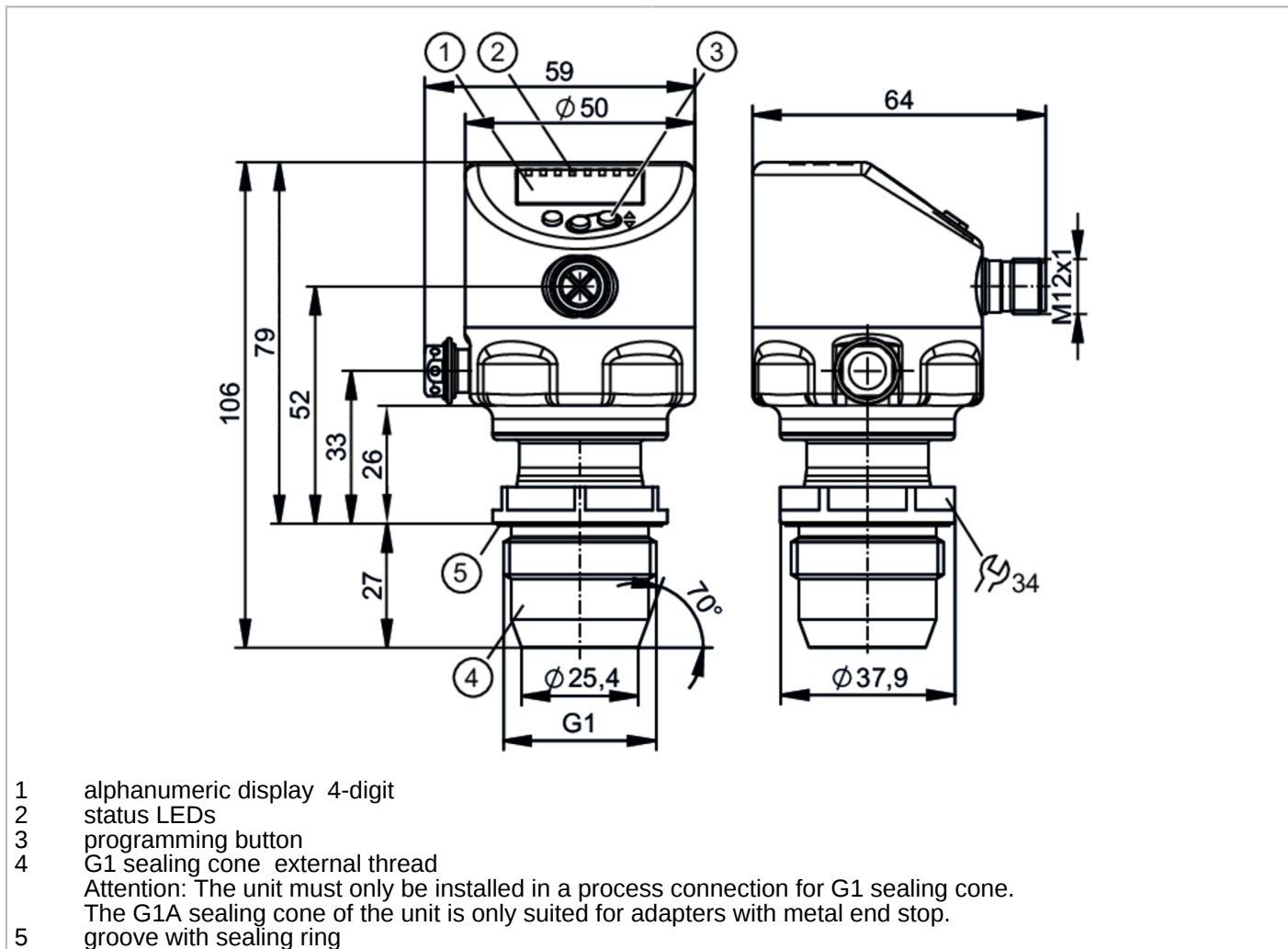


# PI1806



## Flush pressure sensor with display

PI-2,5-REA01-MFRKG/US/ IP



ACS



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	-0.124...2.5 bar	-1.8...36.25 psi	-50...1004 inH2O	-12.4...250 kPa
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	50 bar	725 psi	5000 MPa
Pressure rating	20 bar	290 psi	2000 kPa
Vacuum resistance [mbar]	-1000		
Type of pressure	relative pressure; vacuum		
No dead space	yes		



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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
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
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)



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Measuring/setting range				
Measuring range	-0.124...2.5 bar	-1.8...36.25 psi	-50...1004 inH2O	-12.4...250 kPa
Set point SP	-0.12...2.5 bar	-1.74...36.26 psi	-48...1004 inH2O	-12...250 kPa
Reset point rP	-0.124...2.496 bar	-1.8...36.2 psi	-50...1002 inH2O	-12.4...249.6 kPa
Analogue start point	-0.124...1.994 bar	-1.8...28.92 psi	-50...801 inH2O	-12.4...199.4 kPa
Analogue end point	0.382...2.5 bar	5.54...36.26 psi	153...1004 inH2O	38.2...250 kPa
Min. difference between SP and rP	0.004 bar	0.06 psi	2 inH2O	0.4 kPa
In steps of	0.001 bar	0.01 psi	1 inH2O	0.1 kPa
Factory setting			SP1 = 0.625 bar	rP1 = 0.575 bar
			SP2 = 1.875 bar	rP2 = 1.825 bar
			ASP = 0.00 bar	AEP = 2.50 bar
			dAP = 2.00 s	dAA = 2.00 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	Temperature range	total deviation		
	-25...15 °C	Characteristics deviation ± 0,05 % der Spanne / 10 K		
	15...80 °C	Characteristics deviation ± 0,1 % der Spanne / 10 K		
80...150 °C	Characteristics deviation ± 0,1 % der Spanne / 10 K			
Notes on the accuracy / deviation	for further details see section Diagrams and graphs			
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			

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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)
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]	0.0001
IO-Link resolution temperature	[K]	0.2
IO-Link process data (cyclical)	function	bit length
	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	Type of operation	DeviceID
	Default	1154 d
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>	

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Mechanical data	
Weight [g]	384.8
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]	35
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.

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; kPa; inH <sub>2</sub> O	

Remarks	
Pack quantity	1 pcs.

### Electrical connection

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

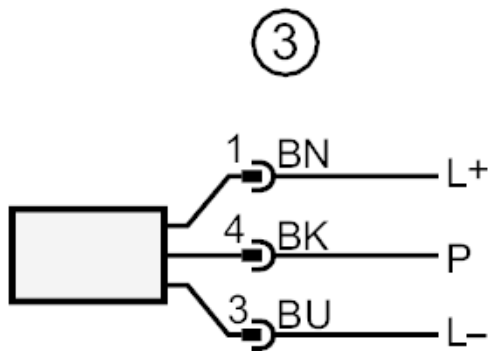
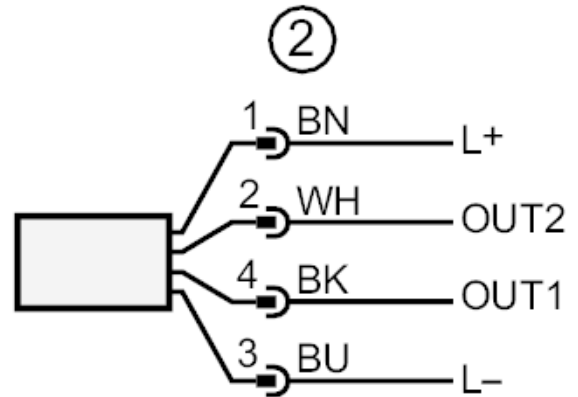
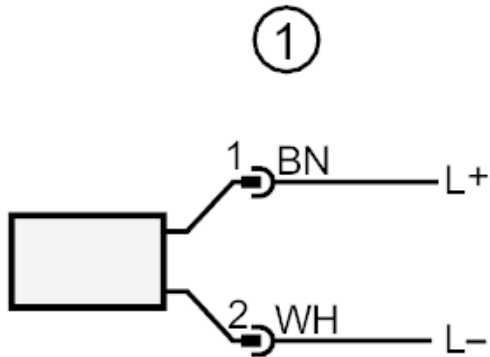




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### Connection



- 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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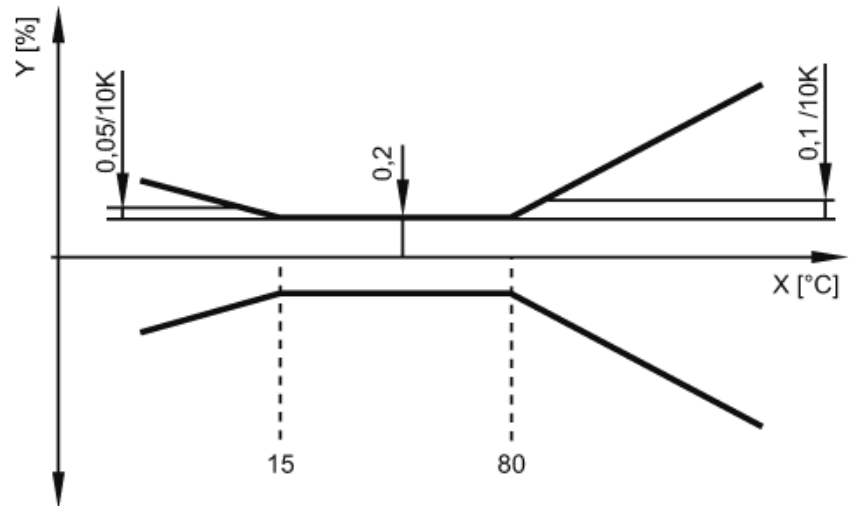


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### Diagrams and graphs

ambient temperature influence on the accuracy



X temperature  
Y total deviation