

PFMN

PFMN-##.####.#####.##2###.##0#

Overview

- Programmable by touch screen
- Cavity-free process connection
- Resistant to all conventional CIP cleaning media
- Compact installation from G 1/2 A
- Optionally available with relay outputs
- Absolute pressure, relative pressure and vacuum measurement
- Easy and full programmable with FlexProgrammer 9701



Technical data

Performance characteristics

Measuring range	-1 ... 400 bar
Min. measuring span	0.05 bar
Max. measuring span	401 bar
Pressure type	Absolute Relative (gauged)
Standard error of measurement (BFSL)	0.04 % FSR, up to 2:1 turndown ratio 0.1 % FSR, up to 4:1 turndown ratio 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, up to 2:1 turndown ratio ± 0.25 % FSR, up to 4:1 turndown ratio 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	≤ 0.05 % FSR/10 K, measuring span ≤ 0.05 % FSR/10 K, zero point
Compensated temperature range	-40 ... 85 °C
Long term stability	≤ 0.1 % FSR/a, IEC 770 6.3.2
Max. turndown ratio	10 : 1
Rise time (10 ... 90 %)	≤ 0.3 s
Sample time	≤ 0.3 s
Power-up time	< 10 s

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 conditions

Process temperature	-40 ... 125 °C, without cooling neck -40 ... 200 °C, with cooling neck
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Process connection

Connection variants	Refer to section "Dimensional drawings"
Wetted parts material, gasket	NBR, optional FKM (Viton®), optional FKM (Viton®) gaskets require a minimum ambient temperature of -20 °C and a minimum medium temperature of -25 °C
Wetted parts material, membrane	AISI 316L (1.4435)
Wetted parts material, process connection	AISI 316L (1.4404)

Ambient conditions

Vibration	DNV high vibration strain, class B
Vibration (sinusoidal) (EN 60068-2-6)	1.6 mm p-p (2 ... 25 Hz), 4 g (25 ... 100 Hz), 1 octave / min.
Degree of protection (EN 60529)	IP 67, with cable gland IP 69K, with connector M12
Humidity	< 98 % RH, condensing
Operating temperature range	-40 ... 85 °C
Storage temperature range	-40 ... 85 °C

Output signal

Current output	4 ... 20 mA 4 ... 20 mA, + HART® 20 ... 4 mA, programmable
Load resistance	RQ = (Usupply - 10 V)/20 mA
Insulation resistance	> 100 MΩ, 500 V DC
Sensor failure	20 ... 23 mA, programmable 3.6 ... 4 mA, programmable

Housing

Overall size	Refer to section "Dimensional drawings"
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Technical data

Housing

Style	Bottom process connection Rear process connection
Material	AISI 304 (1.4301)

Electrical connection

Cable gland	M16x1.5, plastic M16x1.5, stainless steel M20x1.5, plastic M20x1.5, stainless steel
Connector	M12-A, 5-pin, stainless steel M12-A, 8-pin, stainless steel

Power supply

Voltage supply range	10 ... 35 V DC
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ATEX II 1G Ex ia IIC T5

Maximum values for barrier selection, U _i	30 V DC, max.
Maximum values for barrier selection, I _i	100 mA
Maximum values for barrier selection, P _i	750 mW

ATEX II 1G Ex ia IIC T5

Internal capacitance, C _i	< 15 nF
Internal inductance, L _i	< 10 µH
Temperature class, T1 ... T5	-20 < Tamb < 60 Zone 0 and 20 -40 < Tamb < 65 Zone 1/2 and 21/22

ATEX II 3G Ex nA II T5

Voltage supply range	10 ... 35 V DC
Current rating, I _n	100 mA
Temperature class, T1 ... T5	-30 < Tamb < 65 °C

Compliance and approvals

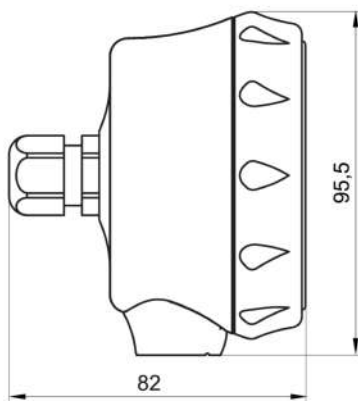
EMC	EN 61000-6-2 EN 61000-6-3
Explosion protection	ATEX II 1G Ex ia IIC T5 ATEX II 3G Ex nA II T5 ATEX II 1D Ex ia IIIC T100 °C Da
Pressure directive	97/23/EG

Operating conditions

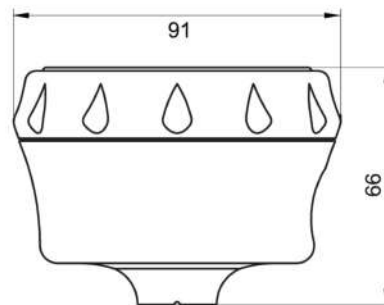
Measuring range (bar)	Proof pressure (bar)	Burst Pressure (bar)
0 ... 0.345	1	2
-1 ... 1	3	6
-1 ... 5	15	30
-1 ... 20	60	120
-1 ... 34	70	140
-1 ... 68	135	270

Dimensional drawings

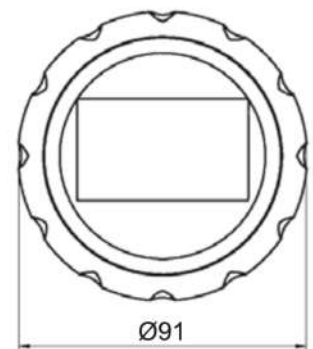
Housing



FlexHousing with bottom process connection
Bottom process connection



FlexHousing with rear process connection
Rear process connection

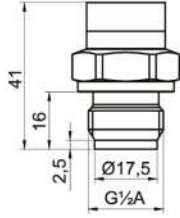


Front view
Front view

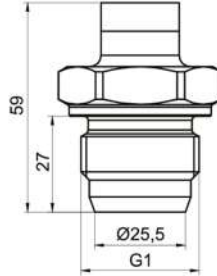
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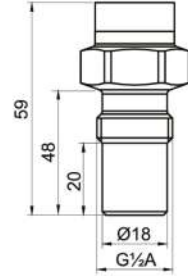
Process connection



G 1/2 A DIN 3852-E (BCID: G51)



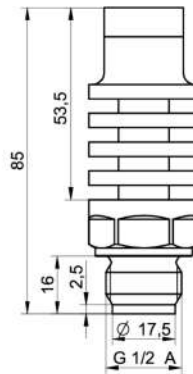
G 1 A hygienic (BCID: A04)



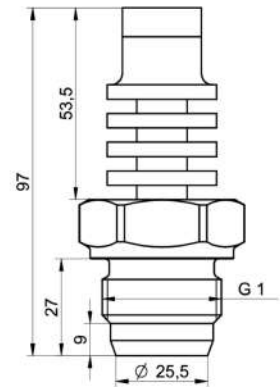
G 1/2 A hygienic (BCID: A03)



1/2-14 NPT (BCID: N02)



G 1/2 A DIN 3852-E with cooling neck (BCID: G51)



G 1 A hygienic with cooling neck (BCID: A04)

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Electrical connection

Equivalent circuit	Electrical connection	Function	Pin assignment
		+Vs	+
		lout	-
		+Vs	1
		lout	3
		R1	5
		R2	4
		R1 + R2	2
		+Vs	2
		lout	7
		R1	5, 6
		R2	3, 4
		n.c.	1, 8
		+Vs	+
		lout	-
		R1	5, 6
		R2	3, 4
		n.c.	1, 2

Ordering information

Ordering key - Configuration possibilities see website

Product	PFMN	-	#	#	.	###	#	.	##	##	#	.	##	2	#	#	#	.	#	0	#	####
Product	PFMN																					
Housing																						
Stainless steel 1.4301 / AISI304																						
Bottom connection																						
Stainless steel 1.4301 / AISI304																						
Rear connection																						
Accuracy																						
±0.25 % FS																						
±0.10 % FS																						
Pressure range and unit																						
Min. 0.0 / Max 0.345 Bar																						BC1
(not vacuum or absolute)																						
Min. -1.0 / Max 1.0 Bar(0...1 bar abs)																						BC2
Min. -1.0 / Max 5.0 Bar (0...5 bar abs)																						BC3
Min. -1.0 / Max 20.0 Bar (0...20 bar abs)																						BC4
Min. -1.0 / Max 34.0 Bar (0...34 bar abs)																						BC5
Min. -1.0 / Max 68.0 Bar (0...68 bar abs)																						BC6
Min. -1.0 / Max 400.0 Bar (0...400 bar abs)																						BC7
Kind of pressure																						
Relative (gauged)																						R
Absolute																						A
Output signal																						
4...20 mA																						A1
4...20 mA + HART®																						C1

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Ordering key - Configuration possibilities see website

	PFMN	-	#	#	.	###	#	.	##	##	#	.	##	2	#	#	#	.	#	0	#	####
Output Connection																						
M12-A, 5-pin																						15
M12-A, 8-pin																						18
Cable gland, M16x1.5																						55
Cable gland, M20x1.5																						57
Material of el. connection																						
Plastic																						1
Stainless steel, AISI 304 (1.4301)																						3
Process connection																						
G 1/2 A DIN 3852-E (G51)																						41
G 1/2 A ISO 228-1 with cone (G08)																						42
G 1 A hygienic (A04)																						44
G1/2A hygienic (A03)																						48
½-14 NPT (N02)																						49
G 1/2 A DIN 3852-E with cooling neck (G51)																						71
G 1 A hygienic with cooling neck (A04)																						74
Wetted parts material																						
Stainless steel 1.4404 / AISI 316L																						2
Seal																						
None																						0
NBR standard																						1
EPDM																						2
FKM (Viton®)																						3
Oil filling																						
Standard oil																						1
NSF H1 listed (FDA approved)																						2
Display																						
Without display																						1
With display, no relays activated																						2
With display, with activated relays																						4
ATEX																						
Standard safety																						0
Ex nA II T5 (Gas)																						3
Ex ia IIC T5 Ga or Ex ia IIIC T100°C Da (Gas or Dust)																						5
Approvals																						
Standard approvals																						0
Configuration																						
No configuration																						0
Configuration of range																						1
Configuration of range + display																						2
Configuration of range + display incl. 2 relays																						3
Option Surface																						
Surface Ra < 0,4 µm																						9059
Surface electropolished																						9060