

Programmable submersible level and temperature transmitters

PTM/N/RS485



Technical Specifications

Pressure measuring range (mH₂O)

	1 ... 5	> 5 ... 20	> 20 ...250
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure	> 200 bar	> 200 bar	> 200 bar
Accuracy, (1), (± % FS)	≤ 0.25	≤ 0.1	≤ 0.1
Thermal shift, (± % FS/°C)			
Zero point -0...70°C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point -25...85°C	≤ 0.08	≤ 0.04	≤ 0.02
Span -5...50°C	≤ 0.015	≤ 0.015	≤ 0.015
Span -25...85°C	≤ 0.02	≤ 0.02	≤ 0.02
Total error, (2), (3), (± % 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, (4)	≤ 0.5% FS/< 4 mbar	≤ 0.2% FS/< 4 mbar	≤ 0.1% FS/< 0.2% FS

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

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

(3) Active compensated

(4) 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	-5...80 °C
Process temperature	-5...80 °C
Storage temperature	-10...80 °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 (≥ 0.5 mH2O)
Low pass filter	0.1 / 1 / 10 / 30 Hz (standard: 30 Hz)
Power supply	9...30 V DC
Supply influence	< 0.1% FS
Circuit diagram	
Load resistance	
Load influence	< 0.1% FS

Qualifications

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	4g (4...100 Hz / ± 3.2 mmpp)	
EN 60068-2-27	Shock	100g (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	Surge	10 kA (8 / 20 μs), (1)	Lightning
EN 61000-4-6	Conducted RF	10 V (0.15...80 MHz, 3 s)	Frequency converters

(1) Only with optional surge (lightning) protection

Physical specifications

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

(1) Hastelloy (C-276) on request

Equipment

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

Manuals

	Article number	Description
10.00.0079	DEB003	Configuration software
10.00.0089	DEB005	User manual

Operating and safety instructions

10.00.0137	Article number DMM009
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Ordering information

		X	XXXX	XXXX	XX	XXX
Type						
	PTM/N/RS485	44				
Pressure type						
	Gauge	1				
	Absolute (vacuum)	2				
Pressure measuring range						
	Any pressure measuring ranges between 0...1 mH2O and 0...250 mH2O available, (1)	XX				
Process connection						
	Closed, (Fig. 1)	55				
	Open, (Fig. 2)	56				
	G 1/4 M, (Fig. 3)	11				
	G 1/2 M, (Fig. 3)	13				
Electrical connection						
	PE cable, IP 67, (2), (3)		13			
	PUR cable, IP 67, (2), (4)		15			
	PTFE cable, IP 67, (2)		21			
Output signal						
	RS485 / 4...20mA (pressure)		62			
	RS485 / 4...20 mA (pressure) with surge protection		64			
	RS485 / 4...20mA (pressure and temperature)		65			
	RS485 / 4...20mA (pressure and temperature) with surge protection		66			
Accuracy						
	$\leq \pm 0.25\%$ FS (≤ 5 mH2O)			1		
	$\leq \pm 0.1\%$ FS (> 5 mH2O)			2		
Temperature range						
	-5...50 °C compensated (allowed process temperature: -5...50 °C)			4		
	-5...80 °C compensated (allowed process temperature: -5...80 °C)			5		
Option 1						
	Special oil filling: ASEOL Food (for food applications)					G
	Special oil filling: Halocarbon (for oxygen applications)					H
Option 2						
	Electronics packed in gel: Gauge pressure					C
	Electronics packed in gel: Absolute pressure					D
Option 3						
	Ballast weight					B
	Active compensated					E
	Version titanium					K
	Seals: Viton (standard)					U
	Seals: EPDM					S
	Seals: Kalrez					T
	Aging					Z

(1) mH2O, mWS, mWC etc. available

(2) Please specify the required cable length and medium

(3) Suitable for drinking water (food approved)

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

Technical drawings

Dimensions

Fig. 1: Closed version

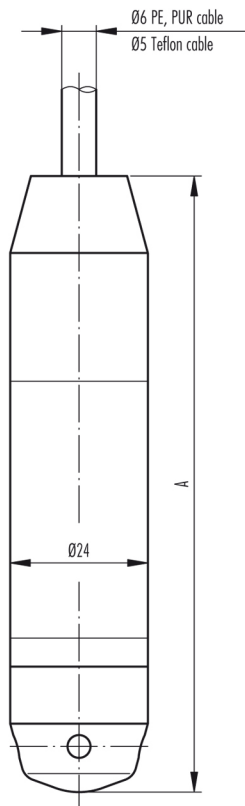


Fig. 2: Open version

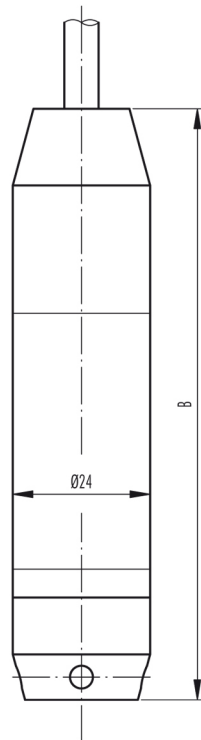
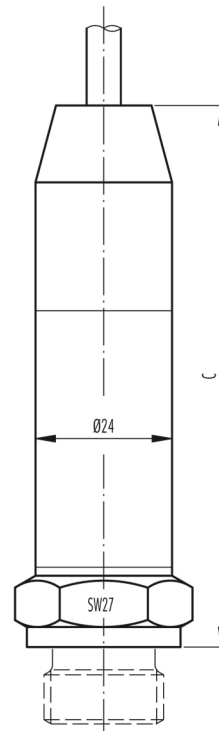


Fig. 3: with process connection



Standard

	A [mm]	B [mm]	C [mm]	D [mm]	Weight [g]
without ballast weight	157	153	on request*	on request*	approx. 200
with ballast weight	244	240	on request*	on request*	approx. 460

*C: Depending on process connection

*D: Depending on process connection or version

Version with surge (lightning) protection

	A [mm]	B [mm]	C [mm]	D [mm]	Weight [g]
without ballast weight	258	254	on request*	on request*	approx. 280
with ballast weight	345	341	on request*	on request*	approx. 540

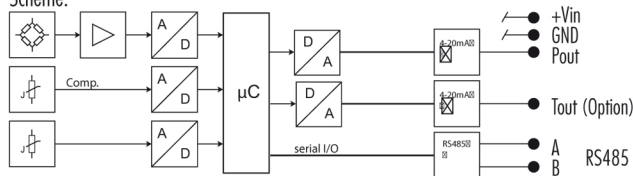
*C: Depending on process connection

*D: Depending on process connection or version

Colour RS485

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

Schema:



Specifications may change without notice.

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