

PN7099

PN-1-1BRER14-QFRKG/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 monitor
M12 connector
Function programmable
Measuring element: ceramic-capacitive pressure measuring cell
Process connection: G ¼ I
2 outputs OUT1 = switching output OUT2 = switching output
4-digit alphanumeric display / alternating indication of red and green
Measuring range: -1000...1000 mbar / -14.5...14.5 psi / -100...100 kPa / -29.4...29.4 inHg

Application

Application	Type of pressure: relative pressure liquids and gases of the fluid group 2 according to Article 9 of the Pressure Equipment Directive (PED)			
Pressure rating	20000 mbar	290 psi	2000 kPa	590 inHg
Bursting pressure min.	50000 mbar	725 psi	5000 kPa	1476 inHg
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
Output function	2 x normally open / closed programmable
Current rating [mA]	150; 200 (...60 °C); 250 (...40 °C)

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Voltage drop	[V]	< 2.5
Short-circuit protection		yes (non-latching)
Overload protection		yes
Switching frequency	[Hz]	≤ 170

Measuring / setting range

Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-100...100 kPa	-29.4...29.4 inHg
Setting range				
Set point, SP	-980...1000 mbar	-14.3...14.5 psi	-98...100 kPa	-29...29.6 inHg
Reset point, rP	-990...990 mbar	-14.4...14.4 psi	-99...99 kPa	-29.2...29.4 inHg
in steps of	10 mbar	0.1 psi	1 kPa	0.2 inHg

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
Integrated watchdog		yes

Software / programming

Programming options	hysteresis / window function; NO / NC; output polarity; on delay, off delay; damping; display unit
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Interfaces

IO-Link Device	
Transfer type	COM2 (38.4 kBaud)
IO-Link revision	1.1
SDCI standard	IEC 61131-9
IO-Link Device ID	406 d / 00 01 96 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

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Tests / approvals	
Pressure equipment directive	article 3, section 3 - 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]	224.01
UL approval number	J001

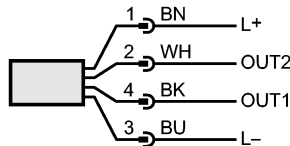
Mechanical data	
Process connection	G ¼ I
Materials (wetted parts)	316L stainless steel / 1.4404; ceramics; FKM
Housing materials	316L stainless steel / 1.4404; PBT+PC-GF 30; PBT-GF 20; PC
Switching cycles min.	100 million
Tightening torque [Nm]	25...35 (recommended tightening torque ²)
Weight [kg]	0.235

Displays / operating elements	
Display	Display unit 4 x LED green (bar, psi, kPa, 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 colors
- BK black
 - BN brown
 - BU blue
 - WH white



OUT1: switching output or IO-Link
 OUT2: switching output
 Colours to DIN EN 60947-5-2

Remarks	
Remarks	1) to EN50178, SELV, PELV *) BFSL = Best Fit Straight Line / LS = Limit Value Setting **) with temperature fluctuations < 10 K ***) in% of the span / 6 months 2) Depends on lubrication, seal and pressure rating
Pack quantity [piece]	1