

## Parametrable / Programmable Pressure Transmitter

### **PTM/RS485**



#### **CUSTOMER BENEFITS**

- High flexibility due to scalable pressure range
- Digital (RS485) and analogue (4-20mA) output signal in one sensor
- Available as multi-parameter sensor (pressure & temperature)
- 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 ( $\geq 3$ bar)	3 x FS
Burst pressure, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5) ( $\pm$ % FS)	$\leq 0.25$	$\leq 0.1$	$\leq 0.1$
Total Error, (6), (7), ( $\pm$ % FS)			
-10 ... 50°C, (typ./max.)	$\leq 0.15 / 0.3$ ( $\leq 200$ mbar: 0.3 / 0.6)	$\leq 0.15 / 0.3$	$\leq 0.15 / 0.3$
-25 ... 85°C, (typ. / max.)	$\leq 0.65 / 0.7$ ( $\leq 200$ 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 / $\leq 1500$ bar	> 1500 bar
Accuracy, (5) ( $\pm$ % FS)	$\leq 0.1$	$\leq 0.25$
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  $\leq 400$  bar (burst pressure > 550 bar)

(2) Process connection frontal and flush diaphragm available  $\leq 600$  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,  $\leq 100$  bar

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

## TEMPERATURE MEASURING RANGE

Standard, (1), (2)	-10 ... 50°C
Lower end of range, (2)	-25°C
Upper end of range, (2)	85°C
Accuracy	$\leq \pm 2^\circ\text{C}$

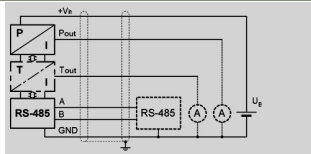
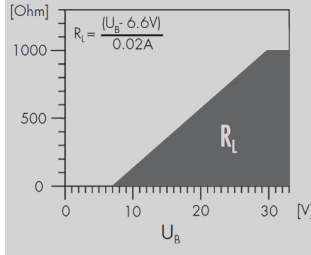
(1) Available active compensated only

(2) Depending on temperature range of the active compensation

## TEMPERATURE RANGE

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

## ELECTRICAL SPECIFICATIONS

Output	
Digital	RS485
Protocol	Modbus RTU
Analog	4 ... 20 mA
Resolution	
Digital output	0.01% FS
Analog output	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 ... 30 VDC
Supply influence	< 0.1% FS
Circuit diagram	
Load resistance	
Load influence	< 0.1% FS

## QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	4 G (4 ... 100 Hz / $\pm$ 3.2 mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dB $\mu$ 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 $\mu$ s)	Overvoltage
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

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## OVERVIEW

10.00.0091	Accessories overview

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## INTERFACE

101138	PTM - Interface

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## SOFTWARE

101224	PC Software V1.50

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# Additional documents

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## MANUALS

	Article number	Description
10.00.0079	DEB003	Configuration software
10.00.0089	DEB005	User manual

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## OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.00.0137	DMM009

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# Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
<b>Type</b>					
	PTM/RS485	43			
<b>Pressure type</b>					
	Gauge	1			
	Absolute (vacuum)	2			
	Seald gauge	3			
<b>Pressure measuring range</b>					
	100 mbar ... 600 bar		XX		
	> 600 bar		XX		
	Negative ranges , offset, special adjustment		99		
<b>Process connection</b>					
	G 1/4 F (Fig. 1)		00		
	G 1/4 M (Fig. 2)		11		
	G 1/4 M, manometer DIN 16288 (Fig. 3)		12		
	G 1/4 flush diaphragm (3)		21		
	G 1/2 M (Fig. 4)		13		
	G 1/2 M, with bore Ø14mm		17		
	G 1/2 M, Hastelloy C-276		98		
	G 1/2 M, frontal diaphragm (Fig. 5), (3)		14		
	G 1/2 M, frontal diaphragm in Hastelloy C-276 (3)		37		
	G 1/2 M, flush diaphragm (Fig. 6), (3)		15		
	G 1/2 M, manometer DIN 16288 (Fig. 7)		16		
	1/4 NPT M		10		
	1/2 NPT M (Fig. 8)		19		
	Customized		99		
<b>Electrical connection</b>					
	M16 (Binder 723), 7 pins, IP 67 (Fig.10), (4)		04		
	M16 (Binder 723), 5 pins, IP 67 (Fig.10), (4)		03		
	MIL C2682, 10-6, IP 40 (Fig. 11), (4)		06		
	PE cable, black, IP 67 (Fig. 12), (5), (6)		13		
	PUR-cable, black, IP 67 (Fig. 12), (5), (7)		15		
	FEP cable, black, IP 67 (Fig. 12), (5)		21		
	Customized		99		
<b>Output signal</b>					
	RS485 / 4 ... 20mA (pressure)		62		
	RS485 / 4 ... 20mA (pressure) with surge protection		64		
	RS485 / 4 ... 20mA (pressure and temperature)		65		
	RS485 / 4 ... 20mA (pressure and temperature) with surge protection		66		
<b>Accuracy</b>					
	$\leq \pm 0.25 \% \text{ FS}$ ( $\leq 500 \text{ mbar}$ / $> 600 \text{ bar}$ )			1	
	$\leq \pm 0.1 \% \text{ FS}$ ( $> 500 \text{ mbar} \dots 600 \text{ bar}$ )			2	
<b>Temperature range</b>					
	0 ... 70°C compensated (allowed process temperature: -25 ... 100°C)			0	
	25 ... 100°C compensated (allowed process temperature: -25 ... 100°C)			7	

-25 ... 85°C compensated (allowed process temperature: -25 ... 100°C) with cooling fins	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
<b>Option 1</b>	
Throttle, (8)	A
Special oil filling: Anderol Food (for food applications)	G
Special oil filling: AS 100 (suitable for media temperature -55 ... 150°C)	J
Special oil filling: PAO4 (silicone free)	Q
<b>Option 2</b>	
Electronics packed in gel: Gauge pressure	C
Electronics packed in gel: Absolute pressure	D
<b>Option 3</b>	
Active compensated ( $\geq 100$ mbar $\leq 100$ bar)	E
Version titanium	K
Seals: Viton (standard)	U
Seals: EPDM	S
Seals: Kalrez	T
Seals: NBR (ACS)	H

- (3) Process connection available  $\geq 6$  bar to  $\leq 600$  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. 4, Fig. 7 and Fig. 8

# Technical drawings

## Process Connection

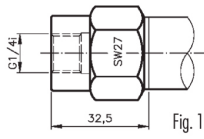


Fig. 1

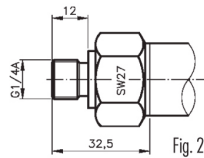


Fig. 2

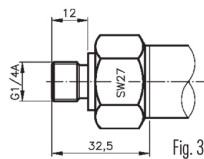


Fig. 3

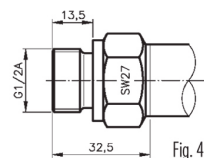


Fig. 4

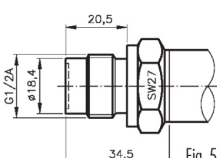


Fig. 5

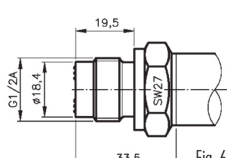


Fig. 6

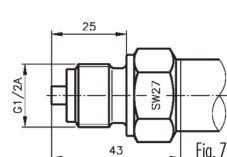


Fig. 7

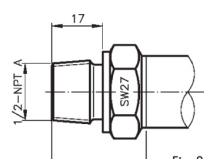
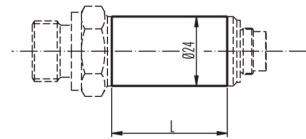


Fig. 8

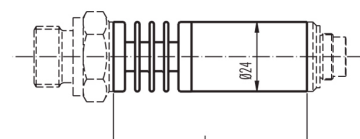
## Dimensions

Version for medium temperature up to 100°C



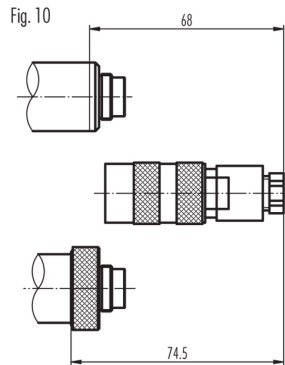
L = 94 mm, with overvoltage protection = 195 mm

Version for medium temperature up to 150°C

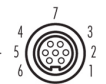


L = 121 mm, with overvoltage protection = 222 mm

## Electrical Connection

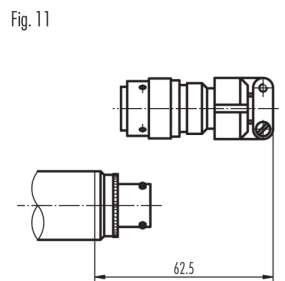


View to cable socket connector



Pin RS485

- 1 Pout
- 2 Tout
- 3 +Vin
- 4 GND
- 5
- 6 A
- 7 B

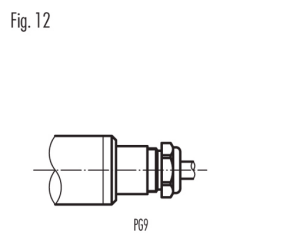


View to cable socket connector



Pin RS485

- A +Vin
- B GND
- C Pout
- D Tout
- E A
- F B



Colour RS485

- white +Vin
- yellow GND
- brown Pout
- pink Tout
- green A
- grey B

Specifications may change without notice.

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