

Parametrable / Programmable Pressure Transmitter

PTM - Pressure Transmitter 4-20mA



CUSTOMER BENEFITS

- High flexibility due to scalable pressure range
- Adjustment of zero and span setting through software commands
- Fast customization thanks to modular product design
- Stainless steel and titanium version for use in acidic or otherwise aggressive media

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5) ($\pm$ % FS)	≤ 0.25	≤ 0.1	≤ 0.1
Total Error, (6), (7), ($\pm$ % FS)			
-10 ... 50°C, (typ./max.)	$\leq 0.15 / 0.3$ (≤ 200 mbar: 0.3 / 0.6)	$\leq 0.15 / 0.3$	$\leq 0.15 / 0.3$
-25 ... 85°C, (typ./max.)	$\leq 0.65 / 0.7$ (≤ 200 mbar: 0.65 / 0.8)	$\leq 0.65 / 0.7$	$\leq 0.55 / 0.7$
Long term stability, (8)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (1), (2), (3)	> 600 ... 1000, (1)
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5) ($\pm$ % FS)	≤ 0.1	≤ 0.25
Total Error, (6), (7), ($\pm$ % FS)		
-10 ... 50°C, (typ./max.)	$\leq 0.15 / 0.3$	n.a.
-25 ... 85°C, (typ./max.)	$\leq 0.55 / 0.7$	n.a.
Long term stability, (8)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) Titanium available ≤ 400 bar (burst pressure > 550 bar)

(2) Process connection frontal and flush diaphragm available ≤ 600 bar

(3) Overpressure and burst pressure 1500 bar (stainless steel) optional

(4) Transducer

(5) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature

(6) Total error including accuracy and temperature influences at maximum signal span (16 mA)

(7) Active compensated, ≤ 100 bar

(8) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

TEMPERATURE RANGE

Operating temperature	-25 ... 85°C
Process temperature	-40 ... 150°C
Storage temperature	-25 ... 85°C

ELECTRICAL SPECIFICATIONS

	4 ... 20 mA
Resolution	0.025% FS
Output adjustable	
4 mA	-5% FS ... 105% FS
20 mA	-5% FS ... 105% FS
Span	25% FS ... 110% FS (≥ 100 mbar)
Low pass filter	0.1 / 1 / 10 / 30 Hz (standard: 30 Hz)
Power supply	9 ... 33 VDC
Supply influence	< 0.1% FS
Circuit diagram	
Load resistance	
Load resistance influence	< 0.1% FS

QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	4 G (4 ... 100 Hz / ± 3.2 mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dB μ V/m (0.03 ... 1 GHz)	
EN 61000-4-2	Electrostatic discharge	4 kV contact / 8 kV air	
EN 61000-4-3	Irradiated RF	10V/m (0.08 ... 1 GHz)	Radio sets, wireless phones
EN 61000-4-4	Transients (burst)	2 kV	Motors, valves
EN 61000-4-5 (1)	Surge	10 kA (8 / 20 μ s), (1)	Lightning
EN 61000-4-6	Conducted RF	10 V (0.15 ... 80 MHz)	Frequency converters

(1) Only with optional surge (lightning) protection

PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2), (1)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (standard), EPDM, Kalrez, NBR
Cable	PUR, FEP PE

(1) Hastelloy (C-276) on request

Equipment

OVERVIEW

10.00.0091	Accessories overview
HART001	Cable Socket Connector DIN43650

INTERFACE

101138	PTM - Interface

SOFTWARE

101224	PC Software V1.50

Additional documents

MANUALS

	Article number	Description
10.00.0079	DEB003	Configuration software
10.00.0089	DEB005	User manual

OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.00.0137	DMM009

Ordering information

		X.	XXXX.	XXXX.	XX.	XXX
Type						
	PTM	40				
Pressure type						
	Gauge	1				
	Absolute (vacuum)	2				
	Sealed gauge	3				
Pressure measuring range						
	100 mbar ... 600 bar	XX				
	> 600 bar	XX				
	Negative ranges, offset, special adjustment	99				
Process connection						
	G 1/4 F (Fig. 1)	00				
	1/4 NPT M (Fig. 9)	10				
	1/2 NPT M (Fig. 8)	19				
	G 1/4 M (Fig. 2)	11				
	G 1/4 flush diaphragm	21				
	G 1/4 M, manometer DIN -16288 (Fig. 3)	12				
	G 1/2 M, (Fig. 4)	13				
	G 1/2 M Hastelloy C276	98				
	G 1/2 M, frontal diaphragm (Fig. 5), (3)	14				
	G 1/2 M, frontal diaphragm Hastelloy C276	37				
	G 1/2 M, flush diaphragm (Fig. 6), (3)	15				
	G 1/2 M, manometer DIN-16288 (Fig. 7)	16				
	G 1/2 M with bore Ø 14 mm	17				
	Customized	99				
Electrical connection						
	DIN-43650, with metal threaded part, demountable, IP 65 (Fig. 10), (4)	01				
	M16 (Binder 723), 5 pins, IP 67 (Fig. 11), (4)	03				
	M16 (Binder 723), 7 pins, demountable, IP 67 (Fig. 11), (4)	04				
	MIL C26482, 10-6, IP 40 (Fig. 12), (4)	06				
	M12 (Lumberg RSF4), 4 pins (Fig. 15), (4)	07				
	PE cable, black, IP 67 (Fig. 13), (5), (6)	13				
	PUR cable, black, IP 67 (Fig. 13), (5), (7)	15				
	PUR cable, black, with submersible back end IP68	24				
	FEP, black, IP 67 (Fig. 13), (5)	21				
	Customized	99				
Output signal						
	4 ... 20 mA	05				
	4 ... 20 mA with surge overvoltage protection	08				
Accuracy						
	≤ ± 0.25 % FS (< 500 mbar / > 600 bar)	1				
	≤ ± 0.1% FS (≥ 500 mbar ... 600 bar)	2				
Temperature range						
	0 ... 70°C compensated process temperature: -25 ... 100°C	(allowed			0	

25 ... 100°C compensated (allowed process temperature: -25 ... 100°C)		7
-25 ... 85°C compensated (allowed process temperature: -25 ... 100°C)		1
-25 ... 85°C compensated (allowed process temperature: -25 ... 150°C)		2
20 ... 100°C compensated (allowed process temperature: -25 ... 150°C) with cooling fins		6
Customized		9
Option 1		
Throttle, (8)		A
Special oil filling: Anderol Food food applications)	(for	G
Special oil filling: AS100 (suitable for meda temp. -55...150°C)		J
Special oil filling: PAO4 (Silikone free)		Q
Option 2		
Electronics packed in gel: Gauge pressure		C
Electronics packed in gel: Absolute pressure		D
Option 3		
Active compensated (≥ 100 mbar ≤ 100 bar)		E
Version titanium		K
Seals: Viton (standard)		U
Seals: EPDM		S
Seals: Kalrez		T
Seals: NBR (ACS)		H

(3) Process connection available ≥ 6 bar to ≤ 600 bar

(4) Cable socket connector not included

(5) Please specify the required cable length and medium

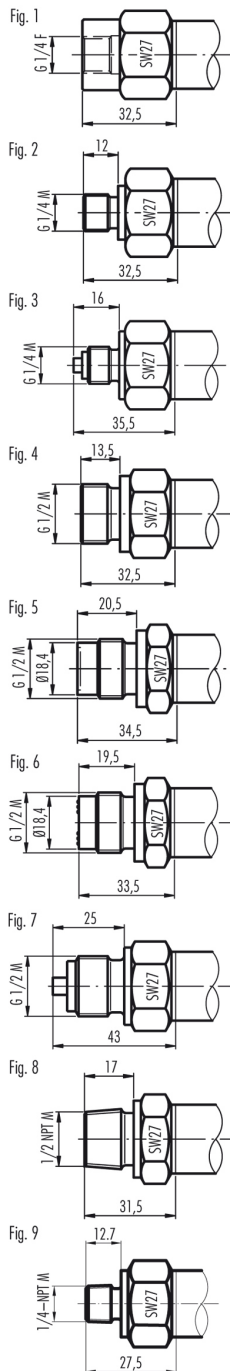
(6) Suitable for drinking water (food approved)

(7) For operating temperature $> 50^\circ\text{C}$, PE or FEP cable must be used

(8) Only with pressure connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7

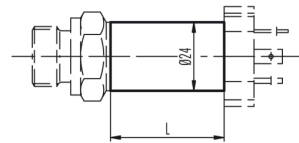
Technical drawings

Pressure connections



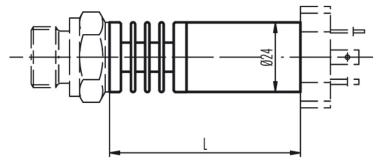
Dimensions

Version for medium temperature up to 100°C



L = 74 mm for DIN 43650 connector (Fig. 10)

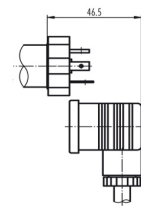
Version for medium temperature >100°C up to a max. 150°C



L = 101 mm for DIN 43650 connector (Fig. 10)

Electrical connections

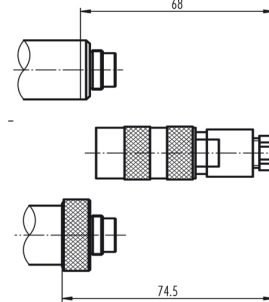
Fig. 10



Top view of cable socket connector

Pin	2-wire
1	+Vin
2	Pout

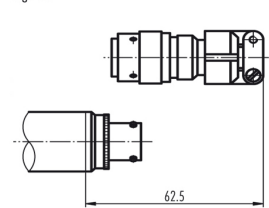
Fig. 11



Top view of cable socket connector

Pin	2-wire
1	Pout
2	
3	+Vin
4	
5	

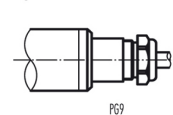
Fig. 12



Top view of cable socket connector

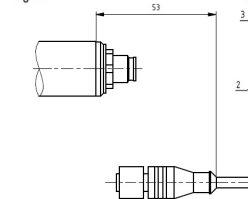
Pin	2-wire
A	+Vin
B	
C	Pout
D	
E	
F	

Fig. 13



Colour	2-wire
white	+Vin
yellow	Pout

Fig. 15



Top view of cable socket connector

Pin	2-Wire
1	Pout
3	
4	+Vin

Specifications may change without notice.

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