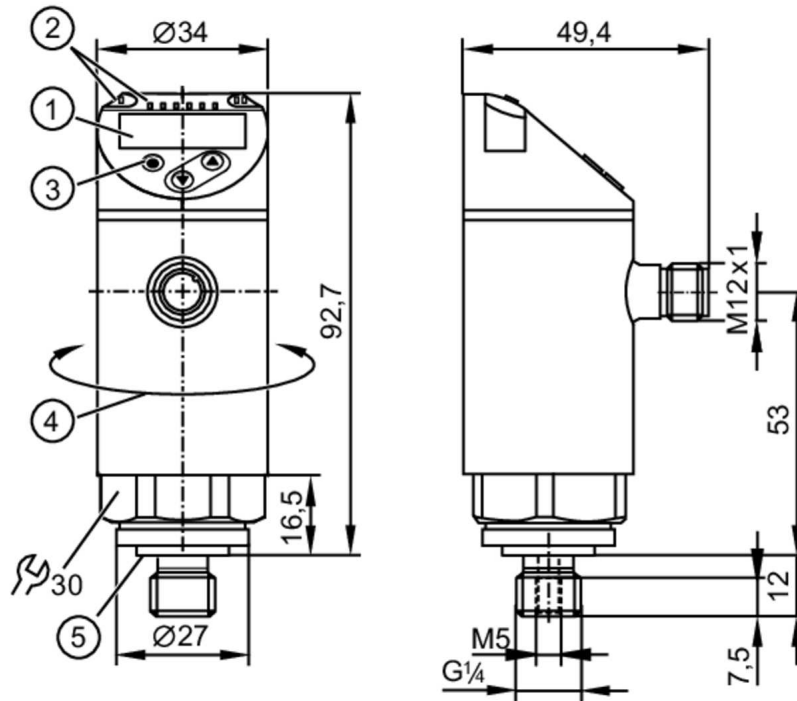


# PN7594



## Pressure sensor with display

PN-010-REG14-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...10 bar	-14.5...145 psi	-100...1000 kPa	-0.1...1 MPa
Process connection	threaded connection G 1/4 external thread Internal thread:M5			

### 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		
Min. bursting pressure	150 bar	2175 psi	15 MPa
Pressure rating	75 bar	1087 psi	7.5 MPa
Vacuum resistance [mbar]	-1000		
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		
Reverse polarity protection	yes		

# PN7594



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Power-on delay time [s]	< 0.3
Integrated watchdog	yes

### Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2
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### 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...10 bar	-14.5...145 psi	-100...1000 kPa	-0.1...1 MPa
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#### Factory setting / CMPT = 2

Set point SP	-0.9...10 bar	-13.5...145 psi	-0.09...1 MPa
Reset point rP	-0.95...9.95 bar	-14...144.5 psi	-0.095...0.995 MPa
Min. difference between SP and rP	0.05 bar	1 psi	0.005 MPa
In steps of	0.05 bar	0.5 psi	0.005 MPa

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

Set point SP	-0.92...10 bar	-13.3...145 psi	-0.092...1 MPa
Reset point rP	-0.97...9.95 bar	-14...144.3 psi	-0.097...0.995 MPa
Min. difference between SP and rP	0.05 bar	0.8 psi	0.005 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa

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

# PN7594



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PN-010-REG14-QFRKG/US/ IV

[% of the span / 10 K]

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								
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 analog	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>403</td> </tr> <tr> <td>PN7004</td> <td>311</td> </tr> <tr> <td>Status_B High Resolution / CMPT = 3</td> <td>601</td> </tr> </tbody> </table>	Type of operation	DeviceID	Factory setting / CMPT = 2	403	PN7004	311	Status_B High Resolution / CMPT = 3	601
Type of operation	DeviceID								
Factory setting / CMPT = 2	403								
PN7004	311								
Status_B High Resolution / CMPT = 3	601								
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 [bar]	0.01								
IO-Link resolution pressure [MPa]	0.001								
IO-Link process data (cyclical)	<table border="1"> <thead> <tr> <th>Function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>14</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table>	Function	bit length	pressure	14	binary switching information	2		
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]	0.005								
IO-Link resolution pressure [MPa]	0.0005								
IO-Link process data (cyclical)	<table border="1"> <thead> <tr> <th>Function</th> <th>bit length</th> </tr> </thead> <tbody> <tr> <td>pressure</td> <td>16</td> </tr> <tr> <td>device status</td> <td>4</td> </tr> <tr> <td>binary switching information</td> <td>2</td> </tr> </tbody> </table>	Function	bit length	pressure	16	device status	4	binary switching information	2
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								

# PN7594



## Pressure sensor with display

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Protection	IP 65; IP 67
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### 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]	260.5
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 external thread Internal thread:M5
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

### Remarks

Pack quantity	1 pcs.
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### Electrical connection

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



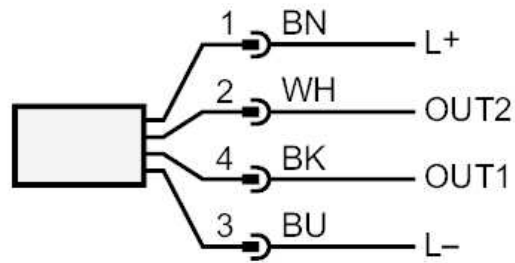
# PN7594



## Pressure sensor with display

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### Connection



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