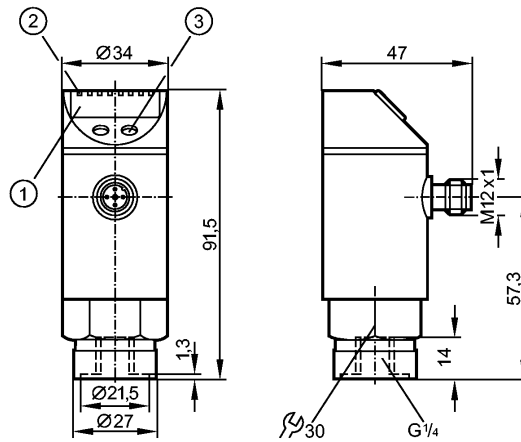


**PN2028**

PN-,25-RBR14-MFRKG/US/ IV

Pressure sensors

New generation available: PN2098



- 1: 4-digit alphanumeric display
- 2: LEDs (display unit / switching status)
- 3: Programming button



**Product characteristics**

Combined pressure sensor
Quick disconnect
Zero and span adjustable
Function programmable
Process connection: G $\frac{1}{4}$ I
2 outputs
OUT1 = switching output
OUT2 = switching output or analog output
4-digit alphanumeric display
Measuring range: -12.5...250 mbar / -5.0...100.4 inH <sub>2</sub> O / -1.25...25.00 kPa

**Application**

Application	Type of pressure: relative pressure Liquids and gases		
Pressure rating	10000 mbar	4000 inH <sub>2</sub> O	1000 kPa
Bursting pressure min.	30000 mbar	12000 inH <sub>2</sub> O	3000 kPa
Medium temperature [°C]	-25...80		

**Electrical data**

Electrical design	DC PNP/NPN
Operating voltage [V]	18...32 DC <sup>1)</sup>
Current consumption [mA]	< 35
Insulation resistance [M $\Omega$ ]	> 100 (500 V DC)
Protection class	III
Reverse polarity protection	yes

**Outputs**

Output	2 outputs OUT1 = switching output OUT2 = switching output or analog output
Output function	2 x normally open / closed programmable or 1 x normally open / closed programmable + 1 x analog (4...20 mA / 0...10 V; programmable 1:4)

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**Pressure sensors**

Current rating	[mA]	2 x 250
Voltage drop	[V]	< 2
Short-circuit protection		yes (non-latching)
Overload protection		yes
Switching frequency	[Hz]	≤ 500
Analog output		4...20 mA / 0...10 V
Max. load	[Ω]	4...20 mA: max. (U <sub>b</sub> - 10 V) x 50 / 0...10 V: min. 2000

**Measuring / setting range**

Display unit	mbar, kPa, inH2O, mmWS		
Measuring range	-12.5...250 mbar	-5.0...100.4 inH2O	-1.25...25.00 kPa
Setting range			
Set point, SP	-10.5...250.0 mbar	-4.2...100.4 inH2O	-1.05...25.00 kPa
Reset point, rP	-11.5...249.0 mbar	-4.6...100.0 inH2O	-1.15...24.90 kPa
Analog start point, ASP	-12.5...187.5 mbar	-5.0...75.4 inH2O	-1.25...10.00 kPa
Analog end point, AEP	50.0...250.0 mbar	20.2...100.4 inH2O	5.00...25.00 kPa
in steps of	0.5 mbar	0.2 inH2O	0.05 kPa
Factory setting	SP1 = 62.5 mbar; rP1 = 57.5 mbar SP2 = 187.5 mbar; rP2 = 182.5 mbar ASP = 0.0 mbar; AEP = 250.0 mbar		

**Accuracy / deviations**

Accuracy / deviations (in % of the span) Turn down 1:1	
Switch point accuracy	< ± 0.4
Characteristics deviation *)	< ± 0.25 (BFSL) / < ± 0.5 (LS)
Hysteresis	< ± 0.1
Repeatability **)	< ± 0.1
Long-term stability ***)	< ± 0.1
Temperature coefficients (TEMPCO) in the temperature range 0...80° C (in % of the span per 10 K)	
Greatest TEMPCO of the zero point	< ± 0.2
Greatest TEMPCO of the span	< ± 0.2

**Reaction times**

Power-on delay time	[s]	0.3
Min. response time switching output	[ms]	1.5
Damping for the switching output (dAP)	[s]	0; 0.01...4.00
Damping for the analog output (dAA)	[s]	0; 0.01...4.00
Response time analog output	[ms]	3
Integrated watchdog		yes

**Software / programming**

Programming options	hysteresis / window function; N.O. / N.C.; output polarity; current / voltage outputs; damping; calibration of displayed values; display can be rotated / deactivated; display unit
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**Interfaces**

IO-Link Device	
Transfer type	COM2 (38.4 kBaud)
IO-Link revision	1.0



**PN2028**

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**Pressure sensors**

IO-Link Device ID	63 d / 00 00 3F h
Profiles	no profile
SIO mode	yes
Required master port class	A
Process data analogue	1
Process data binary	2
Min. process cycle time [ms]	2.3

Environment	
Ambient temperature [°C]	-25...80
Storage temperature [°C]	-40...100
Protection	IP 65

Tests / approvals	
EMC	EN 61000-4-2 ESD: 4 kV CD / 8 kV AD EN 61000-4-3 HF radiated: 10 V/m EN 61000-4-4 Burst: 2 kV EN 61000-4-5 Surge: 0.5/1 kV EN 61000-4-6 HF conducted: 10 V
Shock resistance	DIN IEC 68-2-27: 50 g (11 ms)
Vibration resistance	DIN IEC 68-2-6: 20 g (10...2000 Hz)
MTTF [Years]	131

Mechanical data	
Process connection	G ¼ I
Materials (wetted parts)	stainless steel (303S22); ceramics; FPM (Viton)
Housing materials	stainless steel (304S15); stainless steel 316L / 1.4404; PC (Makrolon); PBT (Pocan); PEI; FPM (Viton); PTFE
Switching cycles min.	100 million
Weight [kg]	0.263

Displays / operating elements	
Display	Display unit 4 x LED green Switching status 2 x LED yellow Function display 4-digit alphanumeric display Measured values 4-digit alphanumeric display

Electrical connection	
Connection	M12 connector; gold-plated contacts

**Wiring**

**PN2028**

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Pressure sensors

Programming of the output function (OUT1 / OUT2):

Hno = hysteresis / normally open

Hnc = hysteresis / normally closed

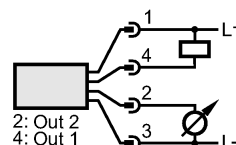
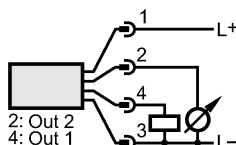
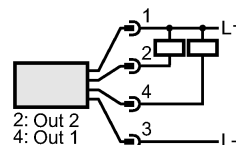
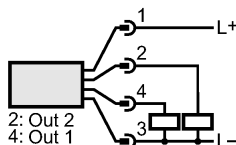
Fno = window function / normally open

Fnc = window function / normally closed

Complementary outputs:

output 1: = Hno, output 2: = Hnc

(with the same SP / rP)



Programming of the analog output (OUT2):

I = current output (4...20 mA)

U = voltage output (0...10 V)



**Remarks**

Remarks	1) to EN50178, SELV, PELV *) BFSL = Best Fit Straight Line / LS = Limit Value Setting **) with temperature fluctuations < 10 K ***) in % of the span per year
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Pack quantity	[piece]	1
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**New generation available: PN2098**