



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



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. bursting 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		



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Electrical data			
Min. insulation resistance	[MΩ]	100; (500 V DC)	
Protection class		III	
Reverse polarity protection		yes	
Integrated watchdog		yes	
2-wire			
Operating voltage	[V]	20...30 DC	
Current consumption	[mA]	3.5...21.5	
Power-on delay time	[s]	< 1	
3-wire			
Operating voltage	[V]	18...30 DC	
Current consumption	[mA]	5...45; (430 bei max. Laststrom)	
Power-on delay time	[s]	< 0.5	
Inputs / outputs			
Number of inputs and outputs		Number of digital outputs: 2; Number of 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



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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)		
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		
Temperature monitoring			
Dynamic response T05 / T09 [s]	< 35 / < 135; (DIN EN 60751 water ; > 0,9 m/s)		
Interfaces			
Communication interface	IO-Link		
Transmission type	COM2 (38,4 kBaud)		



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IO-Link revision	1.1	
SDCI standard	IEC 61131-9	
Profiles	Function class	Description
	0x4000	Identification and Diagnosis
	0x800A	Measurement Data Channel (standard 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	
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	
Note on approval	Factory certificate available as download at www.factory-certificate.ifm	
UL approval	UL approval number	J049
	File number UL	E174189

Mechanical data

Weight [g]	395
Housing	tubular
Dimensions [mm]	Ø 50 / L = 106
Material	stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA
Materials (wetted parts)	ceramics (99.9 % Al ₂ O ₃); stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE
Min. pressure cycles	100 million
Tightening torque [Nm]	20
Process connection	threaded connection G 1 external thread sealing cone Attention: The unit must only be installed in a process connection for G1 sealing cone.; The G1A sealing cone of the unit is only suited for adapters with metal end stop.

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

Remarks	
Pack quantity	1 pcs.

Electrical connection

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



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Connection



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

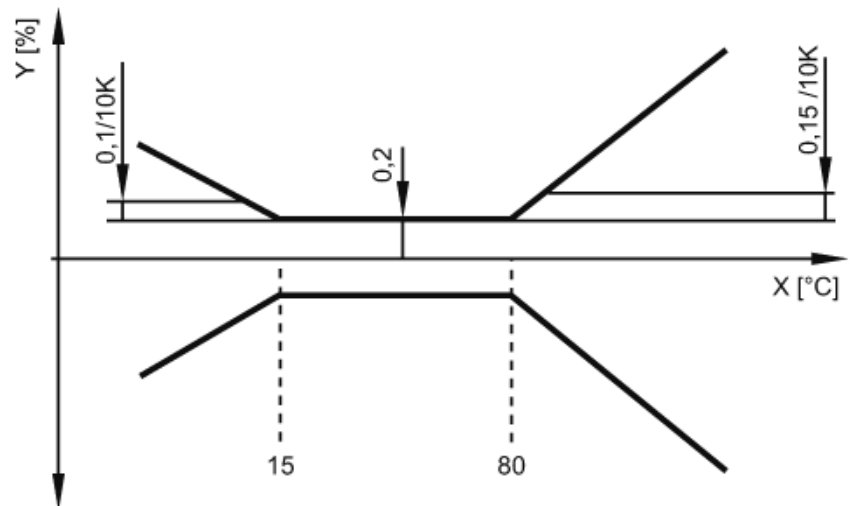


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Diagrams and graphs

ambient temperature influence on the accuracy



X temperature
Y total deviation