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Parametrable / Programmable Pressure Transmitter

PTM/RS485

CE PC ACS

CUSTOMER BENEFITS

- High flexibility due to scalalbe 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

Version: 22.02.2017

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), (± % FS)	≤ 0.25	≤ 0.1	≤ 0.1
Total Error, (6), (7), (± % FS)			
-10 ... 50°C, (typ./max.)	≤ 0.15 / 0.3 (≤ 200 mbar: 0.3 / 0.6)	≤ 0.15 / 0.3	≤ 0.15 / 0.3
-25 ... 85°C, (typ. / max.)	≤ 0.65 / 0.7 (≤ 200 mbar: 0.65 / 0.8)	≤ 0.65 / 0.7	≤ 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 (≤ 850 / ≤ 1500 bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5), (± % FS)	≤ 0.1	≤ 0.25
Total Error, (6), (7), (± % FS)		
-10 ... 50°C, (typ./max.)	≤ 0.15 / 0.3	n.a.
-25 ... 85°C, (typ. / max.)	≤ 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 MEASURING RANGE

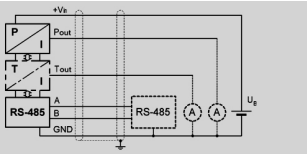
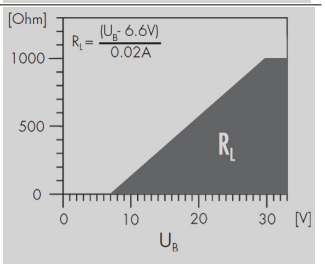
Standard, (1), (2)	-10 ... 50°C
Lower end of range, (2)	-25°C
Upper end of range, (2)	85°C
Accuracy	≤ ± 2°C

(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 / ± 3.2 mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dBµV/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 µs)	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

OVERVIEW

10.00.0091	Accessories overview

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/RS485	43					
Pressure type							
	Gauge		1				
	Absolute (vacuum)		2				
	Seald 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			
	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			
Electrical connection							
	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		
Output signal							
	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		
Accuracy							
	≤ ± 0.25 % FS (≤ 500 mbar / > 600 bar)					1	
	≤ ± 0.1 % FS (> 500 mbar ... 600 bar)					2	
Temperature range							
	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	
Option 1						
	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
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 ≤ 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°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

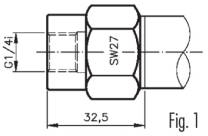


Fig. 1

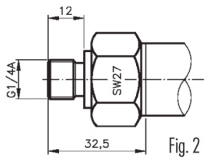


Fig. 2

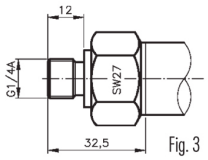


Fig. 3

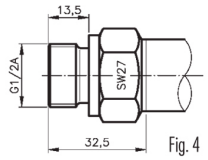


Fig. 4

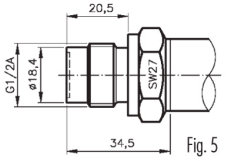


Fig. 5

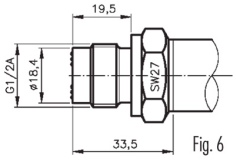


Fig. 6

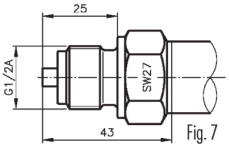


Fig. 7

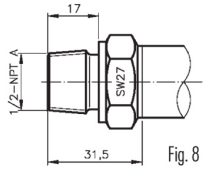
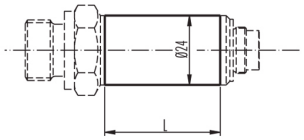


Fig. 8

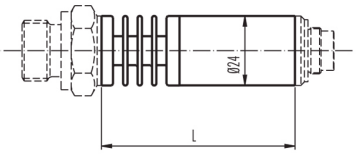
Dimensions

Version for medium temperature up to 100°C



L = 94 mm, with overvoltage protection = 195 mm

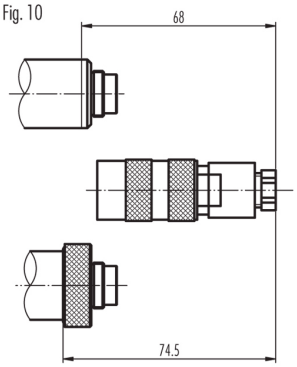
Version for medium temperature up to 150°C



L = 121 mm, with overvoltage protection = 222 mm

Electrical Connection

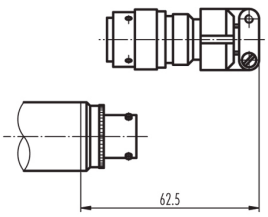
Fig. 10



View to cable socket connector

Pin	RS485
1	Pout
2	Tout
3	+Vin
4	GND
5	
6	A
7	B

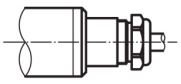
Fig. 11



View to cable socket connerctor

Pin	RS485
A	+Vin
B	GND
C	Pout
D	Tout
E	A
F	B

Fig. 12



Colour	RS485
white	+Vin
yellow	GND
brown	Pout
pink	Tout
green	A
grey	B

Specifications may change without notice.

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