

Programmable Submersible Level Transmitters

PTM/N - Programmable 4-20mA



CUSTOMER BENEFITS

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

Technical Specifications

PRESSURE MEASURING RANGE (MH₂O)

	1 ... 5	> 5 ... 20	> 20 ... 250
Overpressure	3 bar	3 x FS (\geq 3 bar)	3 x FS
Burst pressure, (1)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (2), (\pm % FS)	$\leq \pm 0.25$	$\leq \pm 0.1$	$\leq \pm 0.1$
Total error, (3), (4) (\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, (5)	$\leq 0.5\%$ FS / < 4 mbar	$\leq 0.2\%$ FS / < 4 mbar	$\leq 0.1\%$ FS / < 0.2% FS

(1) Transducer

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

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

(4) Active compensated

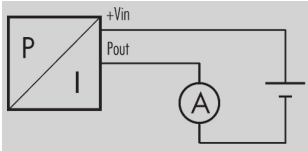
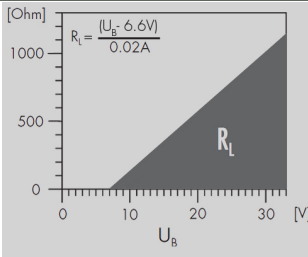
(5) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

TEMPERATURE RANGE

Operating temperature	-5...80 °C (1)
Process temperature	-5...80 °C (1)
Storage temperature	-10...80 °C

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

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 (≥ 1 mH ₂ O)
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	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	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, NBR
Cable	PUR, FEP, PE, PVC
Weight (2)	137 g

(1) Hastelloy (C-276) on request

(2) Specification for a PTM/N, closed, without cable

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/N	32			
Pressure type					
	Gauge	1			
	Absolute (vacuum)	2			
Pressure measuring range					
	100 mbar ... 25 bar (1)		XX		
	Offset, special adjustment		99		
Process connection					
	Closed, (Fig. 1)		55		
	Open, (Fig. 2)		56		
	Closed, 1.4435 (7) (8), (Fig. 1)		59		
	G 1/4 M, (Fig. 3)		11		
	G 1/2 M, (Fig. 3)		13		
	Customized connection available		99		
Electrical connection					
	PE cable, black, IP 68, (3), (4)			13	
	PUR cable, black, IP 68, (3), (5)			15	
	FEP cable, black, IP 68, (3)			21	
	PVC cable, blue, IP 68, (3), (7)			14	
	Connectable version, IP 68, (Fig. 4), (2)			07	
	Customized connection available			99	
Output signal					
	4...20 mA			05	
	4...20 mA surge protection			08	
Accuracy					
	$\leq \pm 0.25$ % FS for $p < 500$ mbar				1
	$\leq \pm 0.1$ % FS for $p \geq 500$ mbar				2
Temperature range					
	-5...50 °C compensated process temperature: -5...50 °C	(allowed)			4
	-5...80 °C compensated process temperature: -5...80 °C	(allowed)			5
Option 1					
	Special oil filling: Anderol Food (for food applications)				G
Option 2					
	Electronics packed in gel: Gauge pressure				C
	Electronics packed in gel: Absolute pressure				D
Option 3					
	Ballast weight 1.4435				B
	Active compensated				E
	Version titanium (without ballast weight)				K
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez (Level)				T
	Seals: NBR (7)				H

Humidity filter element for gauge versions (only for PUR and PE cable)			Z
Cutting ring connection G 1/2 M			
Strain relief			

- (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
- (7) Recommended for drinking water applications
- (8) With stainless steel cap

Dimensions

Fig. 1: Closed version

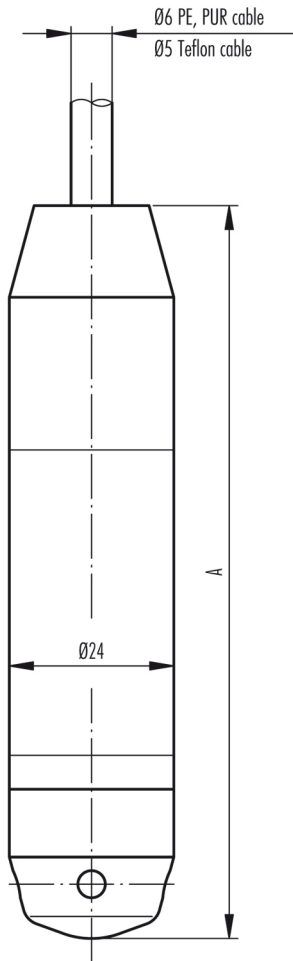


Fig. 2: Open version

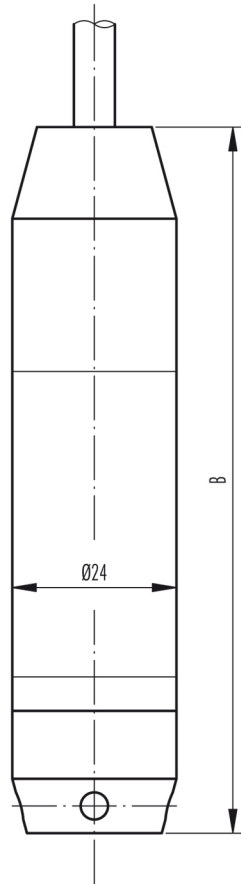


Fig. 3: With process connection

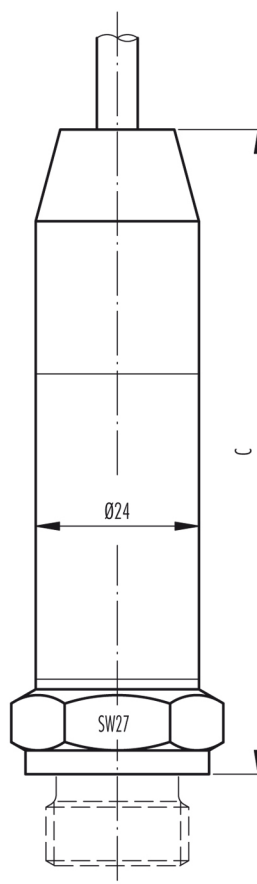
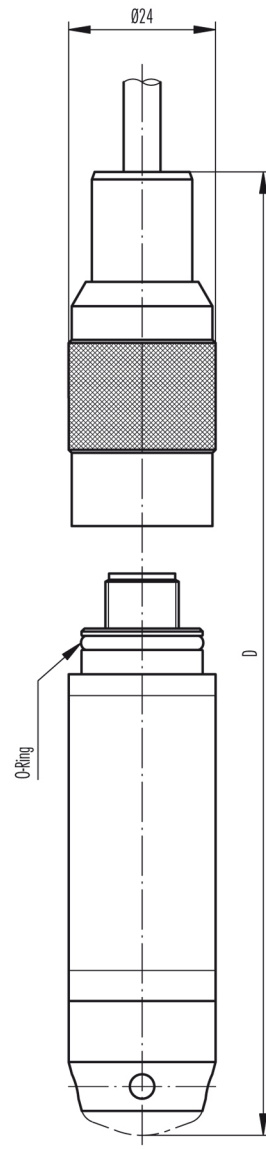


Fig. 4: Electrical connection, connectable



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:

