

# PN2293



## Pressure sensor with display

PN-025-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 analogue outputs: 1		
Measuring range	-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Process connection	threaded connection 1/4" NPT 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	350 bar	5075 psi	35 MPa
Pressure rating	150 bar	2175 psi	15 MPa
Vacuum resistance	-1000 mbar		-0.1 MPa
Type of pressure	relative pressure; vacuum		
MAWP for applications according to CRN	70 bar	1015 psi	7 MPa

### 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 analogue outputs: 1
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### Outputs

Total number of outputs	2
Output signal	switching signal; analogue signal; IO-Link; (configurable)
Electrical design	PNP/NPN
Number of digital outputs	2
Output function	normally open / normally closed; (parameterisable)
Max. voltage drop switching output DC [V]	2
Permanent current rating of switching output DC [mA]	250
Switching frequency DC [Hz]	< 500
Number of analogue outputs	1
Analogue current output [mA]	4...20; (scalable 1:5)
Max. load [Ω]	500
Analogue voltage output [V]	0...10; (scalable 1:5)
Min. load resistance [Ω]	2000
Short-circuit protection	yes
Type of short-circuit protection	pulsed
Overload protection	yes

### Measuring/setting range

Measuring range	-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Analogue start point	-1...20 bar	-14.5...290 psi	-0.1...2 MPa
Analogue end point	4...25 bar	58...362.5 psi	0.4...2.5 MPa

#### Factory setting / CMPT = 2

Set point SP	-0.85...25 bar	-12...362.5 psi	-0.085...2.5 MPa
Reset point rP	-0.95...24.9 bar	-13.5...361 psi	-0.095...2.49 MPa
Min. difference between SP and rP	0.15 bar	1.5 psi	0.015 MPa
In steps of	0.05 bar	0.5 psi	0.005 MPa

#### Status\_B High Resolution / CMPT = 3

Set point SP	-0.84...25 bar	-12.2...362.6 psi	-0.084...2.5 MPa
Reset point rP	-0.95...24.9 bar	-13.7...361.1 psi	-0.095...2.49 MPa
Min. difference between SP and rP	0.11 bar	1.5 psi	0.011 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	< ± 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	[% 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%

### Response times

Response time	[ms]	< 1.5
Delay time programmable dS, dr	[s]	0...50
Damping process value dAP	[s]	0...4
Damping for the analogue output dAA	[s]	0...4
Max. response time analogue output	[ms]	3

### Software / programming

Parameter setting options	hysteresis / window; normally open / normally 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 type	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>472</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>988</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	472	Status_B High Resolution / CMPT = 3	988
Type of operation	DeviceID						
Factory setting / CMPT = 2	472						
Status_B High Resolution / CMPT = 3	988						
Note	For further information please see the IODD PDF file under "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 Common - I&D	Measuring Sensor Identification and Diagnosis
Min. process cycle time [ms]		3
IO-Link resolution pressure [bar]		0.01
IO-Link process data (cyclical)	<b>function</b>	<b>bit length</b>
	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 no.	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
Housing		cylindrical
Dimensions [mm]		Ø 34 / L = 90.7
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (316L/1.4404); Al2O3 (96%; ceramics); FKM	
Min. pressure cycles		100 million
Tightening torque [Nm]	> 50; (depends on the lubrication, the seal and the pressure load)	
Process connection	threaded connection 1/4" NPT internal thread	
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
	analogue output
	Core colours :
BK =	black
BN =	brown
BU =	blue
WH =	white