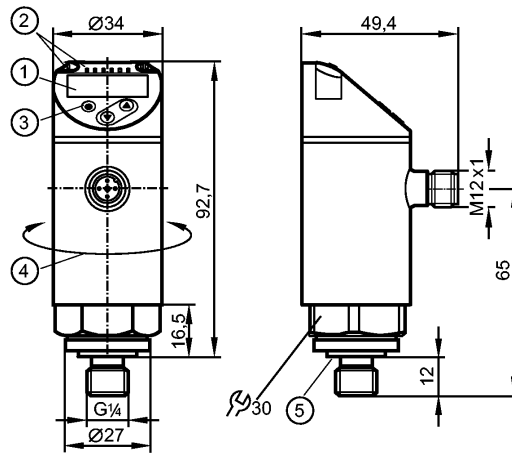




PN2599

PN-1-1BREG14-MFRKG/US/ IV

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°
- 5: sealing FKM / DIN 3869



Product characteristics

Electronic pressure sensor

M12 connector

Function programmable

Measuring element: ceramic-capacitive pressure measuring cell

Process connection: G 1/4 A / M5 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 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


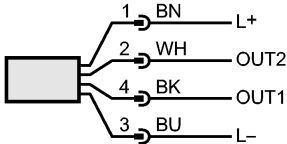
Output function
2 x normally open / closed programmable or 1 x normally open / closed programmable
+ 1 x analogue (4...20 mA / 0...10 V; scaleable 1:5)

Current rating [mA]	250
Voltage drop [V]	< 2

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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	-14.40...14.50 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	
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	

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	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 A / M5 I (according to DIN EN ISO 1179-2)
Process connection sealing	FKM (to DIN 3869)
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
Switching cycles min.	100 million
Tightening torque [Nm]	25...35 (recommended tightening torque ²⁾)
Weight [kg]	0.247
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	
	<p>OUT1: switching output or IO-Link OUT2: switching output or 4...20 mA / 0...10 V Colours to DIN EN 60947-5-2</p>
Remarks	
Remarks	<p>*) 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</p>
Pack quantity [piece]	1