

PN2097



Pressure sensor with display

PN-001BRER14-MFRKG/US/V



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1				
Measuring range	-0.05...1 bar	-50...1000 mbar	-0.72...14.5 psi	-20.1...401.5 inH2O	-5...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	3000 kPa		
Pressure rating	10000 mbar	145 psi	1000 kPa		
Vacuum resistance	-1000 mbar		-0.1 MPa		
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				
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; 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	-0.05...1 bar	-50...1000 mbar	-0.72...14.5 psi	-20.1...401.5 inH2O	-5...100 kPa
Analog start point	-50...800 mbar	-0.72...11.6 psi	-20...321 inH2O	-5...80 kPa	
Analog end point	150...1000 mbar	2.18...14.5 psi	60.5...401.5 inH2O	15...100 kPa	
Factory setting / CMPT = 2					
Set point SP	-44...1000 mbar	-0.64...14.5 psi	-17.5...401.5 inH2O	-4.4...100 kPa	
Reset point rP	-48...996 mbar	-0.7...14.44 psi	-19...400 inH2O	-4.8...99.6 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	0.5 inH2O	0.2 kPa	
Status_B High Resolution / CMPT = 3					
Set point SP	-44...1000 mbar	-0.63...14.5 psi	-17.5...401.5 inH2O	-4.4...100 kPa	
Reset point rP	-48...996 mbar	-0.69...14.44 psi	-19.2...399.8 inH2O	-4.8...99.6 kPa	
Min. difference between SP and rP	5 mbar	0.06 psi	1.7 inH2O	0.5 kPa	
In steps of	1 mbar	0.01 psi	0.1 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 [% 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)				

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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>465</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>976</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	465	Status_B High Resolution / CMPT = 3	976
Type of operation	DeviceID						
Factory setting / CMPT = 2	465						
Status_B High Resolution / CMPT = 3	976						
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 [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 - SSP 3.1	Measuring Sensor
	Common - I&D	Identification and Diagnosis
Min. process cycle time [ms]	3	

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IO-Link resolution pressure [mbar]	0.5	
IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4
IO-Link functions (acyclical)	binary switching information	2
	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]	239	
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); 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