

PN2096



Pressure sensor with display

PN-2,5-RER14-MFRKG/USI/IV



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-0.125...2.5 bar	-125...2500 mbar	-1.8...36.25 psi	-12.5...250 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	50 bar	725 psi	5000 kPa
Pressure rating	20 bar	290 psi	2000 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; 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	-0.125...2.5 bar	-125...2500 mbar	-1.8...36.25 psi	-12.5...250 kPa
Analog start point	-0.125...2 bar	-1.8...29 psi		-12.5...200 kPa
Analog end point	0.375...2.5 bar	5.45...36.25 psi		37.5...250 kPa
Factory setting / CMPT = 2				
Set point SP	-0.11...2.5 bar	-1.6...36.25 psi		-11...250 kPa
Reset point rP	-0.12...2.49 bar	-1.75...36.1 psi		-12...249 kPa
Min. difference between SP and rP	0.015 bar	0.15 psi		1.5 kPa
In steps of	0.005 bar	0.05 psi		0.5 kPa
Status_B High Resolution / CMPT = 3				
Set point SP	-0.109...2.5 bar	-1.58...36.25 psi		-10.9...250 kPa
Reset point rP	-0.12...2.49 bar	-1.73...36.11 psi		-12...249 kPa
Min. difference between SP and rP	0.011 bar	0.15 psi		1.1 kPa
In steps of	0.001 bar	0.01 psi		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)			
Long-term stability	< ± 0,05; (Turn down 1:1; per 6 months)			

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[% of the span]	
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>464</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>975</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	464	Status_B High Resolution / CMPT = 3	975
Type of operation	DeviceID						
Factory setting / CMPT = 2	464						
Status_B High Resolution / CMPT = 3	975						
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 [bar]		0.005
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
IO-Link resolution pressure [bar]		0.001

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IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4
	binary switching information	2

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]	273.5
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); 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	3 x LED, green (bar, psi, kPa)
	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