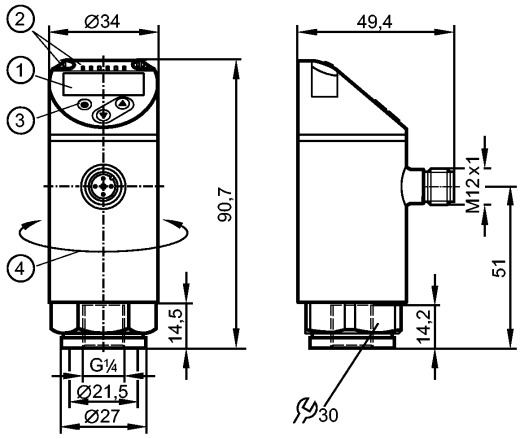
PN2070

PN-400-SER14-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: metal thin film 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: 0...400 bar / 0...5800 psi / 0...40 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		800 bar	11580 psi	80 MPa
Bursting pressure min.		1700 bar	24650 psi	170 MPa
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		

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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	0...400 bar	0...5800 psi	0...40 MPa
Setting range			
Set point, SP	1.5...400 bar	20...5800 psi	0.15...40 MPa
Reset point, rP	1...399.5 bar	10...5790 psi	0.1...39.95 MPa
Analogue start point, ASP	0...320 bar	0...4640 psi	0...32 MPa
Analogue end point, AEP	80...400 bar	1160...5800 psi	8...40 MPa
in steps of	0.5 bar	10 psi	0.05 MPa
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		459 d / 00 01 cb 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]	129
UL approval number		J014

Mechanical data

Process connection		G ¼ I (according to DIN EN ISO 1179-2)
Materials (wetted parts)		1.4542 (17-4 PH / 630)[2]
Housing materials		1.4542 (17-4 PH / 630)[2]; 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[3])
Weight	[kg]	0.218

Displays / operating elements

Display	Display unit 3 x LED green (bar, psi, MPa) Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green

Electrical connection

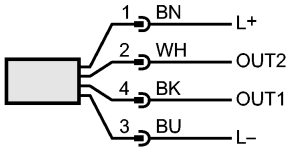
Connection	M12 connector; Gold-plated contacts

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

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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]) Characteristics similar to stainless steel (e.g. 304/1.4301) but higher strength. [3]) Depends on lubrication, seal and pressure rating
Pack quantity	[piece]	1