Voltage output:</b>	0...10 V DC
<b>Rating:</b>	max. 10 mA
<b>Adjustment range:</b>	25 %... 100 % f. s.

<b>Transistor switching outputs / IO-Link:</b>		
<b>Switching function:</b>	Normally open/normally closed, standard / window mode and diagnosis function adjustable	
<b>Adjustment range for switching point and hysteresis:</b>	0 %... 125 % f. s.	
<b>Switching frequency:</b>	max. 100 Hz	
<b>Load:</b>	max. 500 mA, short-circuit proof, IO-Link: max. 250 mA	
<b>Delay:</b>	0.0 s ... 50 s adjustable	
<b>Status display(s):</b>	LED(s) red	
<b>Interfaces</b>		
<b>Communication interface:</b>	IO-Link	
<b>Transmission type:</b>	COM2 (38,4 kBaud)	
<b>IO-Link revision:</b>	1.1	
<b>SDCI standard:</b>	IEC 61131-9	
<b>Profiles:</b>	Smart Sensor	
<b>SIO mode:</b>	yes	
<b>Device type:</b>	Class A	
<b>Process data variable:</b>	1	
<b>Binary data channel:</b>	2	
<b>Min. process cycle time [ms]</b>	2.5	
<b>Device ID:</b>	0x011...	
<b>EMV /ESD</b>	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
<b>Shock resistance</b>	DIN EN 60028-2-27	50 g (11 ms)
<b>Vibrations resistance</b>	DIN EN 60028-2-26	20 g (10...2000 Hz)
<b>Approvals:</b>	BV-50018/A1 <sup>2),3)</sup> , cULus 1) - E42816	

\* In the pressure inlet a damping screw made of brass is mounted. This screw can be removed if required, e.g. in case of soiled medium or material incompatibility, using a slotted screw driver (max. width 3 mm). The pressure switch is less resistant to pressure peaks when the damping screw has been removed.

<sup>1)</sup> Conditions of use with cULus: 60 °C max. ambient, power supply max. 28 V DC

<sup>2)</sup> BV approval only with output code 1-5

<sup>3)</sup> Direct electromagnetic fields can interfere the LED display, at some frequencies. This does not lead to an impairment of the performance.

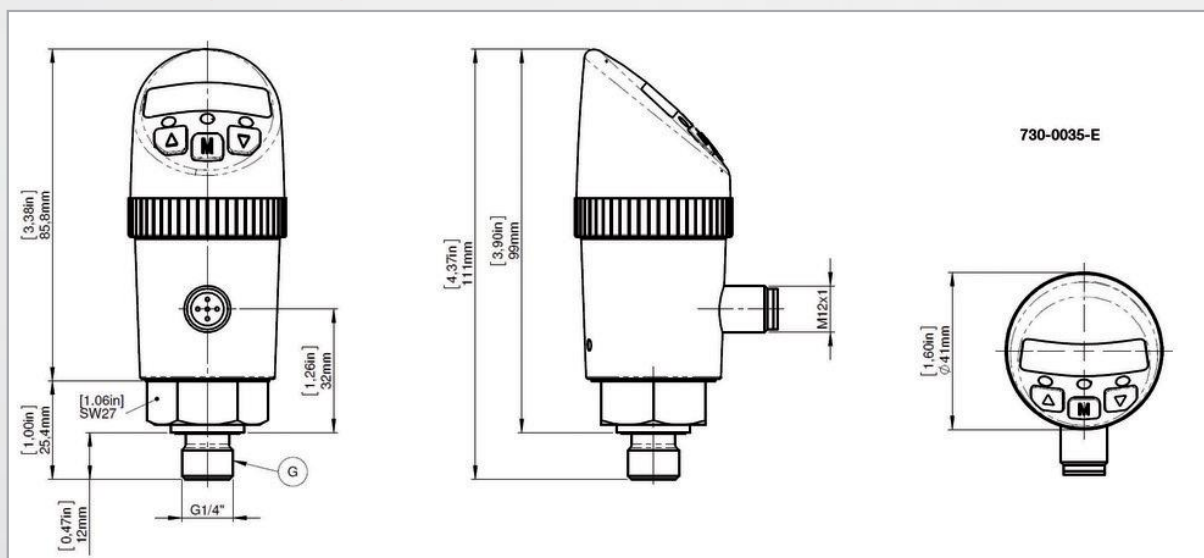
## Electr. Dual Pressure Switch

**BPS3000**

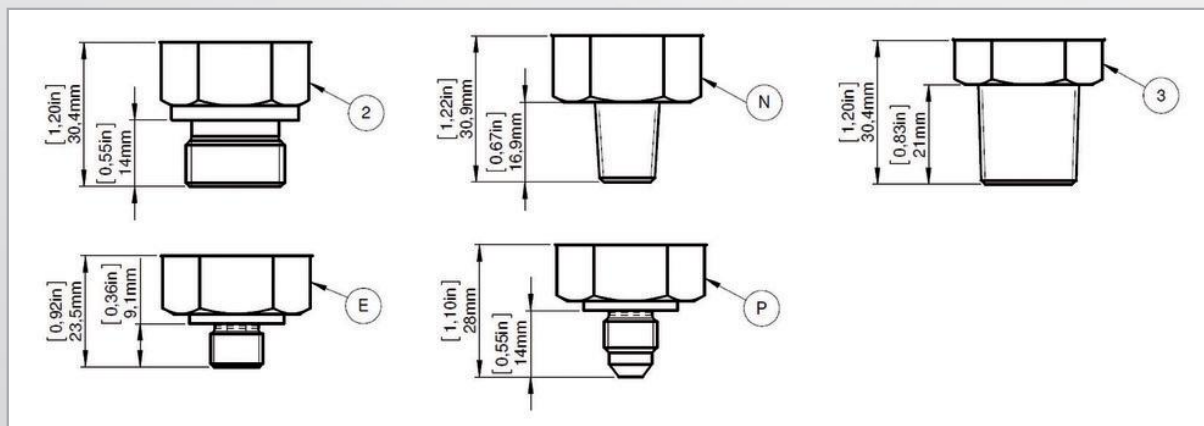
### Accessories

Order Number	Description
907-0357	Plug connector M12 x 1, 4-pin, with screw terminals, angled (IP65)
907-0185	Plug connector M12 x 1, 5-pin, with screw terminals, angled (IP65)
908-0361	Plug connector M12 x 1, 5-pin, with sharped cable (IP67)

### Dimensions (mm / inch)



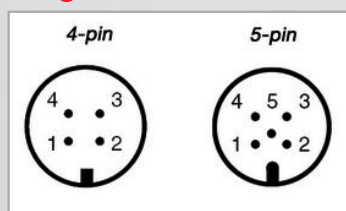
### Process connection



### Legend

G	G1/4" Ceramic
N	1/4" NPT Ceramic
2	G1/2" flush diaphragm
3	1/2" NPT flush diaphragm
E	7/16-20 UNF (SAE)
P	7/16-20 UNF (JIC)

### Plug



### Electrical Connection

Pin	Signal Output Code 1,7	Signal Output Code 2, 3	Signal Output Code 4, 5, 8
1	+Ub	+Ub	+Ub
2	SP2	Signal	Signal
3	0V	0V	0V
4	SP1 / IO-Link*	SP1	SP1 / IO-Link*
5	-	-	SP2

\* only code 7 and 8

## Order Code

BPS3000

BPS3

Base Model

### Output

1	2 switch points
2	4...20 mA - 1 switch point
3	0...10 V - 1 switch point
4	4...20 mA - 2 switch points
5	0...10 V - 2 switch points
7	IO-Link / 2 switch points (PNP, NPN, PP)
8	IO-Link / 2 switch points (PNP, NPN, PP) / Analog Output

### Process Connection

G	G1/4" ext. thread G1/2" flush diaphr. (requires piezoresistive sensor / code P* /10-600 bar only)
2	
N	1/4"NPT ext. thread 1/2"NPT flush diaphr. (requires piezoresistive sensor / code P* / 10-600 bar only)
3	
1	40x40 Cetop/Manifold - on request
E	7/16-20 UNF (SAE4) ext. thread
P	7/16-20 UNF (37° JIC) ext. thread

### Sealing

V	FKM
E	EPDM

### Electrical Connection

M	M12
<b>Range</b>	
- 1 . 0 B V	-1 ... 0 bar requires piezoresistive sensor / code P)*, IP65 only
0 0 0 1 B V	-1 ... 1 bar requires piezoresistive sensor / code P)*, IP65 only
0 0 0 5 B V	-1 ... 5 bar requires piezoresistive sensor / code P)*, IP65 only
0 0 1 0 B V	-1 ... 10 bar requires piezoresistive sensor / code P)*, IP65 only
0 0 0 1 B A	0 ... 1 bar absolute (requires piezoresistive sensor / code P)*
0 0 0 5 B A	0 ... 5 bar absolute (requires piezoresistive sensor / code P)*
0 0 1 0 B A	0 ... 10 bar absolute (requires piezoresistive sensor / code P)*
0 0 . 2 B	0 ... 0.2 bar (requires piezoresistive sensor / code P)*, IP65 only
0 0 . 5 B	0 ... 0.5 bar (requires piezoresistive sensor / code P)*, IP65 only
0 0 0 1 B	0 ... 1 bar (requires piezoresistive sensor / code P)*, IP65 only
0 0 0 2 B	0 ... 2 bar (requires piezoresistive sensor / code P)*, IP65 only
0 0 0 5 B	0 ... 5 bar (requires piezoresistive sensor / code P)*, IP65 only
0 0 1 0 B	0 ... 10 bar
0 0 5 0 B	0 ... 50 bar
0 1 0 0 B	0 ... 100 bar
0 2 0 0 B	0 ... 200 bar
0 4 0 0 B	0 ... 400 bar
0 6 0 0 B	0 ... 600 bar (requires piezoresistive sensor / code P)*
	Others on request

### Sensor

Blank	Standard ceramic sensor
P	*Piezoresistive sensor

Example:

BPS3 4 G V M 0 2 0 0 B

Special designs on request