

PROGRAMMABLE INTRINSICALLY SAFE PRESSURE TRANSMITTER PTM/EX



II 1G Ex ia IIC/IIB T3 ... T6
II 1D Ex iaD 20 IP6x T80 ... T125 °C

Features

- Piezoresistive measuring element
- Pressure range from -5% till +105% FS until 1:4 adjustable
- Measuring range 0 ... 50 mbar and 0 ... 1000 bar
- Output signal 4 ... 20 mA
- Calibration available for all common pressure units mH2O, mWs, mWC etc.
- Adjustable delay
- Reverse polarity and short circuit protected
- Active temperature compensation (option)

Typical applications

- In hazardous areas
- Process engineering
 - Foodstuff technology
 - Environmental technology
 - Ship building

Specifications

Pressure range	[bar]	0.05 ... 0.5	> 0.5 ... 2	> 2 ... 25	> 25 ... 600	> 600 ... 1000
Overpressure		3 bar	3 x FS (min. 3 bar)	3 x FS	3 x FS (max. 850 bar, opt. 1500 bar)	1500 bar
Burst pressure		≥ 200 bar	≥ 200 bar	≥ 200 bar	≥ 850 bar (opt. 1500 bar)	≥ 1500 bar
Accuracy ²⁾		≤ ± 0.25% FS, ≤ 500 mbar	≤ ± 0.1% FS, > 500 mbar			
Thermal shift	[± % FS/°C]					
Zero	0...70°C	≤ 0.06 ³⁾	≤ 0.03	≤ 0.015	≤ 0.015	≤ 0.015
	-25...85°C	≤ 0.08 ⁴⁾	≤ 0.04	≤ 0.02	≤ 0.02	≤ 0.02
Span	0...70°C	≤ 0.015	≤ 0.015	≤ 0.015	≤ 0.015	≤ 0.015
	-25...85°C	≤ 0.02	≤ 0.02	≤ 0.02	≤ 0.02	≤ 0.02
Total error ¹⁾ [± % FS]	-10...50°C	≤ 0.15/0.3	≤ 0.15/0.3	≤ 0.1/0.15	≤ 0.1/0.15	≤ 0.1/0.15
Active compensated		(≤ 200 mbar: 0.3/0.6)				
(typ./max.)	-25...85°C	≤ 0.65/0.7	≤ 0.65/0.7	≤ 0.55/0.7	≤ 0.55/0.7	≤ 0.55/0.7
		(≤ 200 mbar: 0.65/0.8)				
Long term stability (1 year) - (typ./max.)		≤ 0.5% FS/< 4mbar	≤ 0.2% FS/< 4mbar	≤ 0.1% FS/< 0.2% FS	≤ 0.1% FS/< 0.2% FS	≤ 0.1% FS/< 0.2% FS

Electrical specifications

Analog output	Resolution: Output 4mA: Output 20mA: Span: Adjustable delay:	≤ ± 0.025 % FS adjustable between -5% FS...105% FS adjustable between -5% FS...105% FS adjustable between 25% FS...110% FS, min. 50 mbar 100ms, 1s, 10s, (standard ca. 30ms)
Interface ⁵⁾	VART199 incl. PC-Program (VART244)	
Type	4...20mA (current loop)	
Supply voltage	9...30V DC	
Supply voltage influence	< 0.1% FS	
Schematic diagram (example)		
Load resistance		

Ex-Approval Gas/Dust

Approval	SEV 08 ATEX 0142	II 1G Ex ia IIC/II B T3 ... T6 II 1D Ex iaD 20 IP6x T80 ... T125 °C
Standards		EN 60079-0 / EN 60079-11 (Gas) General provisions EN 61241-0 / EN 61241-11 (Dust) Intrinsic safety "i"
Temperature class		T6 T5 T4 T3
Ambient temperature Ta	[°C]	-25...55 -25...70 -25...85 -25...85
Measuring temperature	[°C]	-25...55 -25...70 -25...100 -25...150
Detailed Ex-specifications see manual (DMM023)		

Materials

Pressure connection, diaphragm, housing	Stainless steel 1.4435 or titanium 3.7035
Seals	Viton (for other materials, see ordering information)

Qualification

Standard	Level	Typical interferences
Mechanical loadings: EN 60068-2-6 EN 60068-2-27	Vibration Shock	10g (4...2000 Hz, deflection ± 10 mmpp) 100g (pulse length 6 ms)
Emissions: EN 61000-6-3 EN 55022	Generic emission standard Emission, class B	< 30 dBµV/m (0.03 - 1 GHz)
Immunity: EN 61000-6-2 EN 61000-4-2 EN 61000-4-3 EN 61000-4-4 EN 61000-4-6 EN 61000-4-5	Generic immunity standard Electrostatic discharge Radiated electromagnetic field Fast transients (burst) Line-conducted electromagnetic interference Surge	8 kV contact, 15 kV air 10 V/m, 0.08 - 2 GHz, 80% AM 1kHz 4 kV 10 V, 0.15 - 230 MHz, 80% AM 1 kHz level 2 (8/20µs; 0.5kV/2Ω, 1kV/12Ω) 10 kA (8/20 µs) ⁶⁾ Radio sets, wireless phones Motors, valves Radio sets, wireless phones Lightning

¹⁾ Total temperature error incl. accuracy

²⁾ Zero based non-conformity according to DIN 16086, including hysteresis and repeatability

³⁾ 50 – 99 mbar: ≤ 0.12

⁴⁾ 50 – 99 mbar: ≤ 0.16

⁵⁾ Please order separately

⁶⁾ Only variants with optional overvoltage protection (lightning protection)

Ordering information

		47	X	. XXXX	. XXXX	. XX	. XXX
Type	PTM/Ex	47					
Pressure type	Gauge	1					
	Absolute (vacuum)	2					
	Sealed gauge	3					
Pressure range ¹⁾	Any pressure ranges between 0 ... 50 mbar and 0 ... 1000 bar available	99					
Pressure connection	G 1/4 female (Fig. 1)			00			
	G 1/4 male (Fig. 2)			11			
	G 1/2 male (Fig. 3)			13			
	G 1/2 male frontal diaphragm (Fig. 4)			14			
	G 1/2 male flush diaphragm (Fig. 5)			15			
	1/2 NPT male (Fig. 6)			10			
	1/4 NPT male (Fig. 7)			19			
	Customer specific			99			
Electrical connection	Connector DIN 43650 (screwed on) ²⁾	IP 65		01			
	Connector Binder 723, 5-pin ²⁾	IP 67		03			
	Connector MIL C26482 ²⁾	IP 40		06			
	PUR cable (blue) ^{3) 4)}	IP 67		17			
	Teflon cable (blue) ³⁾	IP 67		22			
	Customer specific			99			
Output signal	4...20mA (current loop)				05		
Accuracy	≤ ± 0.25% FS ⁵⁾					1	
	≤ ± 0.10% FS ⁶⁾					2	
Temperature class	T6 (Ta: -25 ... 55 °C, -5 ... 50 °C compensated)					0	
	T4 (Ta: -25 ... 85 °C, -25 ... 85 °C compensated, max. medium temp. 100 °C)					1	
	T3 (Ta: -25 ... 85 °C, -25 ... 85 °C compensated, max. medium temp. 150 °C) ⁷⁾					2	
Options	Throttle ⁷⁾						A
	Special oil filling in TD: ASEOL Food						G
	Seals: Viton (standard)						U
	EPDM						S
	Kalrez						T
	Titanium version						K
	Temperature calibration active						E

¹⁾ mH₂O, mWs, mWC etc. available

²⁾ Cable box not included in delivery

³⁾ Please specify the required cable length and medium

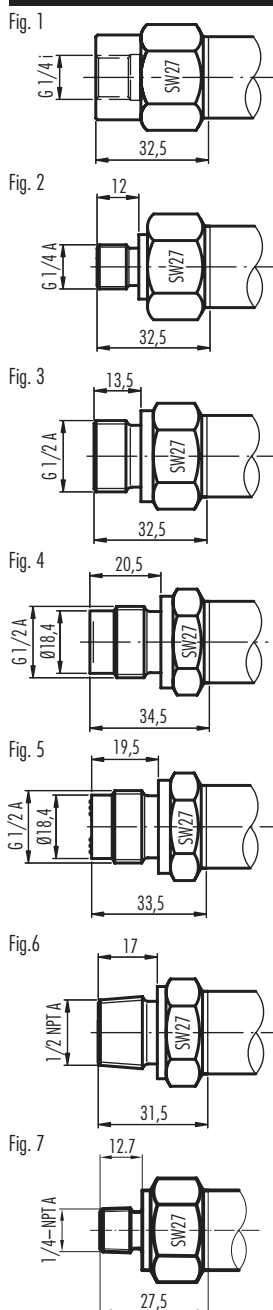
⁴⁾ Teflon cable (FEP) must be used for temperatures > 50 °C

⁵⁾ Pressure range ≤ 500 mbar

⁶⁾ Pressure range > 500 mbar

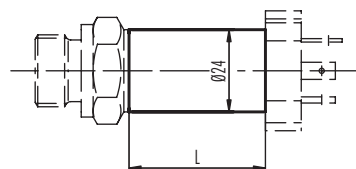
⁷⁾ Only in stainless steel (1.4435 / 316L) available

Pressure connections



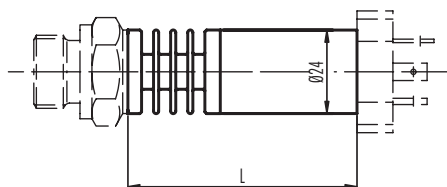
Dimensions

Version for medium temperature up to 100°C



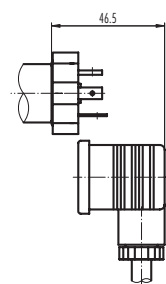
L = 94 mm Connector DIN 43650

Version for medium temperature >100°C up to 150°C



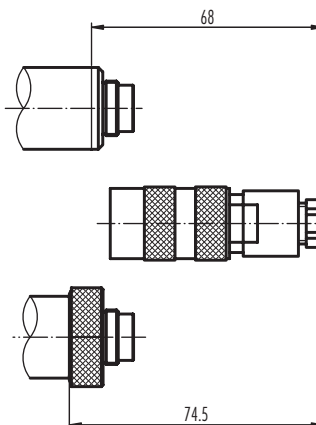
L = 121 mm Connector DIN 43650

Electrical connections



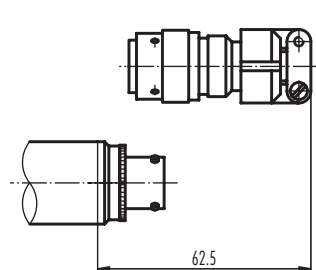
Cable
socket connector

Pin	2 wire
1	+Vin
2	Pout
	Earth EP



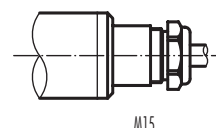
Cable
socket connector

Pin	2 wire
1	Pout
3	+Vin
5	EP



Cable
socket connector

Pin	2 wire
A	+Vin
C	Pout
F	EP



Colour 2 wire

white	+Vin
yellow	Pout
grey	EP

Specifications may change without notice.

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Switzerland	Germany	Italy	France	Great Britain
STS Sensor Technik Sirmach AG Rüthhofstrasse 8 CH - 8370 Sirmach Tel.: +41 (0)71 969 49 29 Fax: +41 (0)71 969 49 20 e-mail: sales@sts-ag.ch Internet: www.sts-ag.com	STS Sensoren Transmitter Systeme GmbH Poststrasse 7 D - 71063 Sindelfingen Tel.: +49 (0)7031 204 9410 Fax: +49 (0)7031 204 9420 e-mail: info@sts-ag.de Internet: www.sts-ag.com	STS Italia s.r.l. Via Gesù 5 I - 20090 Opera (MI) Tel.: +39 02 57607073/074 Fax: +39 02 57607110 e-mail: info@sts-italia.it Internet: www.sts-ag.com	STS France 844, Route de la Caille FR - 74350 Allonzier la Caille Tel.: +33 (0)4 50 08 48 15 Fax: +33 (0)4 50 67 02 43 e-mail: info@stsfrence.fr Internet: www.sts-ag.com	STS Great Britain Ltd. Coppice House Halesfield 7 GB - Telford TF7 4NA Tel.: +44 (0) 1952 581093 Fax: +44 (0) 1952 581046 e-mail: contact@sts-gb.co.uk Internet: www.sts-ag.com

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