

# PN2070



## Pressure sensor with display

PN-400-SER14-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°



### Product characteristics

Output signal	switching signal; analog signal; IO-Link; (configurable)		
Measuring range	0...400 bar	0...5800 psi	0...40 MPa
Process connection	threaded connection G 1/4 Internal thread (DIN EN ISO 1179-2)		

### Application

System	gold-plated contacts		
Measuring element	metallic thin film cell		
Application	for industrial applications		
Media	liquids and gases		
Medium temperature [°C]	-25...80		
Min. bursting pressure	1700 bar	24650 psi	170 MPa
Pressure rating	800 bar	11580 psi	80 MPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure		

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Electrical data			
Operating voltage	[V]	18...30 DC; (according to EN 50178 SELV/PELV)	
Current consumption	[mA]	< 35	
Min. insulation resistance	[MΩ]	100; (500 V DC)	
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 analog outputs: 1	
Outputs			
Total number of outputs		2	
Output signal		switching signal; analog signal; IO-Link; (configurable)	
Electrical design		PNP/NPN	
Number of digital outputs		2	
Output function		normally open / closed; (configurable)	
Max. voltage drop switching output DC	[V]	2	
Permanent current rating of switching output DC	[mA]	250	
Switching frequency DC	[Hz]	< 500	
Number of analog outputs		1	
Analog current output	[mA]	4...20; (scalable 1:5)	
Max. load	[Ω]	500	
Analog voltage output	[V]	0...10; (scalable 1:5)	
Min. load resistance	[Ω]	2000	
Short-circuit protection		yes	
Type of short-circuit protection		yes (non-latching)	
Overload protection		yes	
Measuring/setting range			
Measuring range		0...400 bar	0...5800 psi
Analog start point		0...320 bar	0...4640 psi
Analog end point		80...400 bar	1160...5800 psi
Factory setting / CMPT = 2			
Set point SP		2.5...400 bar	40...5800 psi
Reset point rP		1...398.5 bar	10...5780 psi
Min. difference between SP and rP		2 bar	30 psi
In steps of		0.5 bar	10 psi
Status_B High Resolution / CMPT = 3			
Set point SP		2.5...400 bar	37...5802 psi
Reset point rP		0.9...398.4 bar	13...5778 psi
Min. difference between SP and rP		1.7 bar	24 psi
In steps of		0.1 bar	1 psi



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Accuracy / deviations		
Notes on the accuracy / deviation	switch point accuracy, linearity error under DNV GL: <math>\lt; \pm 1\%</math>: <math>\lt; \pm 1\%</math>	
Switch point accuracy [% of the span]	<math>\lt; \pm 0,4</math>; (Turn down 1:1)	
Repeatability [% of the span]	<math>\lt; \pm 0,1</math>; (with temperature fluctuations <math>\lt; 10\text{ K}</math>; Turn down 1:1)	
Characteristics deviation [% of the span]	<math>\lt; \pm 0,25</math> (BFSL) / <math>\lt; \pm 0,5</math> (LS); (Turn down 1:1; BFSL = Best Fit Straight Line; LS = limit value setting)	
Hysteresis deviation [% of the span]	<math>\lt; \pm 0,1</math>; (Turn down 1:1)	
Long-term stability [% of the span]	<math>\lt; \pm 0,05</math>; (Turn down 1:1; per 6 months)	
Temperature coefficient zero point [% of the span / 10 K]	0,2; (-25...80 °C)	
Temperature coefficient span [% of the span / 10 K]	0,2; (-25...80 °C)	
Reaction times		
Response time [ms]	<math>\lt; 1.5</math>	
Delay time programmable dS, dr [s]	0...50	
Damping for the switching output dAP [s]	0...4	
Damping for the analog output dAA [s]	0...4	
Max. response time analog output [ms]	3	
Software / programming		
Parameter setting options	hysteresis / window; normally open / closed; switch-on/ switch-off delay; Damping; Display unit; current/voltage output	
Interfaces		
Communication interface	IO-Link	
Transmission type	COM2 (38,4 kBaud)	
IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
SIO mode	yes	
Required master port class	A; (wenn PIN 2 nicht verbunden: B)	
Supported DeviceIDs	Type of operation	DeviceID
	Factory setting / CMPT = 2	459
	Status_B High Resolution / CMPT = 3	638
Note	For further information please see the IODD PDF file at "Downloads"	

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Factory setting / CMPT = 2		
Profiles	Smart Sensor: Process Data Variable; Device Identification, Device Diagnosis	
Min. process cycle time [ms]	2.3	
IO-Link resolution pressure [bar]	0.1	
IO-Link process data (cyclical)	Function	bit length
	pressure	14
	binary switching information	2
IO-Link functions (acyclical)	application specific tag	
Status_B High Resolution / CMPT = 3		
Profiles	Smart Sensor ED2: Digital Measuring Sensor (0x000A), Identification and Diagnosis (0x4000)	
Min. process cycle time [ms]	3	
IO-Link resolution pressure [bar]	0.2	
IO-Link process data (cyclical)	Function	bit length
	pressure	16
	device status	4
	binary switching information	2
IO-Link functions (acyclical)	application specific tag	
Operating conditions		
Ambient temperature [°C]	-25...80	
Storage temperature [°C]	-40...100	
Protection	IP 65; IP 67	
Tests / approvals		
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]	129	
Note on approval	test	
UL approval	UL approval number	J014
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	238.5	
Material	1.4542 (17-4 PH / 630); stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	1.4542 (17-4 PH / 630)	
Min. pressure cycles	100 million	
Tightening torque [Nm]	25...35; (recommended tightening torque; Depends on lubrication, seal and pressure rating)	
Process connection	threaded connection G 1/4 Internal thread (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

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### Remarks

Pack quantity

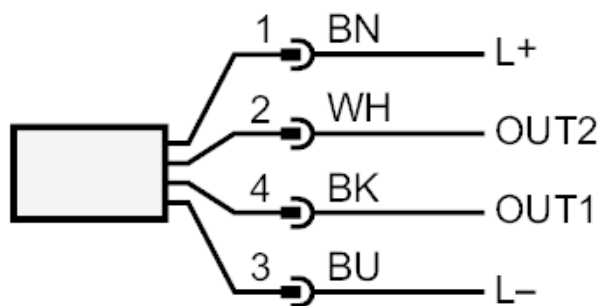
1 pcs.

### Electrical connection

Connector: 1 x M12; Contacts: gold-plated



### Connection



OUT1            Switching output  
                  IO-Link

OUT2            Switching output  
                  analog output

Core colors :

BK =            black  
BN =            brown  
BU =            blue  
WH =            white