SensorsONE
Measurement Instrumentation Products

Intrinsically Safe Submersible Transmitters

PTM/N/Ex - Programmable 4-20mA

CUSTOMER BENEFITS

- Certificate: ATEX
- High flexibility due to scalalbe 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

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, (2)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (2), (± % FS)	≤ ± 0.25	≤ ± 0.1	≤ ± 0.1
Total error, (3), (4), (± % 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, (5)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

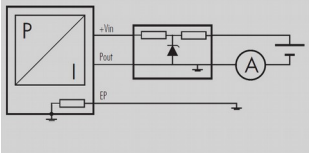
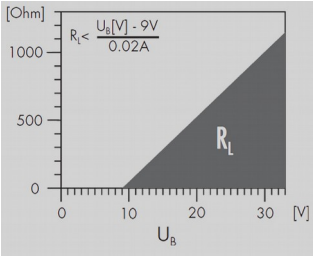
(1) Transducer
(2) Zero based accuracy according to DIN 16086, incl. hysteresis and repeatability at ambient temperature
(3) Total error including accuracy and temperature influences at maximum signal span (16 mA)
(4) Active compensated
(5) 1 year (typ. / max.), the long term stability can be improved 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 mH2O)
Low pass filter	0.1 / 1 / 10 / 30 Hz (standard: 30 Hz)
Power supply	9...28 V DC
Supply influence	< 0.1% FS
Circuit diagram	
Load resistance	
Load influence	< 0.1% FS

ATEX APPROVAL

Certificate, (1)	SEV 08 ATEX 0142		
Gas	II 1G Ex ia IIC T3 ... T6	EN 60079-0 / -11 / -26	
Dust	II 1D Ex ia IIIC IP6x T80°C ... T125°C	EN 61241-0 / -11	
Temperature class, (2)	T6	T4	T4
Ambient temperature	-5...50 °C	-5...80 °C	-5...80 °C
Process temperature	-5...50 °C	-5...50 °C	-5...80 °C
Maximum values of the connection circuit	30 V / 140 mA / 0.9W		

(1) For detailed Ex specifications see certificate and operating and safety instructions
(2) Without any information about temperature class the transmitter will be delivered for T4

GL APPROVAL

Certificate	60332-09 HH
Field of application	D, F, EMC1

ADDITIONAL APPROVALS

ABS	09-HG436727/1-PDA
DNV	A-11280

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	8 kV contact / 15 kV air	
EN 61000-4-3	Irradiated RF	10V/m (0.08...1 GHz)	Radio sets, wireless phones
EN 61000-4-4	Transients (burst)	4 kV	Motors, valves
EN 61000-4-5	Surge	Line-Line: 0.5 kV/42 Ω, Line-Earth: 1 kV/42 Ω	Lightning
EN 61000-4-6	Conducted RF	10 V (0.15...80 MHz, 3 s)	Frequency converters

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
Weight (2)	157 g

(1) Hastelloy (C-276) on request
(2) Specification for a PTM/N/Ex, closed, without cable

Equipment

OVERVIEW

10.00.0091	Accessories overview

INTERFACE

102442	PTM/Ex - 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
10.00.0271	DMM023

Ordering information

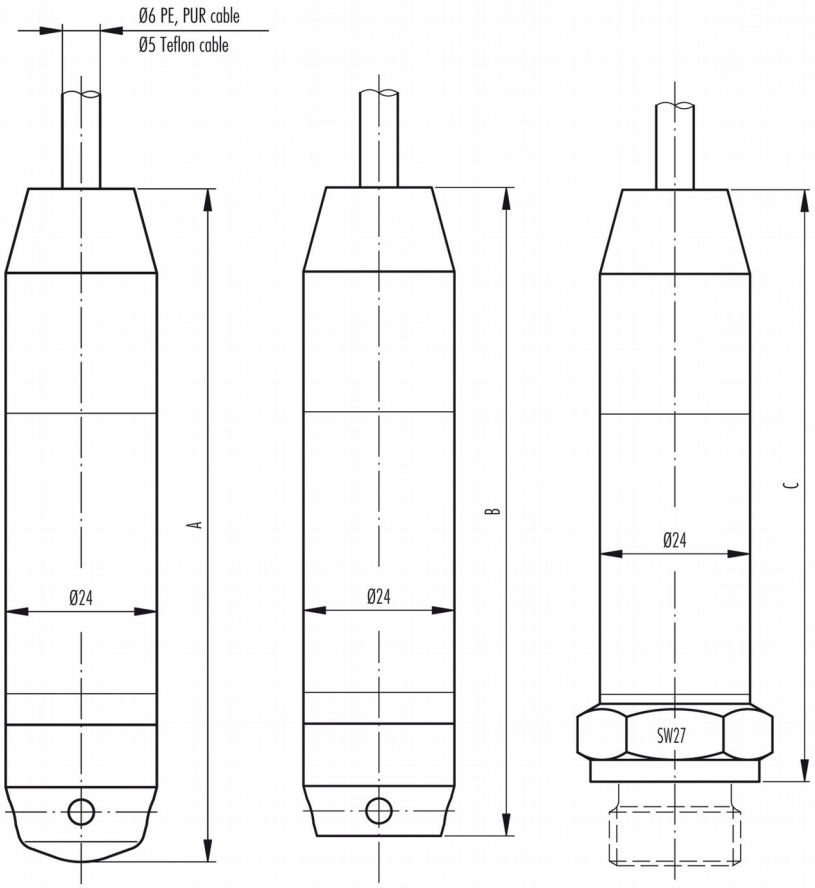
			X.	XXXX.	XXXX.	XX.	XXX
Type							
	PTM/N/Ex	48					
Pressure type							
	Gauge		1				
	Absolute (vacuum)		2				
Pressure measuring range							
	1 ... 250 mH2O			XX			
	Offset, special adjustment			99			
Process connection							
	Closed (Fig. 1)			55			
	Open (Fig. 2)			56			
	G 1/4 M (Fig. 3)			11			
	G 1/2 M (Fig. 3)			13			
	Customized			99			
Electrical connection							
	PUR cable, blue, IP 68, (2), (3)				17		
	FEP cable, blue, IP 68, (2)				22		
	Connectable version, IP 68, M12 (Lumberg RSF4)				07		
Output signal							
	4...20 mA				05		
	4...20 mA with surge protection				08		
Accuracy							
	≤ ± 0.25 % FS (≤ 5 mH2O)					1	
	≤ ± 0.1 % FS (> 5 mH2O)					2	
Temperature range							
	T6 (Ta: -5...50 °C) -5...50 °C compensated (allowed process temperature: -5...50°C)					3	
	T4 (Ta: -5...80 °C) -5...50 °C compensated (allowed process temperature: -5...50°C)					4	
	T4 (Ta: -5...80 °C) -5...80 °C compensated (allowed process temperature: -5...80°C)					5	
Option 1							
	Special oil filling: Anderol Food food applications)	(f					G
	Cutting ring connection G 1/2 M						
	Strain relief						
Option 2							
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 (ACS)						H
	Humidity filter element for gauge version (only for PUR cable)						Z

(2) Please specify the required cable length and medium
(3) For operating temperature > 50°C, FEP cable must be used

Technical drawings

Dimensions

closed version (Fig. 1) | open version (Fig. 2) | with thread (Fig. 3)



Standard and version with surge (lightning) protection

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

*C: Depending on process connection

Colour	2-wire
white	+Vin
yellow	Pout
grey	EP