

PN2298



Pressure sensor with display

PN-,25-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	-0.0125...0.25 bar	-12.5...250 mbar	-5...100.4 inH2O	-1.25...25 kPa	-127...2549 mmWS
Process connection	threaded connection 1/4" NPT Internal thread				

Application

System	gold-plated contacts			
Measuring element	ceramic-capacitive pressure measuring cell			
Application	for industrial applications			
Media	liquids and gases			
Medium temperature [°C]	-25...80			
Min. bursting pressure	30000 mbar	12000 inH2O	3000 kPa	306000 mmWS
Pressure rating	10000 mbar	4000 inH2O	1000 kPa	102000 mmWS
Vacuum resistance [mbar]	-1000			
Type of pressure	relative pressure			
MAWP (for applications according to CRN)	10 bar	10000 mbar	4000 inH2O	1000 kPa

Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)
Current consumption [mA]	< 35
Min. insulation resistance [MΩ]	100; (500 V DC)

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Protection class	III				
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				
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	-0.0125...0.25 bar	-12.5...250 mbar	-5...100.4 inH2O	-1.25...25 kPa	-127...2549 mmWS
Analog start point	-12.5...200 mbar	-5...80.2 inH2O	-1.25...20 kPa	-125...2040 mmWS	
Analog end point	37.5...250 mbar	15...100.4 inH2O	3.75...25 kPa	385...2550 mmWS	
Factory setting / CMPT = 2					
Set point SP	-11...250 mbar	-4.4...100.4 inH2O	-1.1...25 kPa	-110...2550 mmWS	
Reset point rP	-12...249 mbar	-4.8...100 inH2O	-1.2...24.9 kPa	-120...2540 mmWS	
Min. difference between SP and rP	1.5 mbar	0.6 inH2O	0.15 kPa	15 mmWS	
In steps of	0.5 mbar	0.2 inH2O	0.05 kPa	5 mmWS	
Status_B High Resolution / CMPT = 3					
Set point SP	-10.9...250 mbar	-4.4...100.4 inH2O	-1.09...25 kPa	-112...2550 mmWS	
Reset point rP	-12...249 mbar	-4.8...100 inH2O	-1.2...24.9 kPa	-122...2539 mmWS	
Min. difference between SP and rP	1.1 mbar	0.5 inH2O	0.11 kPa	11 mmWS	
In steps of	0.1 mbar	0.1 inH2O	0.01 kPa	1 mmWS	
Accuracy / deviations					
Switch point accuracy [% of the span]	< ± 0,4; (Turn down 1:1)				



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Repeatability [% of the span]	$< \pm 0,1$; (with temperature fluctuations < 10 K; Turn down 1:1)
Characteristics deviation [% of the span]	$< \pm 0,25$ (BFSL) / $< \pm 0,5$ (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)
Hysteresis deviation [% of the span]	$< \pm 0,1$; (Turn down 1:1)
Long-term stability [% of the span]	$< \pm 0,05$; (Turn down 1:1; per 6 months)
Temperature coefficient zero point [% of the span / 10 K]	$< \pm 0,2$; (-0...80 °C)
Temperature coefficient span [% of the span / 10 K]	$< \pm 0,2$; (-0...80 °C)
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>476</td></tr> <tr> <td>Status_B High Resolution / CMPT = 3</td><td>992</td></tr> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	476	Status_B High Resolution / CMPT = 3	992
Type of operation	DeviceID						
Factory setting / CMPT = 2	476						
Status_B High Resolution / CMPT = 3	992						
Note	For further information please see the IODD PDF file at "Downloads"						

Factory setting / CMPT = 2

Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis						
Min. process cycle time [ms]	2.3						
IO-Link resolution pressure [mbar]	0.1						
IO-Link process data (cyclical)	<table> <tr> <th>Function</th><th>bit length</th></tr> <tr> <td>pressure</td><td>14</td></tr> <tr> <td>binary switching information</td><td>2</td></tr> </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						

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Status_B High Resolution / CMPT = 3

Profiles	Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)	
Min. process cycle time [ms]	3	
IO-Link resolution pressure [mbar]	0.1	
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]	145	
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]	223.5	
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 Internal thread	
Restrictor element integrated	no (can be retrofitted)	

Displays / operating elements

Display	Display unit	4 x LED, green (mbar, mmWS, kPa, inH2O)
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit

Remarks

Pack quantity	1 pcs.
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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