



PN7160

PN-600-SER14-QFRKG/US/ IV



Pressure sensors



- 1: 4-digit alphanumeric display / alternating indication of red and green
- 2: LEDs (display unit / switching status)
- 3: Programming button
- 4: Upper part of the housing can be rotated by 345°



Product characteristics

Electronic pressure monitor

M12 connector

Function programmable

Measuring element: metal thin film cell

Process connection: G 1/4 I

2 outputs

OUT1 = switching output

OUT2 = switching output

4-digit alphanumeric display / alternating indication of red and green

Measuring range: 0...600 bar / 0...8700 psi / 0...60 MPa

Application

Application	Type of pressure: relative pressure Group 2 fluids according to the Pressure Equipment Directive (PED), group 1 fluids on request		
Pressure rating	800 bar	11580 psi	80 MPa
Bursting pressure min.	2500 bar	36250 psi	250 MPa
Medium temperature [°C]	-25...80		

Electrical data

Electrical design	DC PNP/NPN
Operating voltage [V]	18...30 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
Output function	2 x normally open / closed programmable
Current rating [mA]	150; 200 (...60 °C); 250 (...40 °C)



PN7160

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Pressure sensors

Voltage drop	[V]	< 2.5
Short-circuit protection		yes (non-latching)
Overload protection		yes
Switching frequency	[Hz]	≤ 170

Measuring / setting range			
Measuring range	0...600 bar	0...8700 psi	0...60 MPa
Setting range			
Set point, SP	4...600 bar	40...8700 psi	0.4...60 MPa
Reset point, rP	2...598 bar	20...8680 psi	0.2...59.8 MPa
in steps of	2 bar	20 psi	0.2 MPa

Accuracy / deviations	
Accuracy / deviations (in % of the span)	
Switch point accuracy	< ± 0.5
Characteristics deviation *)	< ± 0.25 (BFSL) / < ± 0.5 (LS)
Hysteresis	< ± 0.25
Repeatability **)	< ± 0.1
Long-term stability ***)	< ± 0.05
Temperature coefficients (TEMPCO) in the temperature range -25...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] < 3
Delay time programmable dS, dr	[s] 0...50
Integrated watchdog	yes

Software / programming	
Programming options	hysteresis / window function; NO / NC; output polarity; on delay, off delay; damping; display unit

Interfaces	
IO-Link Device	
Transfer type	COM2 (38.4 kBaud)
IO-Link revision	1.1
SDCI standard	IEC 61131-9
IO-Link Device ID	398 d / 00 01 8e h
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis
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 / IP 67



PN7160

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Tests / approvals

Pressure equipment directive	sound engineering practice	
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]	210	
UL approval number	J003	

Mechanical data

Process connection	G ¼ I	
Materials (wetted parts)	1.4542	
Housing materials	1.4542; 316L stainless steel / 1.4404; PBT+PC-GF 30; PBT-GF 20; PC	
Switching cycles min.	100 million	
Tightening torque [Nm]	25...35 (recommended tightening torque ²)	
Weight [kg]	0.231	

Displays / operating elements

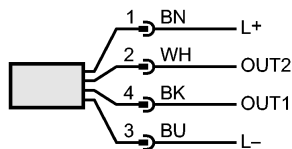
Display	Display unit 3 x LED green (bar, psi, MPa) Switching status 2 x LED yellow 4-digit alphanumeric display / alternating indication Measured values of red and green
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Electrical connection

Connection	M12 connector; gold-plated contacts
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Wiring

Core colors
 BK black
 BN brown
 BU blue
 WH white



OUT1: switching output or IO-Link
 OUT2: switching output
 Colours to DIN EN 60947-5-2

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 / 6 months 2) Depends on lubrication, seal and pressure rating
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Pack quantity [piece]	1
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