

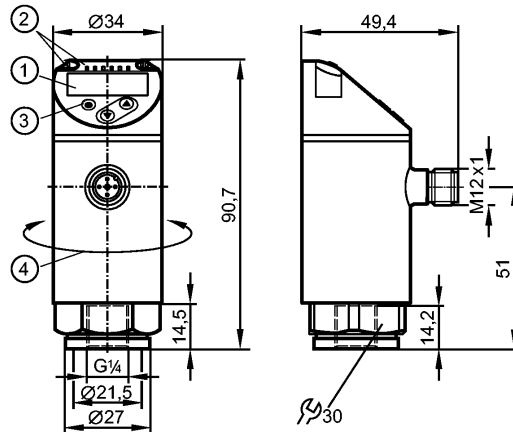


PN2169

PN-+,5BRER14-MFRKG/US/ /V



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 1/4 I

2 outputs

OUT1 = switching output

OUT2 = switching output or analogue output

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

Measuring range: -500...500 mbar / -7.26...7.26 psi / -50...50 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	10000 mbar	145 psi	1000 kPa
Bursting pressure min.	30000 mbar	450 psi	3000 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 analogue output

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

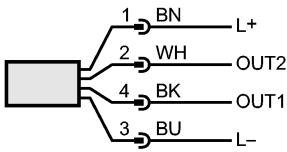
Short-circuit protection

pulsed

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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	-500...500 mbar	-7.26...7.26 psi	-50...50 kPa
Setting range			
Set point, SP	-494...500 mbar	-7.16...7.26 psi	-49.4...50 kPa
Reset point, rP	-498...496 mbar	-7.22...7.2 psi	-49.8...49.6 kPa
Analogue start point, ASP	-500...300 mbar	-7.26...4.36 psi	-50...30 kPa
Analogue end point, AEP	-300...500 mbar	-4.36...7.26 psi	-30...50 kPa
in steps of	2 mbar	0.02 psi	0.2 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 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		
SDCI standard	IEC 61131-9		
IO-Link device ID	468 d / 00 01 d4 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		

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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
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 ²⁾)
Restrictor element integrated		no (can be retrofitted)
Weight [kg]		0.237
Displays / operating elements		
Display	Display unit	5 x LED green (mbar, kPa, psi, inH2O)
	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 **) 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]		1