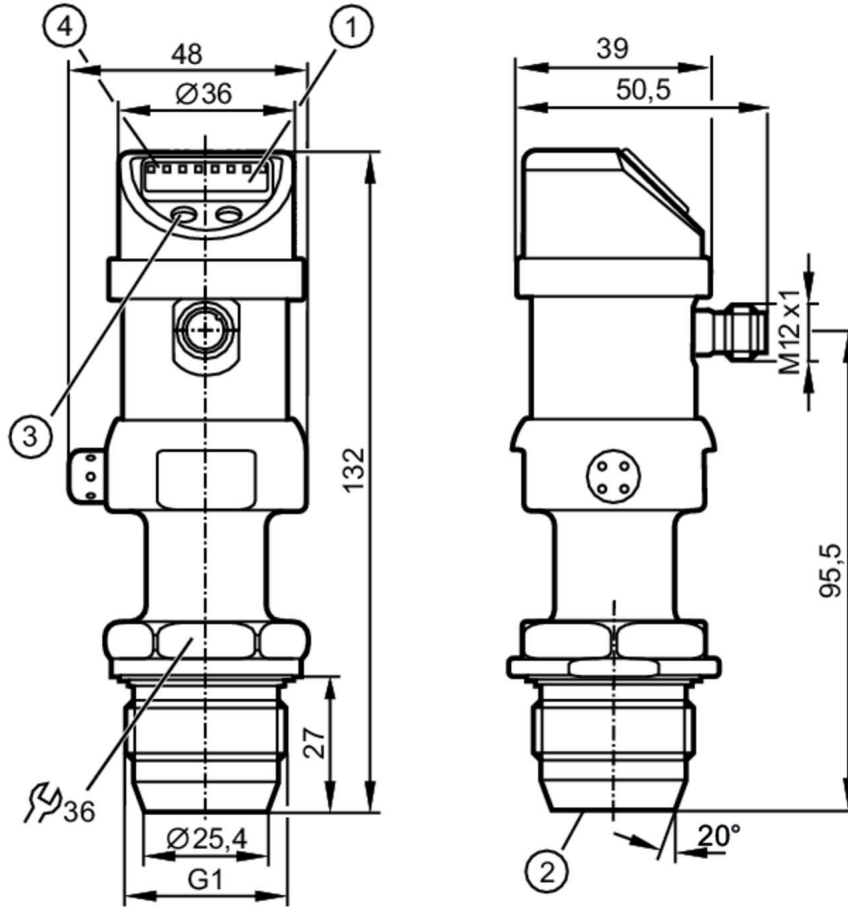


# PI009A



## Pressure sensor with display

PI-1-1BREA01-MFRKG/US/3D/3G /P



- 1 alphanumeric display 4-digit
- 2 recessed non flush mount measuring cell
- 3 Programming button
- 4 status LEDs



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 1; Number of analog outputs: 1		
Measuring range	-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi
Process connection	threaded connection G 1 external thread sealing cone		

### Application

System	gold-plated contacts		
Application	food and beverage industry		
Installation	Freely rotatable housing 350°		
Media	viscous media and liquids with suspended particles; liquids and gases		
Medium temperature [°C]	-20...60; (when used outside the hazardous area; Ambient temperature: -25...85 °C; Medium temperature: -25...125 °C / 145 °C < 1h)		
Min. bursting pressure	30000 mbar	435 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Type of pressure	relative pressure; vacuum		

### Electrical data

Operating voltage [V]	18...32 DC
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Current consumption	[mA]	< 50
Protection class		III
Reverse polarity protection		yes
Power-on delay time	[s]	0.5
Measuring principle		hydrostatic
Integrated watchdog		yes

### Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 1; Number of analog outputs: 1
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### Outputs

Total number of outputs		2
Output signal		switching signal; analog signal; (configurable)
Electrical design		PNP/NPN
Number of digital outputs		1
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]	6
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable 1:4)
Max. load	[Ω]	(U <sub>b</sub> - 10 V) / 20 mA
Analog voltage output	[V]	0...10, invertible; (scalable 1:4)
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	-998...1000 mbar		-14.45...14.5 psi	-99.8...100 kPa
Reset point rP	-1000...998 mbar		-14.5...14.45 psi	-100...99.8 kPa
Analog start point	-1000...500 mbar		-14.5...7.25 psi	-100...50 kPa
Analog end point	-500...1000 mbar		-7.25...14.5 psi	-50...100 kPa
In steps of	1 mbar		0.05 psi	0.1 kPa

### Accuracy / deviations

Switch point accuracy		< ± 0,2; (Turn down 1:1)
	[% of the span]	
Repeatability		< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)
	[% of the span]	
Characteristics deviation		< ± 0,2; (Turn down 1:1, linearity, incl. hysteresis and repeatability, limit value setting to DIN EN IEC 62828-1)
	[% of the span]	
Linearity deviation		< ± 0,15; (Turn down 1:1)
	[% of the span]	
Hysteresis deviation		< ± 0,15; (Turn down 1:1)
	[% of the span]	
Long-term stability		< ± 0,1; (Turn down 1:1; per year)

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	[% of the span]											
Temperature coefficient zero point	[% of the span / 10 K]	< ± 0,05; (0...70 °C)										
Temperature coefficient span	[% of the span / 10 K]	< ± 0,15; (0...70 °C)										
<b>Reaction times</b>												
Response time	[ms]	< 100										
Damping process value dAP	[s]	0.1...100										
Damping for the analog output dAA	[s]	0.1...100										
Step response time analog output	[ms]	25										
<b>Software / programming</b>												
Parameter setting options		hysteresis / window; normally open / closed; switching logic; current/voltage output; Damping; adaptation of displayed values; display can be rotated and switched off; Display unit; Zero point; span										
<b>Operating conditions</b>												
Ambient temperature	[°C]	-20...60										
Storage temperature	[°C]	-40...100										
Protection		IP 65										
<b>Tests / approvals</b>												
ATEX marking		<div style="display: flex; align-items: center;"> <span style="margin-right: 10px;">Ⓔ</span> <span>II 3D Ex tc IIIC T90°C Dc X</span> </div> <div style="display: flex; align-items: center; margin-top: 5px;"> <span style="margin-right: 10px;">Ⓔ</span> <span>II 3G Ex nA IIC T4 Gc X</span> </div>										
EMC		<table border="1"> <tbody> <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> </tbody> </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]	163										
<b>Mechanical data</b>												
Weight	[g]	513										
Material		stainless steel (1.4404 / 316L); PC; PBT; PEI; FKM; PTFE										
Materials (wetted parts)		ceramics (99.9 % Al2O3); stainless steel (1.4435 / 316L); stainless steel (1.4404 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE; EPDM										
Min. pressure cycles		100 million										
Process connection		threaded connection G 1 external thread sealing cone										
<b>Displays / operating elements</b>												
Display	Display unit	6 x, green										
	Switching status	LED, yellow										
	Function display	alphanumeric display, 4-digit										
	Measured values	alphanumeric display, 4-digit										
Display unit		mbar; kPa; psi; inH2O; mWS; % of the span										

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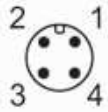
### Remarks

Pack quantity

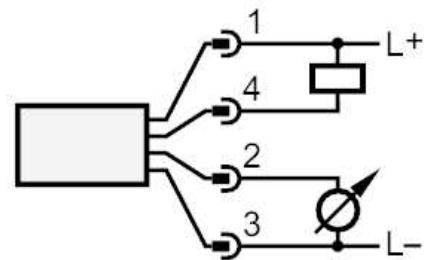
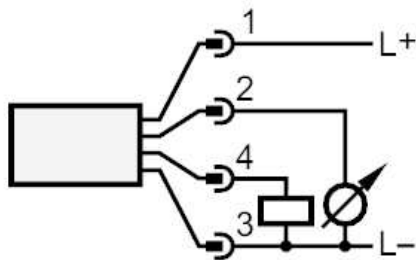
1 pcs.

### Electrical connection

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



### Connection



OUT1

Switching output

OUT2

analog output