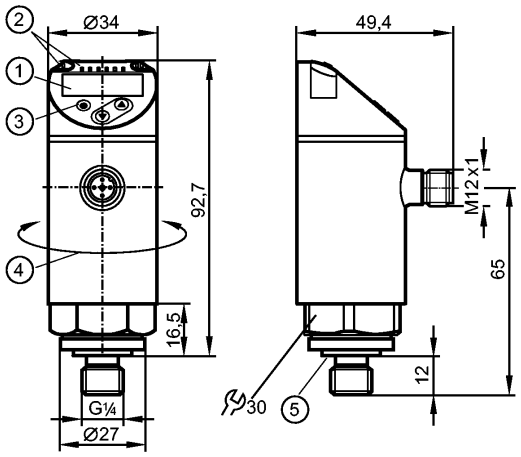
PN3594
PN-010-REG14-MFRKG/US/ /V

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°
5: Process connection sealing FKM / DIN 3869

Product characteristics

Electronic pressure sensor
M12 connector
Function programmable
Measuring element: ceramic-capacitive pressure measuring cell
Process connection: G ¼ A / M5 I (according to DIN EN ISO 1179-2)
2 outputs OUT1 = switching output OUT2 = analogue output (0 bar = 4 mA / 0 V; 10bar = 20 mA / 10 V)
4-digit alphanumeric display / alternating indication of red and green
Measuring range: -1...10 bar / -14.5...145 psi / -0.1...1 MPa

Application

Application		Type of pressure: relative pressure Group 2 fluids according to the Pressure Equipment Directive (PED), group 1 fluids on request		
Pressure rating		75 bar	1087 psi	7.5 MPa
Bursting pressure min.		150 bar	2175 psi	15 MPa
Vacuum resistance	[mbar]	-1000		
Medium temperature	[°C]	-25...80		

Electrical data

Electrical design		DC PNP
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

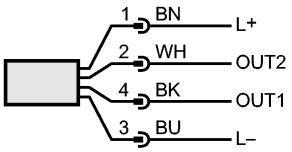
Outputs

Output		2 outputs OUT1 = switching output OUT2 = analogue output (0 bar = 4 mA / 0 V; 10bar = 20 mA / 10 V)
Output function		normally open / closed programmable; 4...20 mA or 0...10 V
Current rating	[mA]	150; 200 (...60 °C); 250 (...40 °C)
Voltage drop	[V]	< 2.5
Short-circuit protection		pulsed

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Overload protection		yes		
Switching frequency	[Hz]	≤ 170		
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		-1...10 bar	-14.5...145 psi	-0.1...1 MPa
Setting range				
Set point, SP		-0.9...10 bar	-13.5...145 psi	-0.09...1 MPa
Reset point, rP		-0.95...9.95 bar	-14...144.5 psi	-0.095...0.995 MPa
in steps of		0.05 bar	0.5 psi	0.005 MPa
Accuracy / deviations				
Accuracy / deviations (in % of the span)				
Switch point accuracy		< ± 0.5		
Characteristics deviation *)		< ± 0.25 (BFSL) / < ± 0.5 (LS)		
Hysteresis		< ± 0.25		
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]	< 3		
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		431 d / 00 01 af 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		1		
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)	

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MTTF	[Years]	181
UL approval number		J004
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 torque²)
Restrictor element integrated		no (can be retrofitted)
Weight	[kg]	0.257
Displays / operating elements		
Display		Display unit 3 x LED green (bar, psi, MPa) Switching status 1 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: 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