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	
Pressure type	Absolute Relative (gauged)
Compensated temperature range	-40 … 85 °C
Long term stability	≤ 0.1 % FSR/a , IEC 770 6.3.2
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
Max. measuring span	401 bar
Max. turndown ratio	10 : 1
Measuring range	-1 … 400 bar
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
Min. measuring span	0.05 bar
Power-up time	< 10 s
Rise time (10 ... 90 %)	≤ 0.3 s
Sample time	≤ 0.3 s
Temperature coefficient	≤ 0.05 % FSR/10 K , measuring span ≤ 0.05 % FSR/10 K , zero point
Process conditions	
Process temperature	-40 … 125 °C , without cooling neck -40 … 200 °C , with cooling neck
Process pressure	Refer to section "Operating conditions"

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 connection	
Connection variants	Refer to section "Dimensional drawings"
Wetted parts material, process connection	AISI 316L (1.4404)
Wetted parts material, membrane	AISI 316L (1.4435)
Ambient conditions	
Operating temperature range	-40 … 85 °C
Storage temperature range	-40 … 85 °C
Degree of protection (EN 60529)	IP 67 , with cable gland IP 69K , with connector M12
Humidity	< 98 % RH , condensing
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.
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	
Style	Bottom process connection Rear process connection
Overall size	Refer to section "Dimensional drawings"
Material	AISI 304 (1.4301)

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Technical data

Electrical connection	
Connector	M12-A, 5-pin, stainless steel M12-A, 8-pin, stainless steel
Cable gland	M16x1.5, plastic M16x1.5, stainless steel M20x1.5, plastic M20x1.5, stainless steel
Power supply	
Voltage supply range	10 … 35 V DC
ATEX II 1G Ex ia IIC T5	
Maximum values for barrier selection, Ui	30 V DC , max.
Maximum values for barrier selection, Ii	100 mA
Maximum values for barrier selection, Pi	750 mW

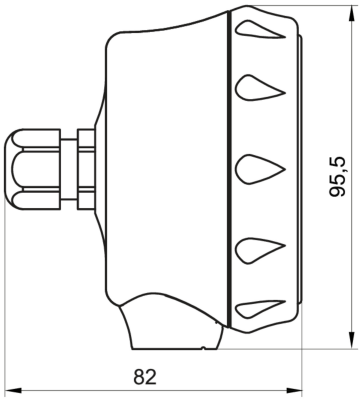
ATEX II 1G Ex ia IIC T5	
Internal capacitance, Ci	< 15 nF
Internal inductance, Li	< 10 µH
Temperature class, T1 ... T5	-20 < Tamb < 60 Zone 0 and 20 -40 < Tamb < 65 Zone 1/2 and 21/22
ATEX II 3G Ex nA II T5	
Voltage supply range	10 … 35 V DC
Current rating, In	100 mA
Temperature class, T1 ... T5	-30 < 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

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
-1 … 400	690	1350

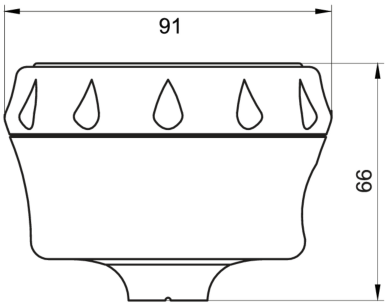
Dimensional drawings

Housing



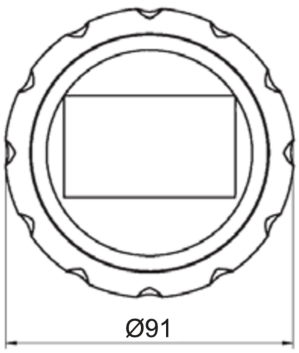
FlexHousing with bottom process connection

Bottom process connection



FlexHousing with rear process connection

Rear process connection

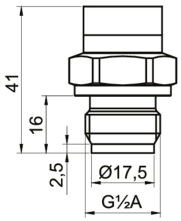


Front view

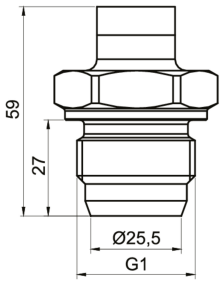
Front view

Dimensional drawings

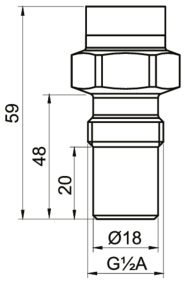
Process connection



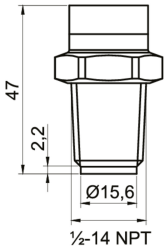
G 1/2 A DIN 3852-E (BCID: G51)



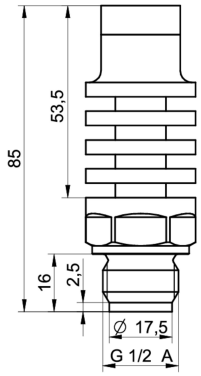
G 1 A hygienic (BCID: A04)



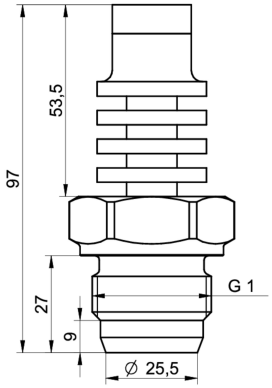
G 1/2 A hygienic (BCID: A03)



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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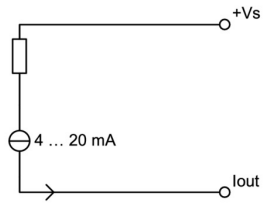
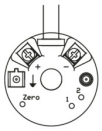
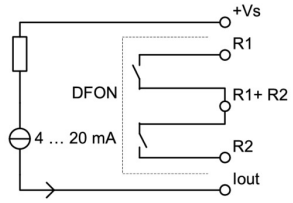
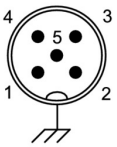
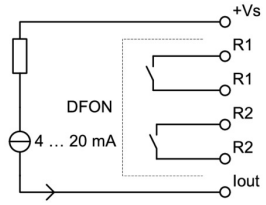
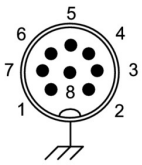
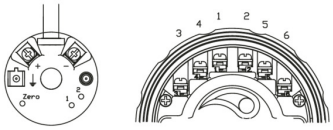
Electrical connection

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

Ordering information

Ordering key - Configuration possibilities see website

	PFMN	-	#	#	.	###	#	.	##	##	#	.	##	2	#	#	#	.	#	0	#	####
Product																						
PFMN	PFMN																					
Housing																						
Stainless steel 1.4301 / AISI304 Bottom connection			5																			
Stainless steel 1.4301 / AISI304 Rear connection			6																			
Accuracy																						
±0.25 % FS				4																		
±0.10 % FS				5																		
Pressure range and unit																						
Min. 0.0 / Max 0.345 Bar (not vacuum or absolute)						BC1																
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 information

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