

PBMH autoclavable

PBMH-2#####200#/Article number: 96002625

Overview

- Fully autoclavable pressure sensor for common sterilization processes
- High temperature resistance for SIP and CIP processes
- Surface roughness of process connection $R_a \leq 0.8$ for highest hygienic requirements
- Fully welded and compact design for washdowns without residuals
- Excellent active temperature compensation for increased process stability
- External programming of zero point and span with FlexProgrammer 9701



Technical data

Performance characteristics

Measuring range	-1 ... 40 bar
Min. measuring span	0.4 bar
Max. measuring span	40 bar
Pressure type	Absolute Relative (gauged)
Standard error of measurement (BFSL)	± 0.04 % FSR ± 0.1 % FSR Including non-linearity, hysteresis and non-repeatability according BFSL For turndown, multiply this value by the applied turndown ratio
Max. measuring error	± 0.1 % FSR ± 0.25 % FSR Including zero-point and span error, non-linearity (by terminal base line), hysteresis and non-repeatability (EN 61298-2) For turndown, multiply this value by the applied turndown ratio
Temperature coefficient	≤ 0.03 % FSR/10 K , measuring span ≤ 0.03 % FSR/10 K , zero point
Compensated temperature range	-10 ... 85 °C
Long term stability	≤ 0.1 % FSR/a , measuring range > 1 bar ≤ 1 mbar , measuring range ≤ 1 bar
Max. turndown ratio	5 : 1
Rise time (10 ... 90 %)	≤ 5 ms

Process conditions

SIP/CIP compatibility	< 60 min, without cooling neck @ medium temperature up to 150 °C Permanent, with cooling neck @ medium temperature up to 200 °C
Process pressure	Refer to section "Operating conditions"
Process temperature	-10 ... 125 °C , without cooling neck -40 ... 200 °C , with cooling neck

Autoclavability

Sterilisation conditions	Complete sensor with attached protective cover
Ambient pressure during sterilisation process	≤ 3500 mbar
Process duration	≤ 30 min
Sterilisation temperature	≤ 140 °C

Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material, gasket	EPDM, optional EPDM O-rings are conform to 3-A Sanitary Standard 18-03 Class II, EPDM gaskets are conform to 3-A Sanitary Standard 18-03 Class I (8% milk fat max.)
Wetted parts material, membrane	AISI 316L (1.4435)
Wetted parts material, process connection	AISI 316L (1.4435)

Surface roughness (in contact with medium)

Membrane	$R_a \leq 0.4$ μ m
Process connection	$R_a \leq 0.4$ μ m
Weld joint	$R_a \leq 0.8$ μ m

Ambient conditions

Bump (EN 60068-2-27)	100 g / 2 ms, 4000 impulses per axis and direction
Shock (EN 60068-2-27)	50 g / 11 ms, 100 g / 6 ms, 10 impulses per axis and direction
Vibration (sinusoidal) (EN 60068-2-6)	1.5 mm p-p (10 ... 58 Hz), 10 g (58 Hz ... 2 kHz), 10 cycles (2.5 h) per axis
Vibration, broad-band random (EN 60068-2-64)	0.1 g ² / Hz, > 10 gRMS (20 Hz ... 1 kHz), 30 min. per axis
Degree of protection (EN 60529)	IP 67

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Ambient conditions

Operating temperature range	-10 ... 85 °C
Storage temperature range	-10 ... 85 °C

Output signal

Current output	4 ... 20 mA , 2-wire 20 ... 4 mA , 2-wire
Voltage output	0... 10 V , 3-wire 0... 5 V , 3-wire 0.5 ... 4.5 V , 3-wire 1 ... 5 V , 3-wire 10 ... 0V , 3-wire
Load resistance	> 5 kΩ, with voltage output R = (Uver - 8 V)/20 mA, with current output
Insulation resistance	> 100 MΩ , 500 V DC
Short circuit protection	Yes
Shunt resistance	$R_s \leq (V_s - 8 V)/0.0205 A$ $R_s \leq 750 \Omega, V_s = 24 V$

Housing

Overall size	Refer to section "Dimensional drawings"
Style	Compact transmitter
Material	AISI 316L (1.4404)

Electrical connection

Connector	Fischer, 4-pin, stainless steel M12-A, 4-pin, stainless steel
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Power supply

Voltage supply range	13 ... 30 V DC , with voltage output 8 ... 30 V DC , with current output
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Compliance and approvals

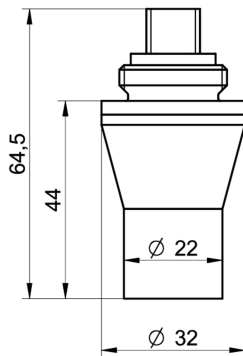
EMC	EN 61000-6-2 EN 61000-6-3
Hygiene	3-A (74-06) EHEDG I

Operating conditions

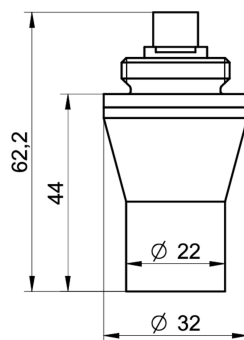
Measuring range (bar)						Proof pressure (bar)	Burst Pressure (bar)	
-1 ... 0	-1 ... 0,6	0 ... 0,4	0 ... 0,6	0 ... 1		3	6	
-1 ... 1,5	-1 ... 3	-1 ... 5	0 ... 1,6	0 ... 2	0 ... 2,5	0 ... 4	15	30
	-1 ... 9	-1 ... 15	0 ... 6	0 ... 10	0 ... 16	0 ... 20	60	120
		-1 ... 24	0 ... 25				70	140
		-1 ... 39	0 ... 40				135	270

Dimensional drawings

Housing



Housing with connector M12-A, 4-pin, high temperature

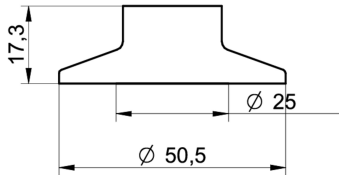


Housing with connector Fischer, 4-pin, stainless steel

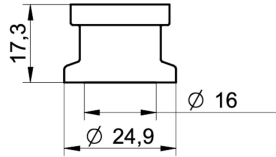
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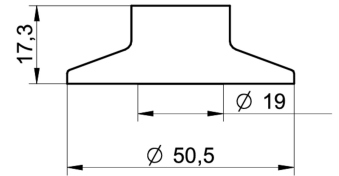
Process connection



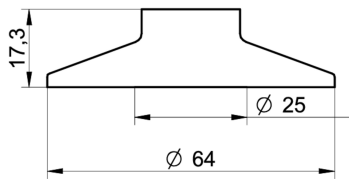
C04-51
Tri-Clamp Ø 50.5, membrane Ø 25 mm (BCID: C04)



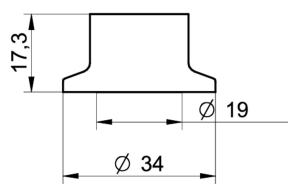
C01-52
Tri-Clamp Ø 24.9, membrane Ø 16 mm (BCID: C01)



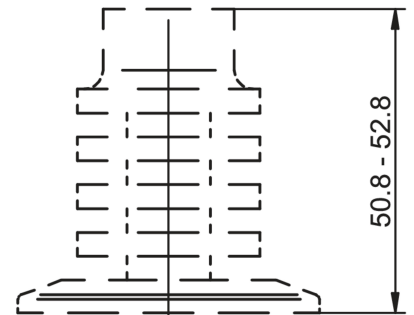
C03-53
Tri-Clamp Ø 50.5, membrane Ø 19 mm (BCID: C03)



C05-54
Tri-Clamp Ø 64.0, membrane Ø 25 mm (BCID: C05)



C02-57
Tri-Clamp Ø 34.0, membrane Ø 19 mm (BCID: C02)



Cooling neck

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Electrical connection

Output signal	Equivalent circuit	Electrical connection	Function	Pin assignment
4 ... 20 mA (2-wire)			+Vs	1
			Iout	3
			Frame Ground	Plug thread
			n.c.	2, 4
0 ... 10 V (3-wire)			+Vs	1
			Uout	2, 4
			GND (0 V)	3
			Frame Ground	Plug thread
			+Vs	1
			Uout	2
			GND (0 V)	3
			Frame Ground	Plug thread
			n.c.	4

Ordering information

Ordering key - Configuration possibilities see website

	PBMH - 2 # ### # ## ## ## # # 2 0 0 #
Product	PBMH
Housing material	
Stainless steel 1.4404 AISI 316L	2
Accuracy	
±0.25 % FS	4
±0.10 % FS	5
Measuring range	
0...0,4 bar (EN)	B11
0...0,6 bar (EN)	B12
0...1 bar (EN)	B15
0...1,6 bar (EN)	B16
0...2 bar (EN)	B17
0 ... 2.5 bar (EN)	B18
0 ... 4 bar (EN)	B19
0...12 bar (EN)	B1K
-1...39 bar (EN)	B1L
0 ... 6 bar (EN)	B20
0 ... 10 bar (EN)	B22
0 ... 16 bar (EN)	B24
0...20 bar (EN)	B25
0...25 bar (EN)	B26
0...40 bar (EN)	B27
-0,1...0,1 bar (EN)	B2H
-0,2...0,2 bar (EN)	B4G
-0,6...0 bar (EN)	B58
-1...0 bar (EN)	B59

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Ordering key - Configuration possibilities see website

	PBMH	-	2	#	###	#	##	##	##	#	#	2	0	0	#	
-1...0,6 bar (EN)																B72
-1...1 bar (EN)																B73
-1...1,5 bar (EN)																B74
-1...2 bar (EN)																B75
-1...3 bar (EN)																B76
-1...5 bar (EN)																B77
-1...9 bar (EN)																B79
-1...15 bar (EN)																B81
-1...24 bar (EN)																B82
0...5 bar (EN)																B98
0...6 psi (ANSI)																H11
0...10 psi (ANSI)																H13
0...15 psi (ANSI)																H15
0...25 psi (ANSI)																H16
0...30 psi (ANSI)																H17
0...60 psi (ANSI)																H19
0...20 psi (ANSI)																H1C
0...500 psi (ANSI)																H1E
-30Hg...600 psi (ANSI)																H1L
0...100 psi (ANSI)																H21
0...160 psi (ANSI)																H22
0...200 psi (ANSI)																H23
0...250 psi (ANSI)																H24
0...300 psi (ANSI)																H25
0...400 psi (ANSI)																H26
0...600 psi (ANSI)																H27
-30HG...60 psi (ANSI)																H2C
-30HG...0 psi (ANSI)																H59
-30HG...15 psi (ANSI)																H73
-30HG...30 psi (ANSI)																H75
-30HG...100 psi (ANSI)																H78
-30HG...150 psi (ANSI)																H79
-30HG...220 psi (ANSI)																H81
-30HG...300 psi (ANSI)																H82
Kind of pressure																
Relative (gauged)																R
Absolute																A
Output signal																
20...4 mA																A0
4...20 mA																A1
0...10 V																A2
1...5 V																A3
0...5 V																A4
0.5...4.5 V																A5
10...0 V																A7
Output Connection																
M12-A, 4-pin high temperature																24
Fischer, 4-pin, stainl. steel																56
Process connection																
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 (C04)																51

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Ordering key - Configuration possibilities see website

	P	B	M	H	-	2	#	###	#	##	##	##	#	#	2	0	0	#	
DIN 32676-C (Tri-Clamp), DN 3/4, Ø 24.9 (without 3-A) (C01)													52						
ISO 2852 (Tri-Clamp), DN 25, Ø 50.5 (C03)													53						
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 (C05)													54						
ISO 2852 (Tri-Clamp), DN 21.3, Ø 34.0 (C02)													57						
DIN 11864-3-A BKS (Aseptic Clamp), DN25, Ø 50.5 (H41)													58						
ISO 2852 (Tri-Clamp), DN 33.7; 38, Ø 50.5 with cooling neck (C04)													81						
DIN 32676-C (Tri-Clamp), DN 3/4, Ø 24.9 (without 3-A) with cooling neck (C01)													82						
ISO 2852 (Tri-Clamp), DN 25, Ø 50.5 with cooling neck (C03)													83						
ISO 2852 (Tri-Clamp), DN 40; 51, Ø 64.0 with cooling neck (C05)													84						
ISO 2852 (Tri-Clamp), DN 21.3, Ø 34.0 with cooling neck (C02)													87						
Process connection material																			
Stainless steel 1.4435 AISI 316L													5						
Stainless steel AISI 316L, 1.4435 electropolished Ra 0.4													F						
Seal																			
None																		0	
EPDM																		2	
EPDM EHEDG																		7	
Oil filling																			
NSF H1 listed (FDA approved)																		2	
Display																			
Without display																			0
ATEX																			
Standard safety																			0
Approvals																			
Standard approvals																			0
EAC																			7