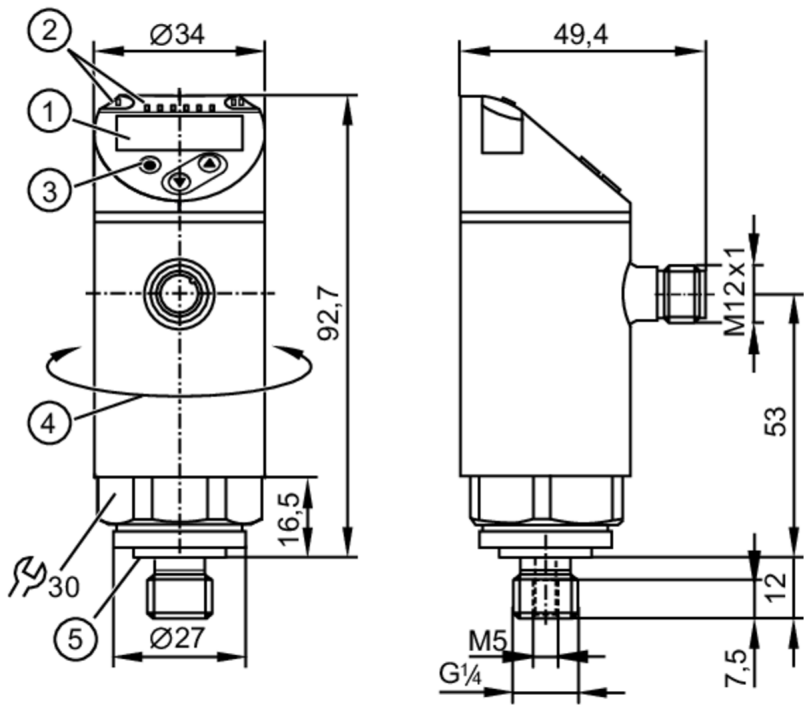


PN7599



Pressure sensor with display

PN-1-1BREG14-QFRKG/US/ IV



- 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				
Measuring range	-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi	-29.4...29.4 inHg	-100...100 kPa
Process connection	threaded connection G 1/4 external thread Internal thread:M5				

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. burst pressure	30000 mbar	450 psi	880 inHg	3000 kPa
Pressure rating	10000 mbar	145 psi	290 inHg	1000 kPa
Vacuum resistance	-1000 mbar		-0.1 MPa	
Type of pressure	relative pressure; vacuum			

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			

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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
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Outputs

Total number of outputs	2
Output signal	switching 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]	2.5
Permanent current rating of switching output DC [mA]	150; (200 (...60 °C) 250 (...40 °C))
Switching frequency DC [Hz]	< 170
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	-29.4...29.4 inHg	-100...100 kPa
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Factory setting / CMPT = 2

Set point SP	-980...1000 mbar	-14.3...14.5 psi	-29...29.6 inHg	-98...100 kPa
Reset point rP	-990...990 mbar	-14.4...14.4 psi	-29.4...29.2 inHg	-99...99 kPa
Min. difference between SP and rP	10 mbar	0.2 psi	0.4 inHg	1 kPa
In steps of	10 mbar	0.1 psi	0.2 inHg	0.1 kPa

Status_B High Resolution / CMPT = 3

Set point SP	-983...1000 mbar	-14.3...14.5 psi	-29...29.5 inHg	-98...100 kPa
Reset point rP	-993...990 mbar	-14.4...14.4 psi	-29.3...29.2 inHg	-99...99 kPa
Min. difference between SP and rP	10 mbar	0.2 psi	0.3 inHg	1 kPa
In steps of	1 mbar	0.1 psi	0.1 inHg	0.1 kPa

Accuracy / deviations

Switch point accuracy [% of the span]	< ± 0,5
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K)
Characteristics deviation [% of the span]	< ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting)
Hysteresis deviation [% of the span]	< ± 0,25
Long-term stability [% of the span]	< ± 0,05; (per 6 months)
Temperature coefficient zero point	< ± 0,2; (-25...80 °C)



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[% of the span / 10 K]		
Temperature coefficient span		< ± 0,2; (-25...80 °C)
[% of the span / 10 K]		
Reaction times		
Response time	[ms]	< 3
Delay time programmable dS, dr	[s]	0...50
Software / programming		
Parameter setting options	hysteresis / window; normally open / closed; switching logic; switch-on/switch-off delay; Damping; Display unit	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
SIO mode	yes	
Required master port class	A; (when pin 2 not connected: B)	
Process data analog	1	
Process data binary	2	
Supported DeviceIDs	Type of operation	DeviceID
	Factory setting / CMPT = 2	406
	Status_B High Resolution / CMPT = 3	604
Note	For further information please see the IODD PDF file at "Downloads"	
Factory setting / CMPT = 2		
Profiles	Smart Sensor - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable
	Function	Device diagnosis
Min. process cycle time	[ms]	2.3
IO-Link resolution pressure	1 mbar	0.0001 MPa
IO-Link process data (cyclical)	Function	bit length
	pressure	14
	binary switching information	2
IO-Link functions (acyclical)	application specific tag	
Status_B High Resolution / CMPT = 3		
Profiles	Smart Sensor - SSP 3.1	Measuring Sensor
	Common - I&D	Identification and Diagnosis
Min. process cycle time	[ms]	3
IO-Link resolution pressure	1 mbar	0.0001 MPa
IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4
	binary switching information	2
IO-Link functions (acyclical)	application specific tag	
Operating conditions		
Ambient temperature	[°C]	-25...80

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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]	260
UL approval	UL approval number	J001
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data

Weight	[g]	259.5
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (1.4404 / 316L); ceramics; FKM	
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	
Restrictor element integrated	no (can be retrofitted)	

Displays / operating elements

Display	Display unit	4 x LED, green (bar, psi, kPa, 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



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Connection



OUT1	Switching output IO-Link
OUT2	Switching output Colors to DIN EN 60947-5-2 Core colors :
BK =	black
BN =	brown
BU =	blue
WH =	white