Intrinsically safe pressure transmitters

ATM.1ST/Ex



Version: 07.01.2016

global.sensor.excellence

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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, (5), (± % FS)	≤ 0.10	≤ 0.10 / ≤ 0.05, (7)	≤ 0.10 / ≤ 0.05, (7)
Total Error, (6), (± % 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, (7), (typ. / max.)	n.a.	≤ 0.2 / 0.4	≤ 0.2 / 0.4
-40 ... 125°C, (7), (typ. / max.)	n.a.	≤ 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, (8)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

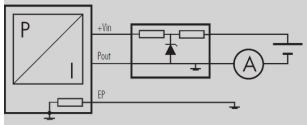
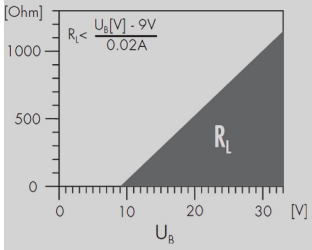
	> 100 ... 600, (2), (3), (4)	> 600 ... 1000
Overpressure	3 x FS (≤ 850 / ≤ 1500 bar)	1500 bar
Burst pressure	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5), (± % FS)	≤ 0.10	≤ 0.25
Total Error, (6), (± % FS)		
0 ... 70°C, (typ. / max.)	≤ 0.3 / 0.5	≤ 0.3 / 0.5
-25 ... 100°C, (typ. / max.)	≤ 0.75 / 1.0	≤ 0.75 / 1.0
0 ... 70°C, (7), (typ. / max.)	n.a.	n.a.
-40 ... 125°C, (7), (typ. / max.)	n.a.	n.a.
Response time, (typ.)	< 1ms / 10 ... 90% FS	< 1ms / 10 ... 90% FS
Long term stability, (8)	< 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) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature
(6) Total error including accuracy and temperature influences at maximum signal span (16 mA)
(7) Active compensated
(8) 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 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 ... 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	Overvoltage
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, FEP

(1) Hastelloy (C-276) on request

Equipment

Overview

10.00.0091	Accessories overview
HART001	Cable Socket Connector
HART002	Cable socket connector, Binder 723, IP67, 5-pins

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		
	50 mbar ... < 100 mbar	XX
	100 mbar ... 600 bar	XX
	> 600 bar	XX
Process connection		
	G 1/4 F (Fig. 1)	00
	1/4 NPT M (Fig. 6)	10
	1/2 NPT M (Fig. 7)	19
	G 1/4 M (Fig. 2)	11
	G 1/4 flush diaphragm	21
	G 1/4 male , manometer DIN-16288	12
	G 1/2 M (Fig. 3)	13
	G 1/2 M, Hastelloy C-276	98
	G 1/2 M, frontal diaphragm (Fig. 4), (4)	14
	G 1/2 M, frontal diaphragm, Hastelloy C-276	37
	G 1/2 M, flush diaphragm (Fig. 5), (4)	15
	G1/2 M manometer DIN-16288	16
	G 1/2 male with bore Ø 14 mm	17
	Customized	99
Electrical connection		
	DIN-43650, with metal threaded part, demountable, IP 65 (Fig. 8), (5)	01
	Binder 723, 5 pins, IP 67, (Fig. 9), (5)	03
	Binder 723, 5 pins, demountable, IP 67, (Fig. 10), (5)	43
	MIL C26482, 10-6, IP 40 (Fig. 11), (5)	06
	Lumberg RSF4, 4 pins (Fig. 15), (5)	07
	PUR cable, blue, IP 67, (Fig. 12), (6), (7)	17
	FEP cable, blue, IP 67, (Fig. 12), (6)	22
	Customized connection available	99
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) (8)	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
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					E
	Titanium					K
	Seals: Viton (standard)					U
	Seals: EPDM					S
	Seals: Kalrez					T

(1) 50 mbar on request
(2) Titanium available ≤ 400 bar (burst pressure > 550 bar)
(3) mbar, PSI, kPa etc. available
(4) Process connection available ≤ 600 bar
(5) Cable socket connector not included
(6) Please specify the required cable length and medium
(7) For operating temperature > 50°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

Technical drawings

Pressure connections

Fig. 1

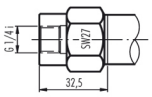


Fig. 2

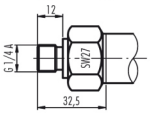


Fig. 3

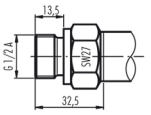


Fig. 4

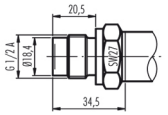


Fig. 5

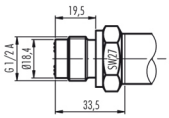


Fig.6

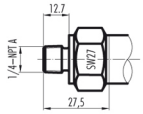
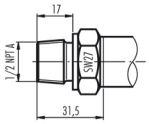
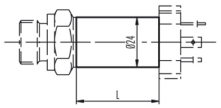


Fig. 7



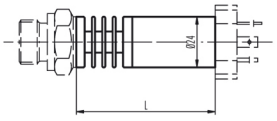
Dimensions

Version for medium temperature up to 125°C



L = 25 mm for connector DIN 43650

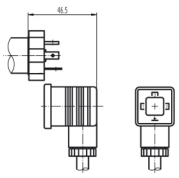
Version for medium temperature >125°C up to 150°C



L = 52 mm for connector DIN 43650

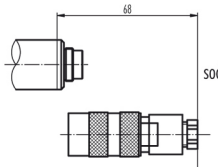
Electrical Connections

Fig. 8



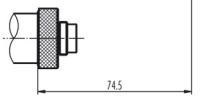
Pin	2-wire
1	+Vin
2	Pout
3	
E	
E	EP (only Ex)

Fig. 9



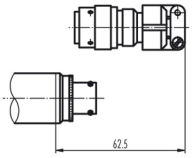
Cable socket connector

Fig. 10



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

Fig. 11

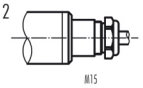


Cable socket connector



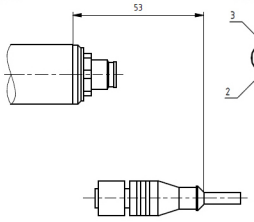
Pin	2-wire
A	+Vin
B	
C	Pout
D	
E	EP (only Ex)

Fig. 12

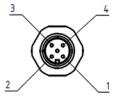


Colour	2-wire
white	+Vin
yellow	Pout
brown	
grey	EP (only Ex)

Fig. 15



Cable socket connector



Pin	2-Wire
1	EP
3	Pout
4	+Vin

Specifications may change without notice.

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