

Parametrable / Programmable Pressure Transmitter

PTM/RS485



CUSTOMER BENEFITS

- High flexibility due to scalable pressure range
- Digital (RS485) and analogue (4-20mA) output signal in one sensor
- Available as multi-parameter sensor (pressure & temperature)
- Fast customization thanks to modular product design
- Stainless steel and titanium version for use in acidic or otherwise aggressive media

Technical Specifications

PRESSURE MEASURING RANGE (BAR)

	0.1 ... 0.5	> 0.5 ... 2	> 2 ... 25
Overpressure	3 bar	3 x FS (≥ 3 bar)	3 x FS
Burst pressure, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5) ($\pm$ % FS)	≤ 0.25	≤ 0.1	≤ 0.1
Total Error, (6), (7), ($\pm$ % FS)			
-10 ... 50°C, (typ./max.)	$\leq 0.15 / 0.3$ (≤ 200 mbar: 0.3 / 0.6)	$\leq 0.15 / 0.3$	$\leq 0.15 / 0.3$
-25 ... 85°C, (typ. / max.)	$\leq 0.65 / 0.7$ (≤ 200 mbar: 0.65 / 0.8)	$\leq 0.65 / 0.7$	$\leq 0.55 / 0.7$
Long term stability, (8)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (1), (2), (3)	> 600 ... 1000, (1)
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5) ($\pm$ % FS)	≤ 0.1	≤ 0.25
Total Error, (6), (7), ($\pm$ % FS)		
-10 ... 50°C, (typ./max.)	$\leq 0.15 / 0.3$	n.a.
-25 ... 85°C, (typ. / max.)	$\leq 0.55 / 0.7$	n.a.
Long term stability, (8)	< 0.1% FS / < 0.2% FS	< 0.1% FS / < 0.2% FS

- (1) Titanium available ≤ 400 bar (burst pressure > 550 bar)
 (2) Process connection frontal and flush diaphragm available ≤ 600 bar
 (3) Overpressure and burst pressure 1500 bar (stainless steel) optional
 (4) Transducer
 (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, ≤ 100 bar
 (8) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

TEMPERATURE MEASURING RANGE

Standard, (1), (2)	-10 ... 50°C
Lower end of range, (2)	-25°C
Upper end of range, (2)	85°C
Accuracy	$\leq \pm 2^\circ\text{C}$

- (1) Available active compensated only
 (2) Depending on temperature range of the active compensation

TEMPERATURE RANGE

Operating temperature	-25 ... 85°C
Process temperature	-40 ... 150°C
Storage temperature	-25 ... 85°C

ELECTRICAL SPECIFICATIONS

Output	
Digital	RS485
Protocol	Modbus RTU
Analog	4 ... 20 mA
Resolution	
Digital output	0.01% FS
Analog output	0.025% FS
Output adjustable	
4 mA	-5% FS ... 105% FS
20 mA	-5% FS ... 105% FS
Span	25% FS ... 110% FS (≥ 100 mbar)
Low pass filter	0.1 / 1 / 10 / 30 Hz (standard: 30 Hz)
Power supply	9 ... 30 VDC
Supply influence	< 0.1% FS
Circuit diagram	
Load resistance	$R_L = \frac{(U_B - 0.6V)}{0.02A}$
Load influence	< 0.1% FS
Cable length	max. 300 m

QUALIFICATIONS

	Description	Level	Typical interferences
EN 60068-2-6	Vibration	4 G (4 ... 100 Hz / ± 3.2 mmpp)	
EN 60068-2-27	Shock	100 G (impulse duration 6 ms)	
EN 55022	Emission, class B	< 30 dB μ V/m (0.03 ... 1 GHz)	
EN 61000-4-2	Electrostatic discharge	4 kV contact / 8 kV air	
EN 61000-4-3	Irradiated RF	10V/m (0.08...1 GHz)	Radio sets, wireless phones
EN 61000-4-4	Transients (burst)	2 kV	Motors, valves
EN 61000-4-5, (1)	Surge	10 kA (8 / 20 μ s)	Overvoltage
EN 61000-4-6	Conducted RF	10 V (0.15 ... 80 MHz)	Frequency converters

(1) Only with optional surge (lightning) protection

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, NBR
Cable	PUR, FEP, PE

(1) Hastelloy (C-276) on request

Equipment

OVERVIEW

10.00.0091	Accessories overview

INTERFACE

101138	PTM - Interface

SOFTWARE

101224	PC Software V1.50

Additional documents

MANUALS

	Article number	Description
10.00.0079	DEB003	Configuration software
10.00.0089	DEB005	User manual

OPERATING AND SAFETY INSTRUCTIONS

	Article number
10.00.0137	DMM009

Ordering information

	X.	XXXX.	XXXX.	XX.	XXX
Type					
PTM/RS485	43				
Pressure type					
Gauge	1				
Absolute (vacuum)	2				
Seald gauge	3				
Pressure measuring range					
100 mbar ... 600 bar	XX				
> 600 bar	XX				
Offset, special adjustment	99				
Process connection					
G 1/4 F (Fig. 1)	00				
G 1/4 M (Fig. 2)	11				
G 1/4 M, manometer DIN 16288 (Fig. 3)	12				
G 1/4 M, flush diaphragm, (3)	21				
G 1/2 M (Fig. 4)	13				
G 1/2 M, with bore Ø14mm	17				
G 1/2 M, Hastelloy C-276	98				
G 1/2 M, frontal diaphragm (Fig. 5), (3)	14				
G 1/2 M, frontal diaphragm in Hastelloy C-276, (3)	37				
G 1/2 M, flush diaphragm (Fig. 6), (3)	15				
G 1/2 M, manometer DIN 16288 (Fig. 7)	16				
1/4 NPT M	10				
1/2 NPT M (Fig. 8)	19				
Customized	99				
Electrical connection					
M16 (Binder 723), 7 pins, IP 67 (Fig.10), (4)	04				
M16 (Binder 723), 5 pins, IP 67 (Fig.10), (4)	03				
MIL C2682, 10-6, IP 40 (Fig. 11), (4)	06				
PE cable, black, IP 67 (Fig. 12), (5), (6)	13				
PUR-cable, black, IP 67 (Fig. 12), (5), (7)	15				
FEP cable, black, IP 67 (Fig. 12), (5)	21				
Customized	99				
Output signal					
RS485 / 4 ... 20mA (pressure)	62				
RS485 / 4 ... 20mA (pressure) with surge protection	64				
RS485 / 4 ... 20mA (pressure and temperature)	65				
RS485 / 4 ... 20mA (pressure and temperature) with surge protection	66				
Accuracy					
$\leq \pm 0.25 \% \text{ FS } (\leq 500 \text{ mbar} / > 600 \text{ bar})$	1				
$\leq \pm 0.1 \% \text{ FS } (> 500 \text{ mbar} \dots 600 \text{ bar})$	2				
Temperature range					
0 ... 70°C compensated (allowed process temperature: -25 ... 100°C)	0				
25 ... 100°C compensated (allowed process temperature: -25 ... 100°C)	7				

-25 ... 85°C compensated (allowed process temperature: -25 ... 100°C) with cooling fins			1
-25 ... 85°C compensated (allowed process temperature: -25 ... 150°C)			2
20 ... 100°C compensated (allowed process temperature: -25 ... 150°C) with cooling fins			6
Customized			9
Option 1			
Throttle, (8)			A
Special oil filling: Anderol Food (for food applications)			G
Special oil filling: AS 100 (suitable for media temperature -55 ... 150°C)			J
Special oil filling: PAO4 (silicone free)			Q
Option 2			
Electronics packed in gel: Gauge pressure			C
Electronics packed in gel: Absolute pressure			D
Option 3			
Active compensated (≥ 100 mbar ≤ 100 bar)			E
Version titanium			K
Seals: Viton (standard)			U
Seals: EPDM			S
Seals: Kalrez			T
Seals: NBR (ACS)			H

(3) Process connection available ≤ 600 bar

(4) Cable socket connector not included

(5) Please specify the required cable length and medium

(6) Suitable for drinking water (food approved)

(7) For operating temperature $> 50^{\circ}\text{C}$, PE or FEP cable must be used

(8) Only with pressure connection Fig. 2, Fig. 3, Fig. 4, Fig. 7 and Fig. 8

Technical drawings

Process Connection

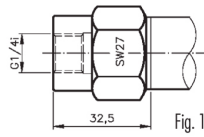


Fig. 1

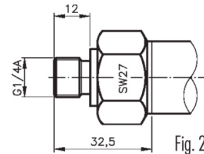


Fig. 2

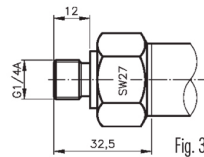


Fig. 3

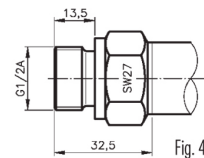


Fig. 4

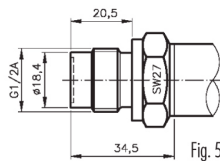


Fig. 5

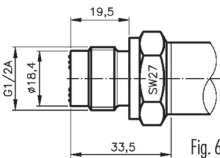


Fig. 6

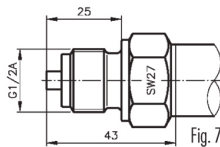


Fig. 7

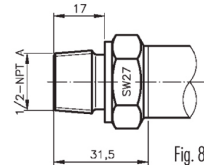
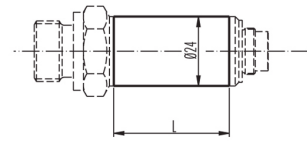


Fig. 8

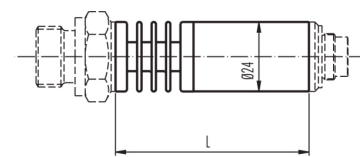
Dimensions

Version for medium temperature up to 100°C



L = 94 mm, with overvoltage protection = 195 mm

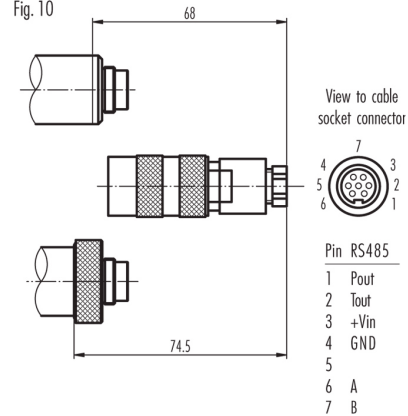
Version for medium temperature up to 150°C



L = 121 mm, with overvoltage protection = 222 mm

Electrical Connection

Fig. 10



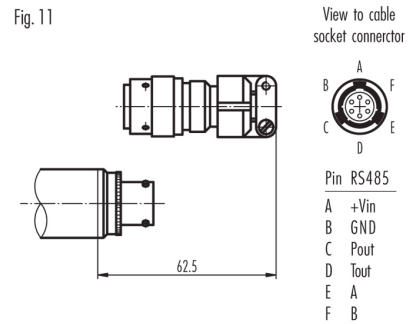
View to cable
socket connector



Pin RS485

1	Pout
2	Tout
3	+Vin
4	GND
5	
6	A
7	B

Fig. 11



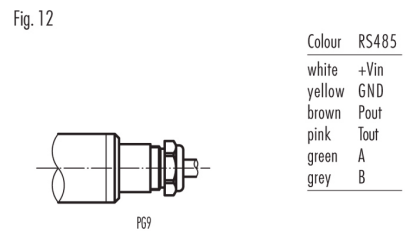
View to cable
socket connector



Pin RS485

A	+Vin
B	GND
C	Pout
D	Tout
E	A
F	B

Fig. 12



Colour RS485

white	+Vin
yellow	GND
brown	Pout
pink	Tout
green	A
grey	B

Specifications may change without notice.

STS Headquarters, Switzerland:
STS Sensor Technik Sirmach AG
Rüthofstrasse 8 | 8370 Sirmach | Switzerland
sales@stssensors.com | www.stssensors.com

STS China:
STS Sensor Technology (Shanghai) Co. Ltd
Room 2603-2606 | North Building, Fortune | 108 Square
Lane 1839 | Qixin Road | Minhang District | Shanghai | China
sales@stssensors.com | www.stssensors.com.cn

STS France:
STS France
844 Route de la Caille | 74350 Allonzier la Caille | France
info-fr@stssensors.com | www.stssensors.fr

STS Germany:
STS Sensoren Transmitter Systeme GmbH
Poststrasse 7 | 71063 Sindelfingen | Germany
info-de@stssensors.com | www.stssensors.de

STS Great Britain:
STS Great Britain Ltd.
Box 3942 | Warwick | CV34 9AE | United Kingdom
contact@stssensors.com | www.stssensors.co.uk

STS Italy:
STS Italia s.r.l.
Via Lambro 36 | 20090 Opera (MI) | Italy
info-italia@stssensors.com | www.stssensors.it