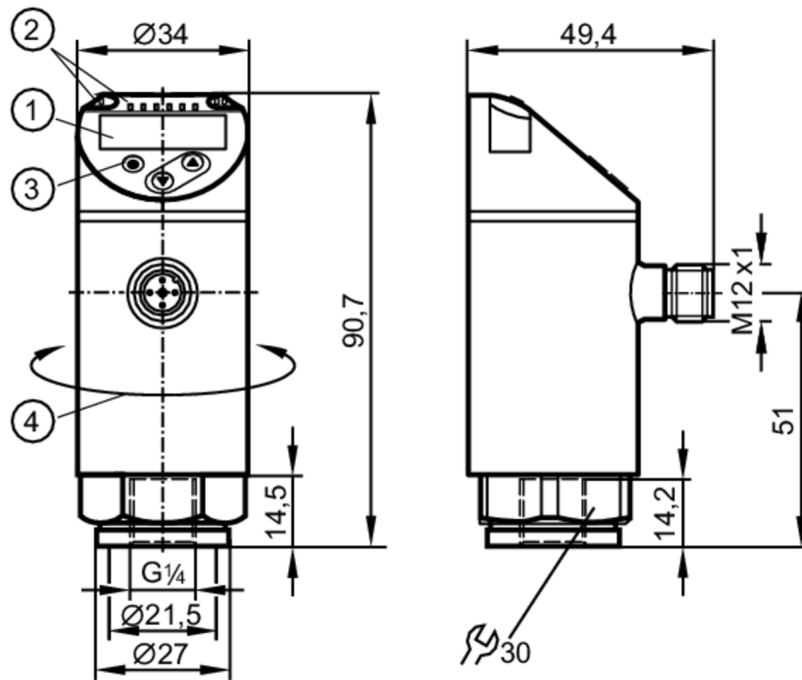


# PN2169



## Pressure sensor with display

PN-+,5BRER14-MFRKG/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°



### 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 <sub>2</sub> 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				

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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		-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

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## Pressure sensor with display

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

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 [% of the span]	< ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)	
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	
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; (wenn PIN 2 nicht verbunden: B)	
Supported DeviceIDs	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"	

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## Pressure sensor with display

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

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)	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	
IO-Link resolution pressure [mbar]	0.5	
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	
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.	

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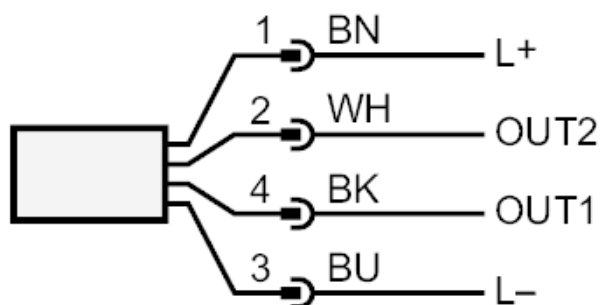
PN-+,5BRER14-MFRKG/US/ IV

### Electrical connection

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



### Connection



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