

# PN7599



## Pressure sensor with display

PN-1-1BREG14-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°
- 5 Sealing



### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2				
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 external thread internal thread:M5				

### Application

Special feature	Gold-plated contacts				
Measuring element	ceramic-capacitive pressure measuring cell				
Application	for industrial applications				
Media	liquids and gases				
Medium temperature [°C]	-25...80				
Min. burst pressure	30000 mbar	450 psi	880 inHg	3000 kPa	
Pressure rating	10000 mbar	145 psi	290 inHg	1000 kPa	
Vacuum resistance	-1000 mbar		-0.1 MPa		
Type of pressure	relative pressure; vacuum				

### Electrical data

Operating voltage [V]	18...30 DC; (to SELV/PELV)				
Current consumption [mA]	< 35				
Min. insulation resistance [MΩ]	100; (500 V DC)				
Protection class	III				

# PN7599



## Pressure sensor with display

PN-1-1BREG14-QFRKG/US/ IV

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 / normally closed; (parameterisable)
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	pulsed
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	0.1 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	0.1 kPa

### Accuracy / deviations

Switch point accuracy [% of the span]	< ± 0,5
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K)
Characteristics deviation [% of the span]	< ± 0,25 (BFSL) / < ± 0,5 (LS); (BFSL = Best Fit Straight Line; LS = limit value setting)
Hysteresis deviation [% of the span]	< ± 0,25
Long-term stability [% of the span]	< ± 0,05; (per 6 months)
Temperature coefficient zero point	< ± 0,2; (-25...80 °C)

# PN7599



## Pressure sensor with display

PN-1-1BREG14-QFRKG/US/ IV

[% of the span / 10 K]	
Temperature coefficient span [% of the span / 10 K]	< ± 0,2; (-25...80 °C)

### Response times

Response time [ms]	< 3
Delay time programmable dS, dr [s]	0...50

### Software / programming

Parameter setting options	hysteresis / window; normally open / normally closed; switching logic; switch-on/switch-off delay; Damping; Display unit
---------------------------	--

### 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 type	A; (when pin 2 not connected: B)						
Process data analogue	1						
Process data binary	2						
Supported DeviceIDs	<table border="1"> <thead> <tr> <th>Type of operation</th> <th>DeviceID</th> </tr> </thead> <tbody> <tr> <td>Factory setting / CMPT = 2</td> <td>406</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>604</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	406	Status_B High Resolution / CMPT = 3	604
Type of operation	DeviceID						
Factory setting / CMPT = 2	406						
Status_B High Resolution / CMPT = 3	604						
Note	For further information please see the IODD PDF file under "Downloads"						

### Factory setting / CMPT = 2

Profiles	Smart Sensor - SSP 0	Generic Profiled Sensor
	Function	Device identification
	Function	Process data variable
	Function	Device diagnosis
Min. process cycle time [ms]		2.3
IO-Link resolution pressure	1 mbar	0.0001 MPa
IO-Link process data (cyclical)	<b>function</b>	<b>bit length</b>
	pressure	14
	binary switching information	2
IO-Link functions (acyclical)		application specific tag

### Status\_B High Resolution / CMPT = 3

Profiles	Smart Sensor - SSP 3.1	Measuring Sensor
	Common - I&D	Identification and Diagnosis
Min. process cycle time [ms]		3
IO-Link resolution pressure	1 mbar	0.0001 MPa
IO-Link process data (cyclical)	<b>function</b>	<b>bit length</b>
	pressure	16
	device status	4
	binary switching information	2
IO-Link functions (acyclical)		application specific tag

### Operating conditions

Ambient temperature [°C]	-25...80
--------------------------	----------

# PN7599



## Pressure sensor with display

PN-1-1BREG14-QFRKG/US/ IV

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 no.	J001
Pressure Equipment Directive	Sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	

### Mechanical data

Weight	[g]	259.5
Materials	stainless steel (316L/1.4404); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (316L/1.4404); ceramics; FKM	
Min. pressure cycles	100 million	
Tightening torque	[Nm]	25...35; (recommended tightening torque; depends on the lubrication, the seal and the pressure load)
Process connection	threaded connection G 1/4 external thread internal thread:M5	
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; coding: A; Contacts: 4, gold-plated



# PN7599



## Pressure sensor with display

PN-1-1BREG14-QFRKG/US/ IV

### Connection



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