

# PN7099



## Pressure sensor with display

PN-1-1BRER14-QFRKG/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; IO-Link; (configurable)				
Measuring range	-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi	-29.4...29.4 inHg	-100...100 kPa
Process connection	threaded connection G 1/4 Internal thread				

### Application

System	gold-plated contacts				
Measuring element	ceramic-capacitive pressure measuring cell				
Application	for industrial applications				
Media	liquids and gases				
Medium temperature [°C]	-25...80				
Pressure rating	10000 mbar	145 psi	290 inHg	1000 kPa	
Min. bursting pressure	30000 mbar	450 psi	880 inHg	3000 kPa	
Vacuum resistance [mbar]	-1000				
Type of pressure	relative pressure; vacuum				

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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				
Outputs						
Total number of outputs		2				
Output signal		switching 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]	2.5				
Permanent current rating of switching output DC	[mA]	150; (200 (...60 °C) 250 (...40 °C))				
Switching frequency DC	[Hz]	< 170				
Short-circuit protection		yes				
Type of short-circuit protection		yes (non-latching)				
Overload protection		yes				
Measuring/setting range						
Measuring range		-1...1 bar	-1000...1000 mbar	-14.5...14.5 psi	-29.4...29.4 inHg	-100...100 kPa
Factory setting / CMPT = 2						
Set point SP		-980...1000 mbar	-14.3...14.5 psi	-29...29.6 inHg	-98...100 kPa	
Reset point rP		-990...990 mbar	-14.4...14.4 psi	-29.4...29.2 inHg	-99...99 kPa	
Min. difference between SP and rP		10 mbar	0.2 psi	0.4 inHg	1 kPa	
In steps of		10 mbar	0.1 psi	0.2 inHg	1 kPa	
Status_B High Resolution / CMPT = 3						
Set point SP		-983...1000 mbar	-14.3...14.5 psi	-29...29.5 inHg	-98...100 kPa	
Reset point rP		-993...990 mbar	-14.4...14.4 psi	-29.3...29.2 inHg	-99...99 kPa	
Min. difference between SP and rP		10 mbar	0.2 psi	0.3 inHg	1 kPa	
In steps of		1 mbar	0.1 psi	0.1 inHg	1 kPa	
Accuracy / deviations						
Switch point accuracy		< ± 0,5				
	[% of the span]					
Repeatability		< ± 0,1; (with temperature fluctuations < 10 K)				
	[% of the span]					
Characteristics deviation		< ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting)				

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	[% of the span]	
Hysteresis deviation	[% of the span]	< ± 0,25
Long-term stability	[% of the span]	< ± 0,05; (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]	< 3
Delay time programmable dS, dr	[s]	0...50

### Software / programming

Parameter setting options	hysteresis / window; normally open / closed; switching logic; switch-on/switch-off delay; Damping; Display unit
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### 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; (when pin 2 not connected: B)	
Process data analogue	1	
Process data binary	2	
Supported DeviceIDs	Type of operation	DeviceID
	Factory setting / CMPT = 2	406 d / 00 01 96 h
	Status_B High Resolution / CMPT = 3	604 d / 00 02 5c h
	PN7009	314 d / 00 01 3a h
Note	For further information please see the IODD PDF file at "Downloads"	

### 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	[mbar] 1	
IO-Link resolution pressure	[MPa] 0.0001	
IO-Link process data (cyclical)	Function	bit length
	pressure	14
	binary switching information	2
IO-Link functions (acyclical)	application specific tag	

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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 [mbar]	1	
IO-Link resolution pressure [MPa]	0.0001	
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]	260	
UL approval	UL approval number	J001
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	232.5	
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (1.4404 / 316L); ceramics; FKM	
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	
Restrictor element integrated	no (can be retrofitted)	
Displays / operating elements		
Display	Display unit	4 x LED, green (bar, psi, kPa, inHg)
	Switching status	2 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit
Remarks		
Pack quantity	1 pcs.	
Electrical connection		
Connector: 1 x M12; Contacts: gold-plated		

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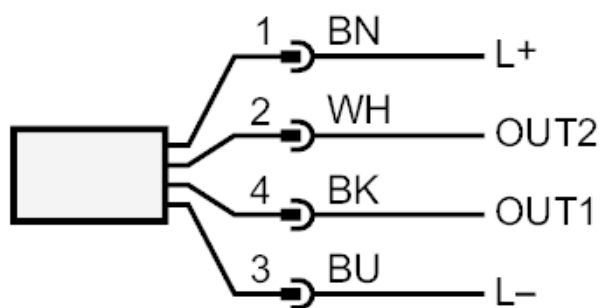


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### Connection



OUT1	Switching output IO-Link
OUT2	Switching output Colours to DIN EN 60947-5-2 Core colors :
BK =	black
BN =	brown
BU =	blue
WH =	white