

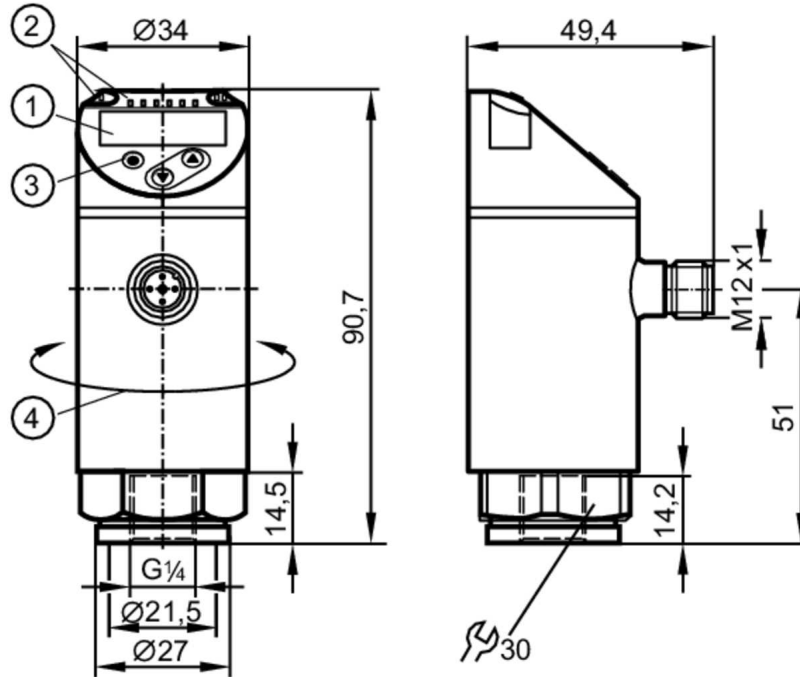
PN2169



Pressure sensor with display

PN-+,5BRER14-MFRKG/US/ IV

When selecting an alternative article and accessories please note that technical data may differ!



- 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°



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1				
Measuring range	-0.5...0.5 bar	-500...500 mbar	-7.26...7.26 psi	-201...201 inH ₂ O	-50...50 kPa
Process connection	threaded connection G 1/4 Internal thread				

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	450 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Vacuum resistance [mbar]	-1000		
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; Number of analog outputs: 1
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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	-0.5...0.5 bar	-500...500 mbar	-7.26...7.26 psi	-201...201 inH2O	-50...50 kPa
Analog start point	-500...300 mbar	-7.26...4.36 psi	-201...120 inH2O	-50...30 kPa	
Analog end point	-300...500 mbar	-4.36...7.26 psi	-120...201 inH2O	-30...50 kPa	

Factory setting / CMPT = 2

Set point SP	-494...500 mbar	-7.16...7.26 psi	-198...201 inH2O	-49.4...50 kPa
Reset point rP	-498...496 mbar	-7.22...7.2 psi	-200...199 inH2O	-49.8...49.6 kPa
Min. difference between SP and rP	6 mbar	0.06 psi	2 inH2O	0.6 kPa
In steps of	2 mbar	0.02 psi	1 inH2O	0.2 kPa

Status_B High Resolution / CMPT = 3

Set point SP	-494...500 mbar	-7.16...7.25 psi	-198...201 inH2O	-49.4...50 kPa
Reset point rP	-498...496 mbar	-7.22...7.19 psi	-200...199 inH2O	-49.8...49.6 kPa
Min. difference between SP and rP	5 mbar	0.06 psi	2 inH2O	0.5 kPa
In steps of	1 mbar	0.01 psi	1 inH2O	0.1 kPa

Accuracy / deviations

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	< ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)



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	[% of the span]	
Hysteresis deviation	[% of the span]	< ± 0,1; (Turn down 1:1)
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; (-0...80 °C)
Temperature coefficient span	[% of the span / 10 K]	< ± 0,2; (-0...80 °C)
Notes on the accuracy / deviation		switch point accuracy, linearity error under DNV GL: < ± 1%: < ± 1%

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
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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						
SIO mode	yes						
Required master port class	A; (when pin 2 not connected: B)						
Supported DeviceIDs	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>468</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>984</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	468	Status_B High Resolution / CMPT = 3	984
Type of operation	DeviceID						
Factory setting / CMPT = 2	468						
Status_B High Resolution / CMPT = 3	984						
Note	For further information please see the IODD PDF file at "Downloads"						

Factory setting / CMPT = 2

Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis						
Min. process cycle time	[ms] 2.3						
IO-Link resolution pressure	[mbar] 1						
IO-Link process data (cyclical)	<table border="1"> <thead> <tr> <th>Function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>14</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table>	Function	bit length	pressure	14	binary switching information	2
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 ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)
Min. process cycle time	[ms] 3

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IO-Link resolution pressure [mbar]	0.5								
IO-Link process data (cyclical)	<table border="1"><thead><tr><th>Function</th><th>bit length</th></tr></thead><tbody><tr><td>pressure</td><td>16</td></tr><tr><td>device status</td><td>4</td></tr><tr><td>binary switching information</td><td>2</td></tr></tbody></table>	Function	bit length	pressure	16	device status	4	binary switching information	2
Function	bit length								
pressure	16								
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binary switching information	2								
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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]	138
UL approval	UL approval number J012
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request

Mechanical data	
Weight [g]	238.5
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC
Materials (wetted parts)	stainless steel (1.4404 / 316L); Al2O3 (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 Internal thread
Restrictor element integrated	no (can be retrofitted)

Displays / operating elements		
Display	Display unit	4 x LED, green (mbar, kPa, psi, inH2O)
	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



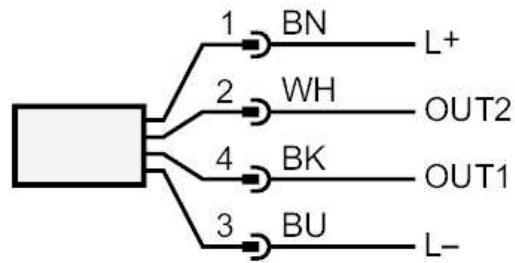
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Connection



OUT1	Switching output
	IO-Link
OUT2	Switching output
	analog output
	Core colors :
BK =	black
BN =	brown
BU =	blue
WH =	white