

PN2594



Pressure sensor with display

PN-010-REG14-MFRKG/US/ /V



- 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°
- 5 sealing



Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1...10 bar	-14.6...145 psi	-100...1000 kPa	-0.1...1 MPa
Process connection	threaded connection G 1/4 external thread (DIN EN ISO 1179-2); Internal thread:M5			

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	150 bar	2175 psi	15 MPa
Pressure rating	75 bar	1087 psi	7.5 MPa
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		

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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	-1...10 bar	-14.6...145 psi	-100...1000 kPa	-0.1...1 MPa
Analog start point	-1...8 bar	-14.6...116 psi		-0.1...0.8 MPa
Analog end point	1...10 bar	14.6...145 psi		0.1...1 MPa

Factory setting / CMPT = 2

Set point SP	-0.94...10 bar	-13.6...145 psi	-0.094...1 MPa
Reset point rP	-0.98...9.96 bar	-14.2...144.4 psi	-0.098...0.996 MPa
Min. difference between SP and rP	0.06 bar	0.6 psi	0.006 MPa
In steps of	0.02 bar	0.2 psi	0.002 MPa

Status_B High Resolution / CMPT = 3

Set point SP	-0.94...10 bar	-13.6...145 psi	-0.094...1 MPa
Reset point rP	-0.98...9.96 bar	-14.2...144.4 psi	-0.098...0.996 MPa
Min. difference between SP and rP	0.05 bar	0.6 psi	0.005 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa

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)



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Hysteresis deviation [% of the span]	< ± 0,1; (Turn down 1:1)
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> <tr> <th>Type of operation</th><th>DeviceID</th></tr> <tr> <td>Factory setting / CMPT = 2</td><td>463</td></tr> <tr> <td>Status_B High Resolution / CMPT = 3</td><td>974</td></tr> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	463	Status_B High Resolution / CMPT = 3	974
Type of operation	DeviceID						
Factory setting / CMPT = 2	463						
Status_B High Resolution / CMPT = 3	974						
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]	0.01		
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]	0.005	
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]	264	
Housing	tubular	
Dimensions [mm]	Ø 34 / L = 92.7	
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 external thread (DIN EN ISO 1179-2); Internal thread:M5	
Process connection sealing	FKM (DIN EN ISO 1179-2)	
Restrictor element integrated	no (can be retrofitted)	
Displays / operating elements		
Display	Display unit	3 x LED, green (bar, psi, MPa)
	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