

Intrinsically Safe Submersible Transmitters

ATM.1ST/N/Ex - High Precision



CUSTOMER BENEFITS

- Certificate: ATEX & IECEx
- High measurement accuracy is ensured by sophisticated digital temperature compensation algorithms
- Stainless steel and titanium version for use in acidic or otherwise aggressive media
- Short response times suitable for dynamic level measurements
- Fast customization thanks to configurable product design

Technical Specifications

PRESSURE MEASURING RANGE (MH2O)

	1 ... 5, (1)	> 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, (3), (\pm % FS)	≤ 0.1	≤ 0.1	≤ 0.1
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.) (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)

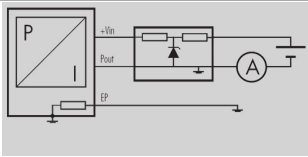
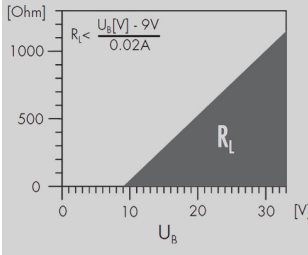
(5) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

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

	4 ... 20 mA
Power supply	9 ... 28 VDC
Supply influence	< 0.05% FS
Circuit diagram	
Load resistance	
Load influence	< 0.05% FS

ATEX APPROVAL

Certificate, (1)	SEV 09 ATEX 0108		
Gas	II 1G Ex ia IIB/IIC T3 ... T6	EN 60079-0 / -11 / -26	
Dust	II 1D Ex ia IIIC IP6x T140°C ... T70°C	EN 61241-0 / -11	
Mining	I M1 Ex ia I	EN 50303	
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 intrinsically safe circuit	28V / 93 mA / 0.65W		

(1) For detailed Ex specifications see certificate and operating an safety instructions

(2) Without any information about temperature class the transmitter will be delivered for T4

GL APPROVAL

Certificate	75878-09 HH
Field of application	C, H, EMC1

ADDITIONAL APPROVALS

IEC Ex	IEC Ex SEV 10.0003
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QUALIFICATIONS

	Standard	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 μ 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 Ω , Line-Earth: 1 kV/42 Ω	Overvoltage
EN 61000-4-6	Conducted RF	3 V (0.15 ... 80 MHz, 3 s)	Frequency converters

PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), titanium (Gr. 2)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (standard), EPDM, Kalrez
Cable	PUR, FEP
Weight (1)	145g

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

Equipment

OVERVIEW

10.00.0091	Accessories overview
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Additional documents

OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.88.0092	DMM029

Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
Type					
	ATM.1ST/N/Ex				
Pressure type					
	Gauge	1			
	Absolute (vacuum)	2			
Pressure measuring range					
	50 mbar ... <100 mbar	XX			
	100 mbar ... 25 bar	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			
	Customized	99			
Electrical connection					
	PUR cable, blue, IP 68 (4) (5)	17			
	FEP cable, blue, IP 68 (4)	22			
	Connectable version, IP 68, M12 (Lumberg RSF4), (Fig. 4), (3)	07			
	Customized	99			
Output signal					
	4 ... 20 mA		05		
Accuracy					
	$\leq \pm 0.25$ % FS			1	
	$\leq \pm 0.1$ % FS			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 (for food applications)				G
	Cutting ring connection G 1/2 M				
	Strain relief				
Option 2					
Option 3					
	Ballast weight 1.4435				B
	Version titanium (without ballast weight)				K
	Seals: Viton (standard)				U
	Seals: EPDM				S
	Seals: Kalrez (Level)				T
	Humidity filter element for gauge versions (only PUR cable)				Z

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

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

Technical drawings

Dimensions

Fig. 1 Closed version

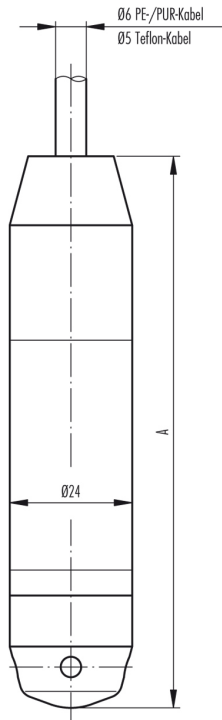


Fig. 2 Open version

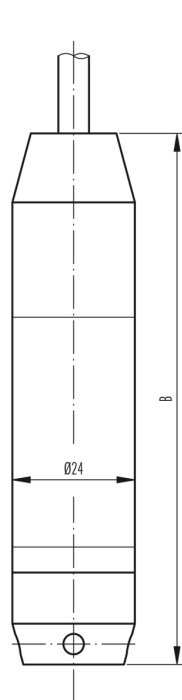


Fig. 3 With process connection

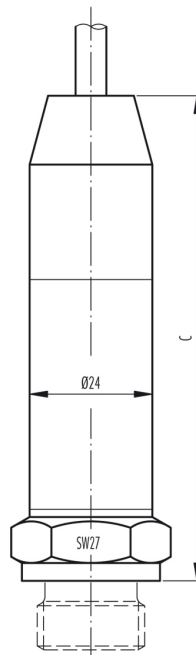
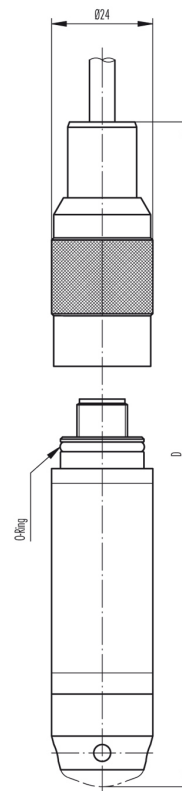


Fig. 4 Electrical connection, connectable



	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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