Intrinsically safe pressure transmitters

ATM.1ST/Ex

Version: 28.03.2012

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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	> 200 bar	> 200 bar	> 850 bar
Accuracy, (4), (± % FS)	≤ 0.10	≤ 0.10 / ≤ 0.05, (6)	≤ 0.10 / ≤ 0.05, (6)
Total Error, (5), (± % FS)			
0...70 °C, (typ. / max.)	≤ 0.8 / 1.0	≤ 0.3 / 0.5	≤ 0.3 / 0.5
-25...100 °C, (typ. / max.)	≤ 1.3 / 1.5	≤ 0.75 / 1.0	≤ 0.75 / 1.0
0...70 °C, (6), (typ. / max.)	≤ 0.5 / 0.7	≤ 0.2 / 0.4	≤ 0.2 / 0.4
-40...125 °C, (6), (typ. / max.)	≤ 1.5 / 1.7	≤ 0.5 / 0.8	≤ 0.5 / 0.8
Response time, (typ.)	< 1ms / 10...90% FS	< 1ms / 10...90% FS	< 1ms / 10...90% FS
Long term stability, (7)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

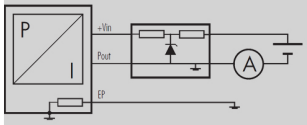
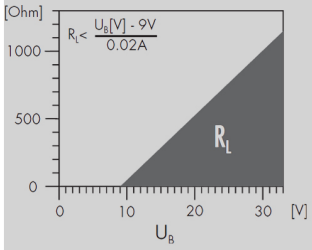
	> 100 ... 600, (2), (3)	> 600 ... 1000
Overpressure	3 x FS (≤ 850 / ≤ 1500 bar)	1500 bar
Burst pressure	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (4), (± % FS)	≤ 0.10	≤ 0.25
Total Error, (5), (± % FS)		
0...70 °C, (typ. / max.)	≤ 0.3 / 0.5	≤ 0.3 / 0.5
-25...100 °C, (typ. / max.)	≤ 0.75 / 1.0	≤ 0.75 / 1.0
0...70 °C, (6), (typ. / max.)	n.a.	n.a.
-40...125 °C, (6), (typ. / max.)	n.a.	n.a.
Response time, (typ.)	< 1ms / 10...90% FS	< 1ms / 10...90% FS
Long term stability, (7)	< 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) Overpressure and burst pressure 1500 bar (stainless steel) optional
(4) Zero based accuracy according to DIN16086, incl. hysteresis and repeatability at ambient temperature
(5) Total error including accuracy and temperature influences at maximum signal span (16 mA)
(6) Active compensated
(7) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

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 IIC T3 / T4 / T6	EN 60079-0 / -11 / -26	
Dust	II 1D Ex iaD 20 IP6x Tx°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...85 °C	-40...125 °C
Process temperature	-40...50 °C	-40...110 °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 an safety instructions
(2) Without any information about temperature class the transmitter will be delivered for T4

GL Approval

Certificate	75877-09 HH
Field of application	C, F, EMC1

Additional approvals

IEC Ex	IEC Ex SEV 10.0003
FM	3027351
FM C*	3038239

Qualifications

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	10g (4...2000 Hz / ± 10 mmpp)	
EN 60068-2-27	Shock	100g (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	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
Cable	PUR, PTFE

(1) Hastelloy (C-276) on request

Equipment

Overview

10.00.0091	Accessories overview

Additional documents

Operating and safety instructions

	Article number
10.88.0092	DMM029

Ordering information

		X. XXXX. XXXX. XX. XXX
Type		
	ATM.1ST/Ex	
Pressure type		
	Gauge	1
	Absolute (vacuum)	2
	Sealed gauge	3
Pressure measuring range		
	Any pressure measuring ranges between 0...100 mbar and 0...1000 bar available, (1), (2), (3)	XX
Process connection		
	G 1/4 F, (Fig. 1)	00
	G 1/4 M, (Fig. 2)	11
	G 1/2 M, (Fig. 3)	13
	G 1/2 M, frontal diaphragm, (Fig. 4)	14
	G 1/2 M, flush diaphragm, (Fig. 5)	15
	1/4 NPT M, (Fig. 6)	10
	1/2 NPT M, (Fig. 7)	19
	Customized connection available	XX
Electrical connection		
	DIN 43650, demountable, IP 65, (Fig. 8), (4)	01
	Binder 723, 5-pin, IP 67, (Fig. 9), (4)	03
	Binder 723, 5-pin, demountable, IP 67, (Fig. 10), (4)	43
	MIL C26482, 10-6, IP 40, (Fig. 11), (4)	06
	PUR cable, blue, IP 67, (Fig. 12), (5), (6)	17
	PTFE cable, (high temperature), black, IP 67, (11)	11
	PTFE cable, blue, IP 67, (Fig. 12), (5)	22
	Customized connection available	XX
Output signal		
	4...20 mA	05
Accuracy		
	≤ ± 0.25 % FS (> 600 bar)	1
	≤ ± 0.1 % FS (≤ 600 bar)	2
	≤ ± 0.05 % FS (≥ 500 mbar... ≤ 100 bar), (7)	6
Temperature range		
	T6 (Ta: -40...50 °C) 0...70 °C compensated (allowed process temperature: -40...50°C)	0
	T4 (Ta: -40...85 °C) -25...100 °C compensated (allowed process temperature: -40...110°C)	1
	T3 (Ta: -40...125 °C) -25...100 °C compensated (allowed process temperature: -40...150°C)	2
	T3 (Ta: -40...125 °C) -40...125 °C compensated (allowed process temperature: -40...150°C), (7)	7
Option 1		
	Throttle, (8)	A
	Special oil filling: ASEOL Food (for food applications)	G
	Special oil filling: Halocarbon (for oxygen applications), (9), (10)	H
	Pressure connection elastomerfree	N
	Pressure connection welded	V
Option 2		
Option 3		
	Active compensated	E

	Version titanium					K
	Seals: Viton (standard)					U
	Seals: EPDM					S
	Seals: Kalrez					T
	Aging					Z

(1) 50 mbar on request
(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)
(3) mbar, PSI, kPa etc. available
(4) Cable socket connector not included
(5) Please specify the required cable length and medium
(6) For operating temperature > 50°C, PTFE cable must be used, with connector
(7) Active compensated, with connector
(8) Only with pressure connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7
(9) Maximum pressure measuring range ≤ 270 bar (burst pressure > 400 bar)
(10) min. Medium temperature -25 ° C
(11) max. 130°C @ 10 mH2O, max. 110°C @ 50 mH2O

Technical drawings

Pressure connections

Fig. 1

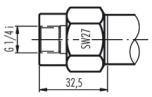


Fig. 2

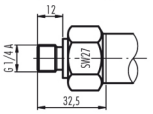


Fig. 3

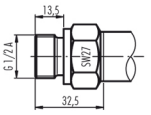


Fig. 4

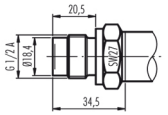


Fig. 5

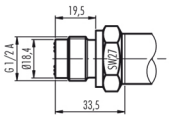


Fig.6

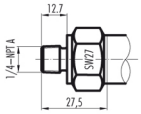
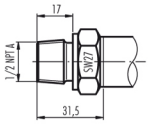
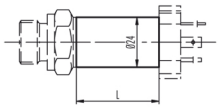


Fig. 7



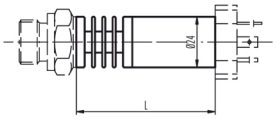
Dimensions

Version for medium temperature up to 125°C



L = 25 mm for connector DIN 43650

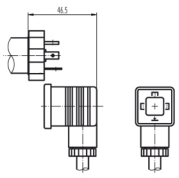
Version for medium temperature >125°C up to 150°C



L = 52 mm for connector DIN 43650

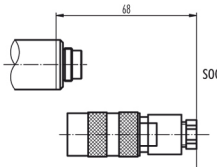
Electrical Connections

Fig. 8



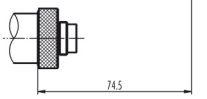
Pin	2-wire	3-wire
1	+Vin	+Vin
2	Pout	Pout
3	PROG2	GND
E	PROG1	PROG1
E	EP (only Ex)	

Fig. 9



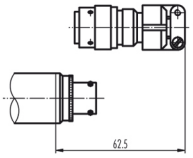
Cable socket connector

Fig. 10



Pin	2-wire	3-wire
1	Pout	Pout
2	PROG1	PROG1
3	+Vin	+Vin
4	PROG2	GND
5	EP (only Ex)	

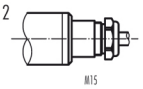
Fig. 11



Cable socket connector

Pin	2-wire	3-wire
A	+Vin	+Vin
B	PROG2	GND
C	Pout	Pout
D	PROG1	PROG1
E	EP (only Ex)	

Fig. 12



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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