PFMN - Configurator

PFMN-##.####.#####.#####.####

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



Picture similar

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)
Wetted parts material, gasket	NBR, optional FKM, optional, gaskets require a minimum ambient temperature of -20 °C and a minimum medium temperature of -25 °C
Ambient conditions	
Operating temperature range	-30 … 80 °C , with DFON touch screen -40 … 85 °C , without DFON touch screen
Optimal readability temperature range	-10 … 70 °C
Storage temperature range	-30 … 80 °C , with DFON touch screen -40 … 85 °C , without DFON touch screen
Degree of protection (EN 60529)	IP67 , with cable gland IP69K , 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

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PFMN - Configurator

PFMN-##.####.#####.#####.####

Technical data

Output signal	
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)
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
Factory settings	
Output lower limit	3.7 mA
Output upper limit	23 mA
Damping	0 s
Output at sensor fault	3.5 mA
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 1D Ex ia IIIC T100 °C Da	
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
Internal capacitance, Ci	< 15 nF
Internal inductance, Li	< 10 µH
Temperature class T100 °C	-20 < Tamb < 60 °C Zone 0 and 20 -40 < Tamb < 65 °C Zone 1/2 and 21/22
ATEX II 3 G Ex ec IIC 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
Safety	cULus listed, E527512
Explosion protection	ATEX II 1G Ex ia IIC T5 ATEX II 3 G Ex ec IIC T5 ATEX II 1D Ex ia IIIC T100 °C Da

Display

General information	
Panel type	Graphical LCD
Display range	-9999 … 99999
Max. digit height	22 mm
Material	Polycarbonate
Ambient conditions	
Optimal readability temperature range	-10 … 70 °C
Operating temperature range	-30 … 80 °C
Degree of protection (EN 60529)	IP67 IP69K
Input signal	
Input signal from transmitter	Digital, 2-way for communication between transmitter and display
Update time	1 s , max. 0.3 s , typ.

User configurable data	
Error- / Warning-indication	Individually configurable display and backlight indication in white, green or red colour, steady or flashing light. Configurable limits over the range
Measuring unit	bar mbar Psi KPa MPa atm Kg/cm2 mH2O mmH2O 'H2O "H2O mmHg "Hg
User defined measuring unit	8 × 20 pixel matrix

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2025-12-09

PFMN - Configurator

PFMN-##.####.#####.#####.####

Display

Relays

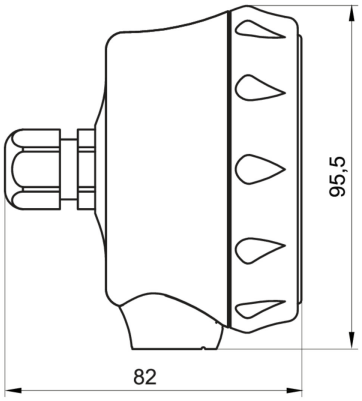
Contacts	2 x solid state relays
Max. load current	75 mA
Max. switching voltage	60 V

Operating conditions

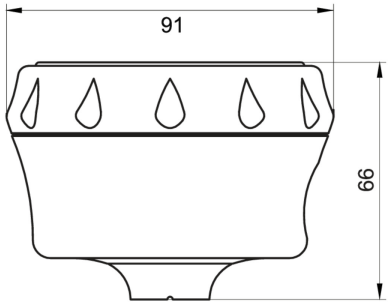
Measuring range (bar)	Proof pressure (bar)	Burst Pressure (bar)
0 ... 0.345	1	2
-1 ... 1	3	6
-1 ... 5	15	30
-1 ... 20	60	120
-1 ... 34	70	140
-1 ... 68	135	270
-1 ... 400	690	1350

Dimensional drawings (mm)

Housing



FlexHousing with bottom process connection

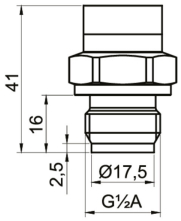


FlexHousing with rear process connection

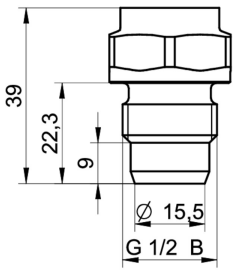


FlexHousing front view

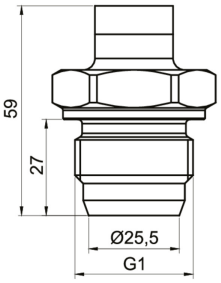
Process connection



G 1/2 A DIN EN ISO 1179-2 (3852-E) (G51)



G 1/2 A ISO 228-1 with cone (BCID: G08)



G 1 A hygienic (BCID: A04)

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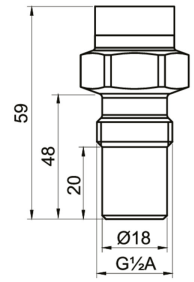
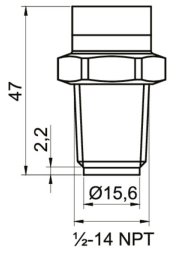
Dimensional drawings (mm)

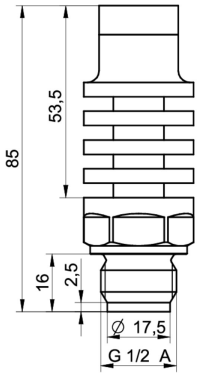
Process connection



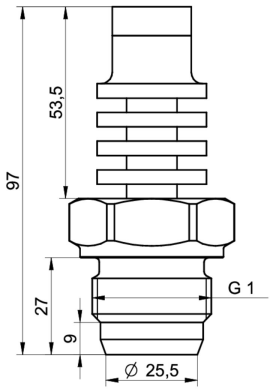
G 1/2 A hygienic (BCID: A03)



1/2-14 NPT (BCID: N02)



G 1/2 A DIN EN ISO 1179-2 (3852-E) with cooling neck (BCID: G51)



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

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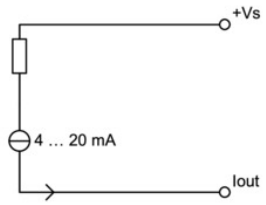
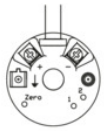
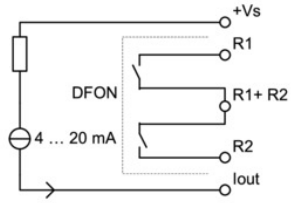
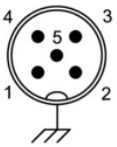
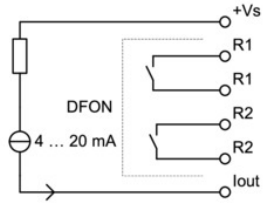
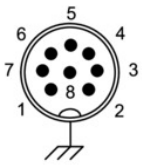
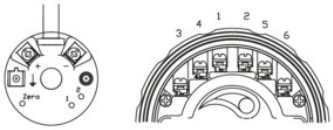
PFMN - Configurator

PFMN-##.####.#####.#####.####

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																					
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 EN ISO 1179-2 (3852-E) Front flush membrane													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 EN ISO 1179-2 (3852-E) Front flush membrane 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															3							
Oil filling																						
Standard oil																1						
NSF H1 listed (FDA approved)																2						
Display																						
Without display																		1				
With display, no relays activ.																		2				
With display, with activated relays																		4				
Explosion protection																						
Without																			0			
Ex ec IIC 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 electropolished																						9060
not selected																						&

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