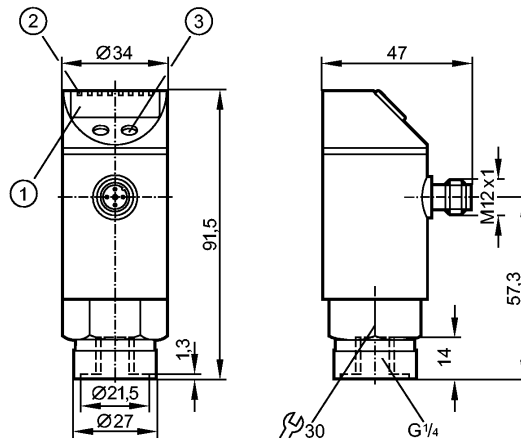


PN2024

PN-010-RBR14-MFRKG/US/ IV

Pressure sensors

New generation available: PN2094



- 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 1/4 I

2 outputs

OUT1 = switching output

OUT2 = switching output or analog output

4-digit alphanumeric display

Measuring range: -1...10.00 bar / -0.100...1.000 MPa / -14.5...145.0 psi

Application

Application	Type of pressure: relative pressure Liquids and gases		
Pressure rating	75 bar	7.5 MPa	1088 psi
Bursting pressure min.	150 bar	15 MPa	2175 psi
Medium temperature [°C]	-25...80		

Electrical data

Electrical design	DC PNP/NPN
Operating voltage [V]	18...32 DC ¹⁾
Current consumption [mA]	< 35
Insulation resistance [MΩ]	> 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)

PN2024

PN-010-RBR14-MFRKG/US/ /V

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 _b - 10 V) x 50 / 0...10 V: min. 2000

Measuring / setting range			
Measuring range	-1...10.00 bar	-0.100...1.000 MPa	-14.5...145.0 psi
Setting range			
Set point, SP	-0.88...10.00 bar	-0.088...1.000 MPa	-12.8...145.0 psi
Reset point, rP	-0.94...9.94 bar	-0.094...0.994 MPa	-13.6...144.2 psi
Analog start point, ASP	-1.00...7.26 bar	-0.100...0.726 MPa	-14.6...105.2 psi
Analog end point, AEP	1.76...10.00 bar	0.176...1.000 MPa	25.4...145.0 psi
in steps of	0.02 bar	0.002 MPa	0.29 psi
Factory setting	SP1 = 2.50 bar; rP1 = 2.30 bar SP2 = 7.50 bar; rP2 = 7.30 bar ASP = 0.00 bar; AEP = 10.00 bar		

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 -25...80° C (in % of the span per 10 K)	
Greatest TEMPCO of the zero point	< ± 0.1
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

Interfaces	
IO-Link Device	
Transfer type	COM2 (38.4 kBaud)
IO-Link revision	1.0
IO-Link Device ID	60 d / 00 00 3C h

PN2024

PN-010-RBR14-MFRKG/US/ /V

Pressure sensors

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]		162.52

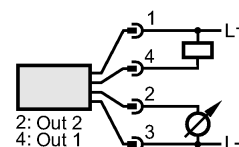
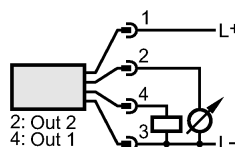
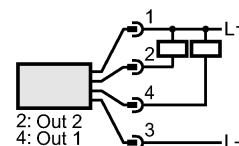
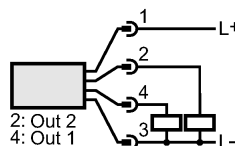
Mechanical data		
Process connection		G ¼ I
Materials (wetted parts)		stainless steel (303S22); ceramics; FPM (Viton)
Housing materials		stainless steel (304S15); stainless steel 316L / 1.4404; PC (Makrolon); PBT (Pocan); PEI; FPM (Viton); PTFE
Switching cycles min.		100 million
Weight [kg]		0.262

Displays / operating elements		
Display	Display unit	3 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

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)



**PN2024**

PN-010-RBR14-MFRKG/US/ IV

Pressure sensors**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
Pack quantity [piece]	1

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New generation available: PN2094