

# PN2021



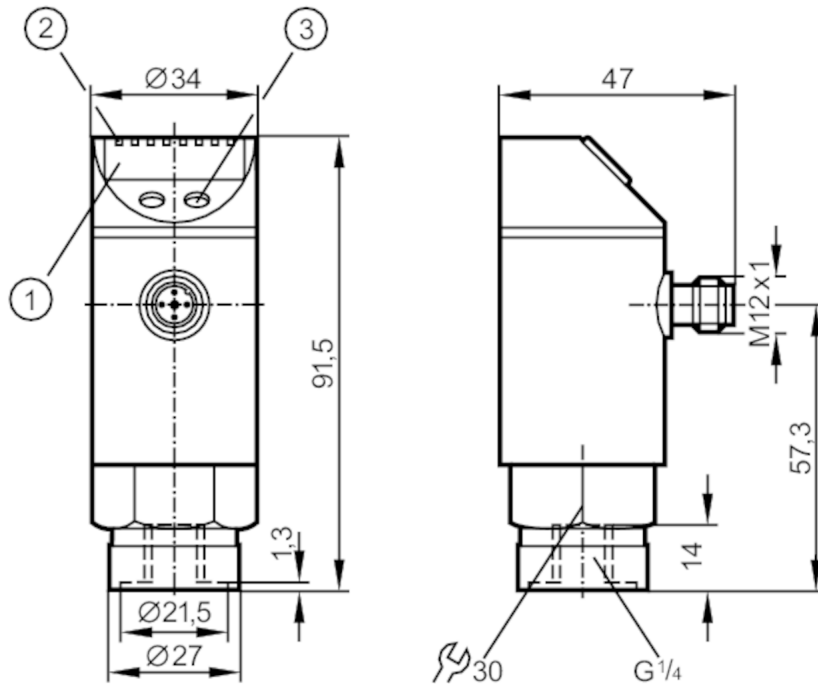
## Pressure sensor with display

PN-250-SBR14-MFRKG/US/ IV

phase-out article

Alternative articles: PN2071

When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 LEDs Display unit / switching status
- 3 programming button



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	0...250 bar	0...3630 psi	0...25 MPa
Process connection	threaded connection G 1/4 internal thread		

### Application

Special feature	Gold-plated contacts		
Application	for industrial applications		
Media	liquids and gases		
Conditionally suitable for	use in gases at pressures > 25 bar only on request		
Medium temperature [°C]	-25...80		
Min. bursting pressure	850 bar	12300 psi	85 MPa
Pressure rating	400 bar	5800 psi	40 MPa
Type of pressure	relative pressure		

### Electrical data

Operating voltage [V]	18...32 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 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 1:4)
Max. load [Ω]	(U <sub>b</sub> - 10 V) / 20 mA
Analogue voltage output [V]	0...10; (scalable 1:4)
Min. load resistance [Ω]	2000
Short-circuit protection	yes
Type of short-circuit protection	pulsed
Overload protection	yes

### Measuring/setting range

Measuring range	0...250 bar	0...3630 psi	0...25 MPa
Set point SP	2...250 bar	30...3625 psi	0.2...25 MPa
Reset point rP	1...249 bar	15...3610 psi	0.1...24.9 MPa
Analogue start point	0...187.5 bar	0...2720 psi	0...18.75 MPa
Analogue end point	62.5...250 bar	905...3625 psi	6.25...25 MPa
In steps of	0.5 bar	5 psi	0.05 MPa
Factory setting		SP1 = 62.5 bar	rP1 = 57.5 bar
		SP2 = 187.5 bar	rP2 = 182.5 bar
		ASP = 0.0 bar	AEP = 250.0 bar

### 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]	< ± 0,1; (Turn down 1:1; per year)



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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)

Response times	
Response time [ms]	< 1.5
Damping process value dAP [s]	0.01...4
Damping for the analogue output dAA [s]	0.01...4
Max. response time analogue output [ms]	3

Software / programming	
Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; current/voltage output; Damping; adaptation of displayed values; display can be rotated and switched off; Display unit; zero point; span

Interfaces					
Communication interface	IO-Link				
Transmission type	COM2 (38,4 kBaud)				
IO-Link revision	1.0				
Profiles	no profile				
SIO mode	yes				
Required master port type	A				
Process data analogue	1				
Process data binary	2				
Min. process cycle time [ms]	2.3				
Supported DeviceIDs	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>default</td> <td>57</td> </tr> </tbody> </table>	Type of operation	DeviceID	default	57
Type of operation	DeviceID				
default	57				

Operating conditions	
Ambient temperature [°C]	-25...80
Storage temperature [°C]	-40...100
Protection	IP 67

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
Vibration resistance	DIN IEC 68-2-6	20 g (10...2000 Hz)
MTTF [years]		131
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

Mechanical data	
Weight [g]	265.2
Housing	cylindrical
Dimensions [mm]	Ø 34 / L = 91.5

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Materials	stainless steel (304/1.4301); stainless steel (316L/1.4404); PC; PBT; PEI; FKM
Materials (wetted parts)	stainless steel (303/1.4305); ceramics; FKM
Min. pressure cycles	100 million
Process connection	threaded connection G 1/4 internal thread
Restrictor element integrated	yes

### Displays / operating elements

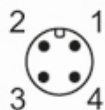
Display	Display unit	3 x LED, green
	switching status	2 x LED, yellow
	function display	alphanumeric display, 4-digit
	measured values	alphanumeric display, 4-digit

### Remarks

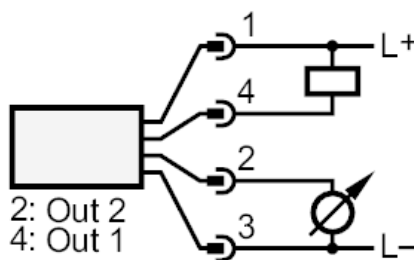
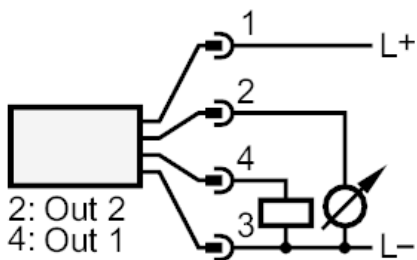
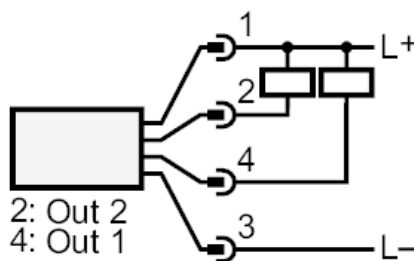
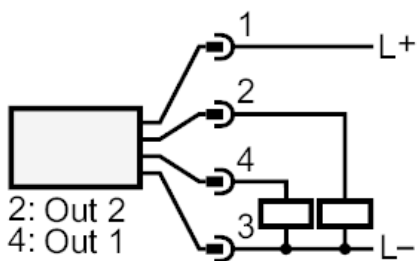
Pack quantity	1 pcs.
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### Electrical connection

Connector: 1 x M12; coding: A; Contacts: gold-plated



### Connection



- OUT1      switching output  
            IO-Link
- OUT2      switching output  
            analogue output