

PN2009

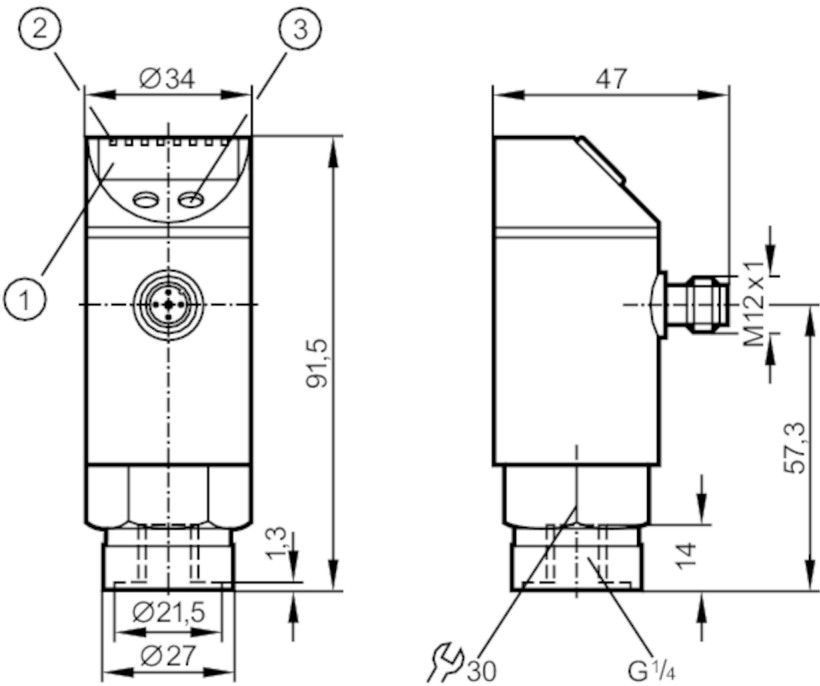


Pressure sensor with display

PN-1-1BRBR14-MFRKG/US/ IV

phase-out article

Alternative articles: PN2099
When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 LEDs Display unit / switching status
- 3 programming button



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
Process connection	threaded connection G 1/4 internal thread		
Application			
Special feature	Gold-plated contacts		
Application	for industrial applications		
Media	liquids and gases		
Medium temperature [°C]	-25...80		
Min. bursting pressure	50000 mbar	725 psi	
Min. bursting pressure [MPa]	5		
Pressure rating	20000 mbar	290 psi	
Pressure rating [MPa]	2		
Type of pressure	relative pressure		
Electrical data			
Operating voltage [V]	18...32 DC; (to SELV/PELV)		
Current consumption [mA]	< 35		



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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 analogue outputs: 1
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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 1:4)
Max. load [Ω]	(U _b - 10 V) / 20 mA
Analogue voltage output [V]	0...10; (scalable 1:4)
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
Set point SP	-988...1000 mbar	-14.3...14.5 psi	
Reset point rP	-996...992 mbar	-14.4...14.4 psi	
Analogue start point	-996...500 mbar	-14.4...7.3 psi	
Analogue end point	-500...1000 mbar	-7.2...14.5 psi	
In steps of	4 mbar	0.1 psi	
Factory setting		SP1 = -500 mbar	rP1 = -540 mbar
		SP2 = 500 mbar	rP2 = 460 mbar
		ASP = -996 mbar	AEP = 1000 mbar

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	< ± 0,1; (Turn down 1:1; per year)



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	[% of the span]	
Temperature coefficient zero point		$< \pm 0,2; (-25...80\text{ }^{\circ}\text{C})$
	[% of the span / 10 K]	
Temperature coefficient span		$< \pm 0,2; (-25...80\text{ }^{\circ}\text{C})$
	[% of the span / 10 K]	

Response times

Response time	[ms]	< 1.5
Damping process value dAP	[s]	0.01...4
Damping for the analogue output dAA	[s]	0.01...4
Max. response time analogue output	[ms]	3

Software / programming

Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; current/voltage output; Damping; adaptation of displayed values; display can be rotated and switched off; Display unit; zero point; span
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Interfaces

Communication interface	IO-Link				
Transmission type	COM2 (38,4 kBaud)				
IO-Link revision	1.0				
Profiles	no profile				
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>64</td></tr> </table>	Type of operation	DeviceID	default	64
Type of operation	DeviceID				
default	64				

Operating conditions

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

Tests / approvals

EMC	<table> <tr> <td>EN 61000-4-2 ESD</td><td>4 kV CD / 8 kV AD</td></tr> <tr> <td>EN 61000-4-3 HF radiated</td><td>10 V/m</td></tr> <tr> <td>EN 61000-4-4 Burst</td><td>2 kV</td></tr> <tr> <td>EN 61000-4-5 Surge</td><td>0,5/1 kV</td></tr> <tr> <td>EN 61000-4-6 HF conducted</td><td>10 V</td></tr> </table>	EN 61000-4-2 ESD	4 kV CD / 8 kV AD	EN 61000-4-3 HF radiated	10 V/m	EN 61000-4-4 Burst	2 kV	EN 61000-4-5 Surge	0,5/1 kV	EN 61000-4-6 HF conducted	10 V
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EN 61000-4-6 HF conducted	10 V										
Shock resistance	DIN IEC 68-2-27 50 g (11 ms)										
Vibration resistance	DIN IEC 68-2-6 20 g (10...2000 Hz)										
MTTF	[years] 131										
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request										

Mechanical data

Weight	[g] 262
Housing	cylindrical



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Dimensions	[mm]	Ø 34 / L = 91.5
Materials	stainless steel (304/1.4301); stainless steel (316L/1.4404); PC; PBT; PEI; FKM; PTFE	
Materials (wetted parts)	stainless steel (303/1.4305); ceramics; FKM	
Min. pressure cycles	100 million	
Process connection	threaded connection G 1/4 internal thread	
Restrictor element integrated	no (can be retrofitted)	

Displays / operating elements

Display	Display unit	5 x LED, green
	switching status	2 x LED, yellow
	function display	alphanumeric display, 4-digit
	measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; psi; inH ₂ O; inHg	

Remarks

Pack quantity	1 pcs.
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Electrical connection

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

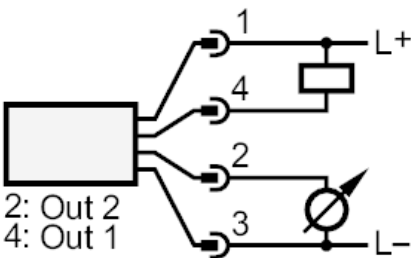
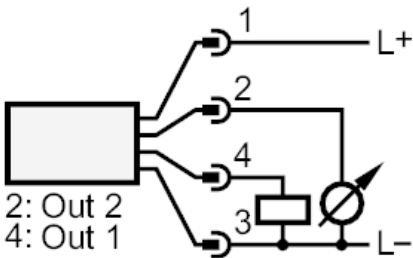
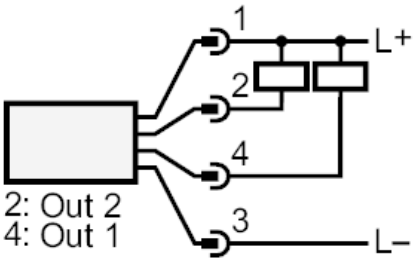
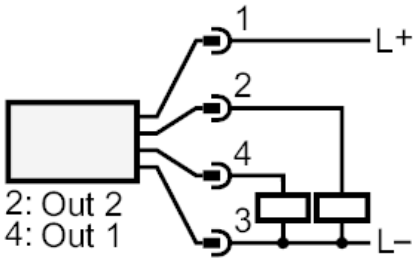




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Connection



OUT1	switching output IO-Link
OUT2	switching output analogue output