

PN2696



Pressure sensor with display

PN-2,5-REN14-MFRKG/US/ IV



- 1 alphanumeric display 4-digit red/green
- 2 LEDs Display unit / Switching status
- 3 Programming button
- 4 upper part of the housing can be rotated 345°



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 1/4" NPT external 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 [mbar]	-1000		
Type of pressure	relative pressure		
MAWP (for applications according to CRN)	20 bar	290 psi	2000 kPa

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



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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 analog outputs: 1
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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...36.26 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	< ± 0,25 (BFSL) / < ± 0,5 (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)



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	[% of the span]	
Hysteresis deviation		$< \pm 0,1$; (Turn down 1:1)
	[% of the span]	
Long-term stability		$< \pm 0,05$; (Turn down 1:1; per 6 months)
	[% of the span]	
Temperature coefficient zero point		$< \pm 0,2$; (-0...80 °C)
	[% of the span / 10 K]	
Temperature coefficient span		$< \pm 0,2$; (-0...80 °C)
	[% of the span / 10 K]	
Notes on the accuracy / deviation		switch point accuracy, linearity error under DNV GL: $< \pm 1\%$: $< \pm 1\%$

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> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>Factory setting / CMPT = 2</td><td>474</td></tr> <tr> <td>Status_B High Resolution / CMPT = 3</td><td>990</td></tr> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	474	Status_B High Resolution / CMPT = 3	990
Type of operation	DeviceID						
Factory setting / CMPT = 2	474						
Status_B High Resolution / CMPT = 3	990						
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]	0.001		
IO-Link process data (cyclical)	Function		bit length	
	pressure		14	
	binary switching information		2	
IO-Link functions (acyclical)	application specific tag			

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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
IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4
	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	
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]	245
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]	> 50; (Depends on lubrication, seal and pressure rating)
Process connection	threaded connection 1/4" NPT external 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: 4, 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