

Piezoresistive OEM Measuring Cell

Piezoresistive Transducer



CUSTOMER BENEFITS

- High accuracy and excellent long-term stability
- Reliable and highly resistant to corrosion
- Effective media isolation without degrading performance

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, (4)	> 200 bar	> 200 bar	> 200 bar
Accuracy, (5), (\pm % FS)	≤ 0.5	$\leq 0.5 / \leq 0.25$	$\leq 0.5 / \leq 0.25$
Thermal shift, (6) (\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
Long term stability, (7)	< 0.5% FS / < 4 mbar	< 0.2% FS / < 4 mbar	< 0.1% FS / < 0.2% FS

	> 25 ... 600, (2), (3)	> 600 ... 1000
Overpressure	3 x FS ($\leq 850 / \leq 1500$ bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5), (\pm % FS)	$\leq 0.5 / \leq 0.25$	$\leq 1.0 / \leq 0.5$
Thermal shift, (6) (\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
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) Transducer

(5) Zero based accuracy according to DIN-16086, incl. hysteresis and repeatability at ambient temperature

(6) With compensation

(7) 1 year (typ. / max.), the long term stability can be improved by ageing (burn-in) the sensor

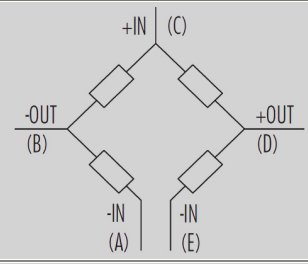
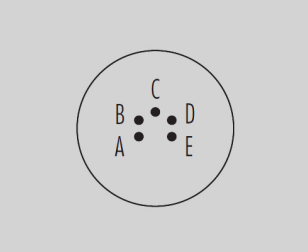
TYPICAL OUTPUT SIGNAL (BAR)

	0.1	0.25	0.6
Output signal, (1), (mV)	25	50	60

	1	2.5	≥ 6
Output signal, (1), (mV)	65	75	100

(1) At nominal pressure, 1 mA current excitation, uncompensated

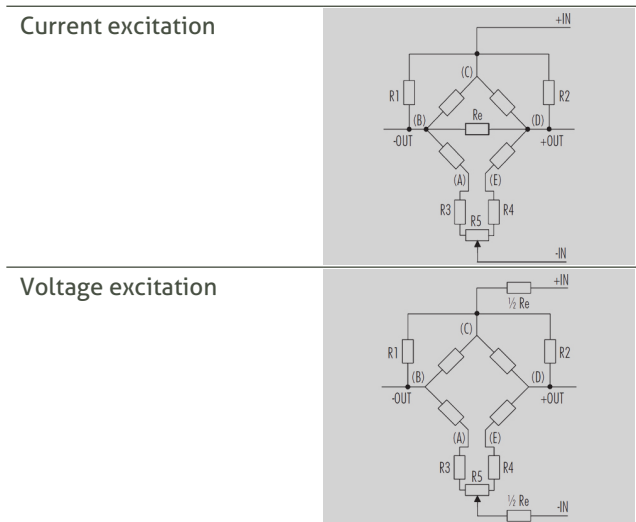
ELECTRICAL SPECIFICATIONS

Voltage excitation, (typ. / max.)(1)	10 V DC / 15 V DC
Current excitation, (typ. / max.)(1)	1 mA / 2 mA
Bridge resistance (typ.)	3 k Ω
Frequency range	≥ 10 kHz
Natural frequency (typ.)	≥ 10 kHz
Circuit	
Electrical connections	

(1) With compensation

KOMPENSATION

R1, R2	Resistors for compensation of the zero temperature coefficient. Only the resistor indicated on the supplied measuring protocol (R1 or R2) has to be inserted into the circuit.
R3, R4	Zero-compensation resistors. Only the resistor indicated on the supplied measuring protocol (R3 or R4) has to be inserted into the circuit; the other resistor has to be inserted as a jumper (0 Ω resistor).
RE	Resistor for compensation of the temperature coefficient of the sensitivity. This resistor has a standard value of 9.4 k Ω .
R5	Potentiometer for the zero-adjustment (recommended value: 100 Ω).



QUALIFICATIONS

Vibration	> 30 G
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PHYSICAL SPECIFICATIONS

Materials	
Transducer	Stainless steel (316L / 1.4435), Titanium (Gr. 2), (1)
Seals	Viton (standard), EPDM, Kalrez

(1) Hastelloy (C-276) on request

Ordering information

	X.	XXX.	XXXX.	XX.	XXX
Type					
	TD	10			
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			
Model					
	Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1)	60			
	Ø 19 mm with welding ring, (Fig. 2)	63			
	Ø 19 mm with flush diaphragm, (Fig. 3)	64			
	Ø 18.4 mm with welding ring, (Fig. 4)	67			
	Ø 18.4 mm with flush diaphragm, (Fig. 5)	68			
	Customized	99			
Electrical connection					
	5 gold plated pins, (Fig. 6)		30		
	Silicone wires 50 mm		33		
	Silicone wires 100 mm		98		
	Customized		99		
Output signal					
	0 to ... mV (according to specifications)		98		
Accuracy					
	$\leq \pm 0.5$ % FS (> 600 bar $\leq \pm 1$ % FS)			0	
	$\leq \pm 0.25$ % FS			1	
	$\leq \pm 0.1$ % FS (on request)			2	
Temperature range					
	0 ... 70°C compensated (allowed process temperature: -40 ... 150°C)			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					
	Special oil filling: Anderol Food (for food applications)				G
	Special oil filling: AS 100 (suitable for media temp. -55 ... 150°C)				J
	Special oil filling: PAO4 (Silicone free)				Q
Option 2					
	Vent tube, (Fig. 7)				P
Option 3					
	Seals: Viton (Standard)				U
	Seals: EPDM				S

Seals: Kalrez			T
Titanium Construction style Ø 19 mm, Ø 18.4 mm			K
Titanium Construction style Ø 15 mm			K

Technical drawings

Dimensions

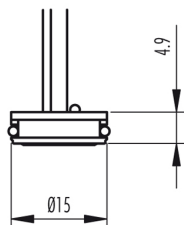


Fig. 1
TD15 with flush diaphragm

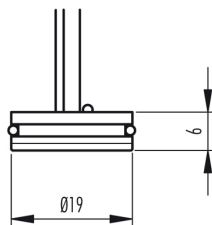


Fig. 2
TD19 with welding ring (frontal)

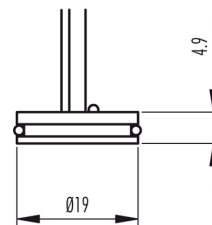


Fig. 3
TD19 with flush diaphragm

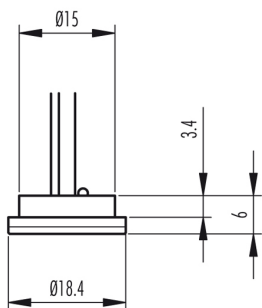


Fig. 4
TD18 with welding ring (frontal)

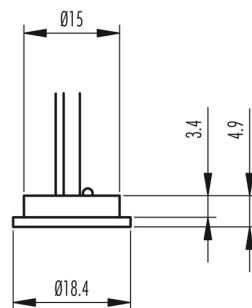


Fig. 5
TD18 with flush diaphragm

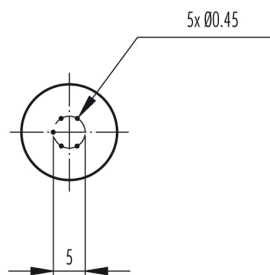


Fig. 6
Pin dimensions

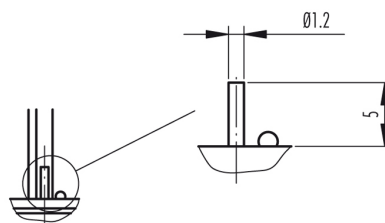


Fig. 7
Vent tube dimensions (optional)

Specifications may change without notice.

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

ST_S China:
ST_S 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

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

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

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

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




SCIGATE
Your Automation Partner

SCIGATE AUTOMATION (S) PTE LTD
No.1 Bukit Batok Street 22 #01-01 Singapore 659592
Tel: (65) 6561 0488 Fax: (65) 6562 0588
Email: sales@scigate.com.sg Web: www.scigate.com.sg
Business Hours: Monday - Friday 8.30am - 6.15pm