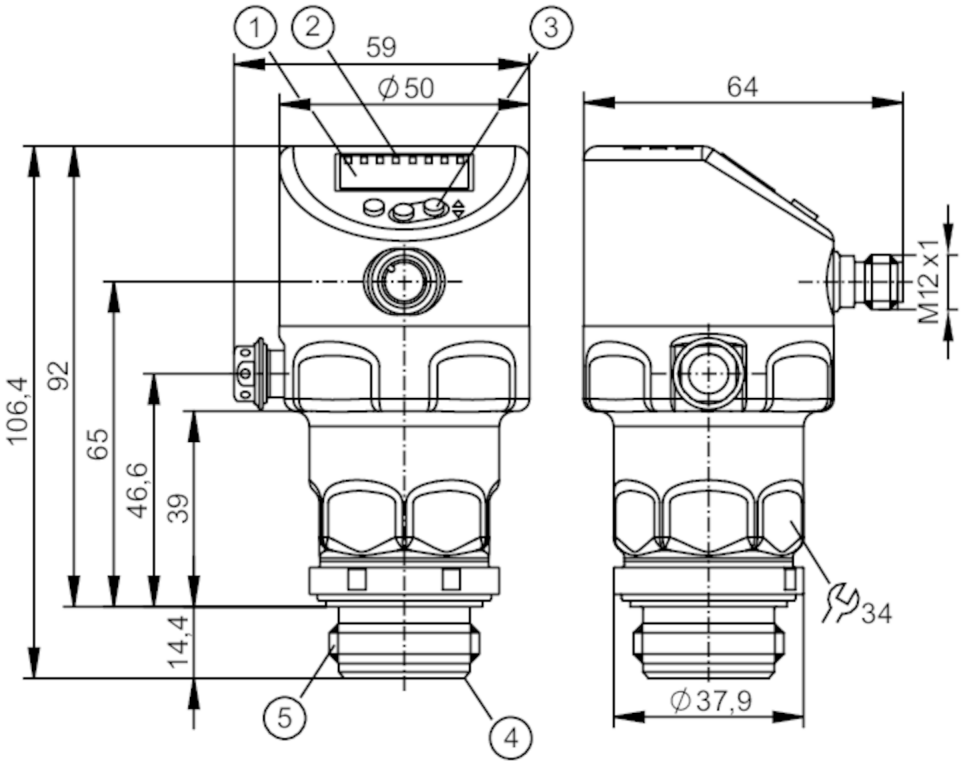
PI1003

Flush pressure sensor with display

PI-025-RES30-MFRKG/US/ /P

Please do not use for new projects.
no more adapters available as accessories



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 Aseptoflex - sealing contour
5 external thread Aseptoflex S30x2

EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Process connection	threaded connection S30x2 external thread Aseptoflex		

Application			
System	gold-plated contacts		
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x		
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. burst pressure	350 bar	5075 psi	35 MPa
Pressure rating	100 bar	1450 psi	10 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1003

Flush pressure sensor with display

PI-025-RES30-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Set point SP		-0.96...25 bar	-14...362.6 psi	-0.096...2.5 MPa
Reset point rP		-1...24.96 bar	-14.5...362.1 psi	-0.1...2.496 MPa
Analog start point		-1...20 bar	-14.5...290.1 psi	-0.1...2 MPa
Analog end point		4...25 bar	58...362.6 psi	0.4...2.5 MPa
Min. difference between SP and rP		0.04 bar	0.6 psi	0.004 MPa
In steps of		0.01 bar	0.1 psi	0.001 MPa

PI1003

Flush pressure sensor with display

PI-025-RES30-MFRKG/US/ /P

Factory setting		SP1 = 6.25 bar	rP1 = 5.75 bar
		SP2 = 18.75 bar	rP2 = 18.25 bar
		ASP = 0.00 bar	AEP = 25.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1003

Flush pressure sensor with display

PI-025-RES30-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.001	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1157
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]	201	
UL approval		UL approval number	J035
		File number UL	E174189
Mechanical data			
Weight	[g]	348.9	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106.4	
Material		stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	25	
Process connection		threaded connection S30x2 external thread Aseptoflex	
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	

PI1003

Flush pressure sensor with display

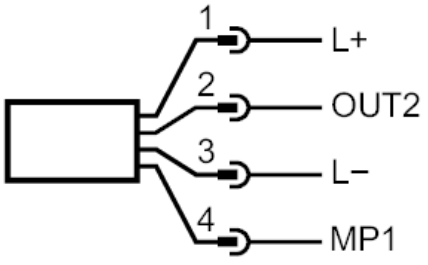
PI-025-RES30-MFRKG/US/ /P

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

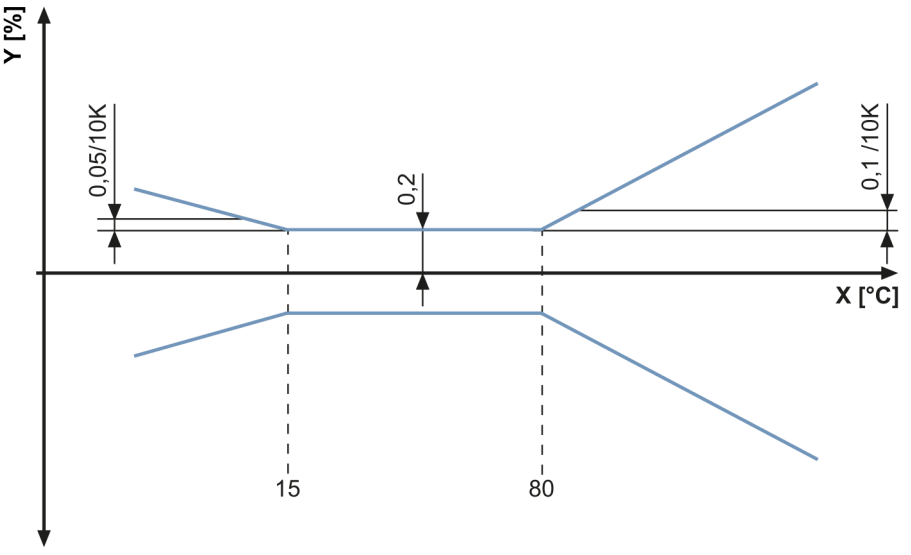
PI1003

Flush pressure sensor with display

PI-025-RES30-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



X temperature

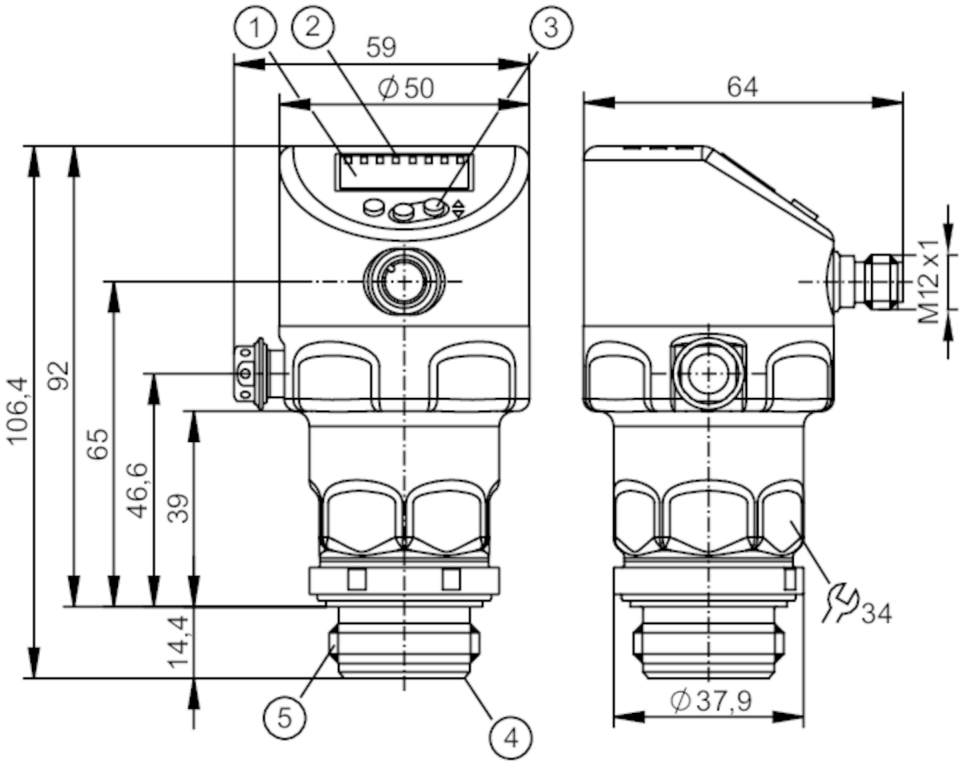
Y total deviation

PI1004

Flush pressure sensor with display

PI-010-RES30-MFRKG/US/ /P

Please do not use for new projects.
no more adapters available as accessories



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 Aseptoflex - sealing contour
5 external thread Aseptoflex S30x2

EC 1935/2004 EHEDG Tested FCM Hygienic Cleanable IO-Link TSDP/TÜV

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...10 bar	-14.6...145 psi	-0.1...1 MPa
Process connection	threaded connection S30x2 external thread Aseptoflex		

Application			
System	gold-plated contacts		
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x		
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. burst pressure	150 bar	2175 psi	15 MPa
Pressure rating	50 bar	725 psi	5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1004

Flush pressure sensor with display

PI-010-RES30-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 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
Analog start point		-1...8 bar	-14.5...116 psi	-0.1...0.8 MPa
Analog end point		1...10 bar	14.5...145 psi	0.1...1 MPa
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

PI1004

Flush pressure sensor with display

PI-010-RES30-MFRKG/US/ /P

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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1004

Flush pressure sensor with display

PI-010-RES30-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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)		**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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		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]	201	
UL approval		UL approval number	J048
		File number UL	E174189
Mechanical data			
Weight	[g]	349.1	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106.4	
Material		stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	25	
Process connection		threaded connection S30x2 external thread Aseptoflex	
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	

PI1004

Flush pressure sensor with display

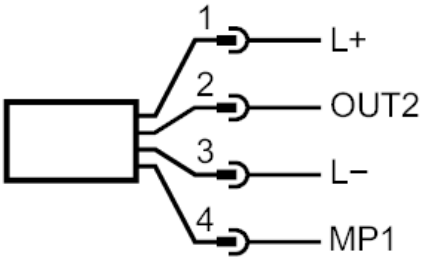
PI-010-RES30-MFRKG/US/ /P

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

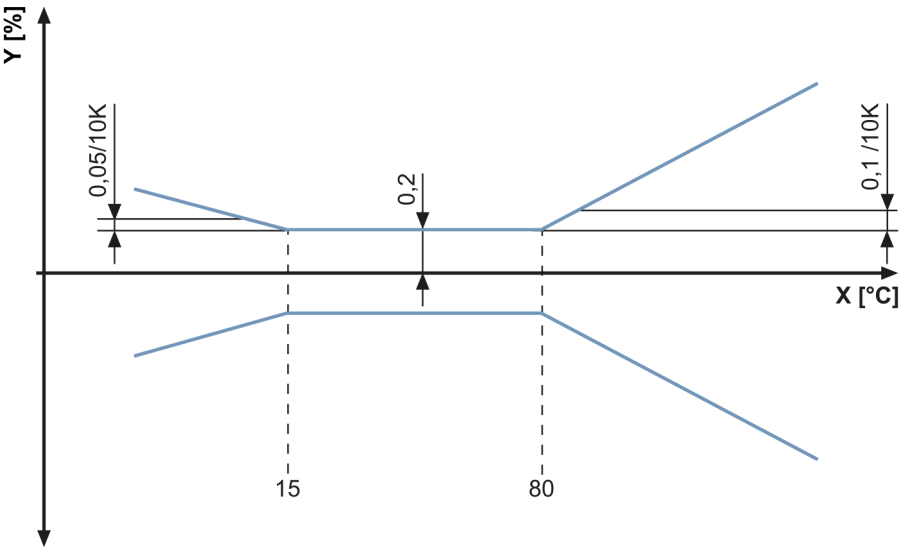
PI1004

Flush pressure sensor with display

PI-010-RES30-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



X temperature

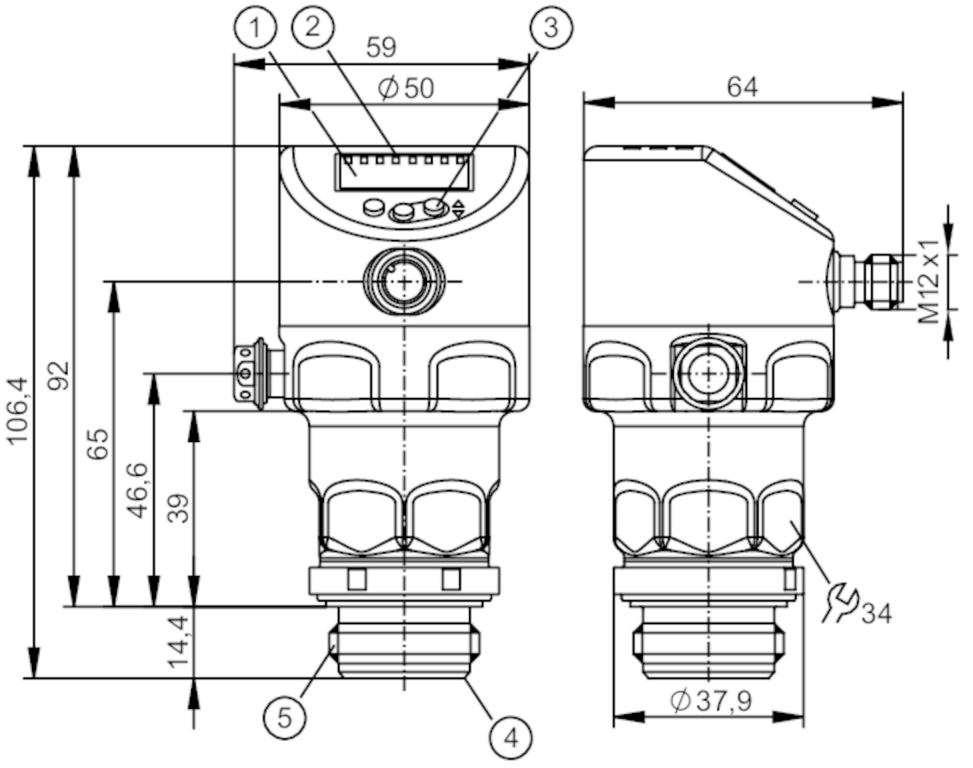
Y total deviation

PI1005

Flush pressure sensor with display

PI-004-RES30-MFRKG/US/ /P

Please do not use for new projects.
no more adapters available as accessories



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 Aseptoflex - sealing contour
5 external thread Aseptoflex S30x2

3A CE cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...4 bar	-14.5...58 psi	-100...400 kPa
Process connection	threaded connection S30x2 external thread Aseptoflex		

Application			
System	gold-plated contacts		
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x		
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. burst pressure	100 bar	1450 psi	10000 kPa
Pressure rating	30 bar	435 psi	3000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1005

Flush pressure sensor with display

PI-004-RES30-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...4 bar	-14.5...58 psi	-100...400 kPa
Set point SP		-0.994...4 bar	-14.4...58 psi	-99.4...400 kPa
Reset point rP		-1...3.994 bar	-14.5...57.9 psi	-100...399.4 kPa
Analog start point		-1...3.2 bar	-14.5...46.4 psi	-100...320 kPa
Analog end point		0.2...4 bar	-2.9...58 psi	-20...400 kPa
Min. difference between SP and rP		0.006 bar	0.1 psi	0.6 kPa
In steps of		0.001 bar	0.1 psi	0.1 kPa

PI1005

Flush pressure sensor with display

PI-004-RES30-MFRKG/US/ /P

Factory setting		SP1 = 1.00 bar	rP1 = 0.92 bar
		SP2 = 3.00 bar	rP2 = 2.92 bar
		ASP = 0.00 bar	AEP = 4.00 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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1005

Flush pressure sensor with display

PI-004-RES30-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.0002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1155
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]	201	
UL approval		UL approval number	J048
		File number UL	E174189
Mechanical data			
Weight	[g]	348.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106.4	
Material		stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	25	
Process connection		threaded connection S30x2 external thread Aseptoflex	
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	

PI1005

Flush pressure sensor with display

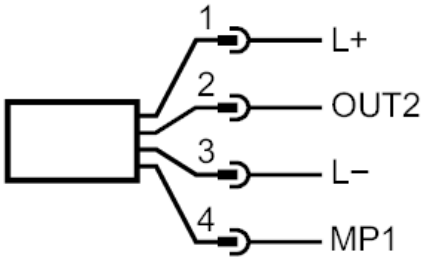
PI-004-RES30-MFRKG/US/ /P

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

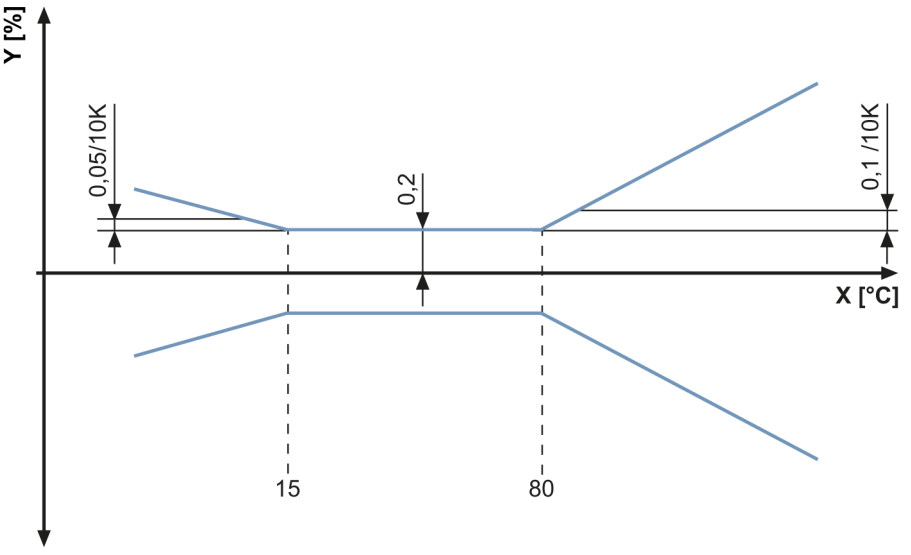
PI1005

Flush pressure sensor with display

PI-004-RES30-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



X temperature

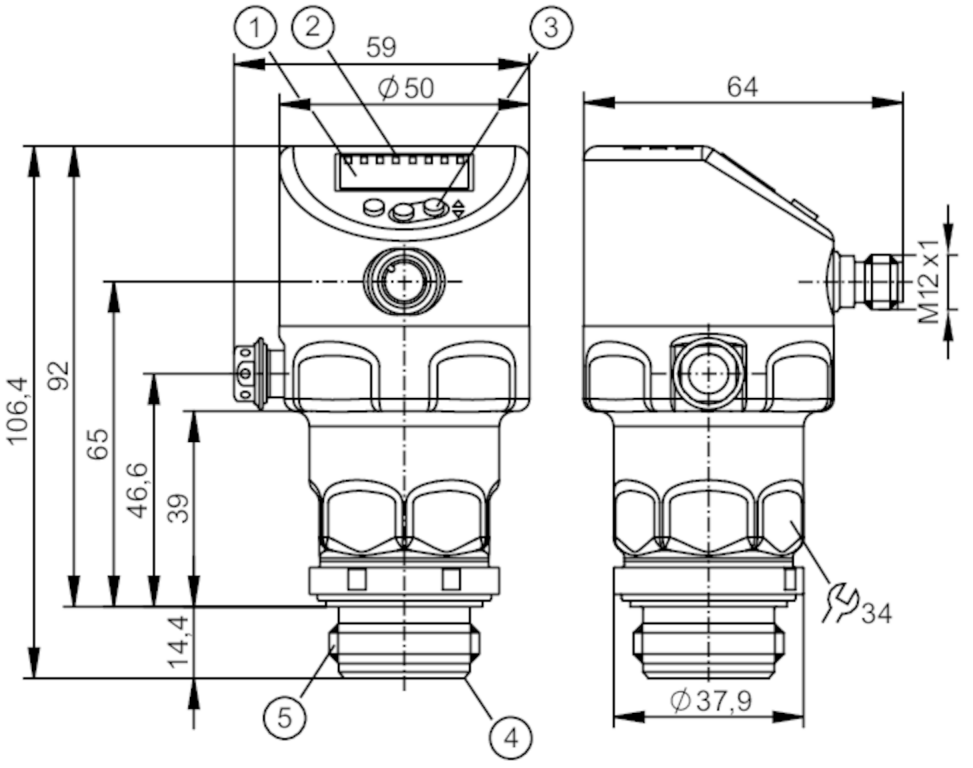
Y total deviation

PI1008

Flush pressure sensor with display

PI-,25BRES30-MFRKG/US/ /P

Please do not use for new projects.
no more adapters available as accessories



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 Aseptoflex - sealing contour
5 external thread Aseptoflex S30x2

EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
Process connection	threaded connection S30x2 external thread Aseptoflex			

Application				
System	gold-plated contacts			
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x			
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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	6000 mbar	2400 inH2O	600 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1008

Flush pressure sensor with display

PI-,25BRES30-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
Set point SP		-12...250 mbar	-4.8...100.4 inH2O	-1.2...25 kPa	-122...2549 mmWS
Reset point rP		-12.4...249.6 mbar	-5...100.2 inH2O	-1.24...24.96 kPa	-126...2545 mmWS
Analog start point		-12.4...199.4 mbar	-5...80.1 inH2O	-1.24...19.94 kPa	-126...2033 mmWS
Analog end point		38.2...250 mbar	15.3...100.4 inH2O	3.82...25 kPa	390...2549 mmWS
Min. difference between SP and rP		0.5 mbar	0.2 inH2O	0.05 kPa	5 mmWS
In steps of		0.1 mbar	0.1 inH2O	0.01 kPa	1 mmWS

PI1008

Flush pressure sensor with display

PI-,25BRES30-MFRKG/US/ /P

Factory setting		SP1 =62.5 mbar	rP1 = 57.5 mbar
		SP2 = 187.5 mbar	rP2 = 182.5 mbar
		ASP = 0.00 mbar	AEP = 250 mbar
		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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 ± 0,1 % of the span / 10 K	
	15...80 °C	Characteristics deviation	
	80...150 °C	Characteristics deviation ± 0,15 % of the span / 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		

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1008

Flush pressure sensor with display

PI-,25BRES30-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.01	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1152

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]	201	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	347.9	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106.4	
Material		stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	25	
Process connection		threaded connection S30x2 external thread Aseptoflex	

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		mbar; kPa; inH2O; mmWS	

PI1008

Flush pressure sensor with display

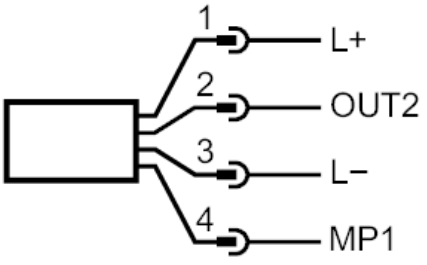
PI-,25BRES30-MFRKG/US/ /P

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

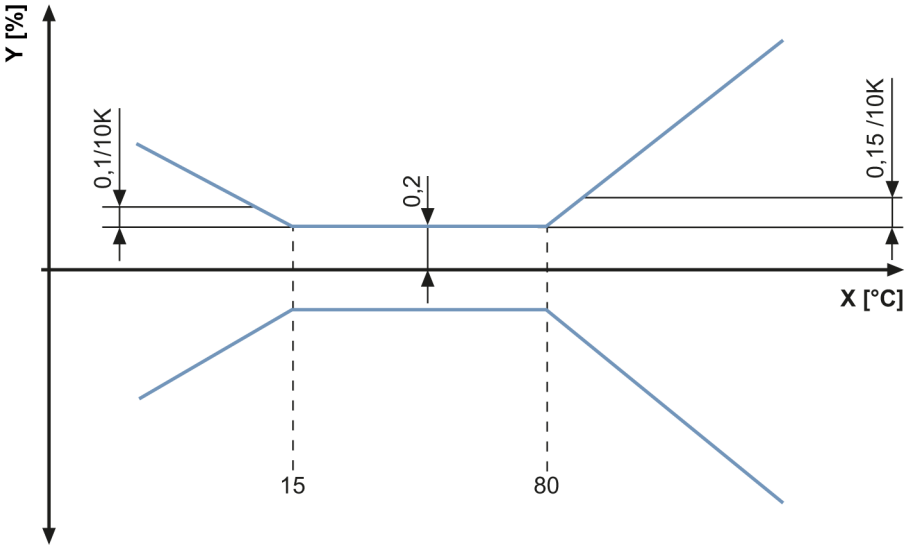
PI1008

Flush pressure sensor with display

PI-,25BRES30-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



X temperature

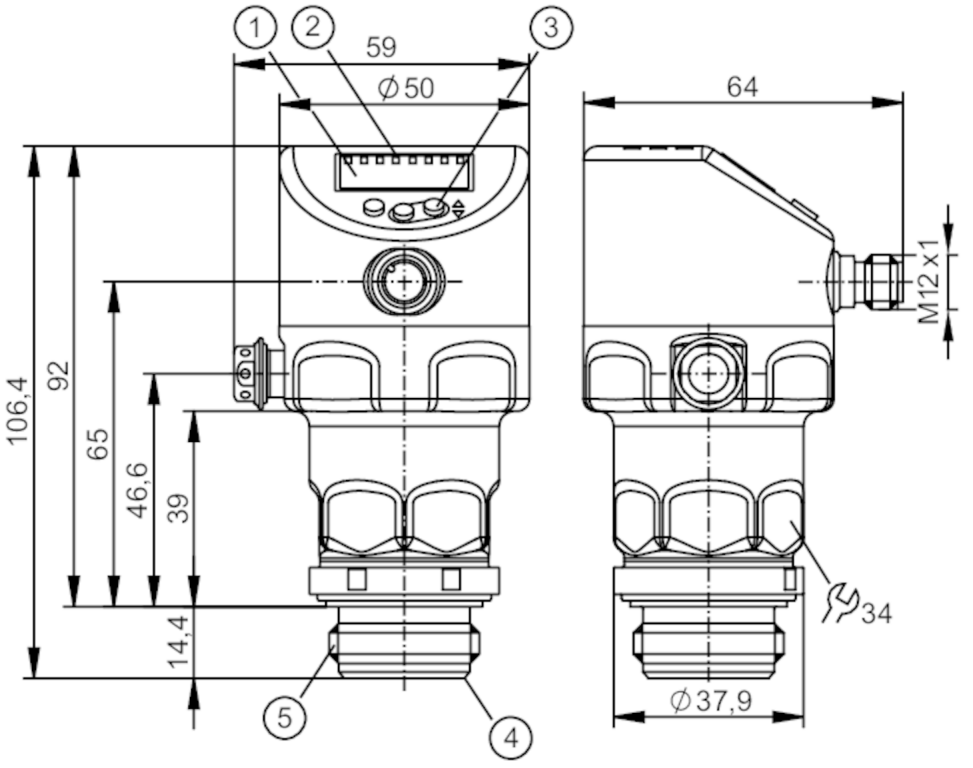
Y total deviation

PI1009

Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

Please do not use for new projects.
no more adapters available as accessories



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 Aseptoflex - sealing contour
5 external thread Aseptoflex S30x2

EC 1935/2004 EHEDG Tested FCM Hygienic Cleanable IO-Link TSDP/TÜV

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Process connection	threaded connection S30x2 external thread Aseptoflex			

Application			
System	gold-plated contacts		
Design	replacement for PI10xx, PI20xx, PI709x, PIM09x, PL205x, PM205x, PF205x		
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. burst pressure	30000 mbar	435 psi	3000 kPa
Pressure rating	10000 mbar	145 psi	1000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1009

Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Set point SP		-997...1000 mbar	-14.46...14.5 psi	-400...401 inH2O	-4.9...100 kPa
Reset point rP		-1000...997 mbar	-14.5...14.46 psi	-401...400 inH2O	-100...99.7 kPa
Analog start point		-1000...599 mbar	-14.5...8.68 psi	-401...240 inH2O	-100...59.9 kPa
Analog end point		-599...1000 mbar	-8.68...14.5 psi	-240...401 inH2O	-59.9...100 kPa
Min. difference between SP and rP		3 mbar	0.05 psi	2 inH2O	0.3 kPa
In steps of		1 mbar	0.01 psi	1 inH2O	0.1 kPa

PI1009

Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

Factory setting		SP1 = 250 mbar	rP1 = 230 mbar
		SP2 = 750 mbar	rP2 = 730 mbar
		ASP = 0 mbar	AEP = 1000 mbar
		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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1009

Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.1	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1151

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]	201	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	348.8	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106.4	
Material		stainless steel sleeve top: stainless steel (1.4404 / 316L); Pushbuttons: FKM; sealing: PTFE; M12 connector: PBT; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	25	
Process connection		threaded connection S30x2 external thread Aseptoflex	

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		mbar; psi; kPa; inH2O	

PI1009

Flush pressure sensor with display

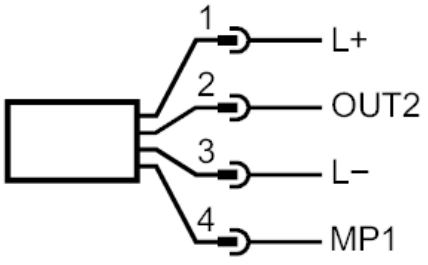
PI-1-1BRES30-MFRKG/US/ /P

Remarks	
Notes	Please do not use for new projects.; no more adapters available as accessories
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

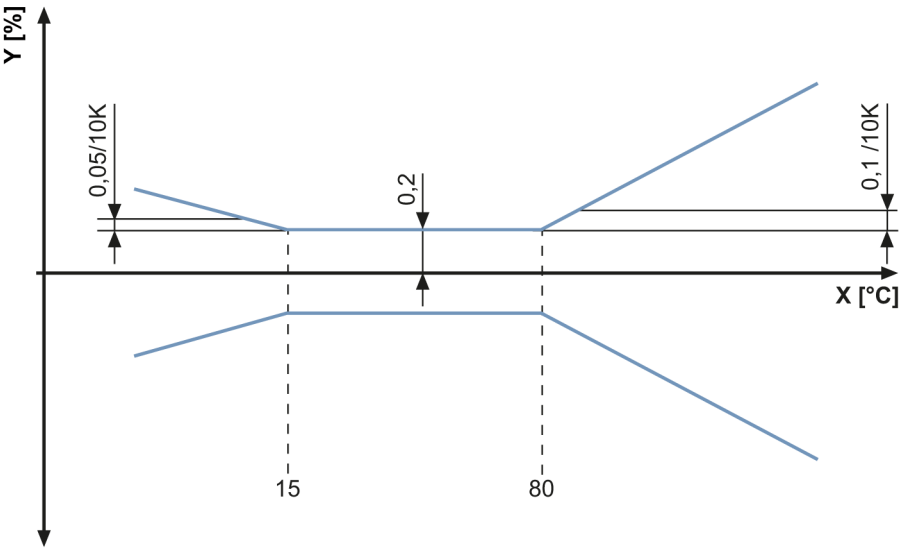
PI1009

Flush pressure sensor with display

PI-1-1BRES30-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



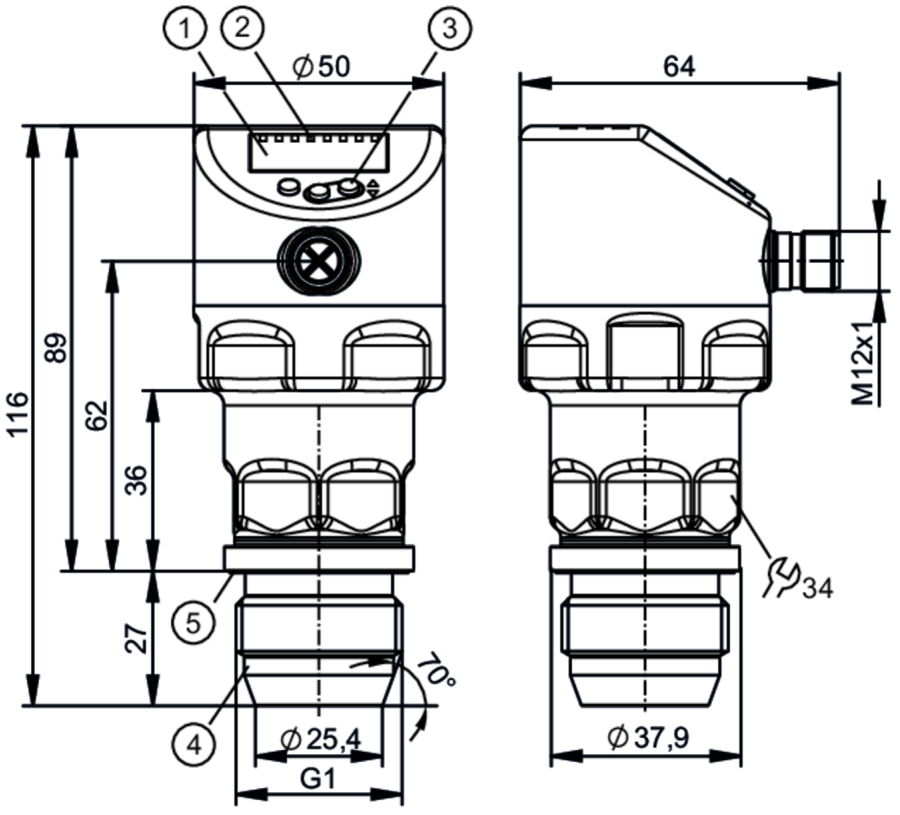
X temperature

Y total deviation

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 G1 sealing cone external thread
5 groove with sealing ring (DIN 3863-33)

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...100 bar	-14...1450 psi	-0.1...10 MPa
Process connection	threaded connection G 1 external thread sealing cone		
Application			
System	gold-plated contacts		
Application	flush mountable for the food and beverage industry		
Media	viscous media and liquids with suspended particles; liquids and gases; use in gases at pressures > 25 bar only on request		
Medium temperature [°C]	-25...150		
Min. burst pressure	650 bar	9425 psi	65 MPa
Pressure rating	200 bar	2900 psi	20 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
Electrical data			
Min. insulation resistance [MΩ]	100; (500 V DC)		

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...100 bar	-14...1450 psi	-0.1...10 MPa
Set point SP		-0.9...100 bar	-12...1450 psi	-0.09...10 MPa
Reset point rP		-1...99.9 bar	-15...1448 psi	-0.1...9.9 MPa
Analog start point		-1...80 bar	-15...1160 psi	-0.1...8 MPa
Analog end point		19...100 bar	276...1450 psi	1.9...10 MPa
Min. difference between SP and rP		0.2 bar	3 psi	0.02 MPa
In steps of		0.1 bar	1 psi	0.01 MPa

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P

Factory setting		SP1 = 25 bar	rP1 = 23 bar
		SP2 = 75 bar	rP2 = 73 bar
		ASP = 0.00 bar	AEP = 100 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]	< ± 0,5; (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]	< ± 0,5; (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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 ± 0,15 % of the span / 10 K	
	15...80 °C	Characteristics deviation	
	80...150 °C	Characteristics deviation ± 0,2 % of the span / 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		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.005	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1150
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	
UL approval		UL approval number	J034
		File number UL	E174189
Mechanical data			
Weight	[g]	395.1	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 116	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	20	
Process connection		threaded connection G 1 external thread sealing cone	
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	

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P

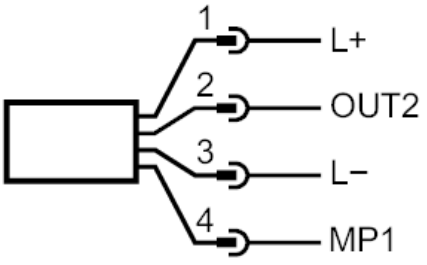
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

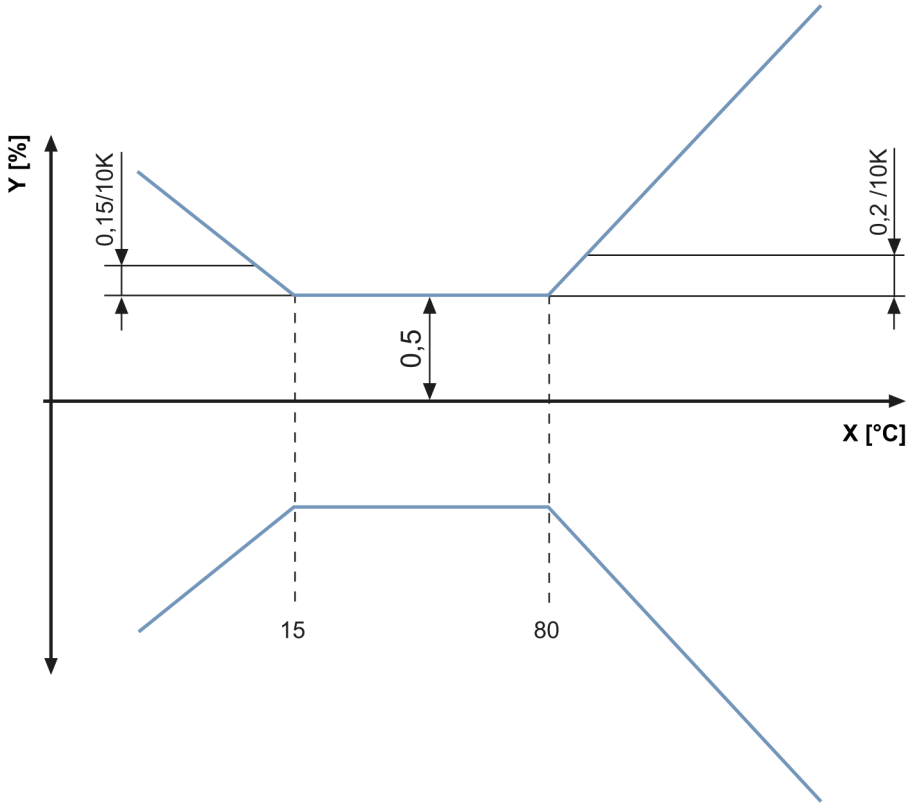
1	L+	
3	L-	
4	MP1	IO-Link

PI1602

Flush pressure sensor with display

PI-100-REA01-MFRKG/US/ /P

Diagrams and graphs



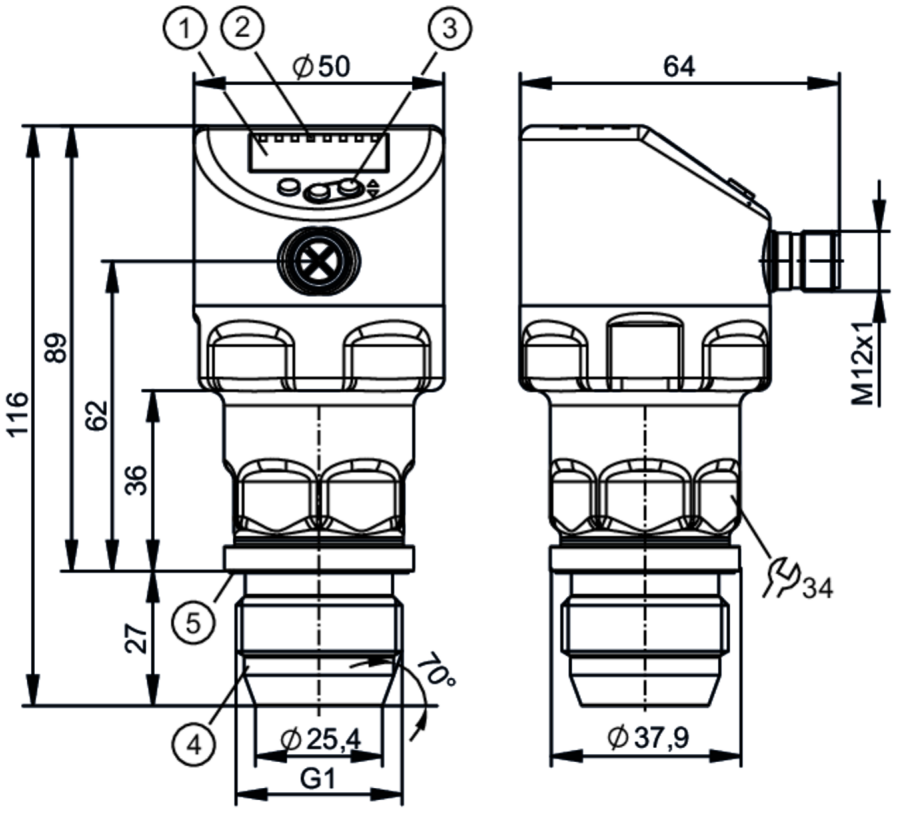
X temperature

Y total deviation

PI1612

Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 G1 sealing cone external thread
5 groove with sealing ring (DIN 3863-33)

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	0...160 bar	0...2320 psi	0...16 MPa
Process connection	threaded connection G 1 external thread sealing cone		
Application			
System	gold-plated contacts		
Application	flush mountable for the food and beverage industry		
Media	viscous media and liquids with suspended particles; liquids and gases; use in gases at pressures > 25 bar only on request		
Medium temperature [°C]	-25...150		
Min. burst pressure	650 bar	9425 psi	65 MPa
Pressure rating	200 bar	2900 psi	20 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
Electrical data			
Min. insulation resistance [MΩ]	100; (500 V DC)		
Protection class	III		
Reverse polarity protection	yes		

PI1612

Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		0...160 bar	0...2320 psi	0...16 MPa
Set point SP		0.2...160 bar	3...2321 psi	0.02...16 MPa
Reset point rP		0...159.8 bar	0...2317 psi	0...15.98 MPa
Analog start point		0...128 bar	0...1856 psi	0...12.8 MPa
Analog end point		32...160 bar	464...2321 psi	3.2...16 MPa
Min. difference between SP and rP		0.2 bar	3 psi	0.02 MPa
In steps of		0.1 bar	1 psi	0.01 MPa
Factory setting			SP1 = 40 bar	rP1 = 36.8 bar
			SP2 = 120 bar	rP2 = 116.8 bar
			ASP = 0.00 bar	AEP = 160 bar
			dAP = 0.06 s	dAA = 0.06 s

PI1612

Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ /P

Temperature monitoring			
Measuring range		-25...150 °C	-13...302 °F
Accuracy / deviations			
Switch point accuracy [% of the span]		< ± 0,5; (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]		< ± 0,5; (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)	
Zero-point stabilization [% of the span]		IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
		Display, Switching output	0,2
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 ± 0,15 % of the span / 10 K
		15...80 °C	Characteristics deviation
		80...150 °C	Characteristics deviation ± 0,2 % of the span / 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	
Reaction times			
Damping process value dAP	[s]	0...99.99	
Damping for the analog output dAA	[s]	0...99.99	
2-wire			
Step response time analog output	[ms]	30	
3-wire			
Min. response time of switching output (dAP)	[ms]	3	
Step response time analog output	[ms]	7	
Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution

PI1612

Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ /P

SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.005	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1825
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]	201	
UL approval		File number UL	E174189
Mechanical data			
Weight	[g]	399.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 116	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	20	
Process connection		threaded connection G 1 external thread sealing cone	
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.	

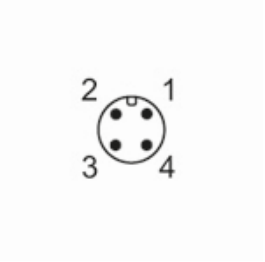
PI1612

Flush pressure sensor with display

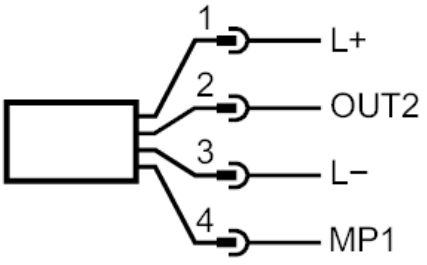
PI-160-REA01-MFRKG/US/ /P

Electrical connection

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



Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

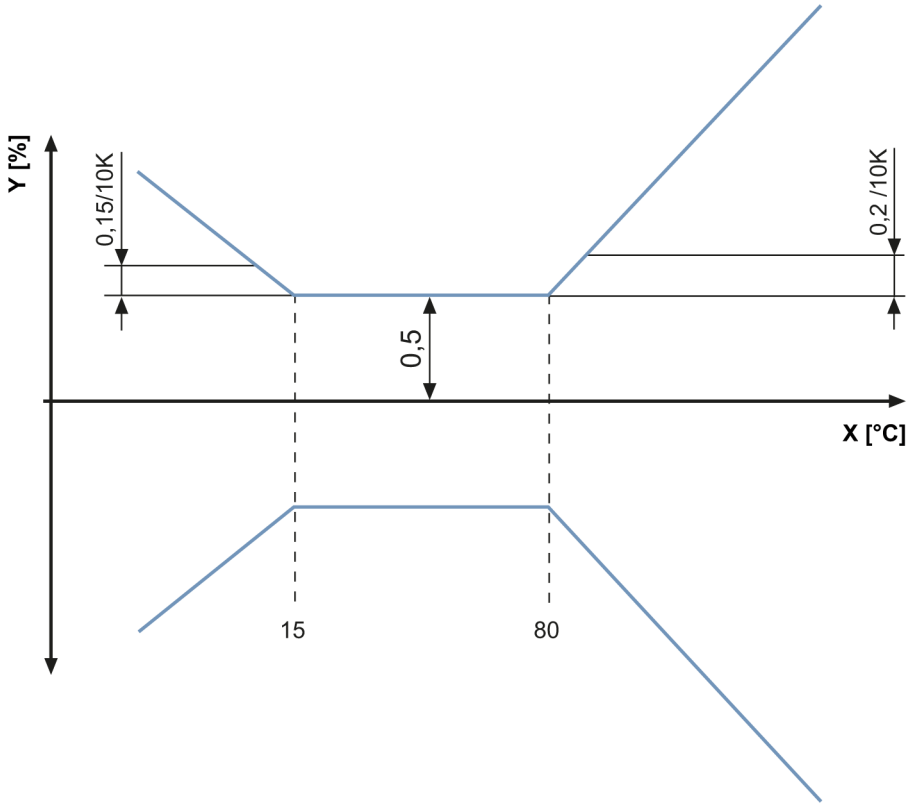
1	L+	
3	L-	
4	MP1	IO-Link

PI1612

Flush pressure sensor with display

PI-160-REA01-MFRKG/US/ /P

Diagrams and graphs



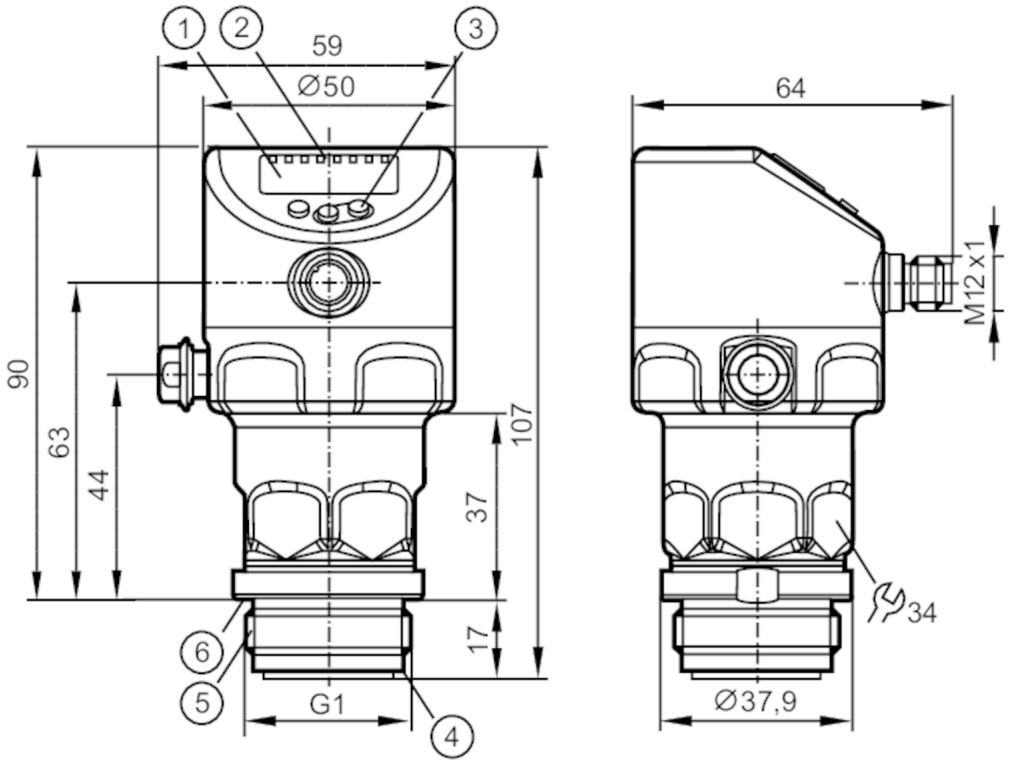
X temperature

Y total deviation

PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

Application			
System	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. burst pressure	350 bar	5075 psi	35 MPa
Pressure rating	100 bar	1450 psi	10 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	61		

PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Set point SP		-0.96...25 bar	-14...362.6 psi	-0.096...2.5 MPa
Reset point rP		-1...24.96 bar	-14.5...362.1 psi	-0.1...2.496 MPa
Analog start point		-1...20 bar	-14.5...290.1 psi	-0.1...2 MPa
Analog end point		4...25 bar	58...362.6 psi	0.4...2.5 MPa
Min. difference between SP and rP		0.04 bar	0.6 psi	0.004 MPa
In steps of		0.01 bar	0.1 psi	0.001 MPa

PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

Factory setting		SP1 = 6.25 bar	rP1 = 5.75 bar
		SP2 = 18.75 bar	rP2 = 18.25 bar
		ASP = 0.00 bar	AEP = 25.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.001	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1157
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	
UL approval		UL approval number	J035
		File number UL	E174189
Mechanical data			
Weight	[g]	358.2	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	
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	

PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

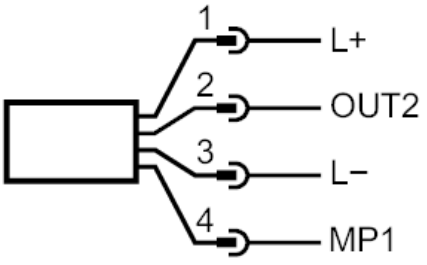
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

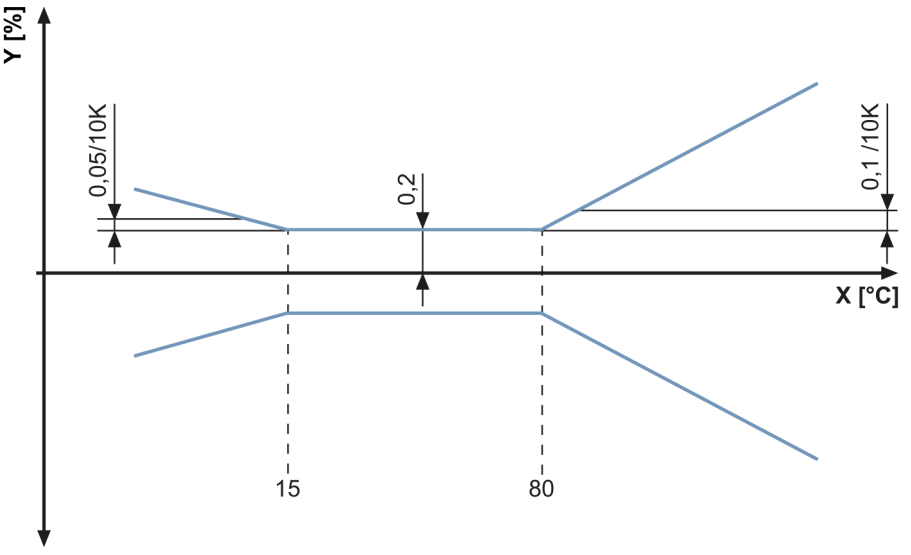
PI1703

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



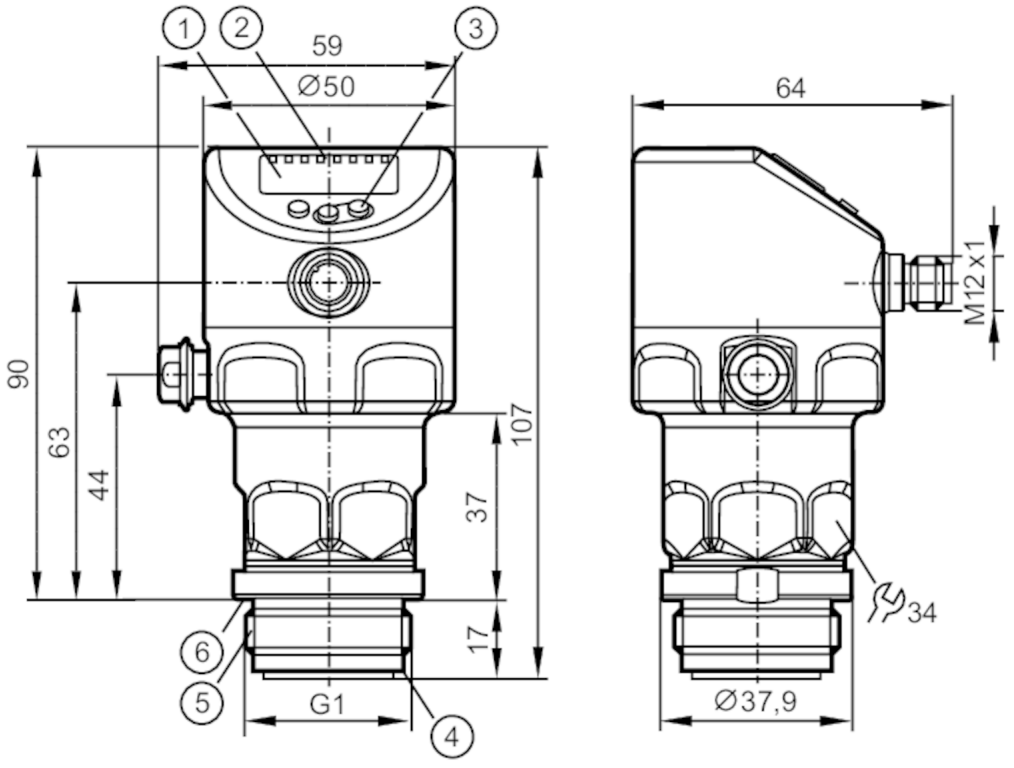
X temperature

Y total deviation

PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

ACS CRN EC 1935/2004 EHEDG Certified FCM IO-Link Reg31 TSDP/TÜV

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...10 bar	-14.6...145 psi	-0.1...1 MPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		
Application			
System	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. burst pressure	150 bar	2175 psi	15 MPa
Pressure rating	50 bar	725 psi	5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	10		

PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 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
Analog start point		-1...8 bar	-14.5...116 psi	-0.1...0.8 MPa
Analog end point		1...10 bar	14.5...145 psi	0.1...1 MPa
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

PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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)		**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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	360	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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	

PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

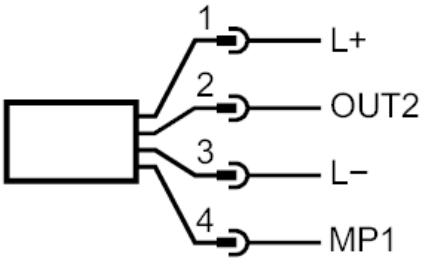
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

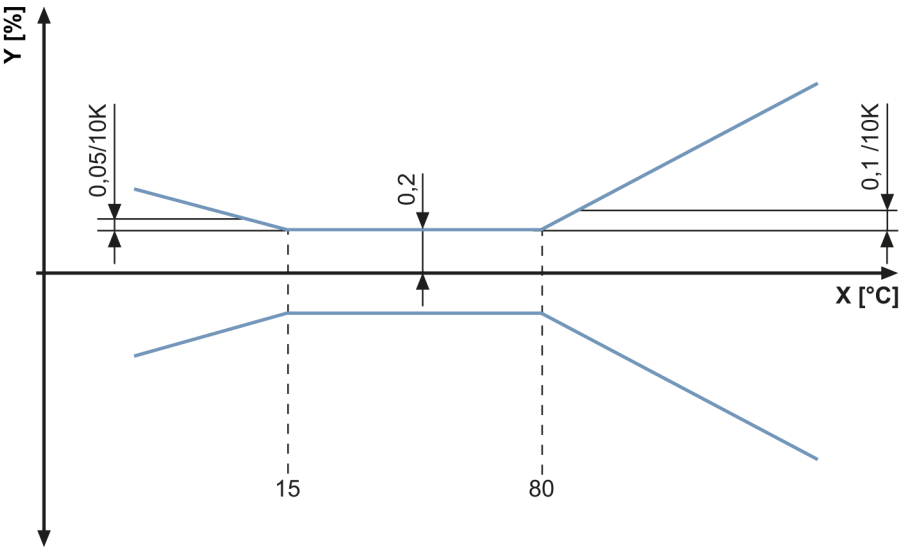
PI1704

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



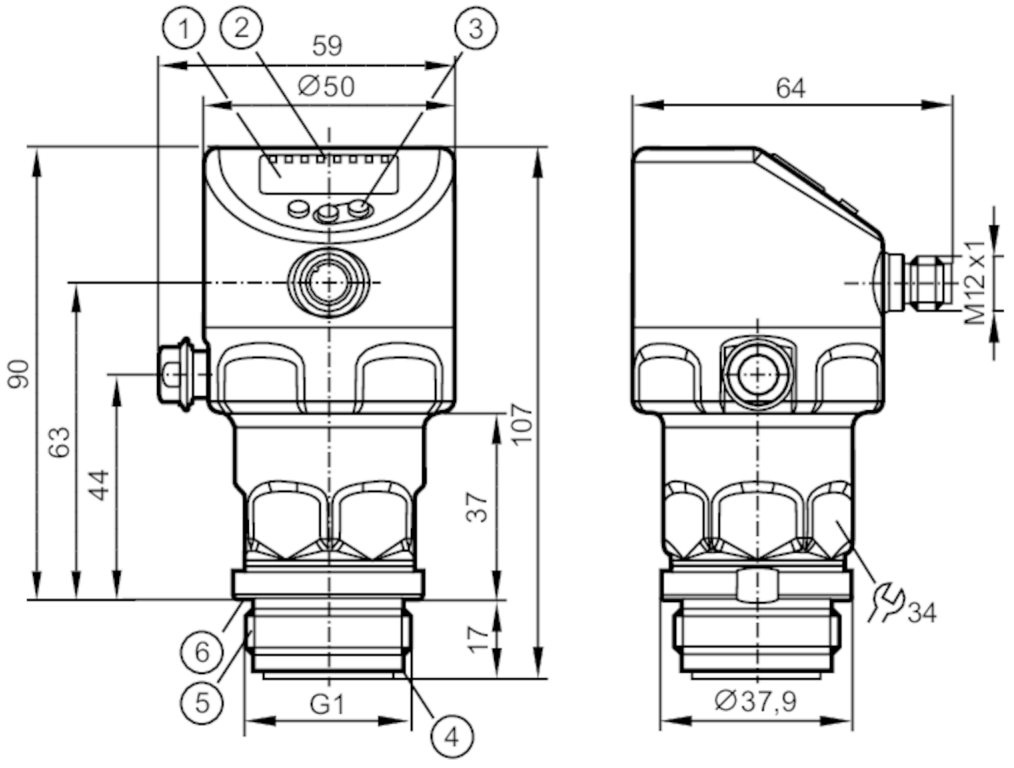
X temperature

Y total deviation

PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...4 bar	-14.5...58 psi	-100...400 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

Application			
System	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. burst pressure	100 bar	1450 psi	10000 kPa
Pressure rating	30 bar	435 psi	3000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	4		

PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...4 bar	-14.5...58 psi	-100...400 kPa
Set point SP		-0.994...4 bar	-14.4...58 psi	-99.4...400 kPa
Reset point rP		-1...3.994 bar	-14.5...57.9 psi	-100...399.4 kPa
Analog start point		-1...3.2 bar	-14.5...46.4 psi	-100...320 kPa
Analog end point		0.2...4 bar	-2.9...58 psi	-20...400 kPa
Min. difference between SP and rP		0.006 bar	0.1 psi	0.6 kPa
In steps of		0.001 bar	0.1 psi	0.1 kPa

PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

Factory setting		SP1 = 1.00 bar	rP1 = 0.92 bar
		SP2 = 3.00 bar	rP2 = 2.92 bar
		ASP = 0.00 bar	AEP = 4.00 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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.0002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1155

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	359.9	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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	

PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

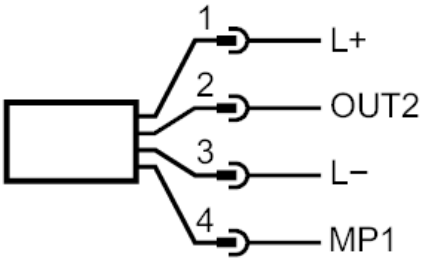
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

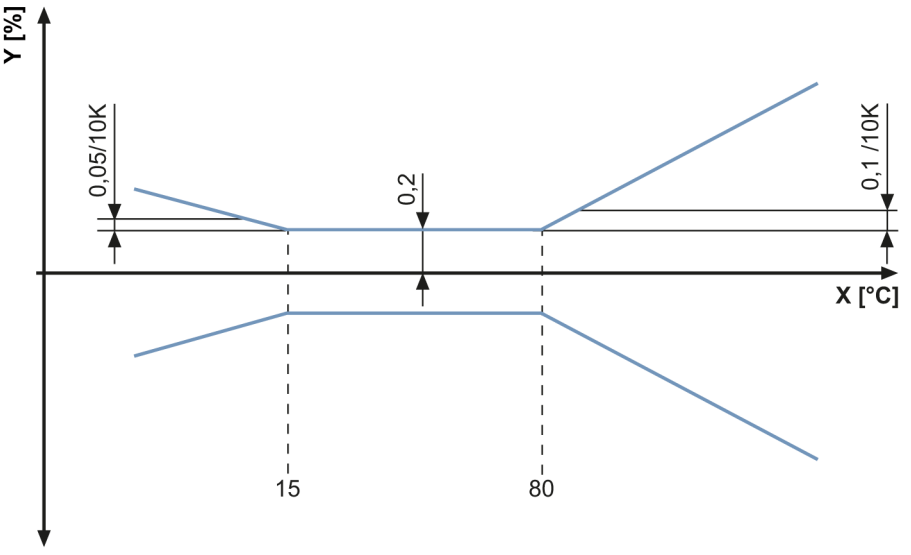
PI1705

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



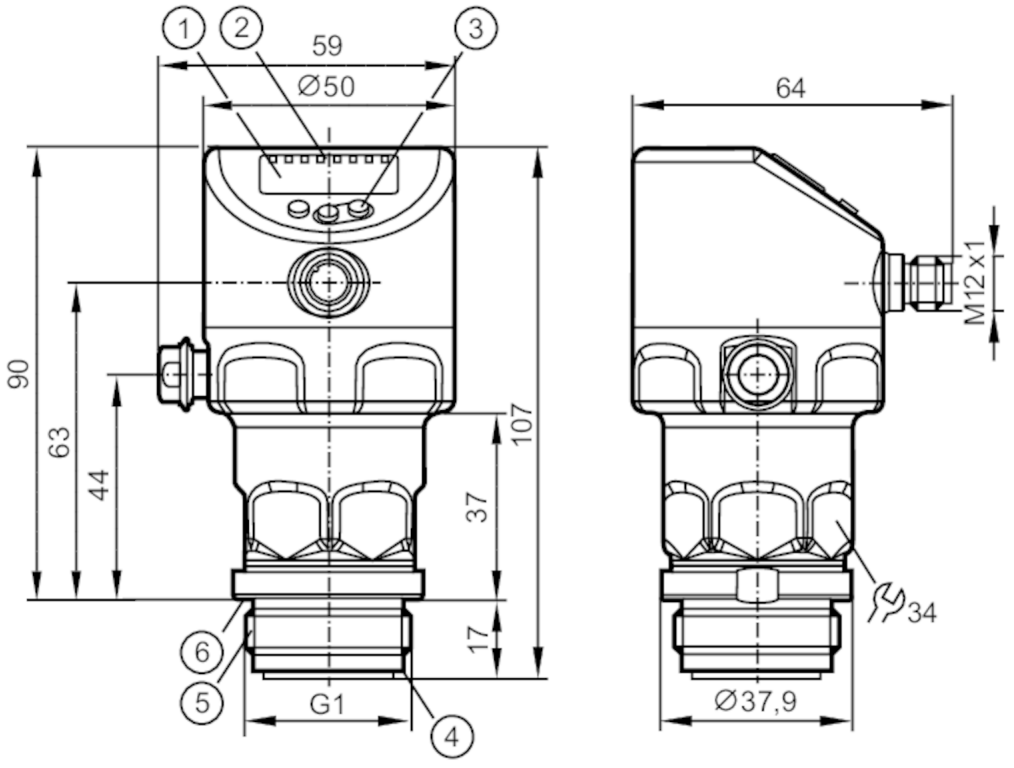
X temperature

Y total deviation

PI1706

Flush pressure sensor with display

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



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog 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 Aseptoflex Vario			

Application				
System	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. burst pressure	50 bar	725 psi	5000 kPa	
Pressure rating	20 bar	290 psi	2000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	2.5			

PI1706

Flush pressure sensor with display

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

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
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
Analog start point		-0.124...1.994 bar	-1.8...28.92 psi	-50...801 inH2O	-12.4...199.4 kPa
Analog 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

PI1706

Flush pressure sensor with display

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

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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1706

Flush pressure sensor with display

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

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1154

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	358.1	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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; inH2O	

PI1706

Flush pressure sensor with display

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

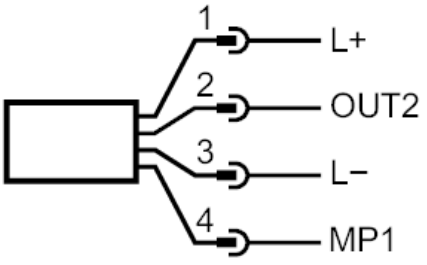
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

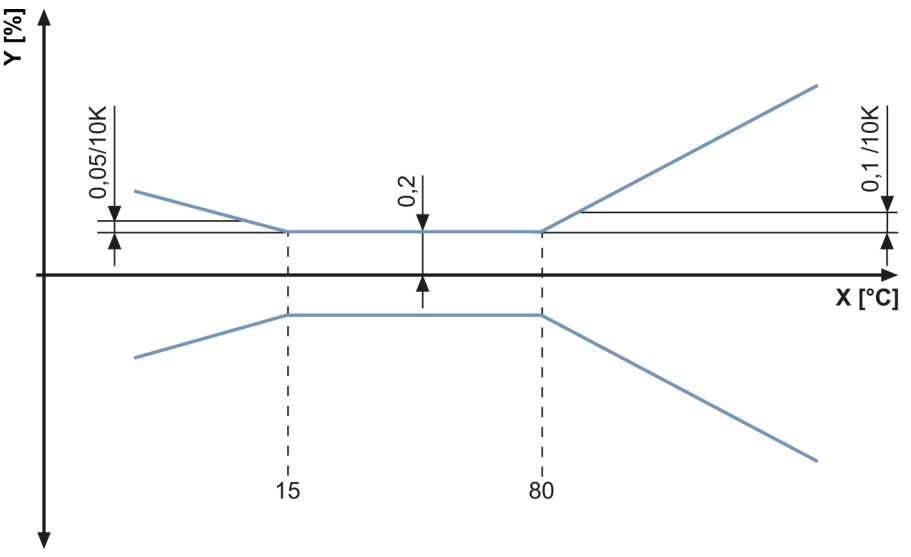
PI1706

Flush pressure sensor with display

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

Diagrams and graphs

ambient temperature influence on the accuracy



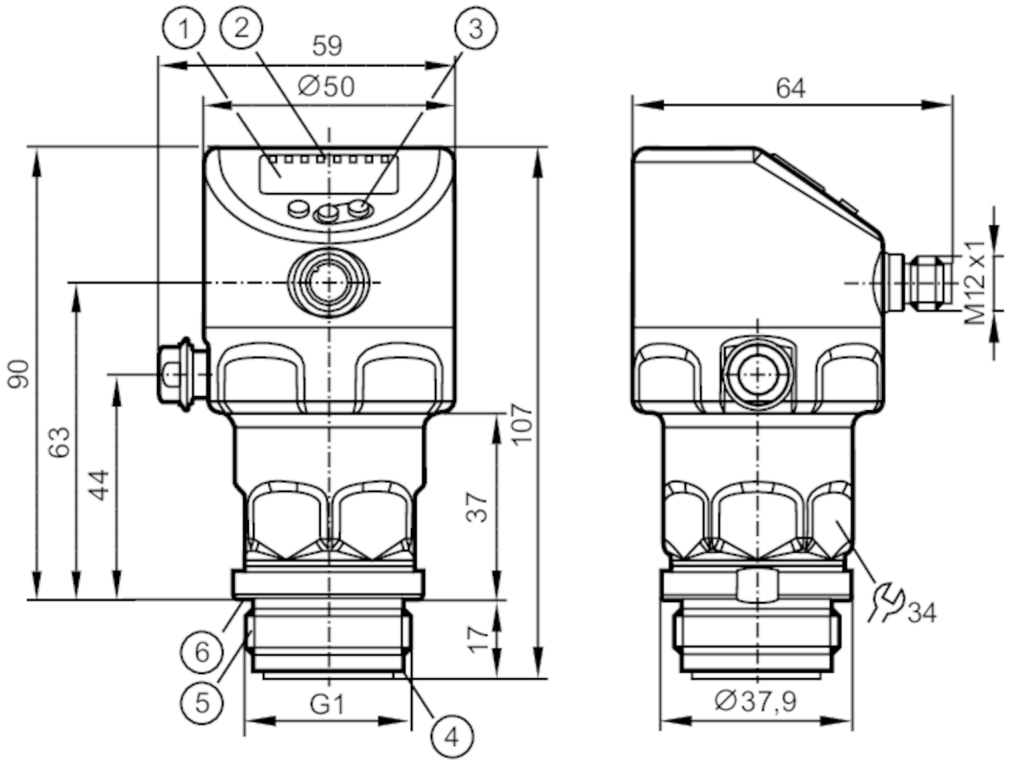
X temperature

Y total deviation

PI1707

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario			

Application				
System	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. burst pressure	30000 mbar	435 psi	3000 kPa	
Pressure rating	10000 mbar	145 psi	1000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	10			

PI1707

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 kPa
Set point SP		-49...1000 mbar	-0.7...14.5 psi	-19.5...401.5 inH2O	-4.9...100 kPa
Reset point rP		-50...999 mbar	-0.73...14.48 psi	-20.1...400.9 inH2O	-5...99.9 kPa
Analog start point		-50...800 mbar	-0.73...11.6 psi	-20.1...321.2 inH2O	-5...80 kPa
Analog end point		150...1000 mbar	2.18...14.5 psi	60.2...401.5 inH2O	15...100 kPa
Min. difference between SP and rP		2 mbar	0.03 psi	0.6 inH2O	0.2 kPa
In steps of		1 mbar	0.01 psi	0.1 inH2O	0.1 kPa

PI1707

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

Factory setting		SP1 =250 mbar	rP1 = 230 mbar
		SP2 = 750 mbar	rP2 = 730 mbar
		ASP = 0.00 mbar	AEP = 1000 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1707

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.05	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1153

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	356.9	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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		mbar; psi; kPa; inH2O	

PI1707

Flush pressure sensor with display

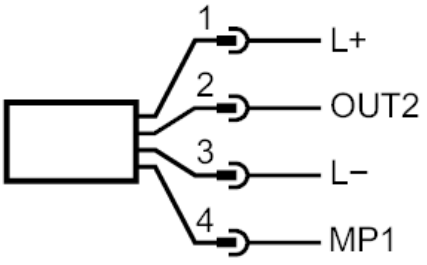
PI-001BREA01-MFRKG/US/ /P

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

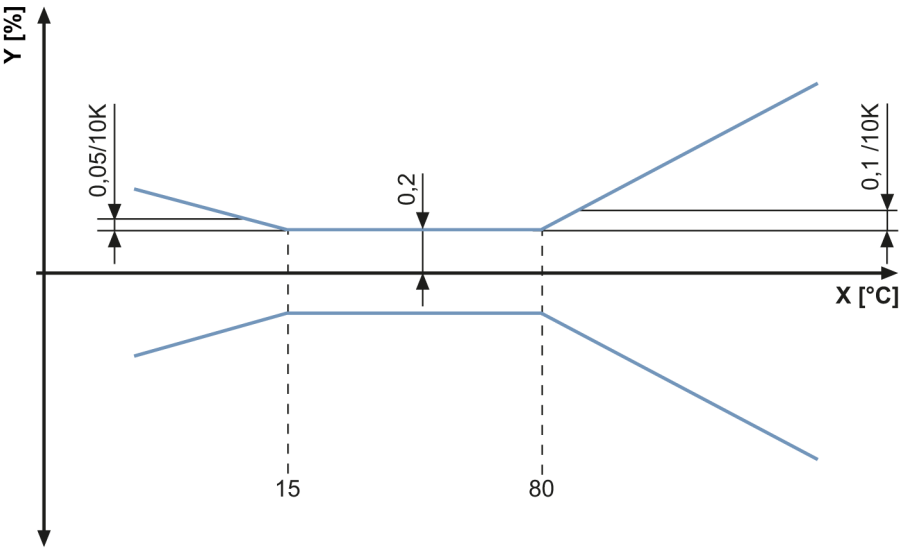
PI1707

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



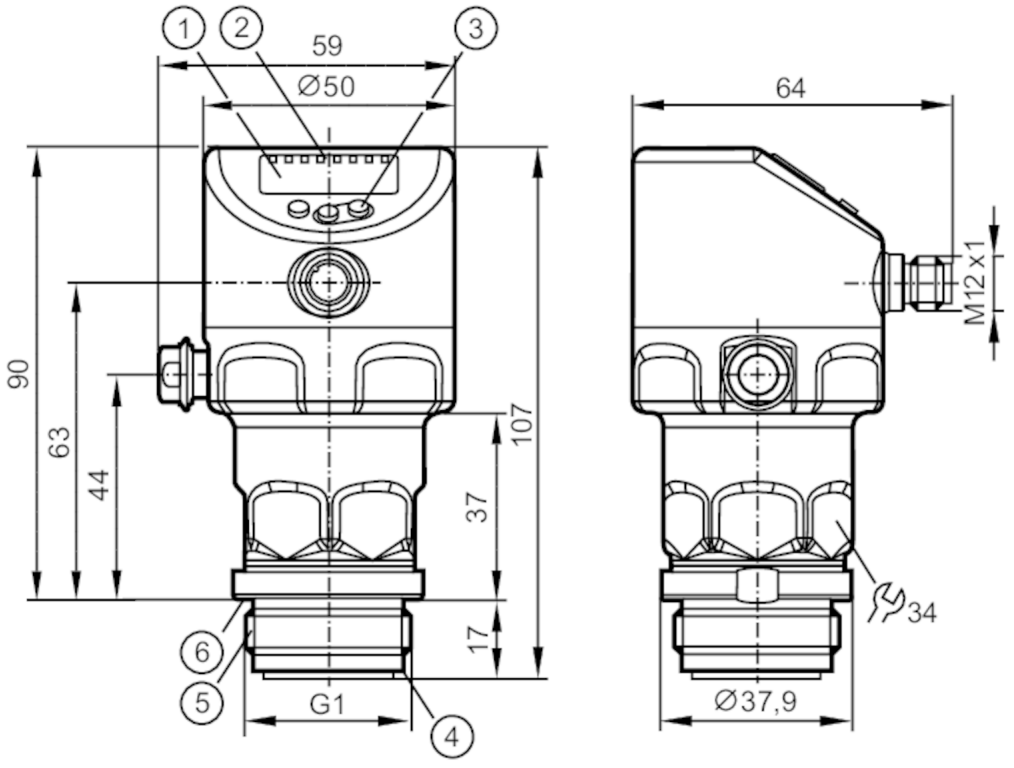
X temperature

Y total deviation

PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
Process connection	threaded connection G 1 external thread mit Dichtkontur Aseptoflex Vario			
Note	G1 Gewinde nach ISO 228. Alternativ dichtend über rückwärtige Dichtkontur mit Dichtung in Anlehnung an DIN EN ISO 1179-2.			
Application				
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	6000 mbar	2400 inH2O	600 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	6
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
Set point SP	-12...250 mbar	-4.8...100.4 inH2O	-1.2...25 kPa	-122...2549 mmWS
Reset point rP	-12.4...249.6 mbar	-5...100.2 inH2O	-1.24...24.96 kPa	-126...2545 mmWS
Analog start point	-12.4...199.4 mbar	-5...80.1 inH2O	-1.24...19.94 kPa	-126...2033 mmWS
Analog end point	38.2...250 mbar	15.3...100.4 inH2O	3.82...25 kPa	390...2549 mmWS

PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Min. difference between SP and rP	0.5 mbar	0.2 inH2O	0.05 kPa	5 mmWS
In steps of	0.1 mbar	0.1 inH2O	0.01 kPa	1 mmWS
Factory setting		SP1 =62.5 mbar		rP1 = 57.5 mbar
		SP2 = 187.5 mbar		rP2 = 182.5 mbar
		ASP = 0.00 mbar		AEP = 250 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 ± 0,1 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,15 % of the span / 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	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.01	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1152
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	
UL approval		UL approval number	J048
		File number UL	E174189
Mechanical data			
Weight	[g]	375.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread mit Dichtkontur Aseptoflex Vario	

PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

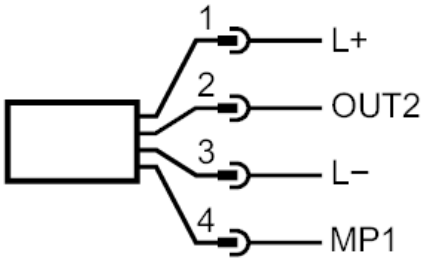
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; inH2O; mmWS	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

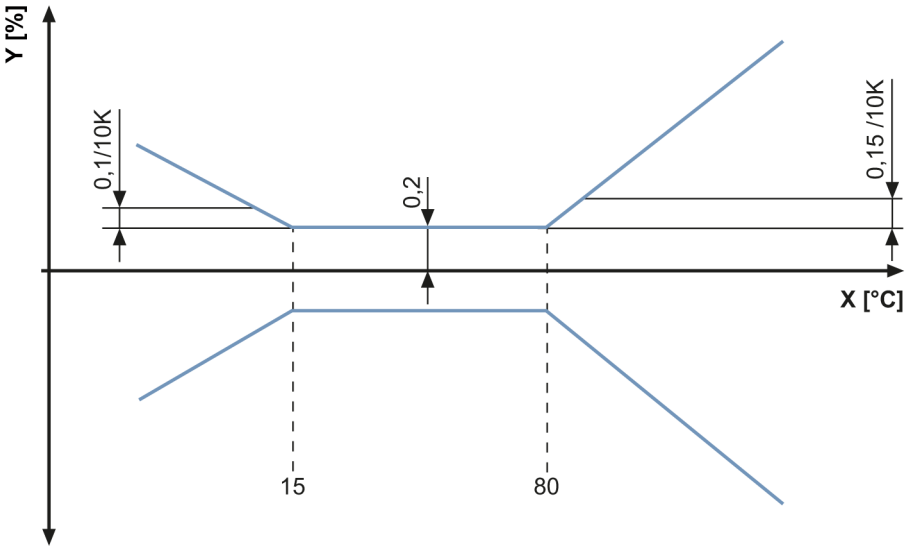
PI1708

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



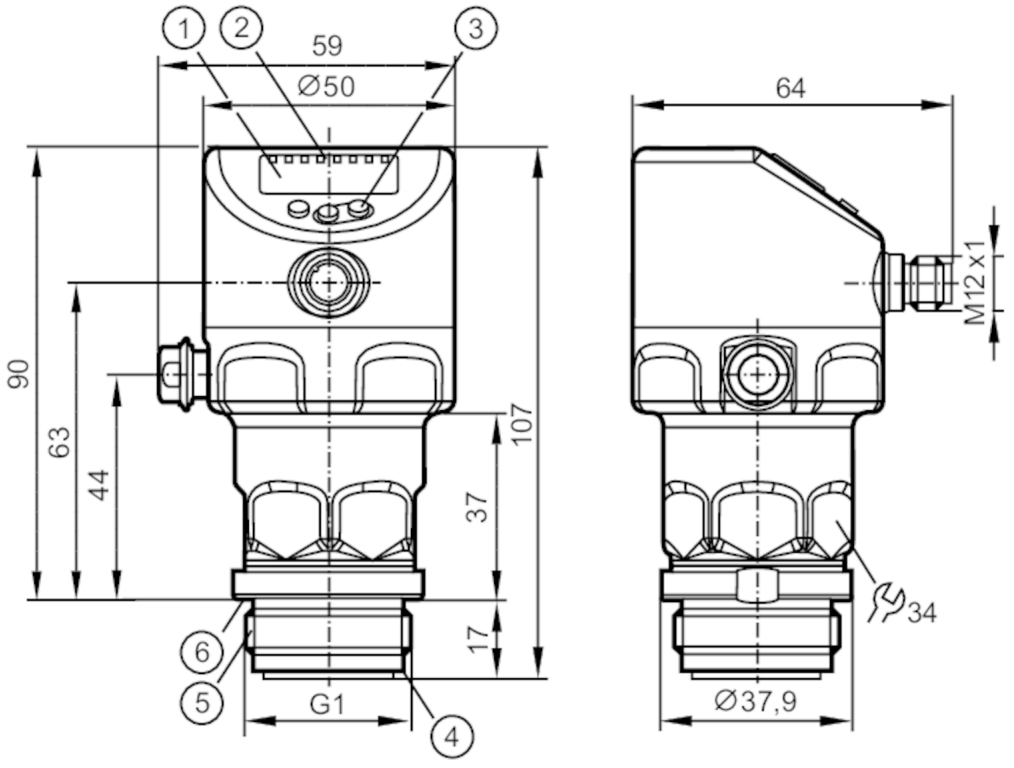
X temperature

Y total deviation

PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario			

Application				
System	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. burst pressure	30000 mbar	435 psi	3000 kPa	
Pressure rating	10000 mbar	145 psi	1000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	10			

PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Set point SP		-997...1000 mbar	-14.46...14.5 psi	-400...401 inH2O	-4.9...100 kPa
Reset point rP		-1000...997 mbar	-14.5...14.46 psi	-401...400 inH2O	-100...99.7 kPa
Analog start point		-1000...599 mbar	-14.5...8.68 psi	-401...240 inH2O	-100...59.9 kPa
Analog end point		-599...1000 mbar	-8.68...14.5 psi	-240...401 inH2O	-59.9...100 kPa
Min. difference between SP and rP		3 mbar	0.05 psi	2 inH2O	0.3 kPa
In steps of		1 mbar	0.01 psi	1 inH2O	0.1 kPa

PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

Factory setting		SP1 =-500 mbar	rP1 = -540 mbar
		SP2 = 500 mbar	rP2 = 460 mbar
		ASP = -1000 mbar	AEP = 1000 mbar
		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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.1	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1151

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	357.5	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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		mbar; psi; kPa; inH2O	

PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

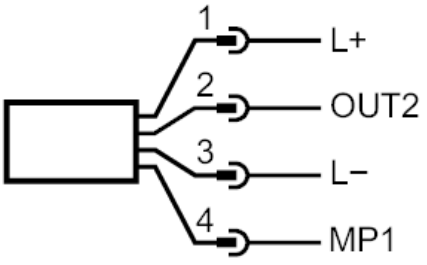
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

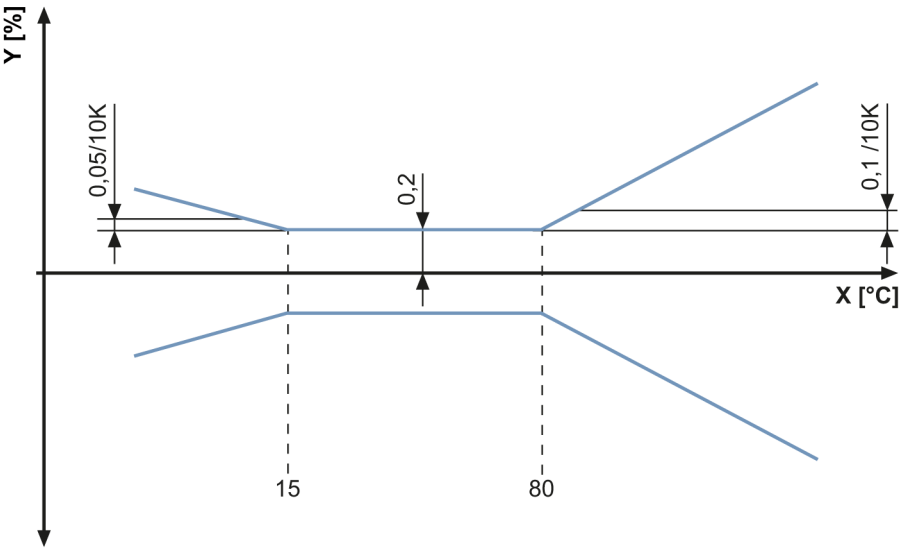
PI1709

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



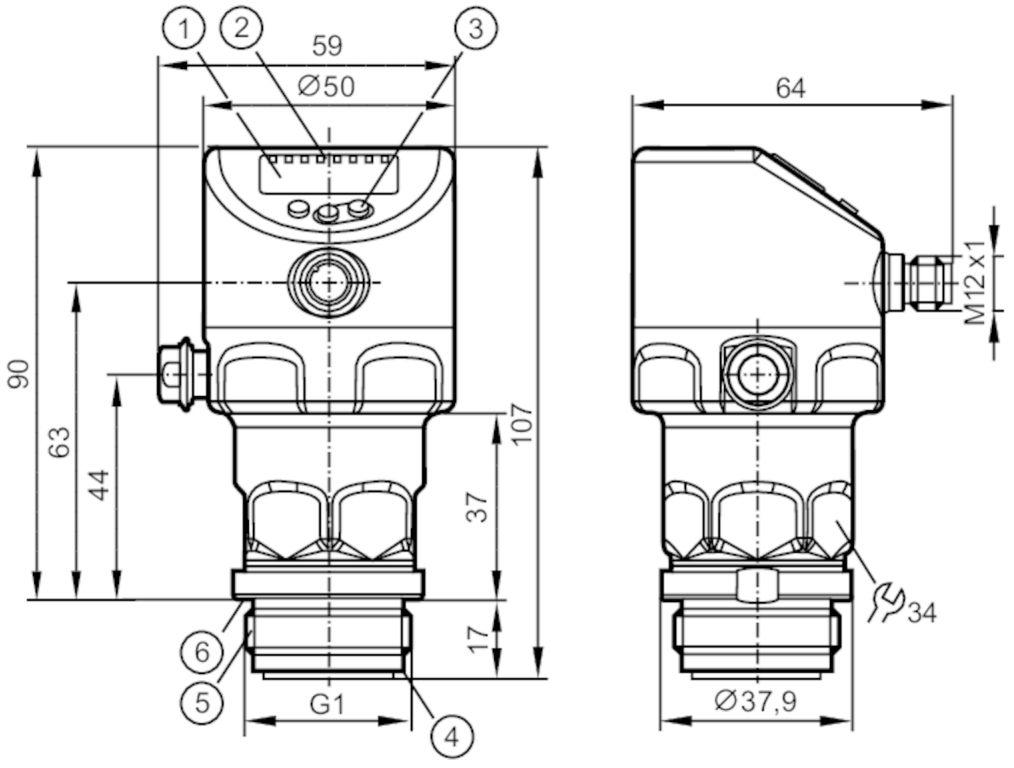
X temperature

Y total deviation

PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...16 bar	-14.6...232 psi	-0.1...1.6 MPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

Application			
System	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. burst pressure	250 bar	3625 psi	25 MPa
Pressure rating	75 bar	1085 psi	7.5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	50		

PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...16 bar	-14.6...232 psi	-0.1...1.6 MPa
Set point SP		-0.98...16 bar	-14.2...232.1 psi	-0.098...1.6 MPa
Reset point rP		-1...15.98 bar	-14.5...231.7 psi	-0.1...1.598 MPa
Analog start point		-1...12.8 bar	-14.5...185.6 psi	-0.1...1.28 MPa
Analog end point		2.2...16 bar	31.9...232.1 psi	0.22...1.6 MPa
Min. difference between SP and rP		0.03 bar	0.4 psi	0.003 MPa
In steps of		0.01 bar	0.1 psi	0.001 MPa

PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

Factory setting		SP1 = 4.00bar	rP1 = 3.68 bar
		SP2 = 12.00 bar	rP2 = 11.68 bar
		ASP = 0.00 bar	AEP = 16.00 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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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)		**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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1147

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	357.8	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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	

PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

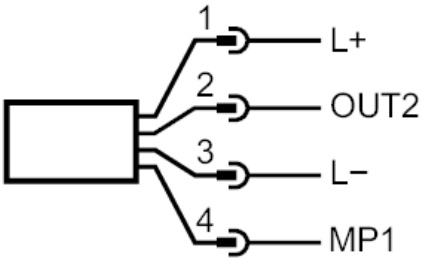
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

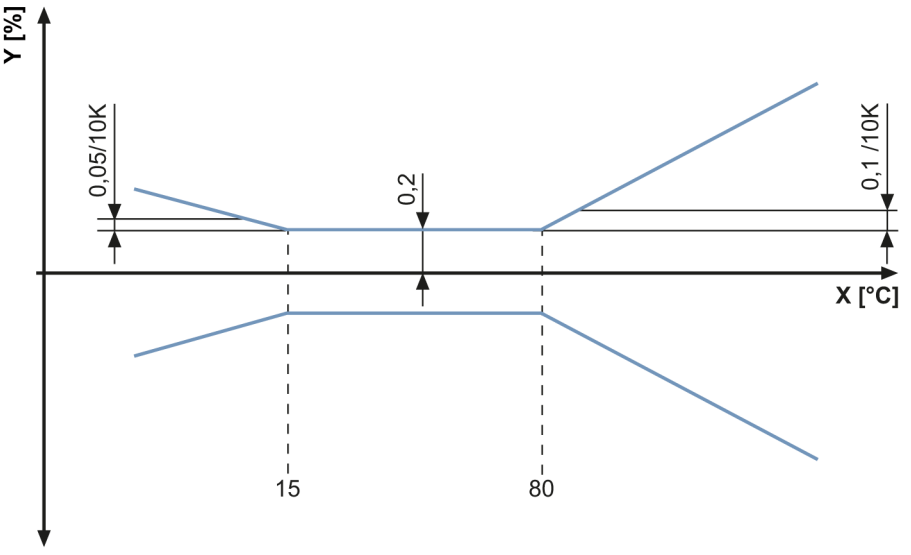
PI1714

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



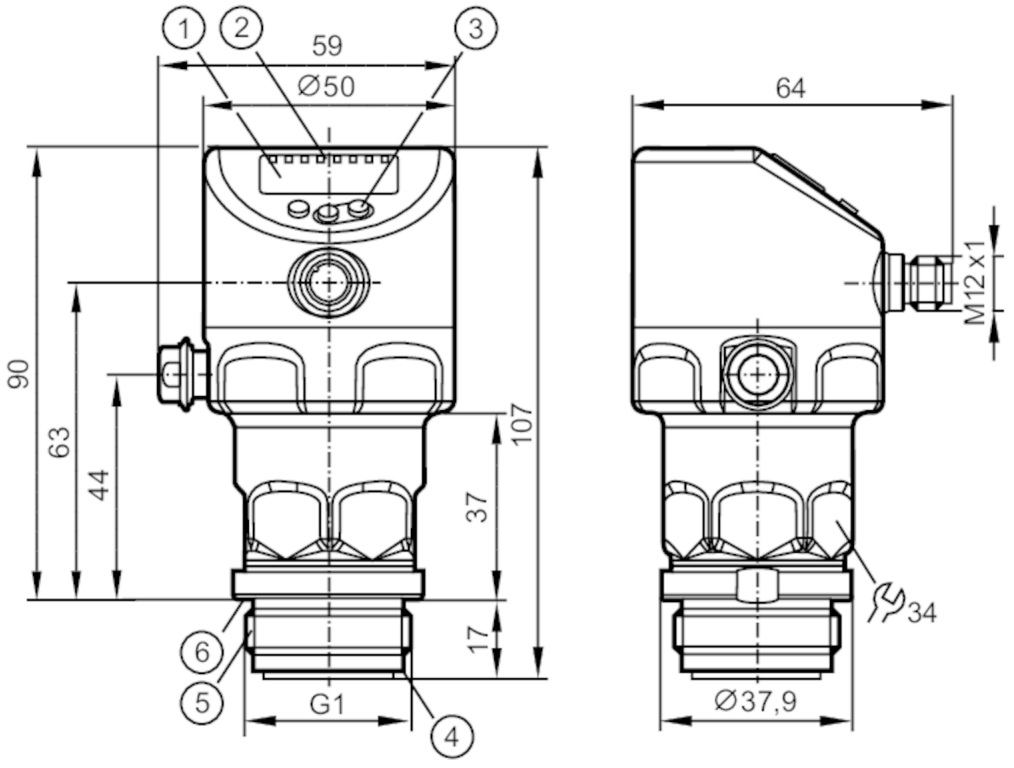
X temperature

Y total deviation

PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1...6 bar	-14.5...87 psi	-100...600 kPa	
Process connection	threaded connection G 1 external thread Aseptoflex Vario			

Application				
System	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. burst pressure	100 bar	1450 psi	10000 MPa	
Pressure rating	30 bar	435 psi	3000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	6			

PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...6 bar	-14.5...87 psi	-100...600 kPa
Set point SP		-0.991...6 bar	-14.4...87 psi	-99...600 kPa
Reset point rP		-1...5.991 bar	-14.5...86.9 psi	-100...599 kPa
Analog start point		-1...4.8 bar	-14.5...69.6 psi	-100...480 kPa
Analog end point		0.2...6 bar	2.9...87 psi	20...600 kPa
Min. difference between SP and rP		0.009 bar	0.2 psi	1 kPa
In steps of		0.001 bar	0.1 psi	1 kPa

PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

Factory setting		SP1 = 1.50 bar	rP1 = 1.38 bar
		SP2 = 4.50 bar	rP2 = 4.38 bar
		ASP = 0.00 bar	AEP = 6.00 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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.0002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1148

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	358	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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	

PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

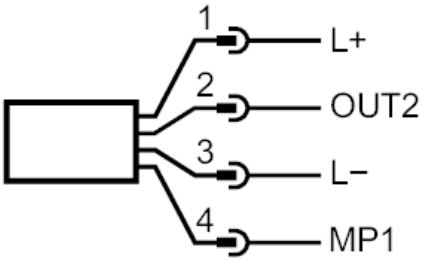
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

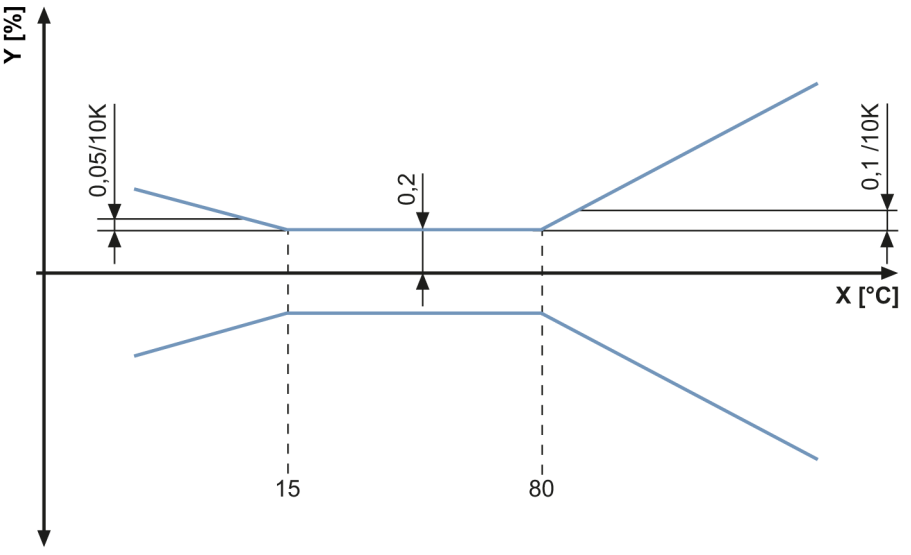
PI1715

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



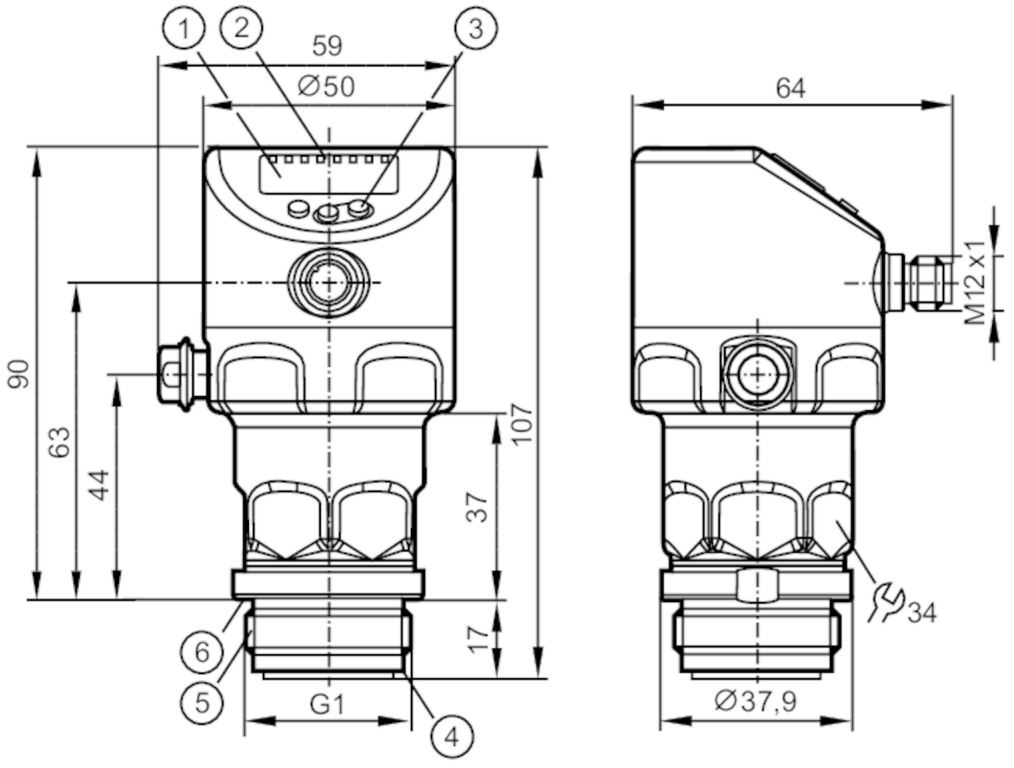
X temperature

Y total deviation

PI1717

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

ACS CRN EC 1935/2004 EHEDG Certified FCM IO-Link Reg31 TSDP/TÜV

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-100...1600 mbar	-1.46...23.2 psi	-40...642.5 inH2O	-10...160 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario			

Application				
System	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. burst pressure	40000 mbar	580 psi	4000 kPa	
Pressure rating	15000 mbar	215 psi	1500 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	1.6			

PI1717

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-100...1600 mbar	-1.46...23.2 psi	-40...642.5 inH2O	-10...160 kPa
Set point SP		-98...1600 mbar	-1.42...23.21 psi	-39.2...642.3 inH2O	-9.8...160 kPa
Reset point rP		-100...1598 mbar	-1.45...23.17 psi	-40.1...641.4 inH2O	-10...159.8 kPa
Analog start point		-100...1272 mbar	-1.45...18.45 psi	-40.1...510.6 inH2O	-10...127.2 kPa
Analog end point		228...1600 mbar	3.31...23.21 psi	91.6...642.3 inH2O	22.8...160 kPa
Min. difference between SP and rP		3 mbar	0.04 psi	1 inH2O	0.3 kPa
In steps of		1 mbar	0.01 psi	0.1 inH2O	0.1 kPa

PI1717

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

Factory setting		SP1 =400 mbar	rP1 = 368 mbar
		SP2 = 1200 mbar	rP2 = 1168 mbar
		ASP = 0.00 mbar	AEP = 1600 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

Interfaces

Communication interface	IO-Link
Transmission type	COM2 (38,4 kBaud)

PI1717

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.05	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1149

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	357.3	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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		mbar; psi; kPa; inH2O	

PI1717

Flush pressure sensor with display

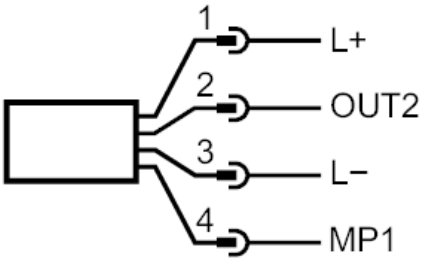
PI-1,6-REA01-MFRKG/US/ /P

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

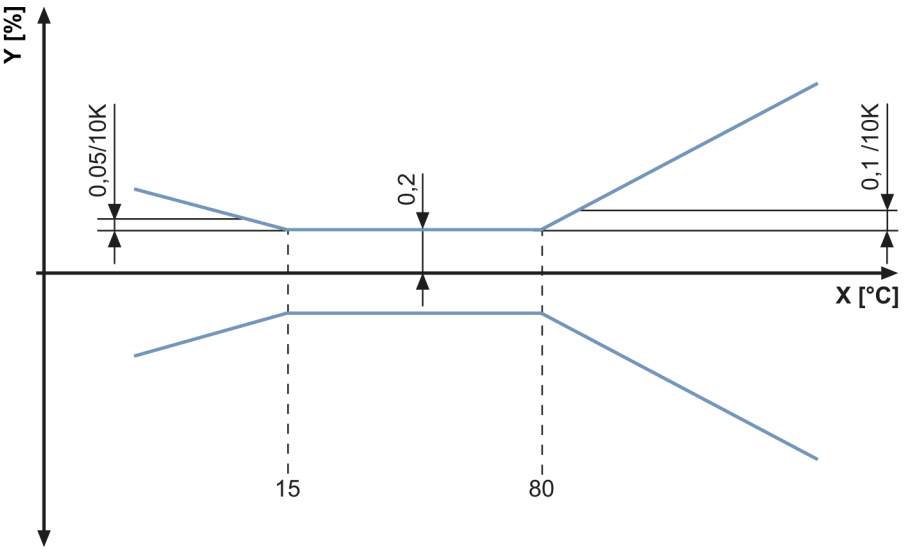
PI1717

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



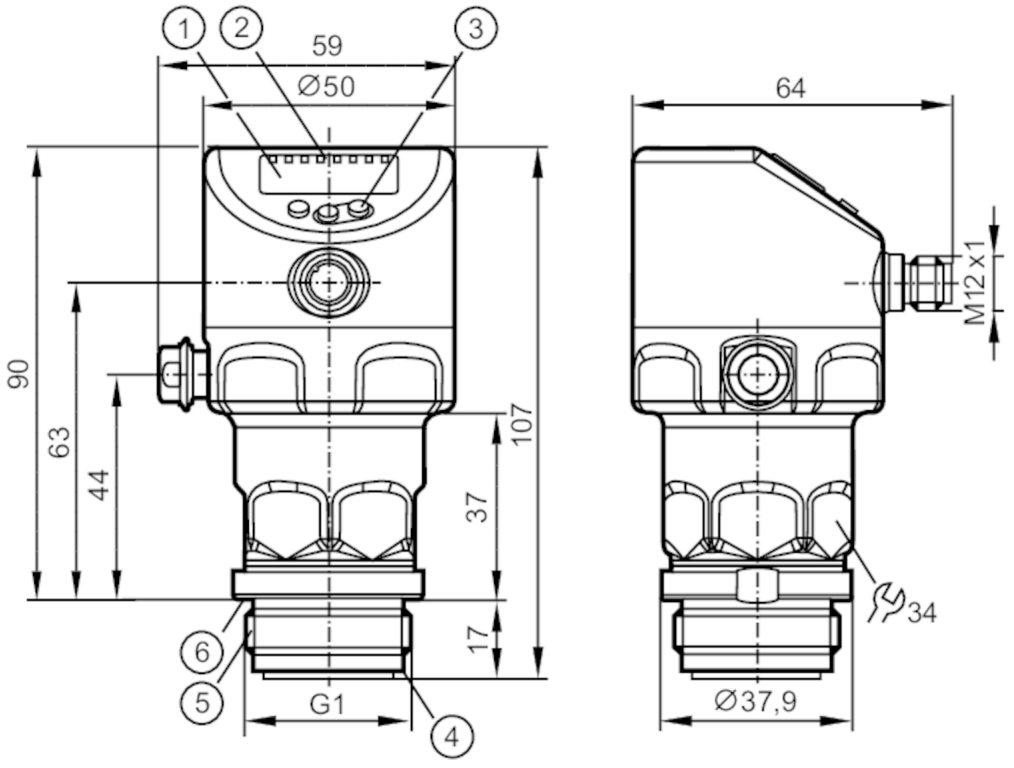
X temperature

Y total deviation

PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

Application			
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa
Pressure rating	8000 mbar	3200 inH2O	800 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		
MAWP (for applications according to CRN) [bar]	8		

PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Set point SP		-49.4...400 mbar	-19.8...160.6 inH2O	-4.94...40 kPa
Reset point rP		-50...399.4 mbar	-20.1...160.3 inH2O	-5...39.94 kPa
Analog start point		-50...320 mbar	-20.1...128.5 inH2O	-5...32 kPa
Analog end point		30...400 mbar	12...160.6 inH2O	3...40 kPa
Min. difference between SP and rP		0.6 mbar	0.3 inH2O	0.06 kPa
In steps of		0.1 mbar	0.1 inH2O	0.01 kPa

PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Factory setting		SP1 =100 mbar	rP1 = 92 mbar
		SP2 = 300 mbar	rP2 = 292 mbar
		ASP = 0.00 mbar	AEP = 400 mbar
		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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 ± 0,1 % of the span / 10 K	
	15...80 °C	Characteristics deviation	
	80...150 °C	Characteristics deviation ± 0,15 % of the span / 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		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.02	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1189

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	356.4	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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		mbar; kPa; inH2O	

PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

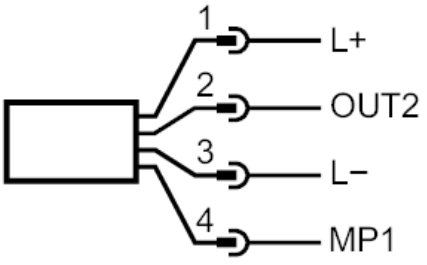
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

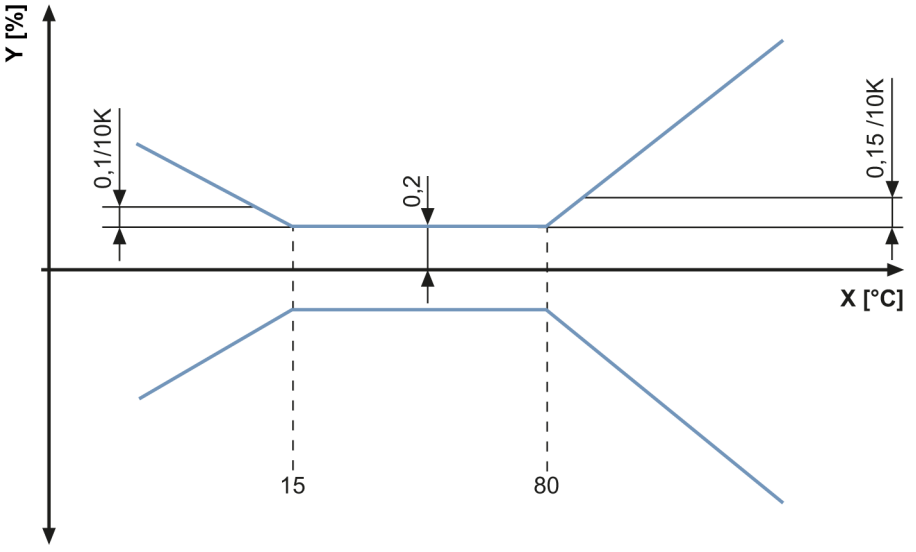
PI1718

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



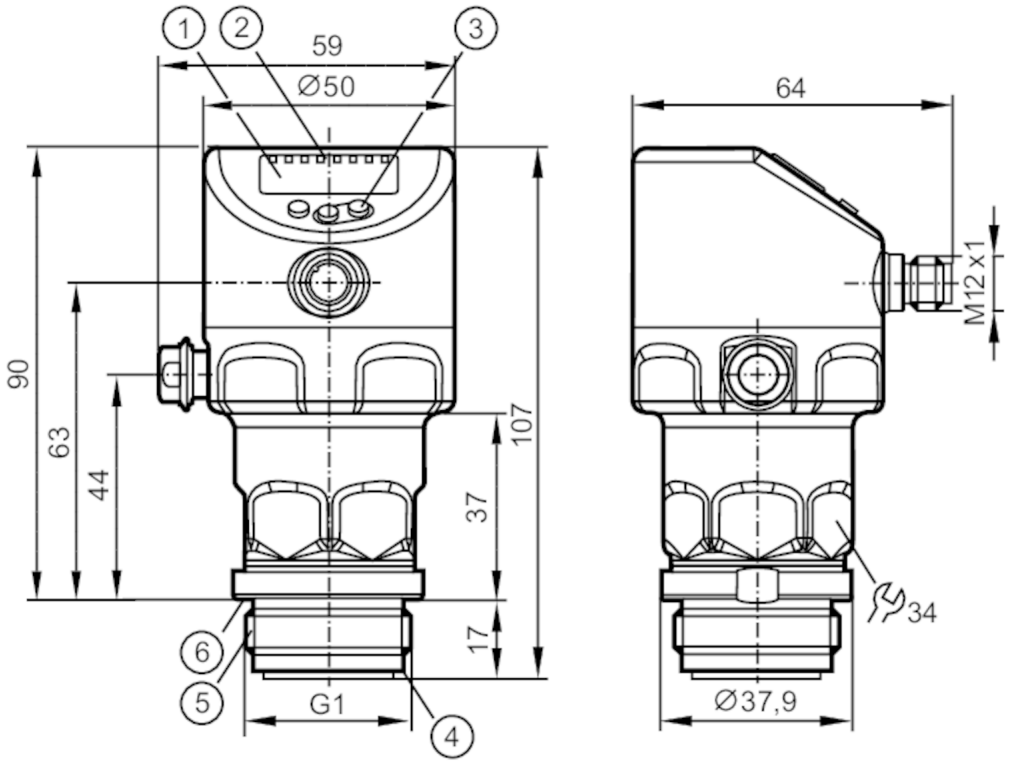
X temperature

Y total deviation

PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...40 bar	-14.5...580 psi	-0.1...4 MPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario		

Application			
System	gold-plated contacts		
Measuring element	ceramic-capacitive pressure measuring cell		
Application	flush mountable for the food and beverage industry		
Media	viscous media and liquids with suspended particles; liquids and gases		
Conditionally suitable for	use in gases at pressures > 25 bar only on request		
Medium temperature [°C]	-25...150		
Min. burst pressure	400 bar	5800 psi	40 MPa
Pressure rating	125 bar	1800 psi	12.5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P

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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...40 bar	-14.5...580 psi	-0.1...4 MPa
Set point SP		-0.94...40 bar	-13.6...580.2 psi	-0.094...4 MPa
Reset point rP		-1...39.94 bar	-14.5...579.3 psi	-0.1...3.994 MPa
Analog start point		-1...32 bar	-14.5...464.1 psi	-0.1...3.2 MPa
Analog end point		7...40 bar	101.5...580.2 psi	0.7...4 MPa
Min. difference between SP and rP		0.04 bar	0.6 psi	0.004 MPa
In steps of		0.06 bar	0.9 psi	0.006 MPa

PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P

Factory setting		SP1 = 10 bar	rP1 = 9.2 bar
		SP2 = 30 bar	rP2 = 29.2 bar
		ASP = 0.00 bar	AEP = 40.00 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)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)	
	Display, Switching output	0,2	
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 % 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		
Temperature monitoring			
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))		
Repeatability [K]	± 0,2		
Resolution [K]	0.2		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1640
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]	208	
UL approval		UL approval number	J035
		File number UL	E174189
Mechanical data			
Weight	[g]	403.8	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	
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	

PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P

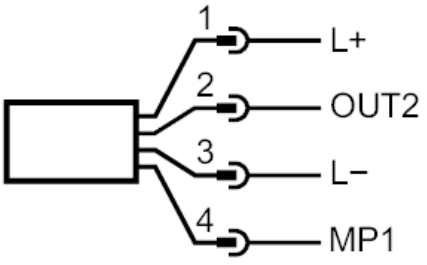
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

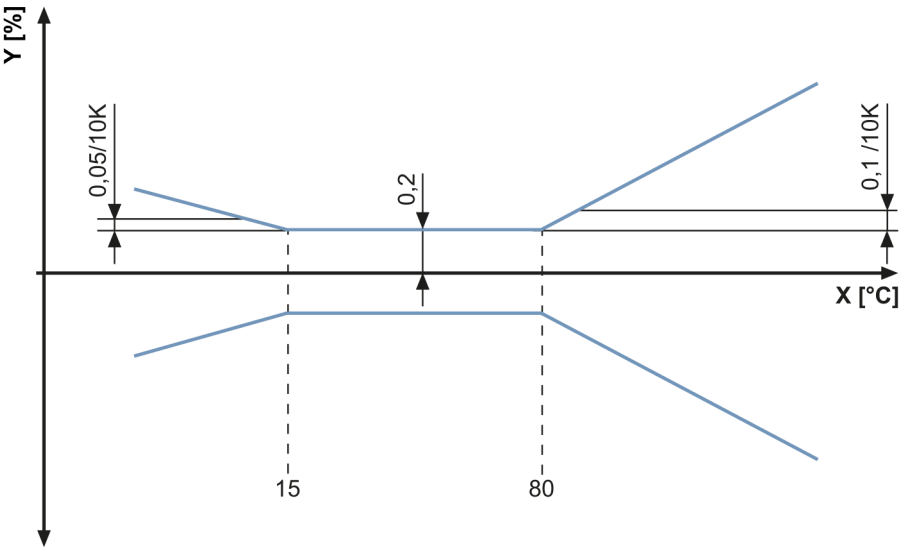
PI1743

Flush pressure sensor with display

PI-040-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



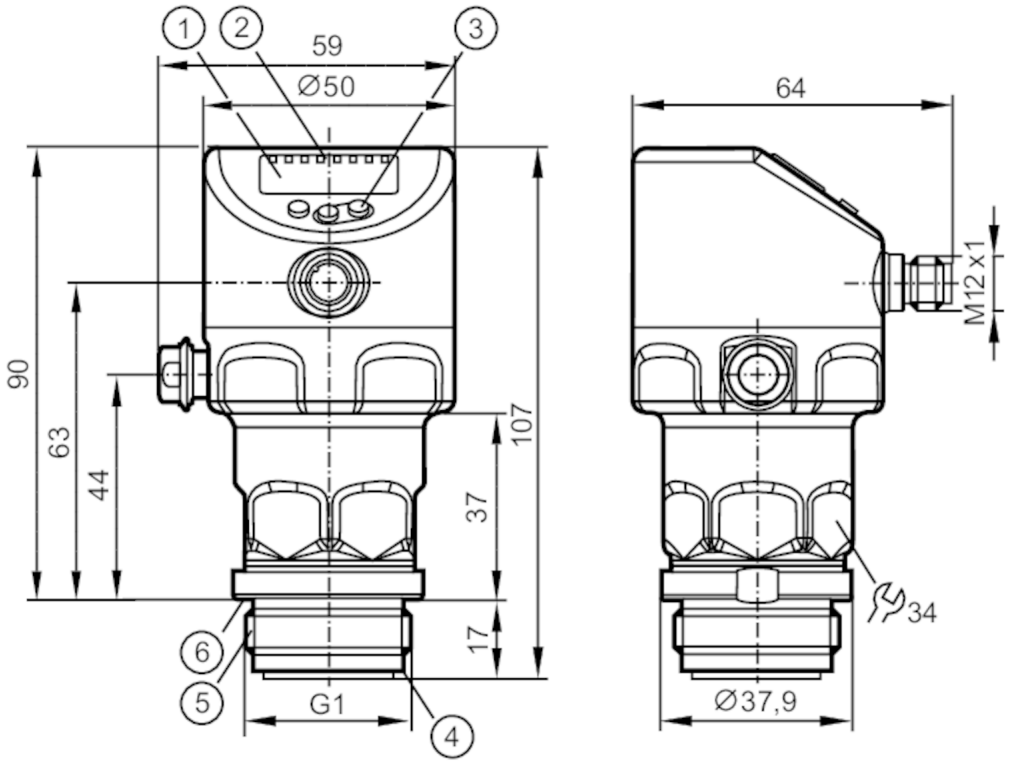
X temperature

Y total deviation

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P



1 alphanumeric display 4-digit
2 status LEDs
3 Programming button
4 groove for sealing ring
5 external thread G1 Aseptoflex Vario
6 groove with sealing ring (DIN 3869-33)

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Certified FCM FDA IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O	-0.5...10 kPa
Process connection	threaded connection G 1 external thread Aseptoflex Vario			

Application				
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	4000 mbar	1606 inH2O	400 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			
MAWP (for applications according to CRN) [bar]	4			

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

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 analog outputs: 1			
Outputs					
Total number of outputs		2			
Output signal		switching signal; analog signal; IO-Link			
Electrical design		PNP/NPN			
Number of digital outputs		2			
Output function		normally open / closed; (configurable)			
Number of analog outputs		1			
Analog current output	[mA]	4...20, invertible; (scalable)			
Short-circuit protection		yes			
Type of short-circuit protection		yes (non-latching)			
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)			
Measuring/setting range					
Measuring range		-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O	-0.5...10 kPa
Set point SP		-0.0049...0.1 bar	-4.9...100 mbar	-1.95...40.15 inH2O	-0.49...10 kPa
Reset point rP		-0.005...0.099 bar	-5...99.9 mbar	-2.01...40.09 inH2O	-0.5...9.99 kPa
Analog start point		-0.005...0.08 bar	-5...80 mbar	-2.01...32.12 inH2O	-0.5...8 kPa
Analog end point		0.015...0.1 bar	15...100 mbar	6.02...40.15 inH2O	1.5...10 kPa
Min. difference between SP and rP		0.0002 bar	0.2 mbar	0.06 inH2O	0.02 kPa
In steps of		0.0001 bar	0.1 mbar	0.01 inH2O	0.01 kPa

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Factory setting		SP1 =25 mbar	rP1 = 23 mbar
		SP2 = 75 mbar	rP2 = 73 mbar
		ASP = 0 mbar	AEP = 100 mbar
		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]	< ± 0,5; (DIN EN IEC 62828-1; Turn down 1:1)		
Repeatability [% of the span]	< ± 0,2; (with temperature fluctuations < 10 K; Turn down 1:1)		
Characteristics deviation [% of the span]	< ± 0,5; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1)		
Linearity deviation [% of the span]	< ± 0,25; (Turn down 1:1)		
Zero-point stabilization [% of the span]	IO-Link, analog output	0,4; (see operating instructions zero-point behavior)	
	Display, Switching output	0,4	
Hysteresis deviation [% of the span]	< ± 0,2; (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 ± 0,15 % of the span / 10 K	
	15...80 °C	Characteristics deviation	
	80...150 °C	Characteristics deviation ± 0,2 % of the span / 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		
Reaction times			
Damping process value dAP [s]	0...99.99		
Damping for the analog output dAA [s]	0...99.99		
2-wire			
Step response time analog output [ms]	30		
3-wire			
Min. response time of switching output (dAP) [ms]	3		
Step response time analog output [ms]	7		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.005	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1158

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	
UL approval		UL approval number	J048
		File number UL	E174189

Mechanical data

Weight	[g]	357	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 107	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: PTFE	
Min. pressure cycles		100 million	
Tightening torque	[Nm]	35	
Process connection		threaded connection G 1 external thread Aseptoflex Vario	

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		mbar; kPa; inH2O	

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

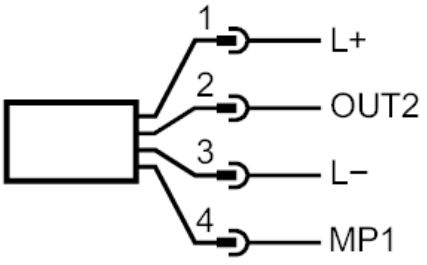
Remarks

Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

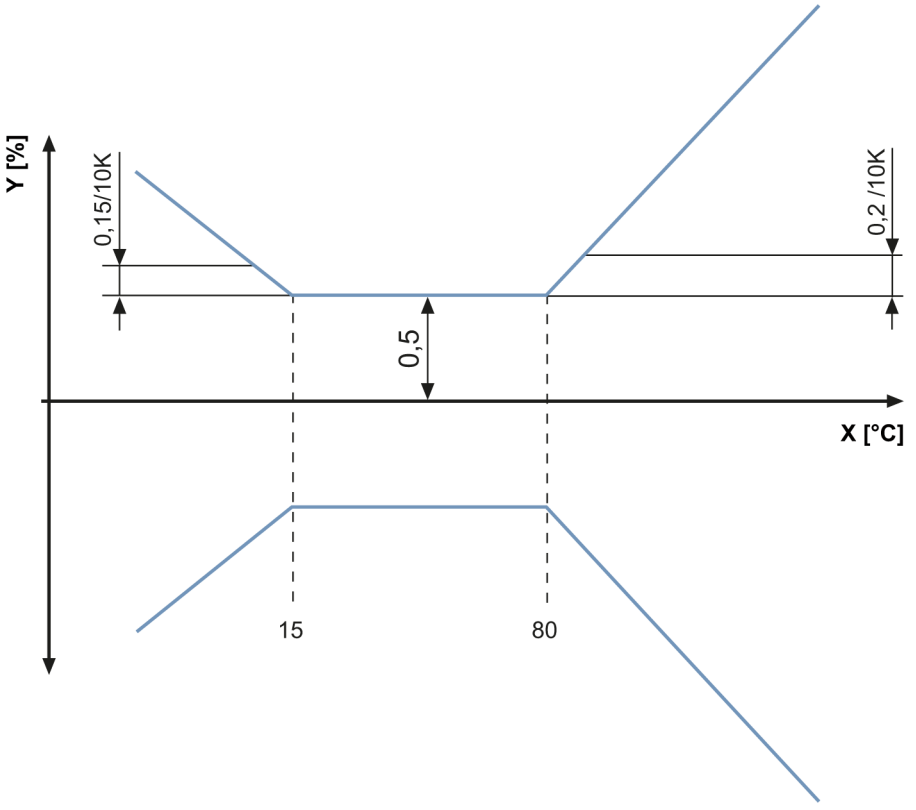
1	L+	
3	L-	
4	MP1	IO-Link

PI1789

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Diagrams and graphs



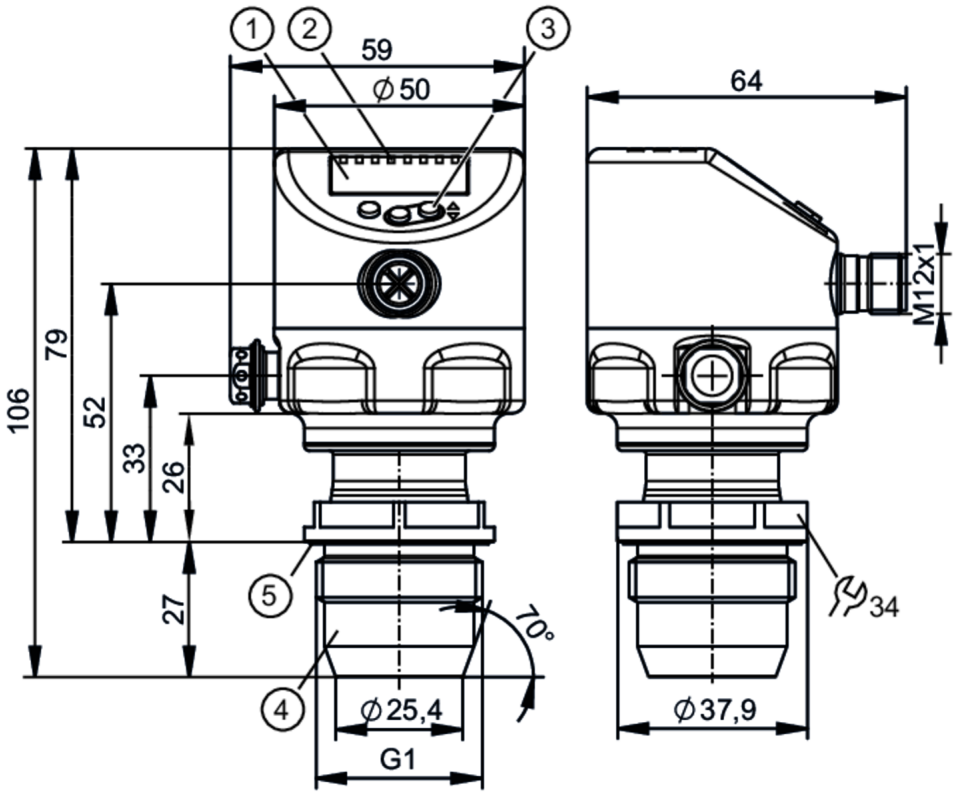
X temperature

Y total deviation

PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...25 bar	-14.5...362.5 psi	-0.1...2.5 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			
System	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. burst pressure	350 bar	5075 psi	35 MPa
Pressure rating	100 bar	1450 psi	10 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	64		
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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...25 bar	-14.5...362.5 psi	-0.1...2.5 MPa
Set point SP		-0.96...25 bar	-14...362.6 psi	-0.096...2.5 MPa
Reset point rP		-1...24.96 bar	-14.5...362.1 psi	-0.1...2.496 MPa
Analog start point		-1...20 bar	-14.5...290.1 psi	-0.1...2 MPa
Analog end point		4...25 bar	58...362.6 psi	0.4...2.5 MPa

PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

Min. difference between SP and rP	0.04 bar	0.6 psi	0.004 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa
Factory setting		SP1 = 6.25 bar	rP1 = 5.75 bar
		SP2 = 18.75 bar	rP2 = 18.25 bar
		ASP = 0.00 bar	AEP = 25.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	

Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99	
Damping for the analog output dAA [s]	0...99.99	
2-wire		
Step response time analog output [ms]	30	
3-wire		
Min. response time of switching output (dAP) [ms]	3	
Step response time analog output [ms]	7	

PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.001	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1157

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	
UL approval		UL approval number	J036
		File number UL	E174189

Mechanical data		
Weight	[g]	385
Housing		tubular
Dimensions	[mm]	Ø 50 / L = 106
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.

PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

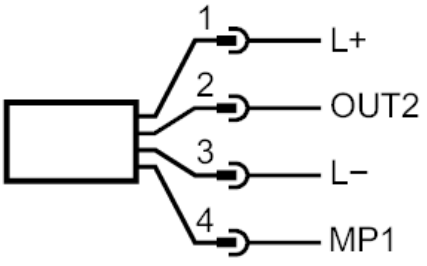
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; MPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

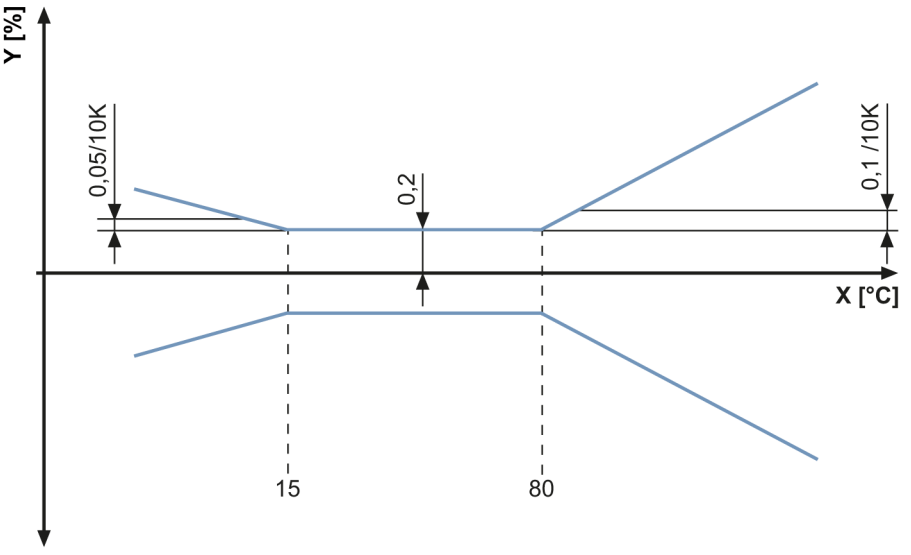
PI1803

Flush pressure sensor with display

PI-025-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



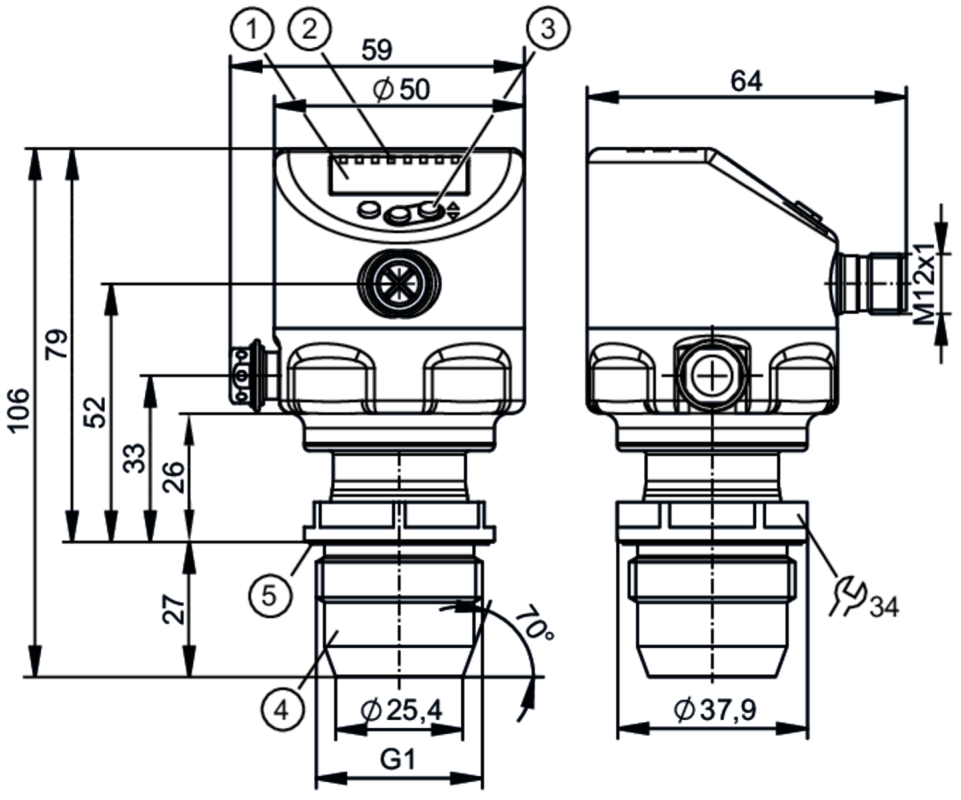
X temperature

Y total deviation

PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog 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			
System	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. burst pressure	150 bar	2175 psi	15 MPa
Pressure rating	50 bar	725 psi	5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	50
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 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
Analog start point	-1...8 bar	-14.5...116 psi	-0.1...0.8 MPa
Analog end point	1...10 bar	14.5...145 psi	0.1...1 MPa

PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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)		**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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	385.2	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

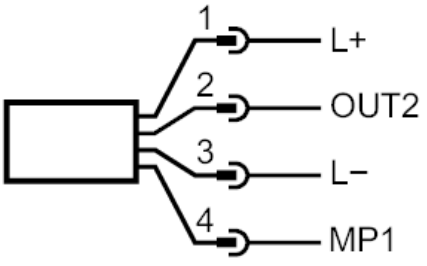
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; MPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

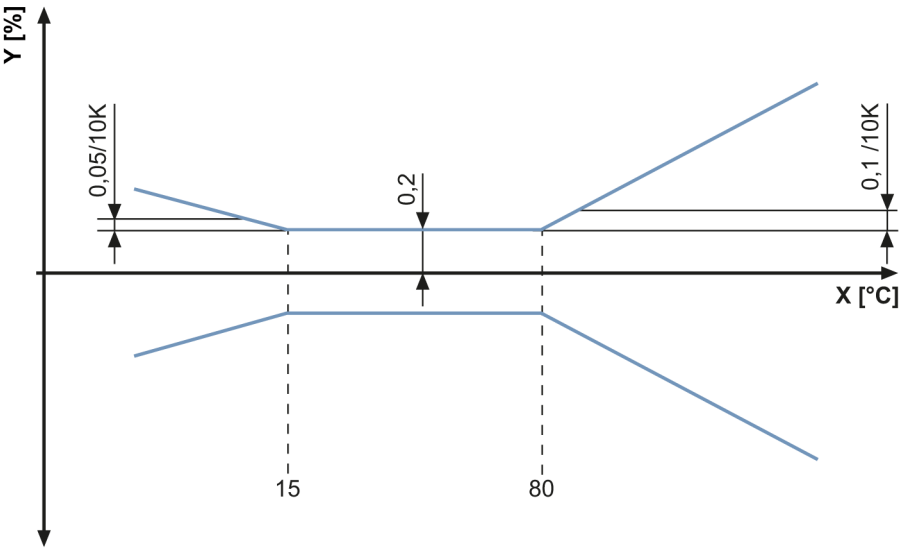
PI1804

Flush pressure sensor with display

PI-010-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



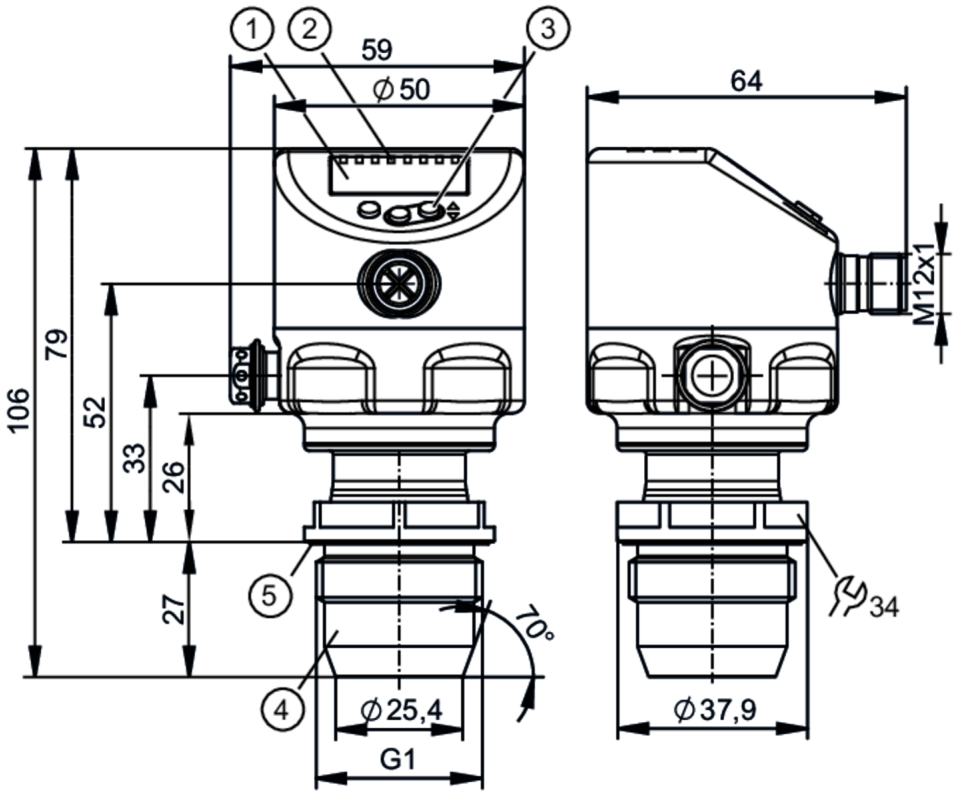
X temperature

Y total deviation

PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...4 bar	-14.5...58 psi	-100...400 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			
System	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. burst pressure	100 bar	1450 psi	10000 MPa
Pressure rating	30 bar	435 psi	3000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	30
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range			
Measuring range	-1...4 bar	-14.5...58 psi	-100...400 kPa
Set point SP	-0.994...4 bar	-14.4...58 psi	-99.4...400 kPa
Reset point rP	-1...3.994 bar	-14.5...57.9 psi	-100...399.4 kPa
Analog start point	-1...3.2 bar	-14.5...46.4 psi	-100...320 kPa
Analog end point	0.2...4 bar	-2.9...58 psi	-20...400 kPa

PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

Min. difference between SP and rP	0.006 bar	0.1 psi	0.6 kPa
In steps of	0.001 bar	0.1 psi	0.1 kPa
Factory setting		SP1 = 1.00 bar	rP1 = 0.92 bar
		SP2 = 3.00 bar	rP2 = 2.92 bar
		ASP = 0.00 bar	AEP = 4.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.0002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1155
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	385.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

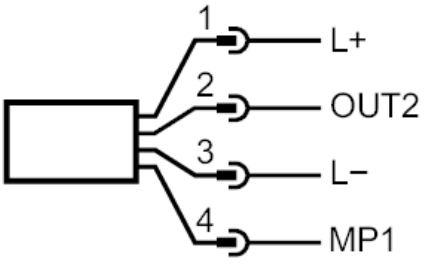
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; kPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

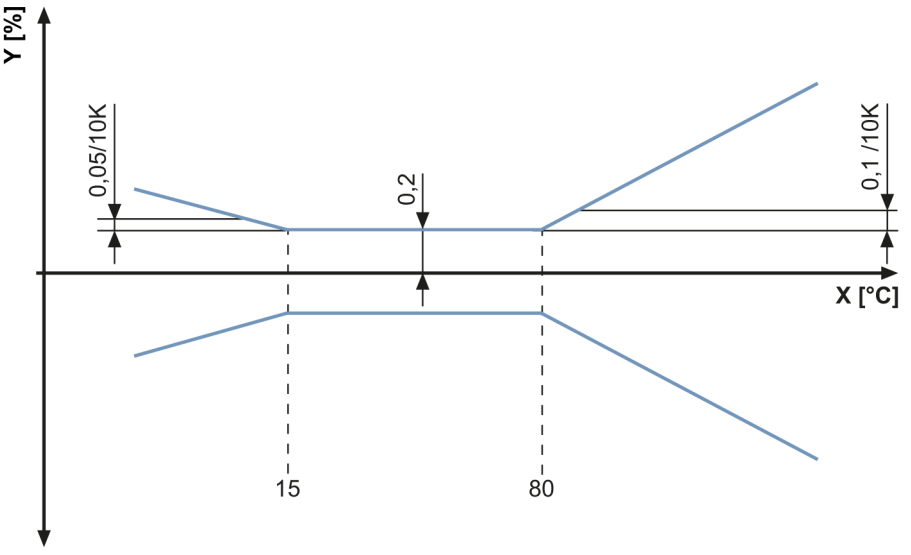
PI1805

Flush pressure sensor with display

PI-004-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



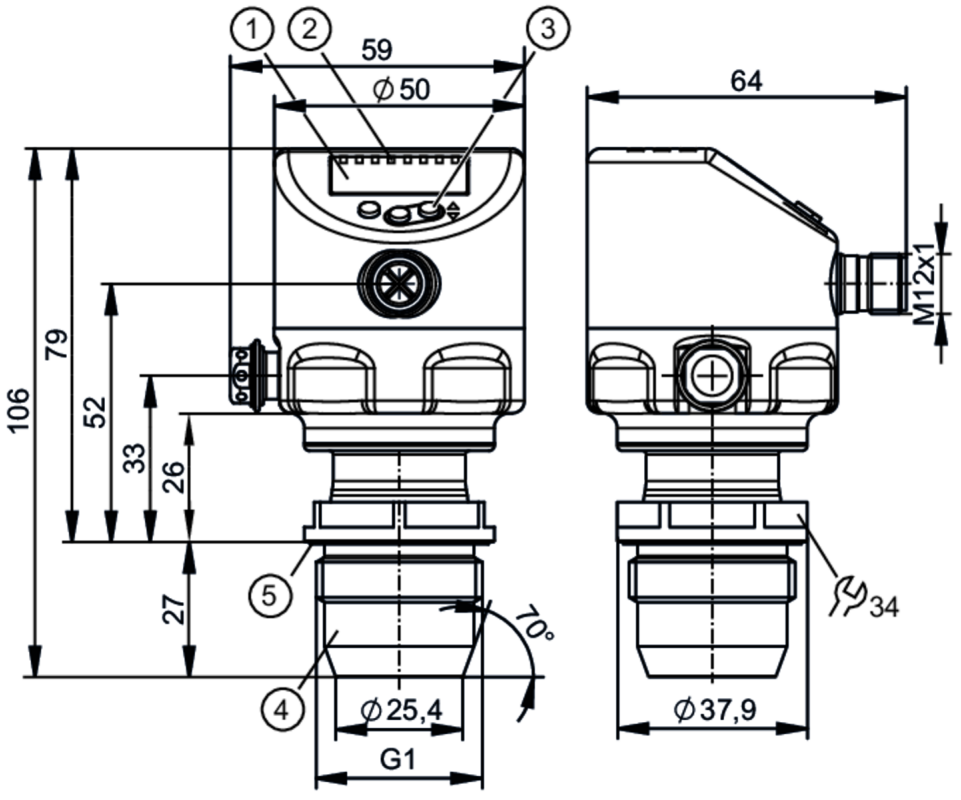
X temperature

Y total deviation

PI1806

Flush pressure sensor with display

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



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog 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				
System	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. burst pressure	50 bar	725 psi	5000 MPa	
Pressure rating	20 bar	290 psi	2000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1806

Flush pressure sensor with display

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

MAWP (for applications according to CRN)	[bar]	20
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

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
Analog start point	-0.124...1.994 bar	-1.8...28.92 psi	-50...801 inH2O	-12.4...199.4 kPa
Analog end point	0.382...2.5 bar	5.54...36.26 psi	153...1004 inH2O	38.2...250 kPa

PI1806

Flush pressure sensor with display

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

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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1806

Flush pressure sensor with display

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

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1154
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	384.8	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1806

Flush pressure sensor with display

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

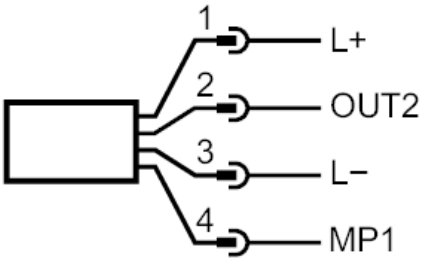
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

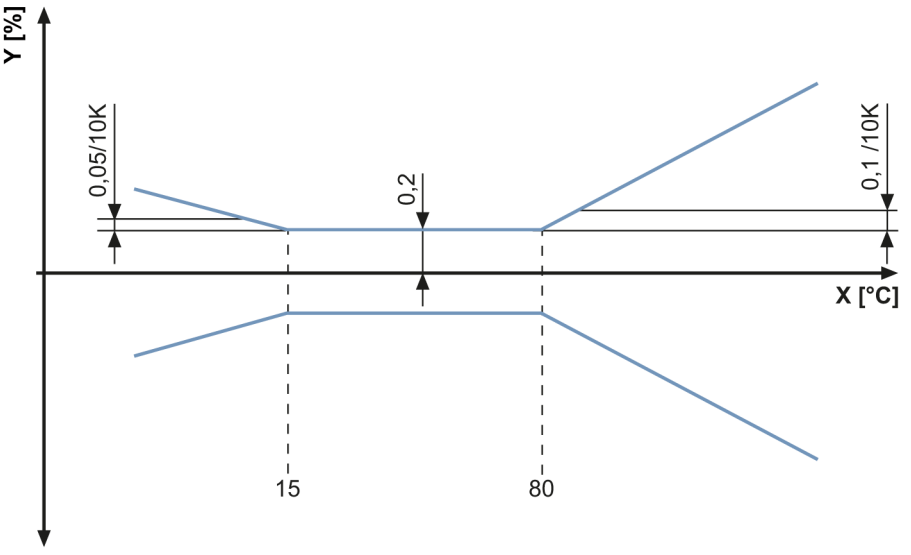
PI1806

Flush pressure sensor with display

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

Diagrams and graphs

ambient temperature influence on the accuracy



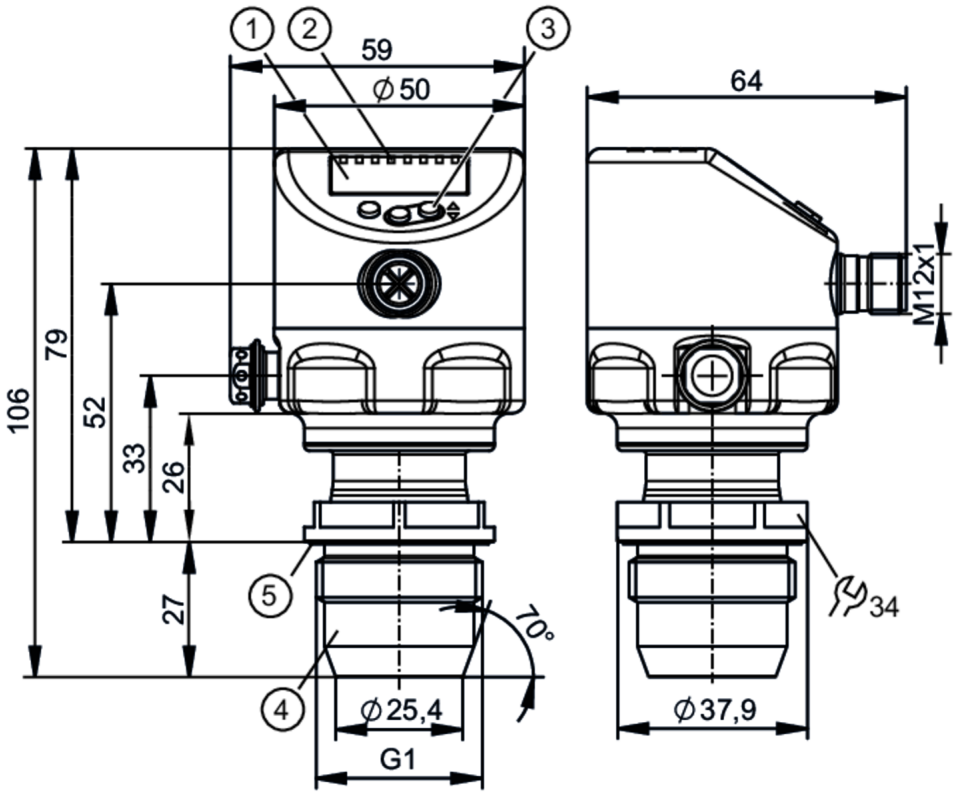
X temperature

Y total deviation

PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 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				
System	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. burst pressure	30000 mbar	435 psi	3000 kPa	
Pressure rating	10000 mbar	145 psi	1000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	10
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-50...1000 mbar	-0.72...14.5 psi	-20...401.5 inH2O	-5...100 kPa
Set point SP	-49...1000 mbar	-0.7...14.5 psi	-19.5...401.5 inH2O	-4.9...100 kPa
Reset point rP	-50...999 mbar	-0.73...14.48 psi	-20.1...400.9 inH2O	-5...99.9 kPa
Analog start point	-50...800 mbar	-0.73...11.6 psi	-20.1...321.2 inH2O	-5...80 kPa
Analog end point	150...1000 mbar	2.18...14.5 psi	60.2...401.5 inH2O	15...100 kPa

PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

Min. difference between SP and rP	2 mbar	0.03 psi	0.6 inH2O	0.2 kPa
In steps of	1 mbar	0.01 psi	0.1 inH2O	0.1 kPa
Factory setting		SP1 =250 mbar		rP1 = 230 mbar
		SP2 = 750 mbar		rP2 = 730 mbar
		ASP = 0.00 mbar		AEP = 1000 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.05	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1153
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	386.1	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

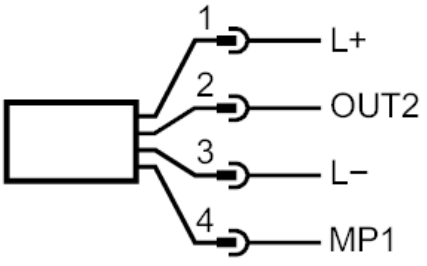
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; psi; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

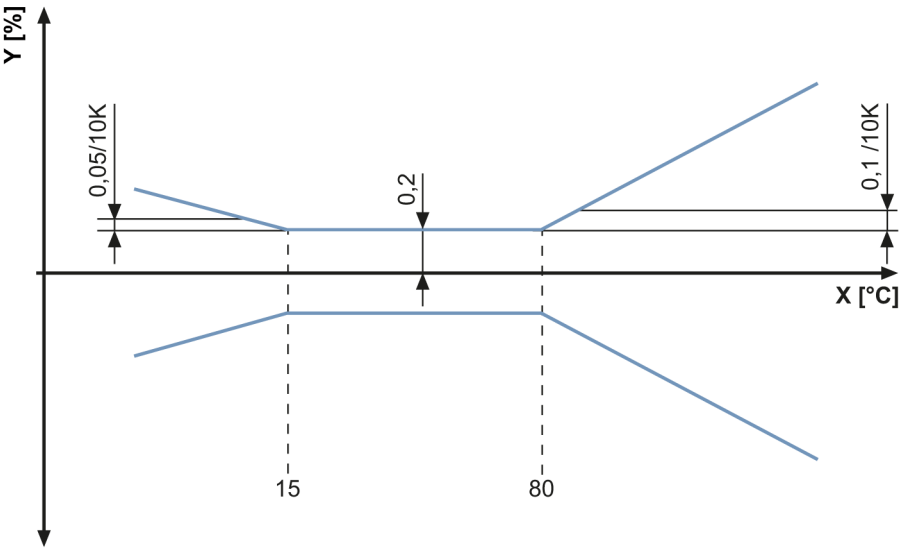
PI1807

Flush pressure sensor with display

PI-001BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



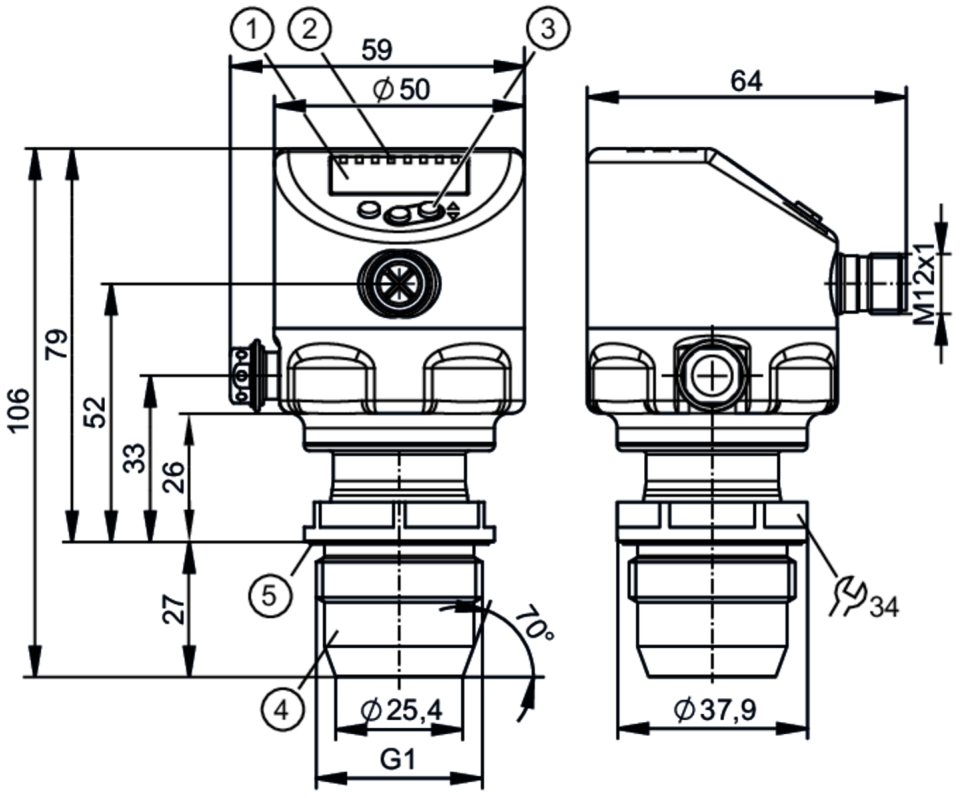
X temperature

Y total deviation

PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
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				
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	6000 mbar	2400 inH2O	600 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	6
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-12.4...250 mbar	-5...100.4 inH2O	-1.24...25 kPa	-126...2550 mmWS
Set point SP	-12...250 mbar	-4.8...100.4 inH2O	-1.2...25 kPa	-122...2549 mmWS
Reset point rP	-12.4...249.6 mbar	-5...100.2 inH2O	-1.24...24.96 kPa	-126...2545 mmWS
Analog start point	-12.4...199.4 mbar	-5...80.1 inH2O	-1.24...19.94 kPa	-126...2033 mmWS
Analog end point	38.2...250 mbar	15.3...100.4 inH2O	3.82...25 kPa	390...2549 mmWS

PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Min. difference between SP and rP	0.5 mbar	0.2 inH2O	0.05 kPa	5 mmWS
In steps of	0.1 mbar	0.1 inH2O	0.01 kPa	1 mmWS
Factory setting		SP1 =62.5 mbar		rP1 = 57.5 mbar
		SP2 = 187.5 mbar		rP2 = 182.5 mbar
		ASP = 0.00 mbar		AEP = 250 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 ± 0,1 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,15 % of the span / 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	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.01	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1152
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	382.9	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

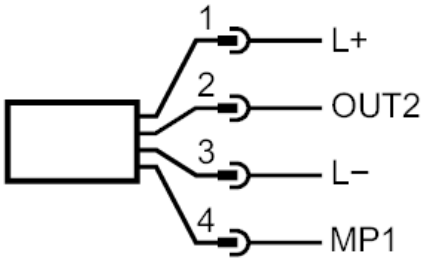
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; inH2O; mmWS	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

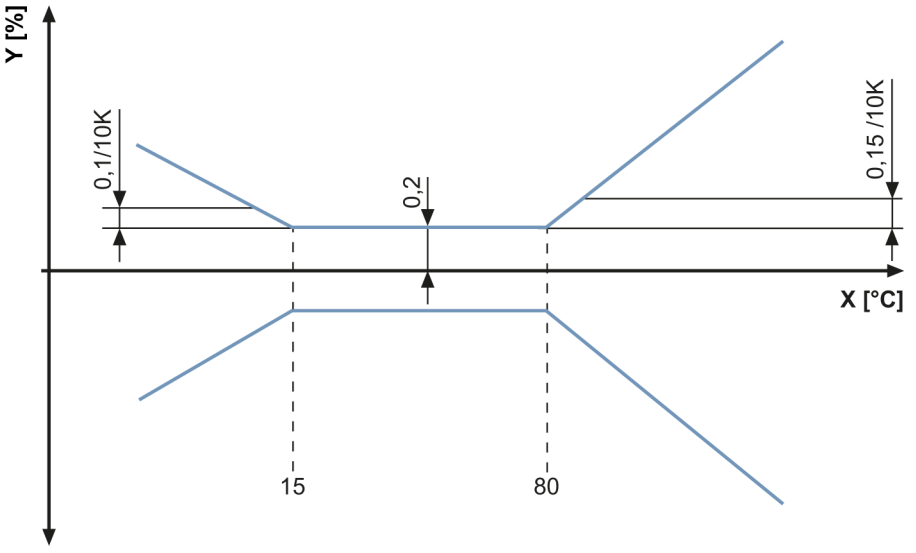
PI1808

Flush pressure sensor with display

PI-,25BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



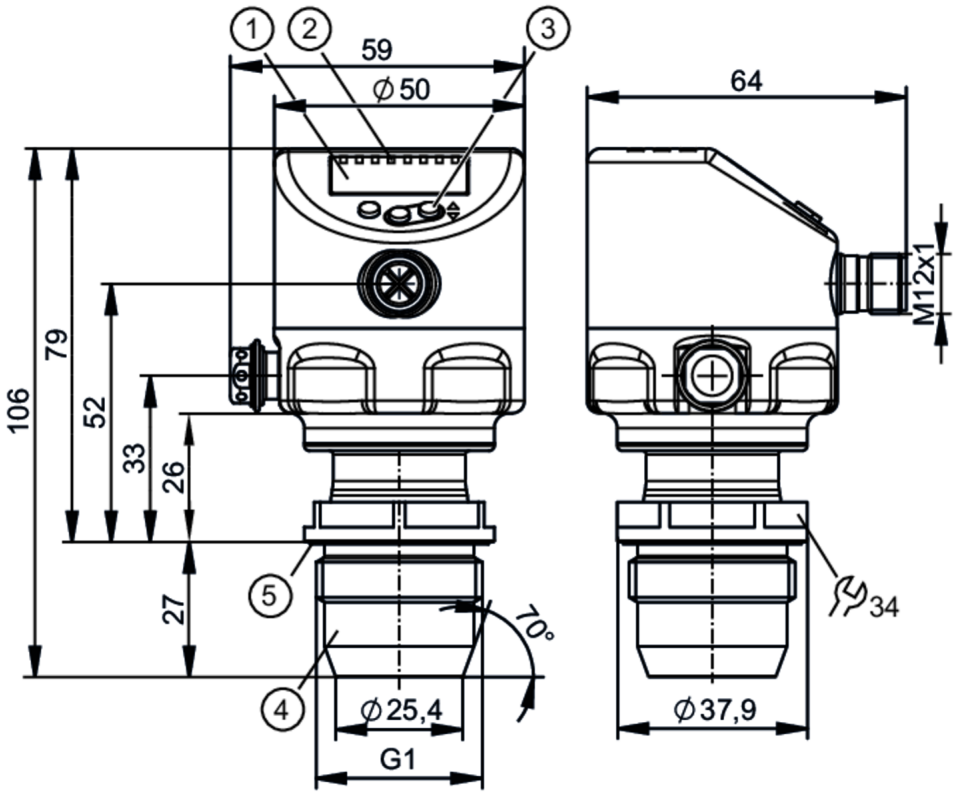
X temperature

Y total deviation

PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 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				
System	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. burst pressure	30000 mbar	435 psi	3000 kPa	
Pressure rating	10000 mbar	145 psi	1000 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	10
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-1000...1000 mbar	-14.5...14.5 psi	-401...401 inH2O	-100...100 kPa
Set point SP	-997...1000 mbar	-14.46...14.5 psi	-400...401 inH2O	-4.9...100 kPa
Reset point rP	-1000...997 mbar	-14.5...14.46 psi	-401...400 inH2O	-100...99.7 kPa
Analog start point	-1000...599 mbar	-14.5...8.68 psi	-401...240 inH2O	-100...59.9 kPa
Analog end point	-599...1000 mbar	-8.68...14.5 psi	-240...401 inH2O	-59.9...100 kPa

PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

Min. difference between SP and rP	3 mbar	0.05 psi	2 inH2O	0.3 kPa
In steps of	1 mbar	0.01 psi	1 inH2O	0.1 kPa
Factory setting		SP1 =-500 mbar		rP1 = -540 mbar
		SP2 = 500 mbar		rP2 = 460 mbar
		ASP = -1000 mbar		AEP = 1000 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.1	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1151
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	384.6	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

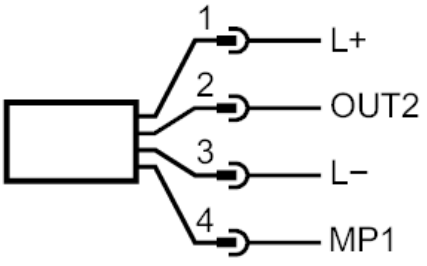
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; psi; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

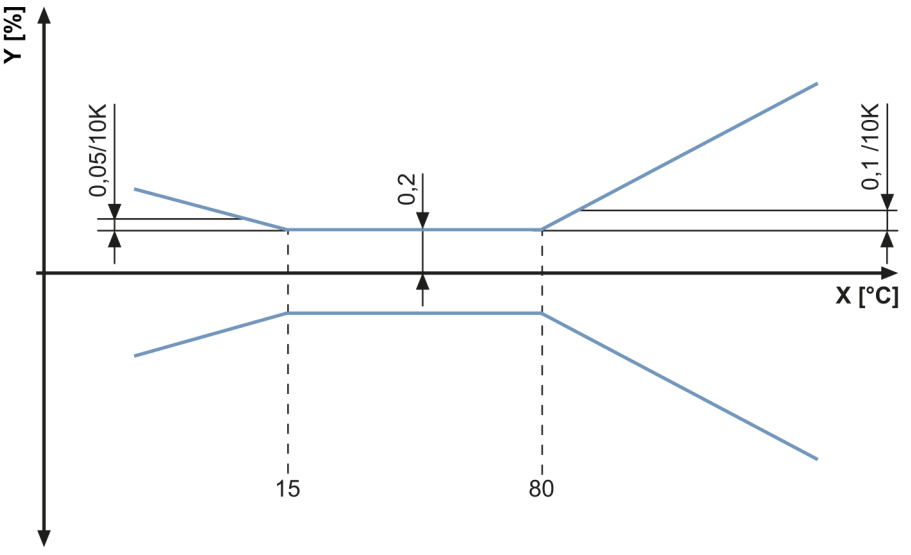
PI1809

Flush pressure sensor with display

PI-1-1BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



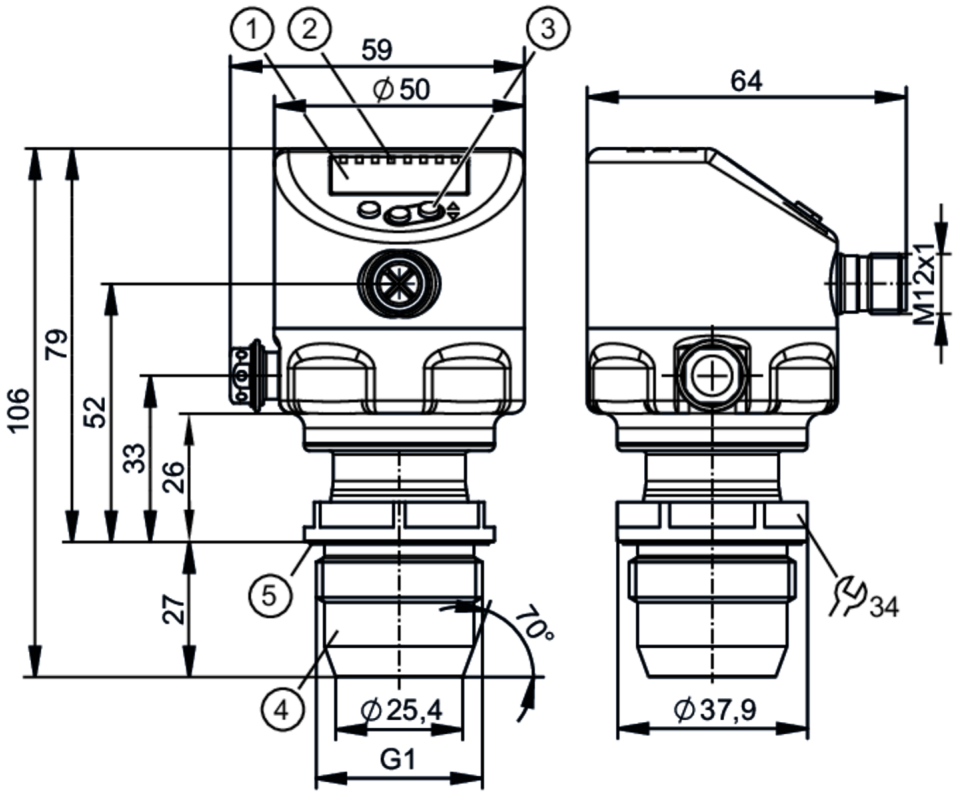
X temperature

Y total deviation

PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...16 bar	-14.6...232 psi	-0.1...1.6 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			
System	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. burst pressure	250 bar	3625 psi	25 MPa
Pressure rating	75 bar	1085 psi	7.5 MPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	50		
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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-1...16 bar	-14.6...232 psi	-0.1...1.6 MPa
Set point SP		-0.98...16 bar	-14.2...232.1 psi	-0.098...1.6 MPa
Reset point rP		-1...15.98 bar	-14.5...231.7 psi	-0.1...1.598 MPa
Analog start point		-1...12.8 bar	-14.5...185.6 psi	-0.1...1.28 MPa
Analog end point		2.2...16 bar	31.9...232.1 psi	0.22...1.6 MPa

PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

Min. difference between SP and rP	0.03 bar	0.4 psi	0.003 MPa
In steps of	0.01 bar	0.1 psi	0.001 MPa
Factory setting		SP1 = 4.00bar	rP1 = 3.68 bar
		SP2 = 12.00 bar	rP2 = 11.68 bar
		ASP = 0.00 bar	AEP = 16.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		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)		**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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1147
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	384.7	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

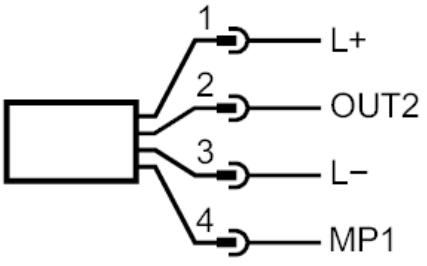
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; MPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

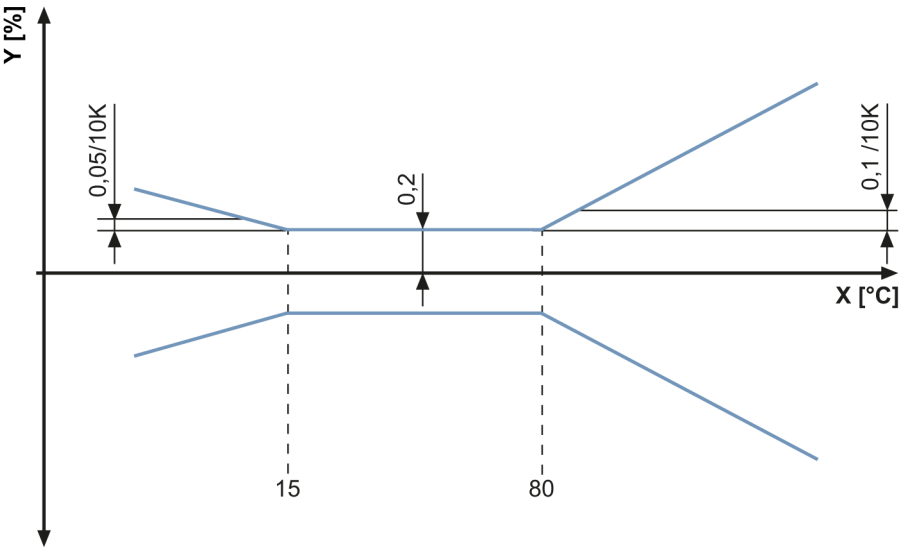
PI1814

Flush pressure sensor with display

PI-016-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



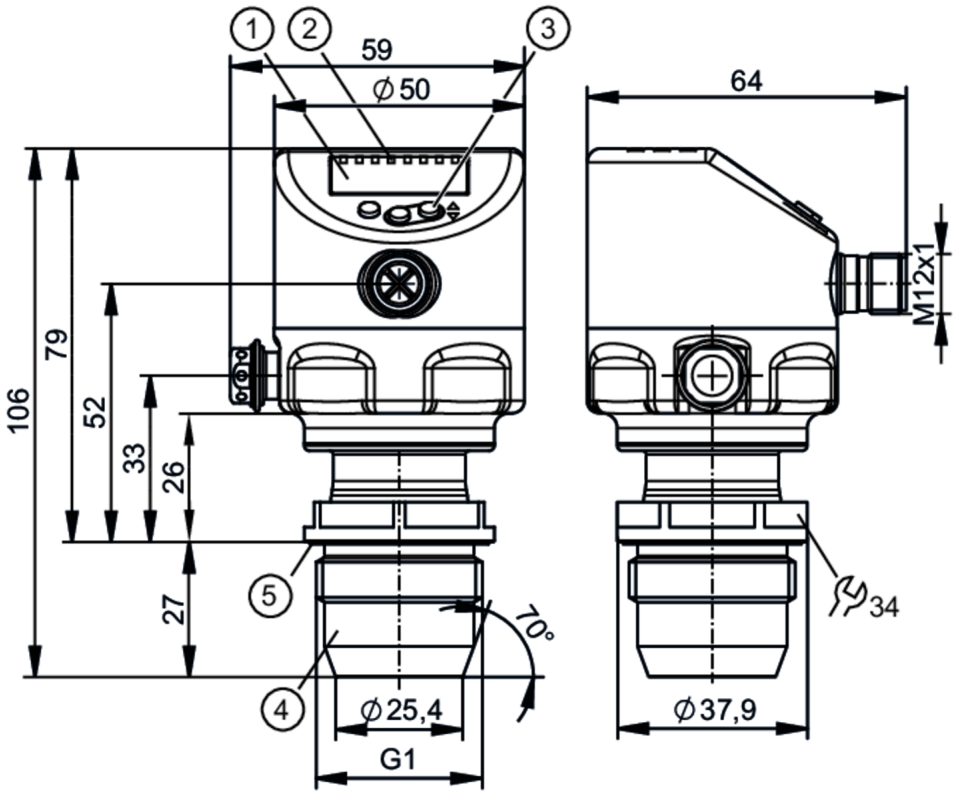
X temperature

Y total deviation

PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-1...6 bar	-14.5...87 psi	-100...600 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			
System	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. burst pressure	100 bar	1450 psi	10000 MPa
Pressure rating	30 bar	435 psi	3000 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	30
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range			
Measuring range	-1...6 bar	-14.5...87 psi	-100...600 kPa
Set point SP	-0.991...6 bar	-14.4...87 psi	-99...600 kPa
Reset point rP	-1...5.991 bar	-14.5...86.9 psi	-100...599 kPa
Analog start point	-1...4.8 bar	-14.5...69.6 psi	-100...480 kPa
Analog end point	0.2...6 bar	2.9...87 psi	20...600 kPa

PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

Min. difference between SP and rP	0.009 bar	0.2 psi	1 kPa
In steps of	0.001 bar	0.1 psi	1 kPa
Factory setting		SP1 = 1.50 bar	rP1 = 1.38 bar
		SP2 = 4.50 bar	rP2 = 4.38 bar
		ASP = 0.00 bar	AEP = 6.00 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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[bar]	0.0002	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1148
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	385	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

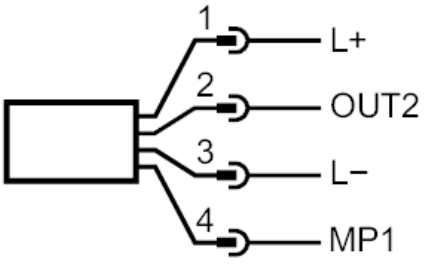
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	bar; psi; kPa	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

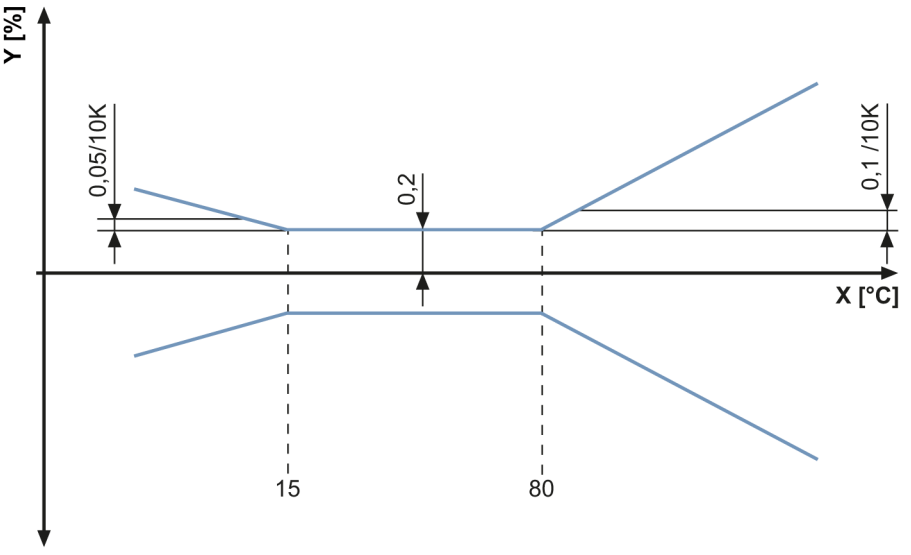
PI1815

Flush pressure sensor with display

PI-006-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



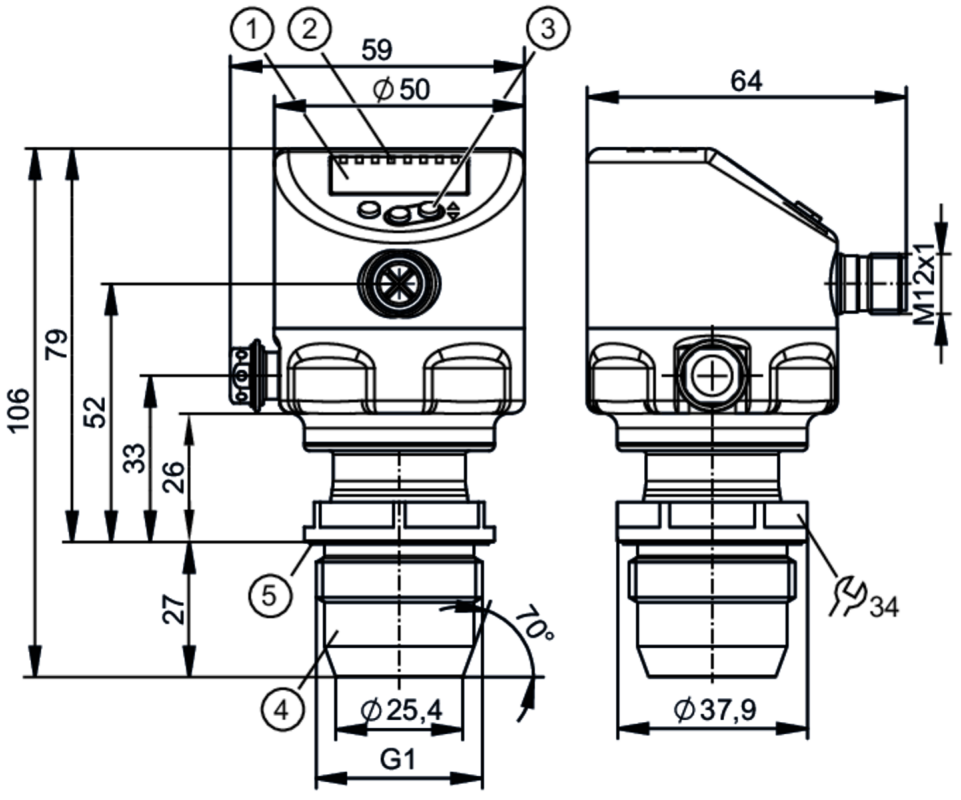
X temperature

Y total deviation

PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-100...1600 mbar	-1.46...23.2 psi	-40...642.5 inH2O	-10...160 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				
System	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. burst pressure	40000 mbar	580 psi	4000 kPa	
Pressure rating	15000 mbar	215 psi	1500 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	15
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-100...1600 mbar	-1.46...23.2 psi	-40...642.5 inH2O	-10...160 kPa
Set point SP	-98...1600 mbar	-1.42...23.21 psi	-39.2...642.3 inH2O	-9.8...160 kPa
Reset point rP	-100...1598 mbar	-1.45...23.17 psi	-40.1...641.4 inH2O	-10...159.8 kPa
Analog start point	-100...1272 mbar	-1.45...18.45 psi	-40.1...510.6 inH2O	-10...127.2 kPa
Analog end point	228...1600 mbar	3.31...23.21 psi	91.6...642.3 inH2O	22.8...160 kPa

PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

Min. difference between SP and rP	3 mbar	0.04 psi	1 inH2O	0.3 kPa
In steps of	1 mbar	0.01 psi	0.1 inH2O	0.1 kPa
Factory setting		SP1 =400 mbar		rP1 = 368 mbar
		SP2 = 1200 mbar		rP2 = 1168 mbar
		ASP = 0.00 mbar		AEP = 1600 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 % 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	
Temperature monitoring		
Accuracy [K]	± 2,5+ (0,08 x (Umgebungstemperatur - Mediumtemperatur))	
Repeatability [K]	± 0,2	
Resolution [K]	0.2	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.05	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1149
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	385.5	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

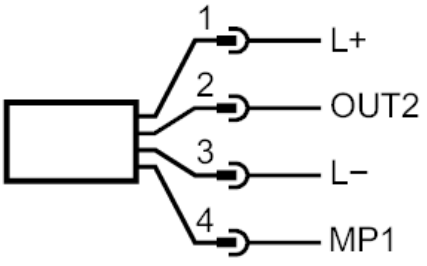
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; psi; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

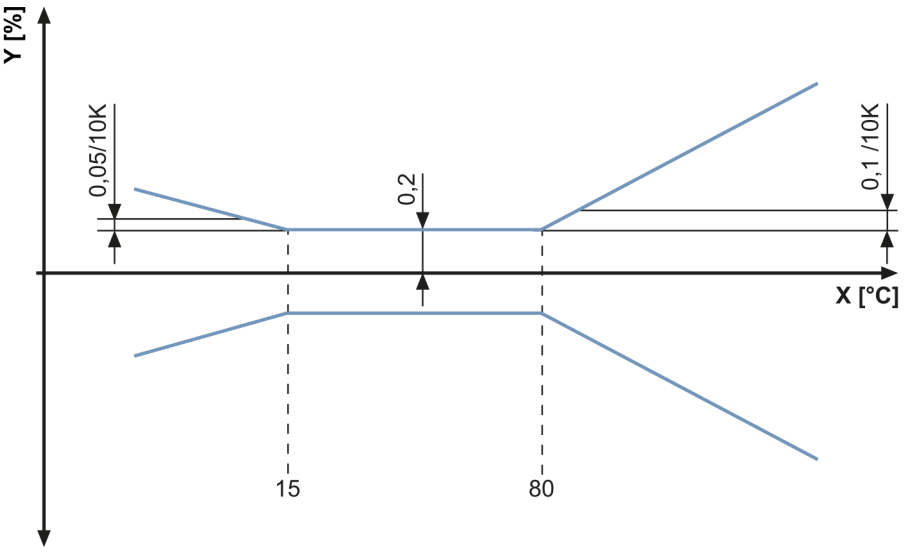
PI1817

Flush pressure sensor with display

PI-1,6-REA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



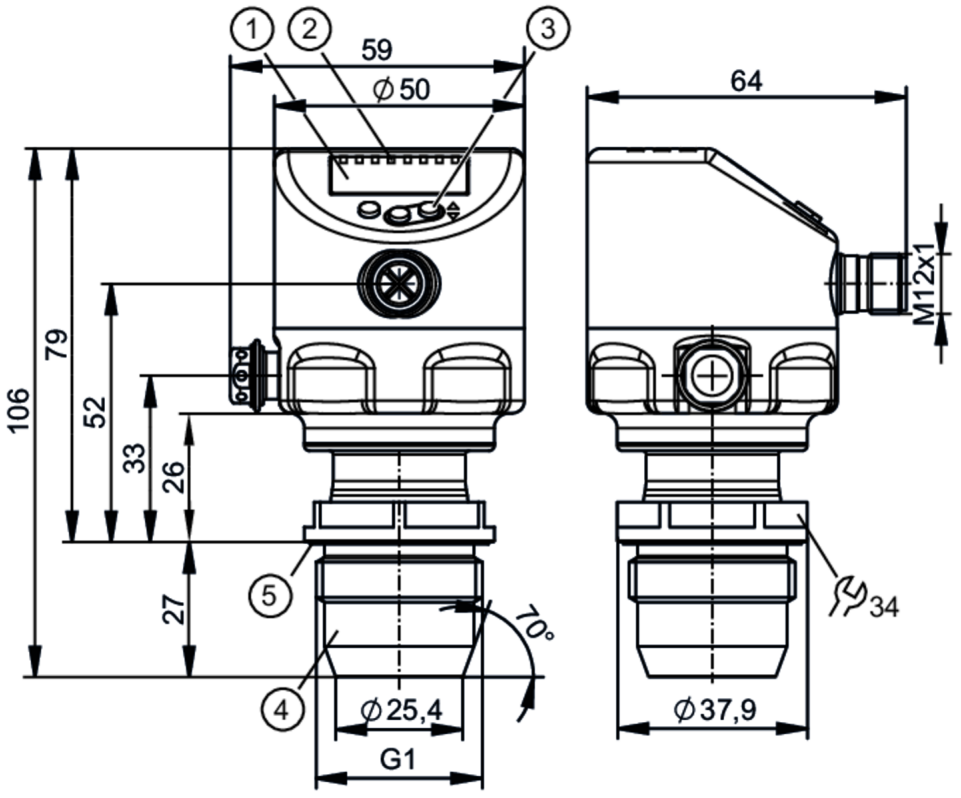
X temperature

Y total deviation

PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics			
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1		
Measuring range	-50...400 mbar	-20...160.6 inH2O	-5...40 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			
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa
Pressure rating	8000 mbar	3200 inH2O	800 kPa
Vacuum resistance	-1000 mbar	-0.1 MPa	
Type of pressure	relative pressure; vacuum		
No dead space	yes		

PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	8		
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 analog outputs: 1		
Outputs				
Total number of outputs		2		
Output signal		switching signal; analog signal; IO-Link		
Electrical design		PNP/NPN		
Number of digital outputs		2		
Output function		normally open / closed; (configurable)		
Number of analog outputs		1		
Analog current output	[mA]	4...20, invertible; (scalable)		
Short-circuit protection		yes		
Type of short-circuit protection		yes (non-latching)		
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)		
Measuring/setting range				
Measuring range		-50...400 mbar	-20...160.6 inH2O	-5...40 kPa
Set point SP		-49.4...400 mbar	-19.8...160.6 inH2O	-4.94...40 kPa
Reset point rP		-50...399.4 mbar	-20.1...160.3 inH2O	-5...39.94 kPa
Analog start point		-50...320 mbar	-20.1...128.5 inH2O	-5...32 kPa
Analog end point		30...400 mbar	12...160.6 inH2O	3...40 kPa

PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Min. difference between SP and rP	0.6 mbar	0.3 inH2O	0.06 kPa
In steps of	0.1 mbar	0.1 inH2O	0.01 kPa
Factory setting		SP1 =100 mbar	rP1 = 92 mbar
		SP2 = 300 mbar	rP2 = 292 mbar
		ASP = 0.00 mbar	AEP = 400 mbar
		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)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,15; (see operating instructions zero-point behavior)
	Display, Switching output	0,2
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 ± 0,1 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,15 % of the span / 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	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.02	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1189
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	395	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

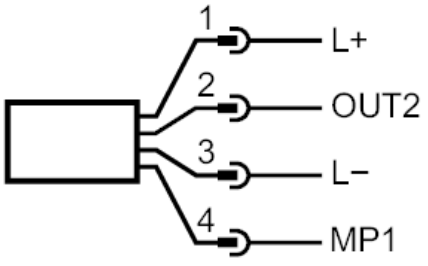
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; inH2O; mmWS	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

1	L+	
3	L-	
4	MP1	IO-Link

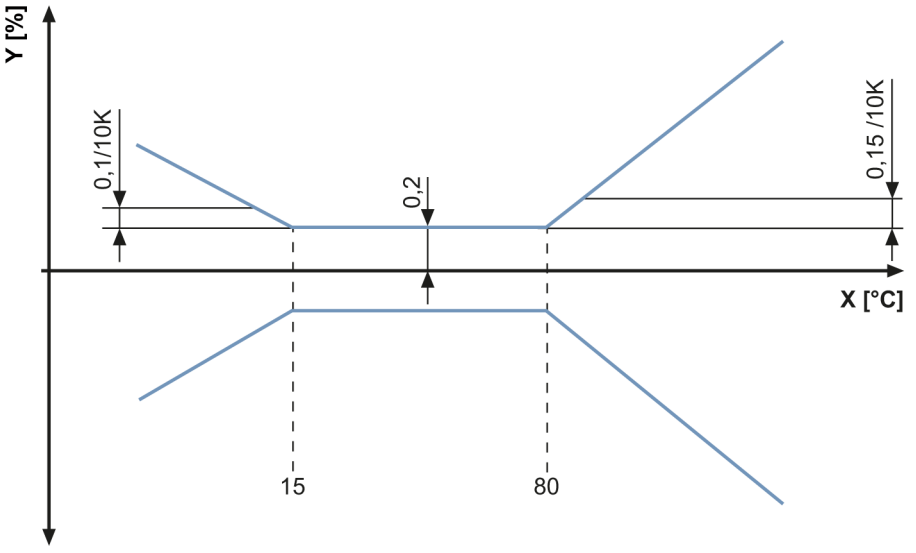
PI1818

Flush pressure sensor with display

PI-,40BREA01-MFRKG/US/ /P

Diagrams and graphs

ambient temperature influence on the accuracy



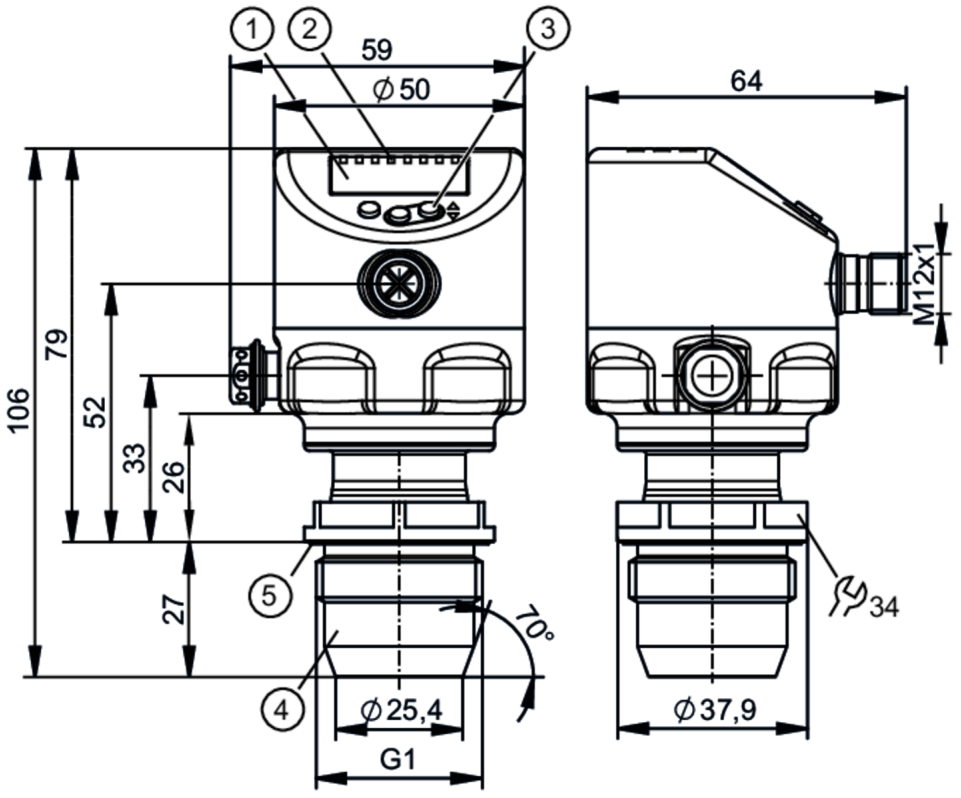
X temperature

Y total deviation

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P



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

3A ACS CE CRN cULus LISTED EC 1935/2004 EHEDG Tested FCM FDA Hygienic Cleanable IO-Link NSF Reg31 TSDP/TÜV UKCA

Product characteristics				
Number of inputs and outputs	Number of digital outputs: 2; Number of analog outputs: 1			
Measuring range	-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O	-0.5...10 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				
System	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. burst pressure	30000 mbar	12044 inH2O	3000 kPa	
Pressure rating	4000 mbar	1606 inH2O	400 kPa	
Vacuum resistance	-1000 mbar	-0.1 MPa		
Type of pressure	relative pressure; vacuum			
No dead space	yes			

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

MAWP (for applications according to CRN)	[bar]	4
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 analog outputs: 1
Outputs		
Total number of outputs		2
Output signal		switching signal; analog signal; IO-Link
Electrical design		PNP/NPN
Number of digital outputs		2
Output function		normally open / closed; (configurable)
Number of analog outputs		1
Analog current output	[mA]	4...20, invertible; (scalable)
Short-circuit protection		yes
Type of short-circuit protection		yes (non-latching)
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]	(Ub - 10 V) / 21,5 mA; 650 Ω (Ub = 24 V)

Measuring/setting range				
Measuring range	-0.005...0.1 bar	-5...100 mbar	-2...40.15 inH2O	-0.5...10 kPa
Set point SP	-0.0049...0.1 bar	-4.9...100 mbar	-1.95...40.15 inH2O	-0.49...10 kPa
Reset point rP	-0.005...0.099 bar	-5...99.9 mbar	-2.01...40.09 inH2O	-0.5...9.99 kPa
Analog start point	-0.005...0.08 bar	-5...80 mbar	-2.01...32.12 inH2O	-0.5...8 kPa
Analog end point	0.015...0.1 bar	15...100 mbar	6.02...40.15 inH2O	1.5...10 kPa

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Min. difference between SP and rP	0.0002 bar	0.2 mbar	0.06 inH2O	0.02 kPa
In steps of	0.0001 bar	0.1 mbar	0.01 inH2O	0.01 kPa
Factory setting		SP1 =25 mbar		rP1 = 23 mbar
		SP2 = 75 mbar		rP2 = 73 mbar
		ASP = 0 mbar		AEP = 100 mbar
		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]	< ± 0,5; (DIN EN IEC 62828-1; Turn down 1:1)	
Repeatability [% of the span]	< ± 0,2; (with temperature fluctuations < 10 K; Turn down 1:1)	
Characteristics deviation [% of the span]	< ± 0,5; (DIN IEC EN 62828-1 incl. zero point and span error, non-linearity, hysteresis; Turn down 1:1)	
Linearity deviation [% of the span]	< ± 0,25; (Turn down 1:1)	
Zero-point stabilization [% of the span]	IO-Link, analog output	0,4; (see operating instructions zero-point behavior)
	Display, Switching output	0,4
Hysteresis deviation [% of the span]	< ± 0,2; (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 ± 0,15 % of the span / 10 K
	15...80 °C	Characteristics deviation
	80...150 °C	Characteristics deviation ± 0,2 % of the span / 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	

Reaction times

Damping process value dAP [s]	0...99.99
Damping for the analog output dAA [s]	0...99.99
2-wire	
Step response time analog output [ms]	30
3-wire	
Min. response time of switching output (dAP) [ms]	3
Step response time analog output [ms]	7

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Interfaces			
Communication interface		IO-Link	
Transmission type		COM2 (38,4 kBaud)	
IO-Link revision		1.1	
SDCI standard		IEC 61131-9	
Profiles		Common - I&D	Identification and Diagnosis
		Function	Measurement data, high resolution
SIO mode		yes	
Required master port class		A	
Min. process cycle time	[ms]	5.6	
IO-Link resolution pressure	[mbar]	0.005	
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; measuring cell diagnosis	
Supported DeviceIDs		**Type of operation**	**DeviceID**
		default	1158
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	
UL approval		UL approval number	J049
		File number UL	E174189
Mechanical data			
Weight	[g]	384.8	
Housing		tubular	
Dimensions	[mm]	Ø 50 / L = 106	
Material		Housing: stainless steel (1.4404 / 316L); Pushbuttons: PBT; sealings: FKM; M12 connector: PEI; Display: PFA; ventilation diaphragm: PTFE	
Materials (wetted parts)		measuring cell: ceramics (99.9 % Al2O3); Process connection: stainless steel (1.4435 / 316L) surface characteristics: Ra < 0,4 µm / Rz = 4 µm; sealing: 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.	

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

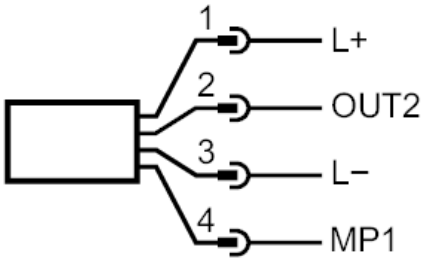
Displays / operating elements		
Display	Display unit	LED, green
	Switching status	LED, yellow
	Function display	alphanumeric display, 4-digit
	Measured values	alphanumeric display, 4-digit
Display unit	mbar; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

Connection



2-wire

1	L+	
2	OUT2	AO

3-wire

1	L+	
2	OUT2	DO2 (NO/NC), AO
3	L-	
4	MP1	DO1 (NO/NC), IO-Link

Parameter setting

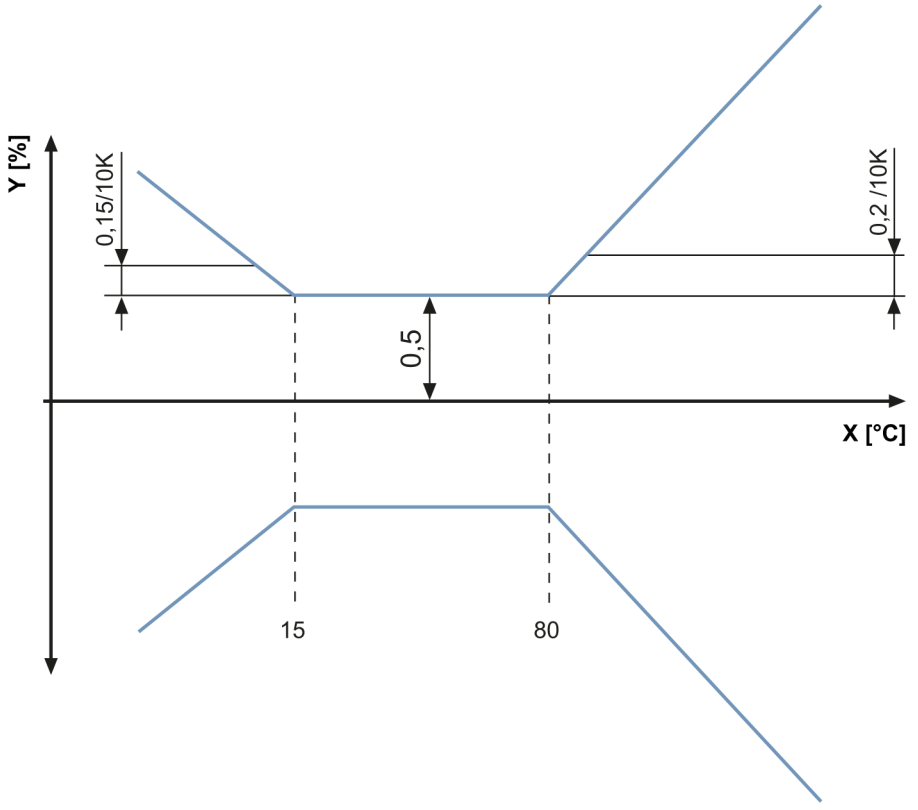
1	L+	
3	L-	
4	MP1	IO-Link

PI1889

Flush pressure sensor with display

PI-,10BREA01-MFRKG/US/ /P

Diagrams and graphs



X temperature

Y total deviation