

Pressure Transmitter - FM / FM-C certified

ATM.1ST/IS - High Precision Transmitter



CUSTOMER BENEFITS

- Certificate: FM, FM-C, IECEx & ATEX
- High 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 pressure measurements
- Fast customization thanks to configurable product design

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 100
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure, (5)	> 200 bar	> 200 bar	> 850 bar
Accuracy, (6), (\pm % FS)	≤ 0.10	$\leq 0.10 / \leq 0.05$, (8)	$\leq 0.10 / \leq 0.05$, (8)
Total Error, (7), (\pm % FS)			
0 ... 70°C, (typ./max.)	$\leq 0.8 / 1.0$	$\leq 0.3 / 0.5$	$\leq 0.3 / 0.5$
-25 ... 100°C, (typ./max.)	$\leq 1.3 / 1.5$	$\leq 0.75 / 1.0$	$\leq 0.75 / 1.0$
0 ... 70°C, (8), (typ./max.)	n.a.	$\leq 0.2 / 0.4$	$\leq 0.2 / 0.4$
-40 ... 125°C, (8), (typ./max.)	n.a.	$\leq 0.5 / 0.8$	$\leq 0.5 / 0.8$
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (9)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 100 ... 600, (2), (4)	> 600 ... 690, (3), (10)
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (5)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (6), (\pm % FS)	≤ 0.10	≤ 0.25
Total Error, (7), (\pm % FS)		
0 ... 70°C, (typ./max.)	$\leq 0.3 / 0.5$	$\leq 0.3 / 0.5$
-25 ... 100°C, (typ./max.)	$\leq 0.75 / 1.0$	$\leq 0.75 / 1.0$
0 ... 70°C, (8), (typ./max.)	n.a.	n.a.
-40 ... 125°C, (8), (typ./max.)	n.a.	n.a.
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (9)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

(1) 50 mbar on request

(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)

(3) Process connection frontal and flush diaphragm available ≤ 600 bar

(4) Overpressure and burst pressure 1500 bar (stainless steel) optional

(5) Transducer

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

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

(8) Active compensated

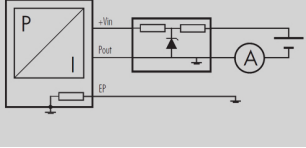
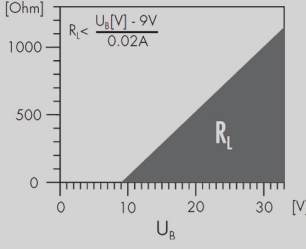
(9) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

(10) Maximum pressure allowed by FM/FMc certification body 690bar

TEMPERATURE RANGE

Operating temperature	-40...125 °C
Process temperatur	-40...150 °C
Storage temperatur	-40...125 °C

ELECTRICAL SPECIFICATIONS

	4 ... 20 mA
Power supply	9...28 V DC
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	T3
Ambient temperature	-40 ... 50°C	-40 ... 90°C	-40 ... 125°C
Process temperature	-40 ... 50°C	-40 ... 100°C	-40 ... 150°C
Maximum values of the intrinsically safe circuit	28V / 93 mA / 0.65W		

(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

FM / FM-C APPROVAL

FM	3028239
FM-C	3028239C

ADDITIONAL APPROVALS

IEC Ex	IEC Ex SEV 10.0003
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QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	10 G (4...2000 Hz / ± 10 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 ... 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), (1)
Housing	Stainless steel (316L / 1.4404), titanium (Gr. 2)
Seals	Viton (Standard), EPDM, Kalrez
Cable	PUR, FEP

(1) Hastelloy (C-276) on request

Equipment

CABLE SOCKET CONNECTOR

HART018	Cable socket M16 (Binder)
HART001	Cable Socket Connector DIN43650
HART002	Cable socket M16 (Binder 723), IP67, 5-pins
HART058	Cable Socket Connector DIN43650 MICRO

OVERVIEW

10.00.0091	Accessories overview

Additional documents

OPERATING AND SAFETY INSTRUCTIONS

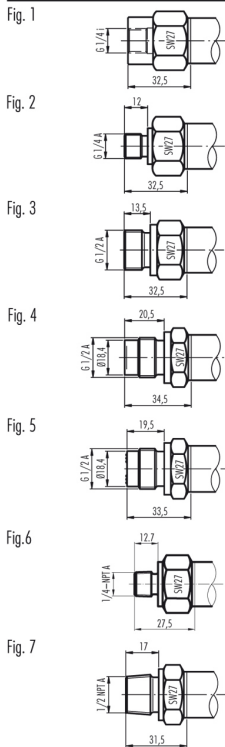
		Article number
10.88.0092		DMM029

T3 (Ta: -40 ... 125°C) -25 ... 100°C compensated (allowed process temperature: -40 ... 150°C)		2
Option 1		
Throttle (9)		A
Special oil filling: Anderol Food (for food applications)		G
Special oil filling: AS100		J
Special oil filling: PAO4 (silicon free)		Q
Pressure connection elastomer free		N
Pressure connection welded		V
Option 2		
Option 3		
Active compensated, (≥ 500 mbar ... ≤ 100 bar)		E
Titanium		K
Seals: Viton (standard)		U
Seals: EPDM		S
Seals: Kalrez		T

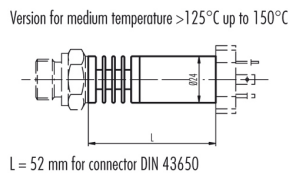
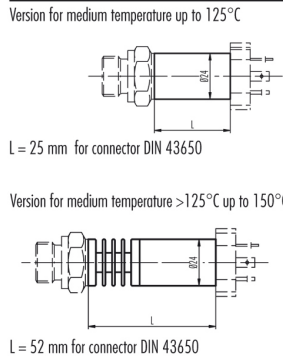
- (4) Process connection available ≥ 6 bar to ≤ 600 bar
- (5) Cable socket connector not included
- (6) Please specify the required cable length and medium
- (7) For operating temperature $> 50^\circ\text{C}$, FEP cable must be used, with connector
- (8) Active compensated, with connector
- (9) Only with pressure connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7
- (16) Connector side not to be used in Zone 0 or Ex ia IIC, explosion risk

Technical drawings

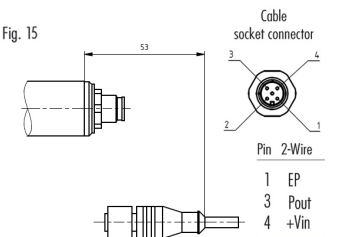
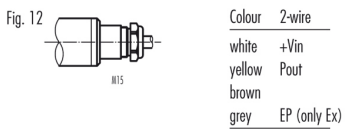
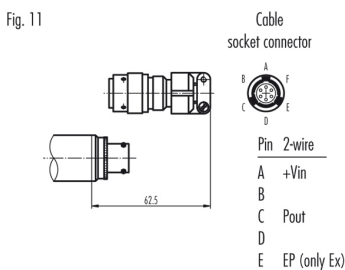
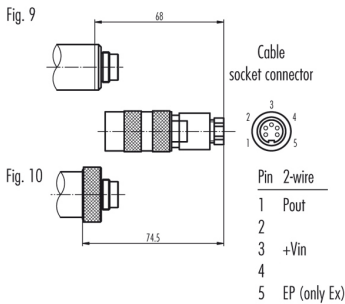
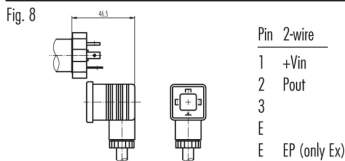
Pressure connections



Dimensions



Electrical Connections



Specifications may change without notice.

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