

# PE2599



## 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 analog 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

System	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		

# PE2599



## Pressure sensor with display

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

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			
Power-on delay time	[s]	0.3			
Integrated watchdog		yes			
Inputs / outputs					
Number of inputs and outputs		Number of digital outputs: 2; Number of analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link; (configurable)			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Max. voltage drop switching output DC	[V]	2			
Permanent current rating of switching output DC	[mA]	250			
Switching frequency DC	[Hz]	< 500			
Number of analog outputs		1			
Analog current output	[mA]	4...20; (scalable 1:5)			
Max. load	[Ω]	500			
Analog voltage output	[V]	0...10; (scalable 1:5)			
Min. load resistance	[Ω]	2000			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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
Analog start point		-1000...600 mbar		-14.5...8.7 psi	-100...60 kPa
Analog 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					
Notes on the accuracy / deviation		switch point accuracy, linearity error under DNV GL: < ± 1%; < ± 1%			
Switch point accuracy	[% of the span]	< ± 0,4; (Turn down 1:1)			
Repeatability	[% of the span]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)			
Characteristics deviation	[% of the span]	< ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)			
Hysteresis deviation		< ± 0,1; (Turn down 1:1)			

# PE2599



## Pressure sensor with display

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

	[% of the span]	
Long-term stability	[% of the span]	< ± 0,05; (Turn down 1:1; per 6 months)
Temperature coefficient zero point	[% of the span / 10 K]	0,2; (-25...80 °C)
Temperature coefficient span	[% of the span / 10 K]	0,2; (-25...80 °C)

### Reaction times

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

### Software / programming

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

### 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 class	A	
Process data analog	1	
Process data binary	2	
Min. process cycle time	[ms]	2.3
Supported DeviceIDs	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 number	J012
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

# PE2599



## Pressure sensor with display

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

Mechanical data		
Weight	[g]	304.5
Material		stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC; EPDM
Materials (wetted parts)		stainless steel (1.4404 / 316L); Al <sub>2</sub> O <sub>3</sub> (99.9 %; ceramics); EPDM
Min. pressure cycles		100 million
Tightening torque	[Nm]	25...35; (recommended tightening torque; Depends on lubrication, seal and pressure rating)
Process connection		threaded connection G 1/4 external thread Internal thread:M5; DIN EN ISO 1179-2
Process connection sealing		EPDM
Restrictor element integrated		no (can be retrofitted)
Displays / operating elements		
Display	Display unit	5 x LED, green (mbar, psi, kPa, inH <sub>2</sub> O, inHg)
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit
Remarks		
Pack quantity		1 pcs.
Electrical connection		
Connector: 1 x M12; coding: A; Contacts: gold-plated		
		

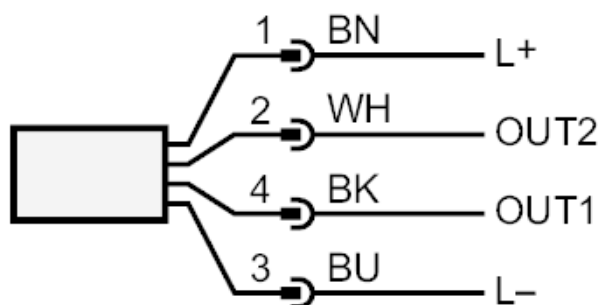
# PE2599



## Pressure sensor with display

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

### Connection



OUT1            switching output or IO-Link  
OUT2            switching output or analog output

Colors to DIN EN 60947-5-2

Core colors :

BK =            black  
BN =            brown  
BU =            blue  
WH =            white