

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)



ACS



CRN



EC 1935/2004

EHEDG Certified

FCM

FDA



Reg31

UK

CA

Reg31

UK

CA

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. bursting 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		

Electrical data

Min. insulation resistance [MΩ]	100; (500 V DC)
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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



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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)		
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		
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]	0.05	
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	
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	
Note on approval	Factory certificate available as download at www.factory-certificate.ifm	
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	stainless steel (1.4404 / 316L); FKM; PTFE; PBT; PEI; PFA	
Materials (wetted parts)	ceramics (99.9 % Al2O3); stainless steel (1.4435 / 316L); surface characteristics: Ra < 0,4 / Rz 4; PTFE	
Min. pressure cycles	100 million	
Tightening torque [Nm]	35	
Process connection	threaded connection G 1 external thread Aseptoflex Vario	

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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; psi; kPa; inH2O	

Remarks	
Pack quantity	1 pcs.

Electrical connection

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

A diagram of an M12 connector with four pins arranged in a circle. The pins are numbered 1, 2, 3, and 4 in a clockwise direction starting from the top-right position. Pin 1 is at the top-right, pin 2 is at the top-left, pin 3 is at the bottom-left, and pin 4 is at the bottom-right.



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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