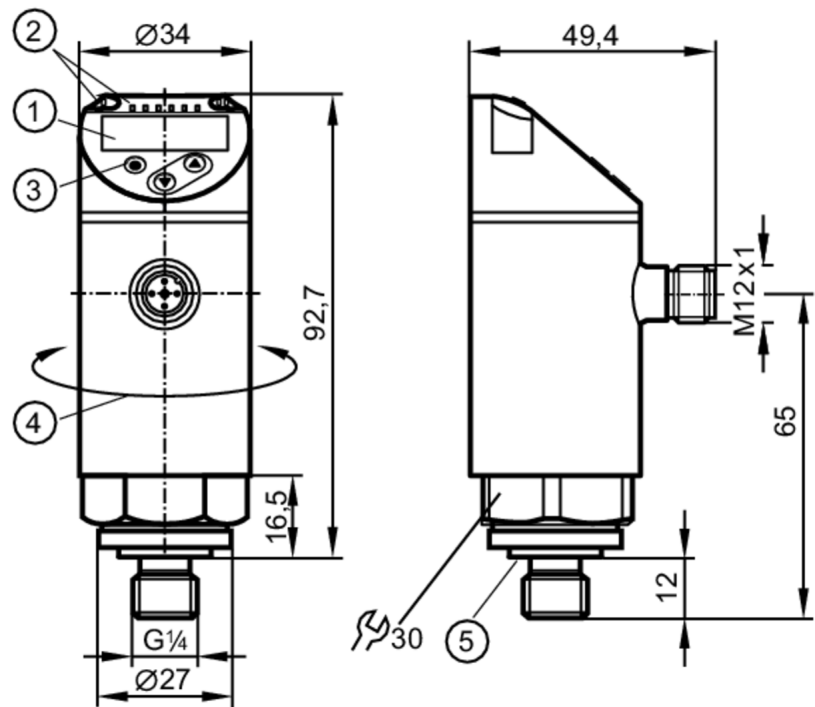


PN3594



Pressure sensor with display

PN-010-REG14-MFRKG/US/ /V



- 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				
Output signal	switching signal; analog signal; IO-Link; (configurable)			
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 (DIN EN ISO 1179-2); Internal thread:M5			
Application				
System	gold-plated contacts			
Measuring element	ceramic-capacitive pressure measuring cell			
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			



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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: 1; Number of analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link; (configurable)			
Electrical design		PNP			
Number of digital outputs		1			
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			
Number of analog outputs		1			
Analog current output	[mA]	4...20; (0 bar = 4 mA; 10 bar = 20 mA)			
Max. load	[Ω]	500			
Analog voltage output	[V]	0...10; (0 bar = 0 V; 10 bar = 10 V)			
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		-1...10 bar	-14.5...145 psi	-100...1000 kPa	-0.1...1 MPa
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		0.5 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		0.5 bar	0.8 psi	0.005 MPa	
In steps of		0.01 bar	0.1 psi	0.001 MPa	
Accuracy / deviations					
Switch point accuracy		< ± 0,5			



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

Reaction times

Response time	[ms]	< 3
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
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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	
Process data analog	1	
Process data binary	1	
Supported DeviceIDs	Type of operation	DeviceID
	Factory setting / CMPT = 2	431
	Status_B High Resolution / CMPT = 3	615
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]	0.01	
IO-Link resolution pressure [MPa]	0.001	
IO-Link process data (cyclical)	Function	bit length
	pressure	14
	binary switching information	1
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)	Function	bit length
	pressure	16
	device status	4
	binary switching information	1
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]	226	
UL approval	UL approval number	J004
Pressure equipment directive	sound engineering practice; can be used for group 2 fluids; group 1 fluids on request	
Mechanical data		
Weight [g]	281.5	
Material	stainless steel (1.4404 / 316L); PBT+PC-GF30; PBT-GF20; PC	
Materials (wetted parts)	stainless steel (1.4404 / 316L); Al2O3 (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 (DIN EN ISO 1179-2); Internal thread:M5	
Process connection sealing	FKM (to DIN 3869)	
Restrictor element integrated	no (can be retrofitted)	

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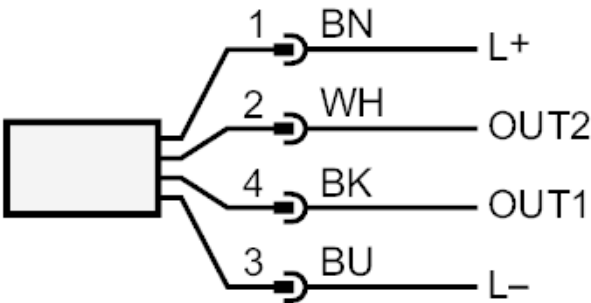
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Displays / operating elements		
Display	Display unit	3 x LED, green (bar, psi, MPa)
	Switching status	1 x LED, yellow
	Measured values	alphanumeric display, red/green 4-digit
Remarks		
Pack quantity	1 pcs.	
Electrical connection		
Connector: 1 x M12; Contacts: gold-plated		



Connection



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