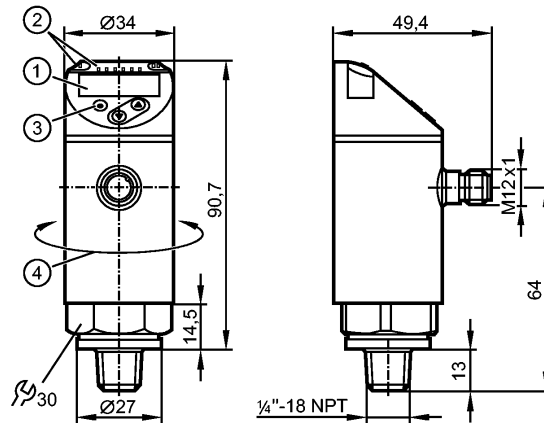


PN2694

PN-010-REN14-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°



Product characteristics

Electronic pressure sensor
M12 connector
Function programmable
Measuring element: ceramic-capacitive pressure measuring cell
Process connection: 1/4" NPT
2 outputs OUT1 = switching output OUT2 = switching output or analog output
4-digit alphanumeric display / alternating indication of red and green
Measuring range: -14.6...145 psi / -1...10 bar / -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	1087 psi	75 bar	7.5 MPa
Bursting pressure min.	2175 psi	150 bar	15 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 analog output
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Pressure sensors

Output function	2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:5)		
Current rating [mA]	250		
Voltage drop [V]	< 2		
Short-circuit protection	yes (non-latching)		
Overload protection	yes		
Switching frequency [Hz]	≤ 500		
Analog 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	-14.6...145 psi	-1...10 bar	-0.1...1 MPa
Setting range			
Set point, SP	-13.6...145 psi	-0.94...10 bar	-0.094...1 MPa
Reset point, rP	-14.2...144.4 psi	-0.98...9.96 bar	-0.098...0.996 MPa
Analog start point, ASP	-14.6...116 psi	-1...8 bar	-0.1...0.8 MPa
Analog end point, AEP	14.6...145 psi	1...10 bar	0.1...1 MPa
in steps of	0.2 psi	0.02 bar	0.002 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 analog output (dAA) [s]	0...4		
Response time analog 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		
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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	473 d / 00 01 d9 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
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

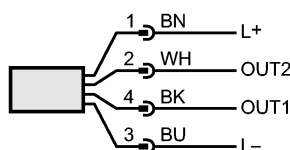
Mechanical data	
Process connection	¼" NPT
Materials (wetted parts)	stainless steel (316L / 1.4404); Al2O3 (ceramics); FKM
Housing materials	stainless steel (316L / 1.4404); PBT+PC-GF 30; PBT-GF 20; PC
Min. pressure cycles	100 million
Tightening torque [Nm]	50 ²⁾
Restrictor element integrated	no (can be retrofitted)
Weight [kg]	0.245

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 colors
- 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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PN-010-REN14-MFRKG/US/ IV

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) Depends on lubrication, seal and pressure rating

Pack quantity

[piece]

1