

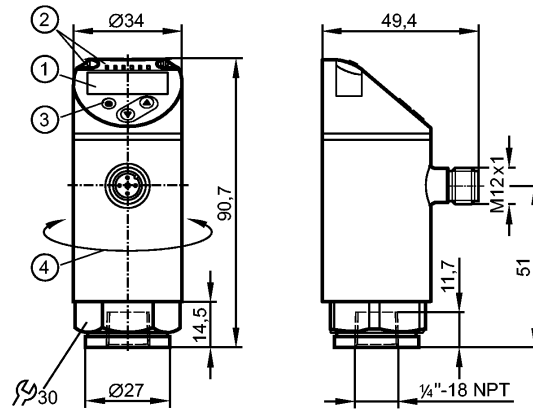


PN2299

PN-1-1BREN14-MFRKG/US/ N



Pressure sensors



- 1: 4-digit alphanumeric display / alternating indication of red and green
- 2: LEDs (display unit / switching status)
- 3: Programming button
- 4: Upper part of the housing can be rotated by 345°



Product characteristics

Electronic pressure sensor

M12 connector

Function programmable

Measuring element: ceramic-capacitive pressure measuring cell

Process connection: 1/4" NPT

2 outputs

OUT1 = switching output

OUT2 = switching output or analog output

4-digit alphanumeric display / alternating indication of red and green

Measuring range: -14.5...14.5 psi / -1000...1000 mbar / -100...100 kPa

Application

Application

Type of pressure: relative pressure
Group 2 fluids according to the Pressure Equipment Directive (PED),
group 1 fluids on request

Pressure rating

290 psi

20000 mbar

2000 kPa

Bursting pressure min.

725 psi

50000 mbar

5000 kPa

Vacuum resistance [mbar]

-1000

Medium temperature [°C]

-25...80

Electrical data

Electrical design

DC PNP/NPN

Operating voltage [V]

18...30 DC ¹⁾

Current consumption [mA]

< 35

Insulation resistance [MΩ]

> 100 (500 V DC)

Protection class

III

Reverse polarity protection

yes

Outputs

Output

2 outputs
OUT1 = switching output
OUT2 = switching output or analog output



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Pressure sensors

Output function	2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:5)		
Current rating [mA]	250		
Voltage drop [V]	< 2		
Short-circuit protection	yes (non-latching)		
Overload protection	yes		
Switching frequency [Hz]	≤ 500		
Analog output	4...20 mA; 0...10 V		
Max. load [Ω]	4...20 mA: max. 500		
Min. load resistance [Ω]	0...10 V: min. 2000		

Measuring / setting range			
Measuring range	-14.5...14.5 psi	-1000...1000 mbar	-100...100 kPa
Setting range			
Set point, SP	-14.3...14.5 psi	-985...1000 mbar	-98.5...100 kPa
Reset point, rP	-14.45...14.4 psi	-995...990 mbar	-99.5...99 kPa
Analog start point, ASP	-14.5...8.7 psi	-1000...600 mbar	-100...60 kPa
Analog end point, AEP	-8.7...14.5 psi	-600...1000 mbar	-60...100 kPa
in steps of	0.05 psi	5 mbar	0.5 kPa

Accuracy / deviations	
Accuracy / deviations (in % of the span) Turn down 1:1	
Switch point accuracy	< ± 0.4
Characteristics deviation *)	< ± 0.25 (BFSL) / < ± 0.5 (LS)
Hysteresis	< ± 0.1
Repeatability **)	< ± 0.1
Long-term stability ***)	< ± 0.05
Temperature coefficients (TEMPCO) in the temperature range -25...80° C (in % of the span per 10 K)	
Greatest TEMPCO of the zero point	0.2
Greatest TEMPCO of the span	0.2

Reaction times	
Power-on delay time [s]	0.3
Min. response time switching output [ms]	< 1.5
Delay time programmable dS, dr [s]	0...50
Damping for the switching output (dAP) [s]	0...4
Damping for the analog output (dAA) [s]	0...4
Response time analog output [ms]	< 3
Integrated watchdog	yes

Software / programming	
Programming options	hysteresis / window function; NO / NC; on delay, off delay; damping; display unit; current/ voltage output

Interfaces	
IO-Link Device	
Transfer type	COM2
IO-Link revision	1.1



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Pressure sensors

SDCI standard	IEC 61131-9
IO-Link Device ID	477 d / 00 01 dd h
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis
SIO mode	yes
Required master port class	A
Process data analogue	1
Process data binary	2
Min. process cycle time [ms]	2.3

Environment	
Ambient temperature [°C]	-25...80
Storage temperature [°C]	-40...100
Protection	IP 65 / IP 67

Tests / approvals	
Pressure equipment directive	97/23/EG: sound engineering practice
EMC	DIN EN 61000-6-2 DIN EN 61000-6-3
Shock resistance	DIN EN 60068-2-27 50 g (11 ms)
Vibration resistance	DIN EN 60068-2-6 20 g (10...2000 Hz)
MTTF [Years]	138
UL approval number	J012

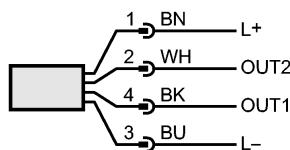
Mechanical data	
Process connection	¼" NPT
Materials (wetted parts)	stainless steel (316L / 1.4404); Al2O3 (ceramics); FKM
Housing materials	stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Min. pressure cycles	100 million
Tightening torque [Nm]	50 ²⁾
Restrictor element integrated	no (can be retrofitted)
Weight [kg]	0.222

Displays / operating elements	
Display	Display unit 5 x LED green (mbar, psi, kPa, inH2O, inHg) Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green

Electrical connection	
Connection	M12 connector; gold-plated contacts

Wiring

- Core colors
- BK black
 - BN brown
 - BU blue
 - WH white



OUT1: switching output or IO-Link
 OUT2: switching output or 4...20 mA / 0...10 V
 Colours to DIN EN 60947-5-2

Remarks



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Pressure sensors

Remarks

*) BFSL = Best Fit Straight Line / LS = Limit Value Setting
**) with temperature fluctuations < 10 K
***) in% of the span / 6 months
1) to EN50178, SELV, PELV
2) Depends on lubrication, seal and pressure rating

Pack quantity

[piece]

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