

PN7097



Pressure sensor with display

PN-001BRER14-QFRKG/US/ IV



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2				
Measuring range	0...1 bar	0...1000 mbar	0...14.5 psi	0...29.5 inHg	0...100 kPa
Process connection	threaded connection G 1/4 Internal thread				

Application

Special feature	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				

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				

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Inputs / outputs					
Number of inputs and outputs	Number of digital outputs: 2				
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	0...1 bar	0...1000 mbar	0...14.5 psi	0...29.5 inHg	0...100 kPa
Factory setting / CMPT = 2					
Set point SP	10...1000 mbar	0.1...14.5 psi	0.2...29.5 inHg	1...100 kPa	
Reset point rP	5...995 mbar	0.05...14.45 psi	0.1...29.4 inHg	0.5...99.5 kPa	
Min. difference between SP and rP	5 mbar	0.1 psi	0.2 inHg	0.5 kPa	
In steps of	5 mbar	0.05 psi	0.1 inHg	0.5 kPa	
Status_B High Resolution / CMPT = 3					
Set point SP	8...1000 mbar	0.12...14.5 psi	0.2...29.5 inHg	0.8...100 kPa	
Reset point rP	3...995 mbar	0.05...14.43 psi	0.1...29.4 inHg	0.3...99.5 kPa	
Min. difference between SP and rP	5 mbar	0.08 psi	0.2 inHg	0.5 kPa	
In steps of	1 mbar	0.01 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 [% of the span / 10 K]	< ± 0,2; (-0...80 °C)				
Temperature coefficient span [% of the span / 10 K]	< ± 0,2; (-0...80 °C)				

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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	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>405</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>603</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	405	Status_B High Resolution / CMPT = 3	603		
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Factory setting / CMPT = 2	405								
Status_B High Resolution / CMPT = 3	603								
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)	<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 - SSP 3.1	Measuring Sensor							
	Common - I&D	Identification and Diagnosis							
Min. process cycle time	[ms]	3							
IO-Link resolution pressure	0.5 mbar	0.00005 MPa							
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
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pressure	16								
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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								

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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]	234.5	
Housing	tubular	
Dimensions [mm]	Ø 34 / L = 90.7	
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 Internal thread	
Restrictor element integrated	no (can be retrofitted)	
Displays / operating elements		
Display	Display unit	4 x LED, green (mbar, psi, kPa, inHg)
	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: 4, 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