



Pressure sensor with display

PE-1-1BREG14-MFRKG/US/ IE



- 1 alphanumeric display 4-digit red/green
- 2 LEDs Display unit / switching status
- 3 programming button
- 4 upper part of the housing can be rotated 345°
- 5 Sealing



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1			
Measuring range	-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi	-100...100 kPa
Process connection	threaded connection G 1/4 external thread internal thread:M5; DIN EN ISO 1179-2			

Application

Special feature	Gold-plated contacts		
Measuring element	ceramic-capacitive pressure measuring cell		
Application	for industrial applications		
Media	liquids and gases		
Medium temperature [°C]	-25...80		
Min. bursting pressure	30000 mbar	435 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure		

Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)
Current consumption [mA]	< 35
Min. insulation resistance [MΩ]	100; (500 V DC)
Protection class	III
Reverse polarity protection	yes



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Power-on delay time	[s]	0.3			
Integrated watchdog		yes			
Inputs / outputs					
Number of inputs and outputs		Number of digital outputs: 2; Number of analogue outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analogue signal; IO-Link; (configurable)			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / normally closed; (parameterisable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	250			
Switching frequency DC	[Hz]	< 500			
Number of analogue outputs		1			
Analogue current output	[mA]	4...20; (scalable 1:5)			
Max. load	[Ω]	500			
Analogue voltage output	[V]	0...10; (scalable 1:5)			
Min. load resistance	[Ω]	2000			
Short-circuit protection		yes			
Type of short-circuit protection		pulsed			
Overload protection		yes			
Measuring/setting range					
Measuring range		-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi	-100...100 kPa
Set point SP		-985...1000 mbar	-14.3...14.5 psi	-98.5...100 kPa	
Reset point rP		-995...990 mbar	-14.45...14.4 psi	-99.5...99 kPa	
Analogue start point		-1000...600 mbar	-14.5...8.7 psi	-100...60 kPa	
Analogue end point		-600...1000 mbar	-8.7...14.5 psi	-60...100 kPa	
In steps of		5 mbar	0.05 psi	0.5 kPa	
Accuracy / deviations					
Switch point accuracy		< ± 0,4; (Turn down 1:1)			
	[% of the span]				
Repeatability		< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)			
	[% of the span]				
Characteristics deviation		< ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)			
	[% of the span]				
Hysteresis deviation		< ± 0,1; (Turn down 1:1)			
	[% of the span]				
Long-term stability		< ± 0,05; (Turn down 1:1; per 6 months)			
	[% of the span]				
Temperature coefficient zero point		0,2; (-25...80 °C)			
	[% of the span / 10 K]				
Temperature coefficient span		0,2; (-25...80 °C)			
	[% of the span / 10 K]				



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Notes on the accuracy / deviation	switch point accuracy, linearity error under DNV GL: $< \pm 1\%$; $< \pm 1\%$
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Response times

Response time [ms]	< 1.5
Delay time programmable dS, dr [s]	0...50
Damping process value dAP [s]	0...4
Damping for the analogue output dAA [s]	0...4
Max. response time analogue output [ms]	3

Software / programming

Parameter setting options	hysteresis / window; normally open / normally closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output
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Interfaces

Communication interface	IO-Link				
Transmission type	COM2 (38,4 kBaud)				
IO-Link revision	1.1				
SDCI standard	IEC 61131-9				
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis				
SIO mode	yes				
Required master port type	A				
Process data analogue	1				
Process data binary	2				
Min. process cycle time [ms]	2.3				
Supported DeviceIDs	<table> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>default</td><td>467</td></tr> </table>	Type of operation	DeviceID	default	467
Type of operation	DeviceID				
default	467				

Operating conditions

Ambient temperature [°C]	-25...80
Storage temperature [°C]	-40...100
Protection	IP 65; IP 67

Tests / approvals

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]		171
UL approval	UL Approval no.	J012
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight [g]	304.5
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC; EPDM
Materials (wetted parts)	stainless steel (316L/1.4404); Al2O3 (99.9%; ceramics); EPDM
Min. pressure cycles	100 million
Tightening torque [Nm]	25...35; (recommended tightening torque; depends on lubrication, seal and pressure rating)
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Process connection sealing	EPDM
Restrictor element integrated	no (can be retrofitted)

Displays / operating elements

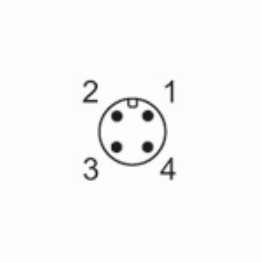
Display	Display unit	5 x LED, green (mbar, psi, kPa, inH2O, inHg)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit

Remarks

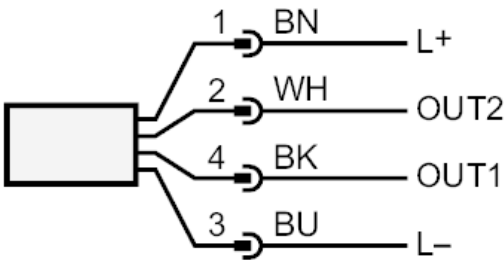
Pack quantity	1 pcs.
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Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



Connection



OUT1 switching output or IO-Link
OUT2 switching output or analogue output
 colours to DIN EN 60947-5-2
 Core colours :
BK = black
BN = brown
BU = blue
WH = white