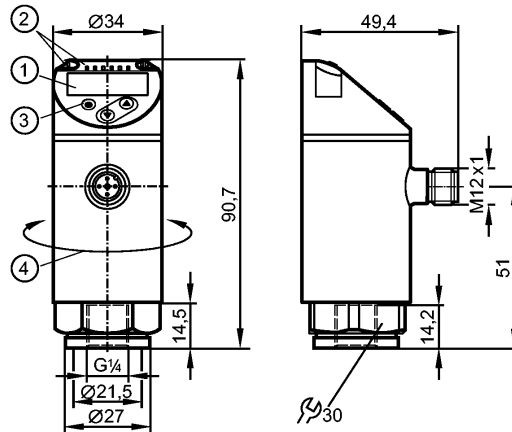


**PN2099**

PN-1-1BRER14-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: G ¼ I (according to DIN EN ISO 1179-2)
2 outputs OUT1 = switching output OUT2 = switching output or analogue output
4-digit alphanumeric display / alternating indication of red and green
Measuring range: -1000...1000 mbar / -14.5...14.5 psi

**Application**

Application	Type of pressure: relative pressure Group 2 fluids according to the Pressure Equipment Directive (PED), group 1 fluids on request	
Pressure rating	20000 mbar	290 psi
Bursting pressure min.	50000 mbar	725 psi
Vacuum resistance [mbar]	-1000	
Medium temperature [°C]	-25...80	

**Electrical data**

Electrical design	DC PNP/NPN
Operating voltage [V]	18...30 DC <sup>1)</sup>
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 analogue output
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**Pressure sensors**

Output function	2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analogue (4...20 mA / 0...10 V; scaleable 1:5)	
Current rating [mA]	250	
Voltage drop [V]	< 2	
Short-circuit protection	pulsed	
Overload protection	yes	
Switching frequency [Hz]	≤ 500	
Analogue 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	-1000...1000 mbar	-14.5...14.5 psi
Setting range		
Set point, SP	-990...1000 mbar	-14.4...14.5 psi
Reset point, rP	-995...995 mbar	-14.45...14.45 psi
Analogue start point, ASP	-1000...600 mbar	-14.5...8.7 psi
Analogue end point, AEP	-600...1000 mbar	-8.7...14.5 psi
in steps of	5 mbar	0.05 psi

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 analogue output (dAA) [s]	0...4
Response time analogue 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	467 d / 00 01 d3 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	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

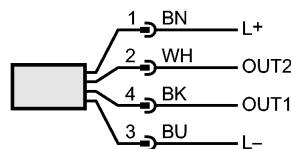
Mechanical data	
Process connection	G ¼ I (according to DIN EN ISO 1179-2)
Materials (wetted parts)	stainless steel (316L / 1.4404); Al2O3 (ceramics); FKM
Housing materials	stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Min. pressure cycles	100 million
Tightening torque [Nm]	25...35 (recommended tightening torque <sup>2</sup> )
Weight [kg]	0.24

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 colours
- 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	
Remarks	*) BFSL = Best Fit Straight Line / LS = Limit Value Setting

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**Pressure sensors**

\*\*) with temperature fluctuations &lt; 10 K

\*\*\*) in% of the span / 6 months

1) to EN50178, SELV, PELV

2) Depends on lubrication, seal and pressure rating

Pack quantity

[piece]

1