

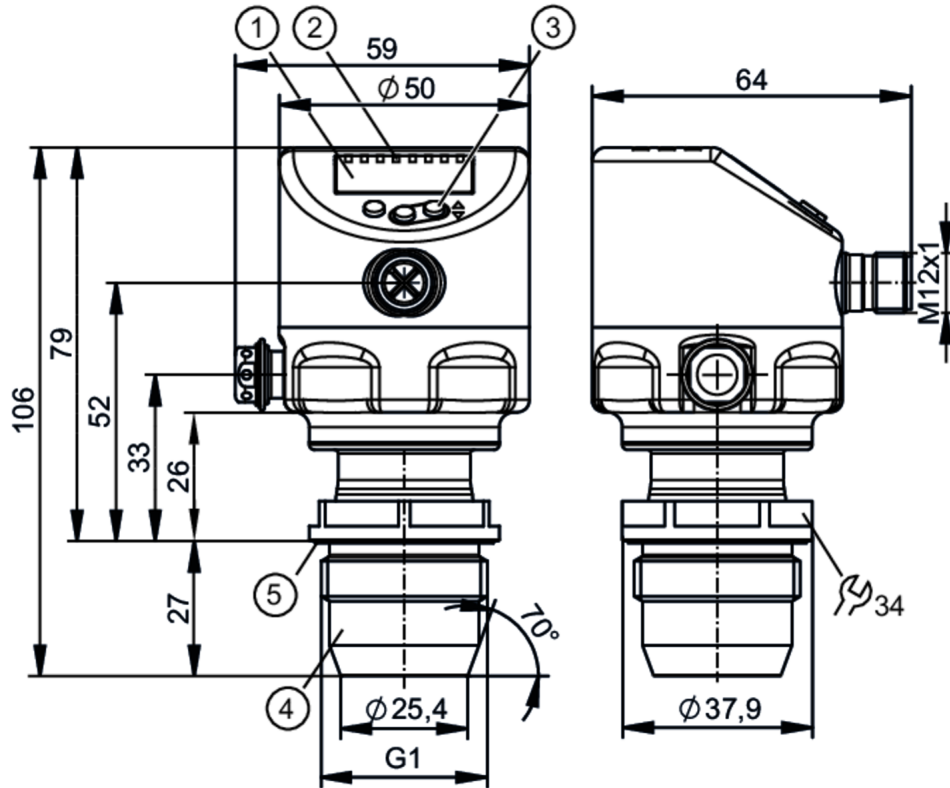
# PI1804



## Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ IP

When selecting an alternative article and accessories please note that technical data may differ!



- 1 alphanumeric display 4-digit
- 2 status LEDs
- 3 programming button
- 4 G1 sealing cone external thread  
Attention: The unit must only be installed in a process connection for G1 sealing cone.  
The G1A sealing cone of the unit is only suited for adapters with metal end stop.
- 5 groove with sealing ring



ACS



CRN



us

EC 1935/2004

EHDG

Tested

FCM



IO-Link

Reg31



UK

CA

### Product characteristics

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1		
Measuring range	-1...10 bar	-14.6...145 psi	-0.1...1 MPa
Process connection	threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.		

### Application

Special feature	Gold-plated contacts		
Application	flush mountable for the food and beverage industry		
Media	viscous media and liquids with suspended particles; liquids and gases		
Medium temperature [°C]	-25...150		
Min. bursting pressure	150 bar	2175 psi	15 MPa
Pressure rating	50 bar	725 psi	5 MPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		

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MAWP (for applications according to CRN)	[bar]	50
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### Electrical data

Min. insulation resistance	[MΩ]	100; (500 V DC)
Protection class		III
Reverse polarity protection		yes
Integrated watchdog		yes

### 2-wire

Operating voltage	[V]	20...30 DC
Current consumption	[mA]	3.5...21.5
Power-on delay time	[s]	< 1

### 3-wire

Operating voltage	[V]	18...30 DC
Current consumption	[mA]	5...45; (430 bei max. Laststrom)
Power-on delay time	[s]	< 0.5

### Inputs / outputs

Number of inputs and outputs	Number of digital outputs: 2; Number of analogue outputs: 1	
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### Outputs

Total number of outputs	2	
Output signal	switching signal; analogue signal; IO-Link	
Electrical design	PNP/NPN	
Number of digital outputs	2	
Output function	normally open / normally closed; (parameterisable)	
Number of analogue outputs	1	
Analogue current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection	yes	
Type of short-circuit protection	pulsed	
Overload protection	yes	

### 2-wire

Max. load	[Ω]	300
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### 3-wire

Max. voltage drop switching output DC	[V]	2
Permanent current rating of switching output DC	[mA]	100
Switching frequency DC	[Hz]	125
Max. load	[Ω]	(U <sub>b</sub> - 10 V) / 21,5 mA; 650 Ω (U <sub>b</sub> = 24 V)

### Measuring/setting range

Measuring range	-1...10 bar	-14.6...145 psi	-0.1...1 MPa
Set point SP	-0.99...10 bar	-14.3...145 psi	-0.099...1 MPa
Reset point rP	-1...9.99 bar	-14.5...144.8 psi	-0.1...0.999 MPa
Analogue start point	-1...8 bar	-14.5...116 psi	-0.1...0.8 MPa
Analogue end point	1...10 bar	14.5...145 psi	0.1...1 MPa

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Min. difference between SP and rP	0.02 bar	0.3 psi	0.002 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa
Factory setting		SP1 = 2.50 bar	rP1 = 2.30 bar
		SP2 = 7.50 bar	rP2 = 7.30 bar
		ASP = 0.00 bar	AEP = 10.00 bar
		dAP = 0.06 s	dAA = 0.06 s

Temperature monitoring		
Measuring range	-25...150 °C	-13...302 °F

### Accuracy / deviations

Switch point accuracy [% of the span]	< ± 0,2; (DIN EN IEC 62828-1; Turn down 1:1)
Repeatability [% of the span]	< ± 0,1; (with temperature fluctuations < 10 K; Turn down 1:1)
Characteristics deviation [% of the span]	< ± 0,2; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1)
Linearity deviation [% of the span]	< ± 0,15; (Turn down 1:1)
Hysteresis deviation [% of the span]	< ± 0,15; (Turn down 1:1)
Long-term stability [% of the span]	< ± 0,1; (Turn down 1:1; per year)

Total deviation over temperature range	<b>Temperature range</b>	<b>total deviation</b>
	-25...15 °C	Characteristics deviation ± 0,05 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,1 % of the span / 10 K

Notes on the accuracy / deviation	for further details see section Diagrams and graphs
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Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x ( Umgebungstemperatur - Mediumtemperatur ))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

### Response times

Damping process value dAP [s]	0...99.99
Damping for the analogue output dAA [s]	0...99.99

2-wire		
Step response time analogue output [ms]	30	

3-wire		
Min. response time of switching output (dAP) [ms]	3	
Step response time analogue output [ms]	7	

Temperature monitoring		
Dynamic response T05 / T09 [s]	< 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s)	



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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	
Profiles	Identification and Diagnosis (0x4000), Measurement Data Channel (0x800A)	
SIO mode	yes	
Required master port type	A	
Min. process cycle time [ms]	5.6	
IO-Link resolution pressure [bar]	0.0005	
IO-Link resolution temperature [K]	0.2	
IO-Link process data (cyclical)	<b>function</b>	<b>bit length</b>
	pressure	32
	temperature	32
	device status	4
	binary switching information	2
IO-Link functions (acyclical)	application specific tag; internal temperature; operating hours counter; switching cycles counter; Pressure peak counter	
Supported DeviceIDs	<b>Type of operation</b>	<b>DeviceID</b>
	default	1156
Operating conditions		
Ambient temperature [°C]	-25...80	
Storage temperature [°C]	-40...100	
Protection	IP 67; IP 68; IP 69K	
Tests / approvals		
EMC	DIN EN 61326-1	
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]	214	
Note on approval	factory certificate available as download at <a href="http://www.factory-certificate.ifm">www.factory-certificate.ifm</a>	
UL approval	UL Approval no.	J049
	File number UL	E174189
Mechanical data		
Weight [g]	385.2	
Materials	stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA	
Materials (wetted parts)	ceramics (99.9 % Al <sub>2</sub> O <sub>3</sub> ); stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE	
Min. pressure cycles	100 million	
Tightening torque [Nm]	20	
Process connection	threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.	

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### Displays / operating elements

Display	Display unit	LED, green
	switching status	LED, yellow
	function display	alphanumeric display, 4-digit
	measured values	alphanumeric display, 4-digit
Display unit	bar; psi; MPa	

### Remarks

Pack quantity	1 pcs.
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### Electrical connection

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

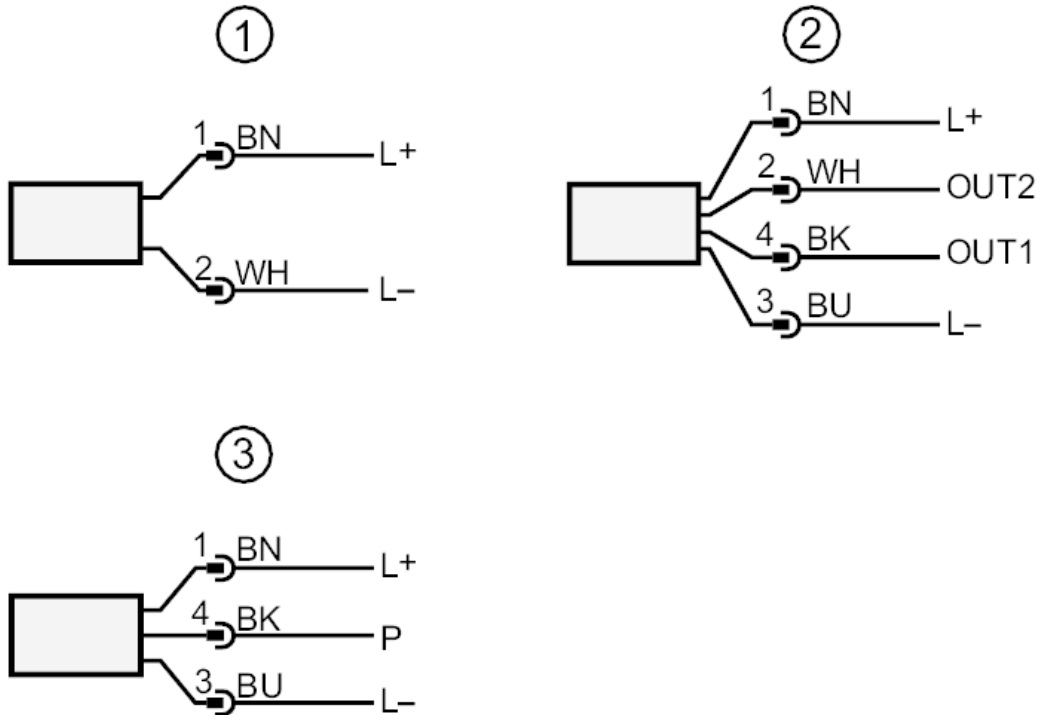




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### Connection



- 1 connection for 2-wire operation  
 2 connection for 3-wire operation  
 OUT1 switching output / IO-Link  
 OUT2 switching output / analogue output  
 3 connection for IO-Link parameter setting (P = communication via IO-Link)  
 colours to DIN EN 60947-5-2  
 Core colours  
 BK = black  
 BN = brown  
 BU = blue  
 WH = white

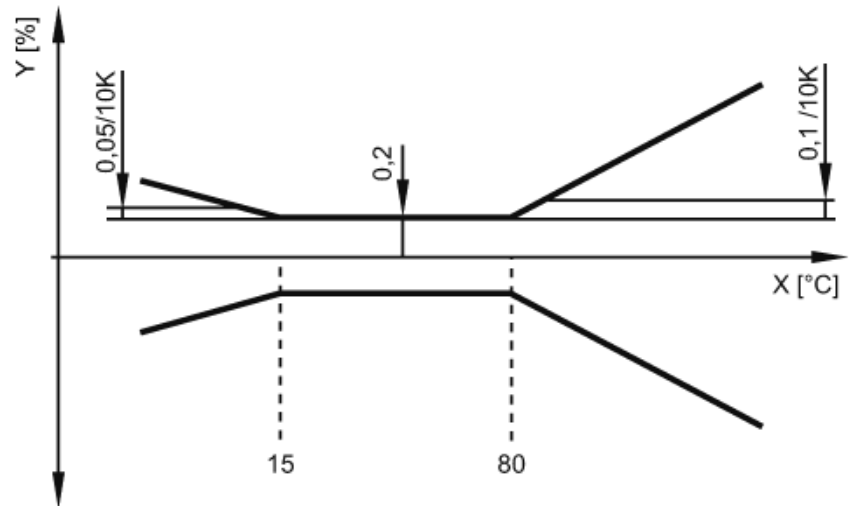


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### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation