

Pressure Transmitter

TM - Passive Transmitter



CUSTOMER BENEFITS

- Fast customization thanks to modular product design
- Demountable electrical connector option allow adjustment of zero and span setting in the field
- Very short response times suitable for dynamic pressure measurements

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5, (1)	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure, (5)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (6), (\pm % FS)	≤ 0.5	$\leq 0.5 / \leq 0.25$	$\leq 0.5 / \leq 0.25$
Thermal shift, (\pm % FS/ $^{\circ}$ C)			
Zero point 0 ... 70 $^{\circ}$ C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point -25 ... 85 $^{\circ}$ C	≤ 0.08	≤ 0.04	≤ 0.02
Span 0 ... 70 $^{\circ}$ C	≤ 0.015	≤ 0.015	≤ 0.015
Span -25 ... 85 $^{\circ}$ C	≤ 0.02	≤ 0.02	≤ 0.02
Response time, (typ.)	< 0.1ms / 10 ... 90% FS	< 0.1ms / 10 ... 90% FS	< 0.1ms / 10 ... 90% FS
Long term stability, (7)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (2), (3), (4)	> 600 ... 1000, (2), (3)
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (5)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (6), (\pm % FS)	$\leq 0.5 / \leq 0.25$	$\leq 1 / \leq 0.5$
Thermal shift, (\pm % FS/ $^{\circ}$ C)		
Zero point 0 ... 70 $^{\circ}$ C	≤ 0.015	≤ 0.015
Zero point -25 ... 85 $^{\circ}$ C	≤ 0.02	≤ 0.02
Span 0 ... 70 $^{\circ}$ C	≤ 0.015	≤ 0.015
Span -25 ... 85 $^{\circ}$ C	≤ 0.02	≤ 0.02
Response time, (typ.)	< 0.1ms / 10 ... 90% FS	< 0.1ms / 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) 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) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

TEMPERATURE RANGE

Operating temperature	-40 ... 125 $^{\circ}$ C
Process temperatur	-40 ... 150 $^{\circ}$ C
Storage temperatur	-40 ... 125 $^{\circ}$ C

TYPICAL OUTPUT SIGNAL (BAR)

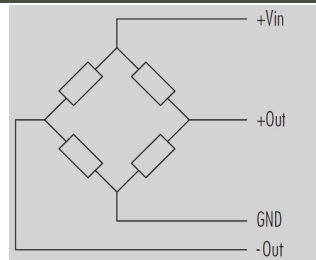
	≤ 0.25	> 0.25 ... 0.6	> 0.6 ... 1
Output signal, (1), (mV)	15	25	35

	> 1 ... 2.5	> 2.5
Output signal, (1), (mV)	50	100

(1) At nominal pressure, 10 V DC

ELECTRICAL SPECIFICATIONS

Circuit diagram



Input impedance	> 10 kΩ
Bridge resistance, (typ.)	3 kΩ
Supply voltage, >br> (typ./max.)	10 / 15 V DC

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

(1) Hastelloy (C-276) on request

Accessories

CABLE SOCKET CONNECTOR

HART001	Cable Socket Connector DIN 43650
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OVERVIEW

10.00.0091	Accessories overview
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Additional documents

OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.88.0369	DMM030

Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
Type					
	TM	21			
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			
	Negative ranges, offset, special adjustment	99			
Process connection					
	G 1/4 F, (Fig. 1)	00			
	1/4 NPT M, (Fig. 9)	10			
	1/2 NPT M, (Fig. 8)	19			
	G 1/4 M, (Fig. 2)	11			
	G 1/4 flush diaphragm, (4)	21			
	G 1/4 M, manometer DIN 16288, (Fig. 3)	12			
	G 1/2 M, (Fig. 4)	13			
	G 1/2 M Hastelloy C276, (3)	41			
	G 1/2 M, frontal diaphragm, (Fig. 5), (4)	14			
	G 1/2 M, frontal diaphragm in Hastelloy C276, (3)	37			
	G 1/2 M, flush diaphragm, (Fig. 6), (4)	15			
	G 1/2 M, manometer DIN 16288, (Fig. 7)	16			
	G 1/2 with bore Ø 14 mm	17			
	Customized	99			
Electrical connection					
	DIN-43650 with metal threaded part, demountable, IP 65 (Fig. 10) (1)	01			
	M16 (Binder 723), 5-pin, IP 67, (Fig. 11), (1)	03			
	M16 (Binder 723), 5-pin, demountable, IP 67, (Fig. 12), (1)	43			
	MIL C26482, 10-6, IP 40, (Fig. 13), (1)	06			
	PE cable, black, IP 67, (Fig. 14)	13			
	PUR cable, black, IP 67, (Fig. 14)	15			
	FEP cable, black, IP 67, (Fig. 14)	21			
	FEP cable, (high temperature), black, IP 67, (Fig. 14)	11			
	Customized connection available	99			
Output signal					
	0 ... 10 mV	10			
	0 ... 25 mV	11			
	0 ... 35 mV	12			
	0 ... 50 mV	13			
	0 ... 100 mV	14			
	0 ... XXX mV (customized)	99			
Accuracy					
	≤ 600 bar ≤ ± 0.5 % FS			0	
	≤ 600 bar ≤ ± 0.25 % FS (on request)			1	

	> 600bar $\leq \pm 1$ % FS		5
	> 600bar $\leq \pm 0.5$ % FS		0
Temperature range			
	0 ... 70°C compensated process temperature: -40 ... 150°C	(allowed	0
	-25 ... 100°C compensated (allowed process temperature: -40 ... 150°C)		7
	-25 ... 85°C compensated (allowed process temperature: -40 ... 150°C)		5
	Customized		9
Option 1			
	Throttle, (5)		A
	Special oil filling: Anderol Food food applications)	(for	G
	Special oil filling: AS100 for media temp. -55 ... 150°C)	(suitable	J
	Special oil filling: PAO4 (silicone free)		Q
	Process connection elastomerfree		N
	Process connection welded		V
Option 2			
	Electronics packed in gel: Gauge pressure		C
	Electronics packed in gel: Absolute pressure		D
Option 3			
	Version titanium		K
	Seals: Viton (Standard)		U
	Seals: EPDM		S
	Seals: Kalrez		T

(1) Cable socket connector not included

(3) Only parts which are in contact with medium

(4) Process connection available ≤ 600 bar

(5) Only with process connection Fig. 2, Fig. 3, Fig. 6 and Fig. 7

Technical drawings

Pressure Connections

Fig. 1

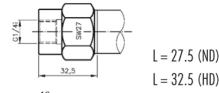


Fig. 2

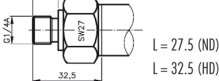


Fig. 3

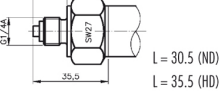


Fig. 4



Fig. 5

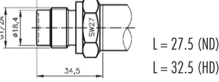


Fig. 6

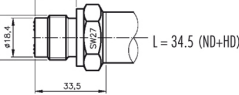


Fig. 7



Fig. 8

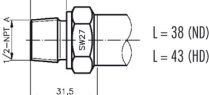
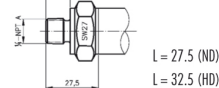
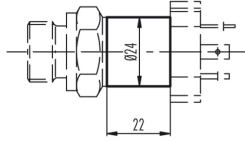


Fig. 9



L = 31.5 (ND)
L = 36.5 (HD)

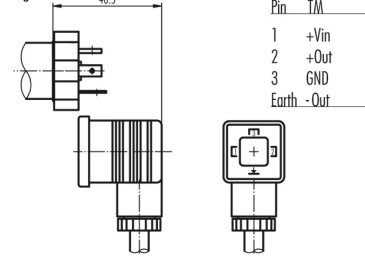
Version for media temperature up to 150°C



Dimensions

Electrical Connections

Fig. 10



Pin	TM
1	+Vin
2	+Out
3	GND
Earth	-Out

Fig. 11

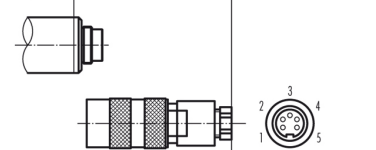
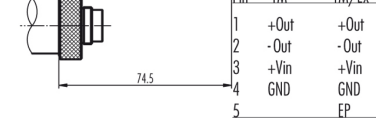
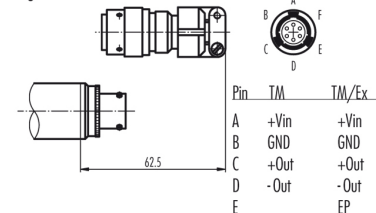


Fig. 12



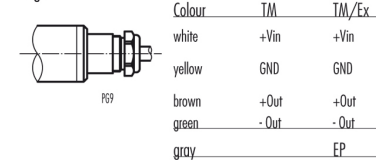
Pin	TM	TM/Ex
1	+Out	+Out
2	-Out	-Out
3	+Vin	+Vin
4	GND	GND
5		EP

Fig. 13



Pin	TM	TM/Ex
A	+Vin	+Vin
B	GND	GND
C	+Out	+Out
D	-Out	-Out
E		EP

Fig. 14



Colour	TM	TM/Ex
white	+Vin	+Vin
yellow	GND	GND
brown	+Out	+Out
green	-Out	-Out
gray		EP

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