

# PN2515



## Pressure sensor with display

PN-006-REG14-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°
- 5 Sealing



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	-1...6 bar	-14.5...87 psi	-100...600 kPa
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	100 bar	1500 psi	10000 kPa
Pressure rating	40 bar	600 psi	4000 kPa
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 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...6 bar	-14.5...87 psi	-100...600 kPa
Set point SP	-0.95...6 bar	-13.8...87 psi	-95...600 kPa
Reset point rP	-0.98...5.97 bar	-14.2...86.6 psi	-98...597 kPa
Analogue start point	-1...4.8 bar	-14.5...69.6 psi	-100...480 kPa
Analogue end point	0.2...6 bar	2.9...87 psi	20...600 kPa
Min. difference between SP and rP	0.03 bar	0.5 psi	3 kPa
In steps of	0.001 bar	0.1 psi	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	[% 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		< ± 0,2; (-0...80 °C)

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	[% of the span / 10 K]	
Notes on the accuracy / deviation		switch point accuracy, linearity error under DNV GL: <math>\lt; \pm 1\%</math>: <math>\lt; \pm 1\%</math>
<b>Response times</b>		
Response time	[ms]	<math>\lt; 1.5</math>
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
<b>Software / programming</b>		
Parameter setting options		hysteresis / window; normally open / normally closed; switch-on/switch-off delay; Damping; Display unit; current/voltage output
<b>Interfaces</b>		
Communication interface		IO-Link
Transmission type		COM2 (38,4 kBaud)
IO-Link revision		1.1
SDCI standard		IEC 61131-9
Profiles	Smart Sensor - SSP 3.1 Common - I&D	Measuring Sensor Identification and Diagnosis
SIO mode		yes
Required master port type		A; (when pin 2 not connected: B)
Min. process cycle time	[ms]	3
IO-Link resolution pressure	[bar]	0.002
IO-Link process data (cyclical)	<b>function</b> pressure device status binary switching information	<b>bit length</b> 16 4 2
IO-Link functions (acyclical)		application specific tag
Supported DeviceIDs	<b>Type of operation</b> default	<b>DeviceID</b> 1203
Note		For further information please see the IODD PDF file under "Downloads"
<b>Operating conditions</b>		
Ambient temperature	[°C]	-25...80
Storage temperature	[°C]	-40...100
Protection		IP 65; IP 67
<b>Tests / approvals</b>		
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]	167
UL approval	UL approval no. File number UL	J012 E174189
Pressure Equipment Directive		Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request

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Mechanical data	
Weight [g]	272.5
Housing	cylindrical
Dimensions [mm]	Ø 34 / L = 92.7
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC
Materials (wetted parts)	stainless steel (316L/1.4404); Al2O3 (ceramics); FKM
Min. pressure cycles	100 million
Tightening torque [Nm]	25...35; (recommended tightening torque; depends on the lubrication, the seal and the pressure load)
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)

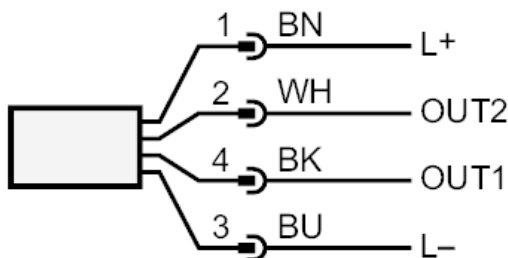
Displays / operating elements		
Display	Display unit	3 x LED, green (bar, psi, MPa)
	switching status	2 x LED, yellow
	measured values	alphanumeric display, red/green 4-digit

Remarks	
Pack quantity	1 pcs.

**Electrical connection**  
 Connector: 1 x M12; coding: A; Contacts: 4, gold-plated



### Connection



- OUT1            switching output  
                  IO-Link
- OUT2            switching output  
                  analogue output
- Core colours :
- BK =            black
- BN =            brown
- BU =            blue
- WH =            white