



Programmable submersible level transmitters

PTM/N



Features

- Scaleable pressure ranges and output signal
- Adjustable 1:4 of the nominal range within -5% to +105%
- All pressure ranges from 1 to 250mWC
- Calibration available for all common pressure units mH₂O, mWG, mWC etc.
- Piezoresistive measuring element
- Available with PE-, PUR- or Teflon cable
- Reverse polarity and short circuit protected
- Active compensated (option)

Typical applications

Depth and level measurement in

- Wells
- Bore holes
- Waste water
- Lakes, rivers
- Sewage treatment plan
- Water supply

Version: 27.06.2012

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 0...70°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)

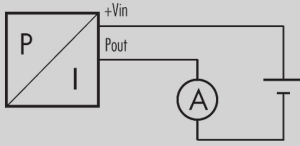
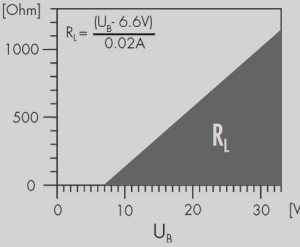
(3) Active compensated

(4) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

Temperature range

Operating temperature	-5...80 °C
Process temperature	-5...80 °C
Storage temperature	-10...80 °C

Electrical specifications

Resolution	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...33 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 / \pm 3.2 mmp)	
EN 60068-2-27	Shock	100g (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	Surge	10 kA (8 / 20 μ s), (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	
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, 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

Ordering information

		X. XXXX.	XXXX.	XX.	XXX
Type					
	PTM/N	32			
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			
	Closed, (1.4435), (Fig. 1)	59			
	Open, (Fig. 2)	56			
	G 1/4 M, (Fig. 3)	11			
	G 1/2 M, (Fig. 3)	13			
Electrical connection					
	Connectable version, IP 68, (Fig. 4), (2)		07		
	PE cable, IP 68, (3), (4)		13		
	PUR cable, IP 68, (3), (5)		15		
	FEP cable, IP 68, (3)		21		
	PVC cable, blue, IP 68, (6)		14		
Output signal					
	4...20 mA		05		
	4...20 mA surge (lightning) protection		08		
Accuracy					
	≤ ± 0.25 % FS (≤ 5 mH2O)			1	
	≤ ± 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	
Seals					
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez				T
	Seals: NBR				H
Options					
	Electronics packed in gel: Gauge pressure				C
	Electronics packed in gel: Absolute pressure				D
	Ballast weight				B
	Active compensated				E
	Version titanium				K
	Aging				Z

(1) mH2O, mWS, mWC etc. available

(2) Connector with required cable has to be ordered separately (KART100)

(3) Please specify the required cable length and medium

(4) Suitable for drinking water (food approved)

(5) For operating temperature > 50°C, PE or FEP cable must be used

(6) ACS Certification

(7) min. Medium temperature -25 °C

(8) Standard, no special cleaning. Special cleaning must be requested.

Technical drawings

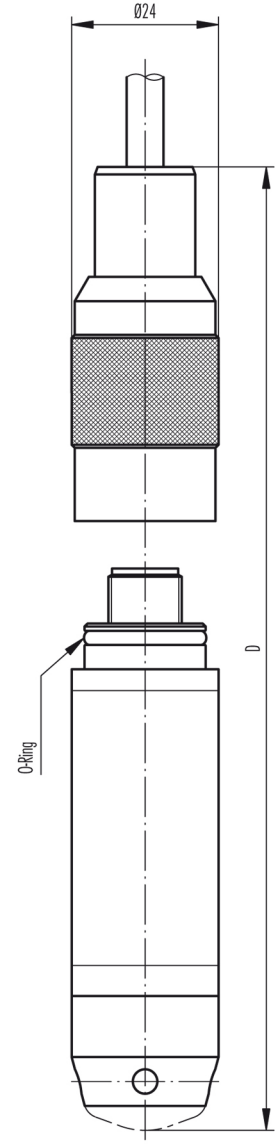
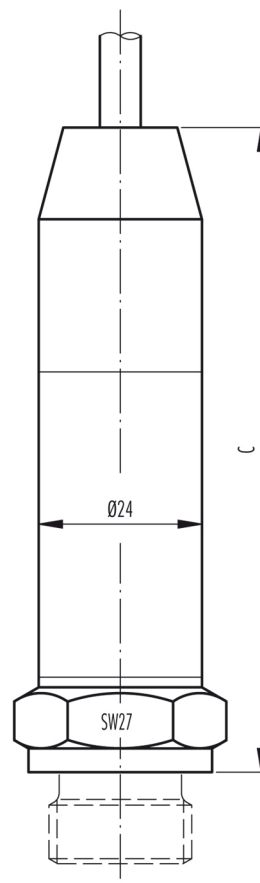
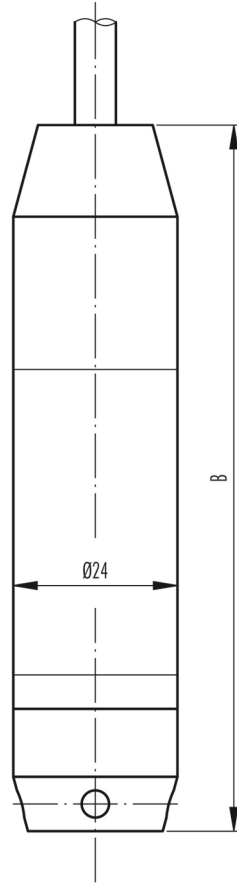
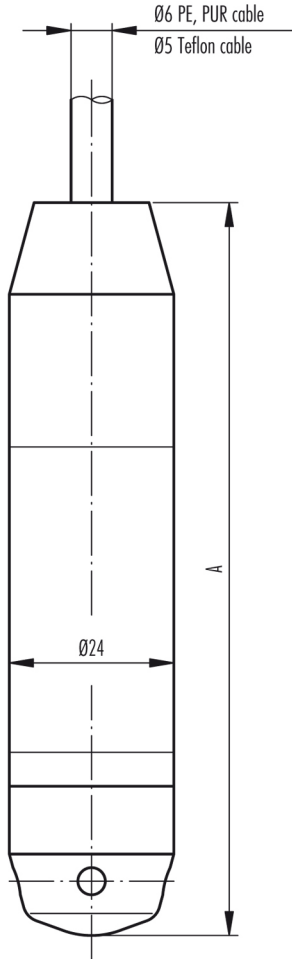
Dimensions

Fig. 1: Closed version

Fig. 2: Open version

Fig. 3: With process connection

Fig. 4: Electrical connection, connectable



Standard and version with surge (lightning) protection

	A [mm]	B [mm]	C [mm]	D [mm]	Weight [g]	Colour	2-Wire
without ballast weight	137	133	on request*	on request*	approx. 200	white	+Vin
with ballast weight	224	220	on request*	on request*	approx. 460	yellow	Pout

*C: Depending on process connection

*D: Depending on process connection or version

Scheme:

