

## 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





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Business Hours: Monday - Friday 8.30am - 6.15pm

#### 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), (± % FS)	≤ 0.5	≤ 0.5 / ≤ 0.25	≤ 0.5 / ≤ 0.25
Thermal shift, (6) (± % FS/°C)			
Zero point 0 70°C	≤ 0.06	≤ 0.03	≤ 0.015
Zero point -25 85°C	≤ 0.08	≤ 0.04	≤ 0.02
Span 0 70°C	≤ 0.015	≤ 0.015	≤ 0.015
Span -25 85°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 (≤ 850 / ≤ 1500 bar)	1500 bar
Burst pressure, (4)	> 850 / ≤ 1500 bar	> 1500 bar
Accuracy, (5), (± % FS)	≤ 0.5 / ≤ 0.25	≤ 1.0 / ≤ 0.5
Thermal shift, (6) (± % FS/°C)		
Zero point 0 70°C	≤ 0.015	≤ 0.015
Zero point -25 85°C	≤ 0.02	≤ 0.02
Span 0 70°C	≤ 0.015	≤ 0.015
Span -25 85°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 kΩ	
Frequency range	≥ 10 kHz	
Natural frequency (typ.)	≥ 10 kHz	
Circuit	+IN (C) +OUT (B) -IN (A) (C) +OUT (D) (D)	
Electrical connections	$ \begin{array}{c} C\\ B \bullet \bullet \bullet D\\ A \bullet \bullet E\\ \end{array} $	

(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 $\Omega$ resistor).
RE	Resistor for compensation of the temperature coefficient of the sensitivity. This resistor has a standard value of 9.4 k $\Omega$ .
R5	Potentiometer for the zero- adjustment (recommended value: 100 Ω).
Current excitation	
Voltage excitation	$\begin{array}{c c} & & & \\ & & & \\ & & & \\ R1 \\ & & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & & \\ R1 \\ & & \\ R2 \\ & & \\ R1 \\ & \\$

## QUALIFICATIONS

Vibration

> 30 G

### 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

ID       10         Gauge       Absolute (vacuum)         Sealed gauge       50 mbar < 100 mbar         100 mbar < 100 mbar       100 mbar         100 mbar < 600 bar          > 600 bar          > 600 bar          2 15 mm with flush diaphragm (> 1 bar), (Fig.1)          2 15 mm with flush diaphragm (> 1 bar), (Fig.1)          2 19 mm with welding ring, (Fig. 2)          2 19 mm with flush diaphragm, (Fig. 3)          3 18.4 mm with welding ring, (Fig. 4)          3 18.4 mm with flush diaphragm, (Fig. 5)					
Gauge Absolute (vacuum) Sealed gauge 50 mbar < 100 mbar 100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment 20 15 mm with flush diaphragm (> 1 bar), (Fig.1) 20 19 mm with flush diaphragm (> 1 bar), (Fig. 1) 20 19 mm with flush diaphragm, (Fig. 2) 20 19 mm with flush diaphragm, (Fig. 3) 20 18.4 mm with welding ring, (Fig. 4)	1	XX XX XX 99 60			
Absolute (vacuum) 56aled gauge 50 mbar < 100 mbar 100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment 2 15 mm with flush diaphragm (> 1 bar), (Fig.1) 2 19 mm with welding ring, (Fig. 2) 2 19 mm with flush diaphragm, (Fig. 3) 2 18.4 mm with welding ring, (Fig. 4)	2	XX XX XX 99 60			
Absolute (vacuum) 56aled gauge 50 mbar < 100 mbar 100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment 2 15 mm with flush diaphragm (> 1 bar), (Fig.1) 2 19 mm with welding ring, (Fig. 2) 2 19 mm with flush diaphragm, (Fig. 3) 2 18.4 mm with welding ring, (Fig. 4)	2	XX XX XX 99 60			
50 mbar < 100 mbar 50 mbar < 100 mbar 100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment 20 15 mm with flush diaphragm (> 1 bar), (Fig.1) 20 19 mm with welding ring, (Fig. 2) 20 19 mm with flush diaphragm, (Fig. 3) 20 18.4 mm with welding ring, (Fig. 4)	_	XX XX XX 99 60			
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100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1) Ø 19 mm with welding ring, (Fig. 2) Ø 19 mm with flush diaphragm, (Fig. 3) Ø 18.4 mm with welding ring, (Fig. 4)		XX XX 99 60			
100 mbar 600 bar > 600 bar Negative ranges, offset, special adjustment Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1) Ø 19 mm with welding ring, (Fig. 2) Ø 19 mm with flush diaphragm, (Fig. 3) Ø 18.4 mm with welding ring, (Fig. 4)		XX XX 99 60			
<ul> <li>&gt; 600 bar</li> <li>Negative ranges, offset, special adjustment</li> <li>Ø 15 mm with flush diaphragm (&gt; 1 bar), (Fig.1)</li> <li>Ø 19 mm with welding ring, (Fig. 2)</li> <li>Ø 19 mm with flush diaphragm, (Fig. 3)</li> <li>Ø 18.4 mm with welding ring, (Fig. 4)</li> </ul>		XX 99 60			
Negative ranges, offset, special adjustment Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1) Ø 19 mm with welding ring, (Fig. 2) Ø 19 mm with flush diaphragm, (Fig. 3) Ø 18.4 mm with welding ring, (Fig. 4)		99 60			
Ø 15 mm with flush diaphragm (> 1 bar), (Fig.1) Ø 19 mm with welding ring, (Fig. 2) Ø 19 mm with flush diaphragm, (Fig. 3) Ø 18.4 mm with welding ring, (Fig. 4)		60			
<ul> <li>Ø 19 mm with welding ring, (Fig. 2)</li> <li>Ø 19 mm with flush diaphragm, (Fig. 3)</li> <li>Ø 18.4 mm with welding ring, (Fig. 4)</li> </ul>					
<ul> <li>Ø 19 mm with welding ring, (Fig. 2)</li> <li>Ø 19 mm with flush diaphragm, (Fig. 3)</li> <li>Ø 18.4 mm with welding ring, (Fig. 4)</li> </ul>					
Ø 19 mm with flush diaphragm, (Fig. 3) Ø 18.4 mm with welding ring, (Fig. 4)		63			
Ø 18.4 mm with welding ring, (Fig. 4)					
		64			
ð 18.4 mm with flush diaphragm, (Fig. 5)	-	67			
		68			
Customized		99			
5 gold plated pins, (Fig. 6)			30		
Silicone wires 50 mm			33		
Silicone wires 100 mm			98		
Customized			99		
D to mV (according to specifications)			98		
≤ ± 0.5 % FS (> 600 bar ≤ ± 1% FS)				0	
≤ ± 0.25 % FS				1	
≤ ± 0.1 % FS (on request)				2	
0 70°C compensated				0	
	_			_	
allowed process temperature: -40 150°C)				7	
-25 85°C compensated allowed process temperature: -40 150°C)				5	
Customized				9	
Special oil filling: Anderol Food for food applications)					G
Special oil filling: AS 100					]
					Q
Vent tube, (Fig. 7)					P
Seals: Viton (Standard)					U
				-	S
	5 gold plated pins, (Fig. 6) 5 gold plated pins, 100 mm 5 ustomized 5 to mV (according to specifications) 5 ± 0.5 % FS (> 600 bar ≤ ± 1% FS) 5 ± 0.25 % FS 5 ± 0.25 % FS 5 ± 0.1 % FS (on request) 5 100°C compensated allowed process temperature: -40 150°C) 25 85°C compensated allowed process temperature: -40 150°C) 25 85°C compensated allowed process temperature: -40 150°C) 25 85°C compensated allowed process temperature: -40 150°C) 5 gpecial oil filling: Anderol Food for food applications)	Customized5 gold plated pins, (Fig. 6)Silicone wires 50 mmSilicone wires 100 mmCustomized0 to mV (according to specifications) $5 \pm 0.5 \%$ FS (> 600 bar $\leq \pm 1\%$ FS) $5 \pm 0.25 \%$ FS $5 \pm 0.1 \%$ FS (on request) $5 \pm 0.1 \%$ FS (on request) $5 \pm 0.1 \%$ FS (on request) $5 \pm 0.10^{\circ}$ C compensated allowed process temperature: -40 150°C) $25 100^{\circ}$ C compensated allowed process temperature: -40 150°C) $25 85^{\circ}$ C compensated allowed process temperature: -40 150°C) $70^{\circ}$ C compensated allowed process temperature: -40 150°C) $70^{\circ}$ C compensated allowed process temperature: -40 150°C) $70^{\circ}$ C compensated allowed process temperature: -55 150°C) $70^{\circ}$ C compensated suitable for media temp55 150°C) $70^{\circ}$ C compensated suitable for media	Customized       99         Sig gold plated pins, (Fig. 6)       99         Silicone wires 50 mm       90         Silicone wires 100 mm       90         Customized       90         D to mV (according to specifications)       90         Site to m	Lustomized995 gold plated pins, (Fig. 6)305 illicone wires 50 mm335 illicone wires 100 mm98Customized990 to mV (according to specifications)985 ± 0.5 % FS (> 600 bar ≤ ± 1% FS)985 ± 0.5 % FS985 ± 0.5 % FS985 ± 0.1 % FS (on request)980 n0°C compensated allowed process temperature: -40 150°C)9825 100°C compensated allowed process temperature: -40 150°C)9825 85°C compensated allowed process temperature: -40 150°C)9825 85°C compensated allowed process temperature: -40 150°C)9825 85°C compensated allowed process temperature: -40 150°C)9826 100°C compensated allowed process temperature: -40 150°C)9826 100°C compensated allowed process temperature: -40 150°C)9826 100°C compensated allowed process temperature: -40 150°C)9827 100°C compensated allowed process temperature: -40 150°C)9828 100°C compensated allowed process temperature: -40 150°C)9829 100°C compensated allowed process temperature: -40 150°C)9829 100°C compensated allowed process temperature: -40 150°C)9829 100°C compensated allowed process temperature: -40 150°C)9820 100°C compensated allowed process temperature: -40 150°C)9820 100°C compensated allowed process temperature: -40 150°C)9820 100°C	Lustomized99a gold plated pins, (Fig. 6)30b gold plated pins, (Fig. 6)33b gold plated pins, (Fig. 6)33b gold plated pins, (Fig. 6)33b gold plated pins, (Fig. 6)98Customized99customized99customized99customized98customized98customized98customized98customized98customized98customized98customized98customized98customized98customized98customized0customized0customized0customized9customized

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

#### Dimensions

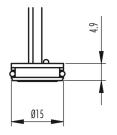


Fig. 1 TD15 with flush diaphragm

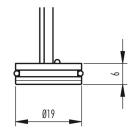


Fig. 2 TD19 with welding ring (frontal)

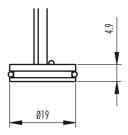


Fig. 3 TD19 with flush diaphragm

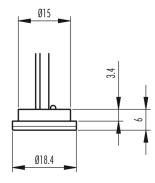


Fig. 4 TD18 with welding ring (frontal)

5x Ø0.45

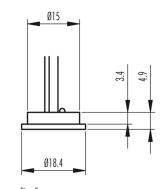


Fig. 5 TD18 with flush diaphragm



Fig. 6 Pin dimensions

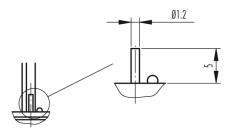


Fig. 7 Vent tube dimensions (optional)