

## Submersible Transmitter

# ATM.1ST/N - High Precision Level Transmitter



### CUSTOMER BENEFITS

- High measurement accuracy is ensured by sophisticated digital temperature compensation algorithms
- Excellent long term stability allow accurate measurements over a long period
- Titanium version with FEP cable available for use in aggressive media
- Optional overvoltage protection
- Reverse polarity and short circuit protected, with integrated overvoltage protection

# Technical Specifications

## PRESSURE MEASURING RANGE (MH2O)

	1 ... 5, (1)	> 5 ... 20	> 20 ... 250
Overpressure	3 bar	3 x FS ( $\geq$ 3 bar)	3 x FS
Burst pressure, (2)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (3) ( $\pm$ % FS)	$\leq$ 0.1 / $\leq$ 0.25	$\leq$ 0.1 / $\leq$ 0.25	$\leq$ 0.1 / $\leq$ 0.25
Total Error, (4) ( $\pm$ % FS)			
-5 ... 50°C, (typ. / max.)	$\leq$ 0.8 / 1.0	$\leq$ 0.3 / 0.5	$\leq$ 0.3 / 0.5
-5 ... 80°C, (typ. / max.)	$\leq$ 1.3 / 1.5	$\leq$ 0.75 / 1.0	$\leq$ 0.75 / 1.0
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (5)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

(1) 0.5 mH2O on request

(2) Transducer

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

(4) Total error including accuracy and temperature influences at maximum signal span (16 mA / 10 V DC)

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

(6) Does not apply to titanium solution  $\leq$  2 bar

## TEMPERATURE RANGE

Operating temperature	-5 ... 80°C (1)
Process temperature	-5 ... 80°C (1)
Storage temperature	-40 ... 125°C

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

## ELECTRICAL SPECIFICATIONS

	4 ... 20 mA	0 ... 5 V	0 ... 10 V
Power supply	9 ... 33 VDC	10 ... 30 VDC	12 ... 30 VDC
Supply influence	< 0.05% FS	< 0.05% FS	< 0.05% FS
Current consumption		3 mA	3 mA
Circuit diagram			
Load resistance		$R_L > 10k\Omega$	$R_L > 10k\Omega$
Load influence	< 0.05% FS	< 0.05% FS	< 0.05% FS
Reverse polarity protection	Pout to +Vin	+Vin to GND, Pout to +Vin, Pout to GND	+Vin to GND, Pout to +Vin, Pout to GND
Short-circuit resistance	---	Pout to GND	Pout to GND

## QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	10 G (4 ... 2000 Hz / $\pm 10$ mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dB $\mu$ V/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 ... 2.7 GHz, 3s)	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 $\Omega$ , Line-Earth: 1 kV/42 $\Omega$	Overvoltage
---	Surge (1)	Line-Line: 2.0 kV/2 $\Omega$ , Line-Earth 5 kV/12 $\Omega$	Overvoltage
EN 61000-4-6	Conducted RF	3 V (0.15 ... 80 MHz, 3 s)	Frequency converters

(1) Only with 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, PVC
Weight (2)	145 g

(1) Hastelloy (C-276) on request

(2) Specification for a ATM.1ST/N, closed, without cable

## Equipment

### OVERVIEW

10.00.0091	Accessories overview

## Additional documents

### OPERATING AND SAFETY INSTRUCTIONS

Article number	
10.88.0092	DMM029

# Ordering information

	X	XXX	XXX	XX	XXX
<b>Type</b>					
<b>Pressure type</b>					
<b>Pressure measuring range</b>					
<b>Process connection</b>					
<b>Electrical connection</b>					
<b>Output signal</b>					
<b>Accuracy</b>					
<b>Temperature range</b>					
<b>Option 1</b>					
<b>Option 2</b>					
<b>Option 3</b>					

Seals: EPDM			S
Seals: Kalrez (Level)			T
Seals: NBR (ACS)			H
Humidity filter element for gauge versions (only PUR and PE cable)			Z
Seperate electronic (Two piece housing, price without connecting cable)			Y

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

(4) Please specify the required cable length and medium

(5) Suitable for drinking water (food approved)

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

(9) max. 130°C @ 10 mH2O, max. 110°C @ 50 mH2O

# Technical drawings

## Dimensions

Fig. 1 Closed version

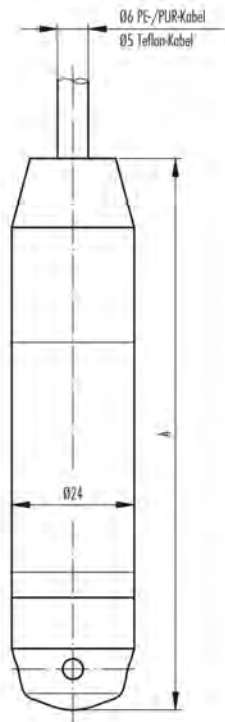


Fig. 2 Open version

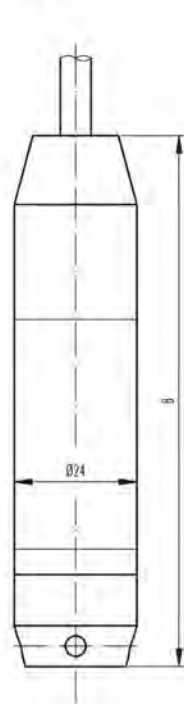


Fig. 3 With process connection

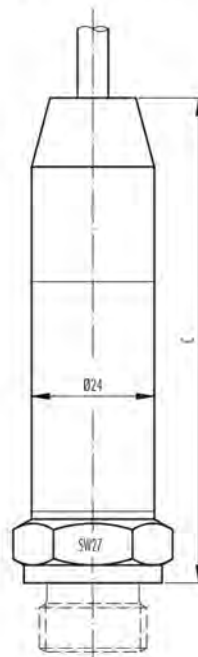
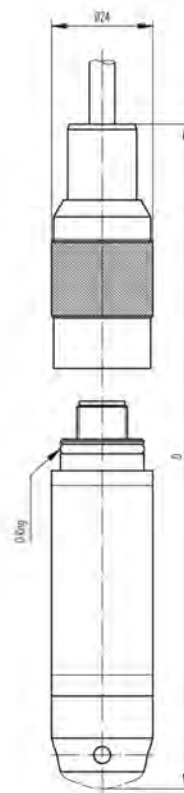


Fig. 4 Electrical connection, connectable



	A [mm]	B [mm]	C [mm]	D [mm]	Weight [g]
without ballast weight	88	84	on request*	119*	ca. 210
with ballast weight	175	171	on request*	201*	ca. 470

\*C: Depending on process connection

Colour	2-wire	3-wire
white	+Vin	+Vin
yellow	Pout	GND
brown		Pout
grey	EP (only Ex)	

Specifications may change without notice

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