**Piezoresistive OEM Pressure Transducers**

**Sealed Gauge, Absolute, Vented Gauge, Differential**

The Series 9 pressure sensor is the most economic version for pressure ranges from 100 mbar to 200 bar. The standard version is supplied with connecting pins (leadouts are fitted only on request) and the serial number is not engraved.

A high-sensitivity piezoresistive silicon chip is used for pressure sensing. The chip is protected against ambient influences by a stainless steel housing sealed with a concentrically corrugated diaphragm. The housing is filled with silicone oil for the transfer of the pressure from the diaphragm to the sensing component.

All metal parts in contact with the pressure media are made of stainless steel 316 L. The fully welded housing is vacuum-tight. The connecting pins allow direct PCB mounting or can be used for connecting cables.

**Typical Applications:** Measurement of altitude, aviation electronics, meteorology, servo controls, robotics, hydraulics, sanitary and pharmaceutical engineering, underground mining, injection engineering…

**Rugged, Small Dimensions, Light Weight**

The piezoresistive chip immersed in silicone oil is welded into a housing made of stainless steel 316L. Diameter 19 mm; Height 5 mm; Weight 8 grammes.

**High Sensitivity**

A nominal signal of 200 mV is obtained at a supply current of 1 mA for standard pressure ranges above 2 bar.

**Ranges from 0,1 to 200 bar**

Absolute pressure, sealed gauge, differential, barometric, vented gauge and wet/wet differential.

**Quality**

Each pressure transducer is subjected to comprehensive tests for its pressure response and temperature characteristics, and is delivered with an individual calibration certificate stating the characteristics as well as the results of all tests which were performed. Special testing is available if demanded by the customer.

The Series 9 can also be delivered with a laser welded media isolation diaphragm (see data sheet Series 3 L - 10 L). The technique for laser welding stainless steel diaphragms further improves the resistance against crevice corrosion and still retains all the traditional performance, stability and quality for which KELLER is renowned.
Specifications

**Standard Pressure Ranges (FS)**

<table>
<thead>
<tr>
<th>PR-9</th>
<th>PD-9</th>
<th>PAA-9</th>
<th>PA-9</th>
</tr>
</thead>
<tbody>
<tr>
<td>-1</td>
<td>0.1</td>
<td>0.1</td>
<td>1</td>
</tr>
<tr>
<td>-0.5</td>
<td>0.2</td>
<td>0.2</td>
<td>2</td>
</tr>
<tr>
<td>-0.1</td>
<td>0.5</td>
<td>0.5</td>
<td>10</td>
</tr>
<tr>
<td>1</td>
<td>2</td>
<td>2</td>
<td>20</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>5</td>
<td>10</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

**Signal Output typ.** @ 1 mA

<table>
<thead>
<tr>
<th>Signal Output typ. * @ 1 mA</th>
</tr>
</thead>
<tbody>
<tr>
<td>100</td>
</tr>
<tr>
<td>Overpressure</td>
</tr>
<tr>
<td>-1</td>
</tr>
<tr>
<td>PD, neg. Overpressure [-]</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>PD, Line Pressure</td>
</tr>
<tr>
<td>≤ 100 bar</td>
</tr>
</tbody>
</table>

**Bridge Resistance @ 25 °C**

3.5 kΩ ± 20%

**Constant Current Supply**

1 mA nominal 3 mA max.

**Isolation @ 500 VDC**

100 MΩ

**Storage-/ Operating Temperature**

-20...-100 °C optional -55...150 °C

**Kompensierter Bereich**

-10...-80 °C (1)

**Vibration (20 up to 5000 Hz)**

20 g

**Endurance @ 25 °C**

> 10 Mio. FS Cycles

**Housing and Diaphragm**

Stainless steel, AISI 316 L

**Seal Ring**

Viton® (1), Ø 17 x 1 mm

**Oil Filling**

Silicone Oil (1)

**Weight**

8 g (PA/PAA/PR), 15 g (PD)

**Dead Volume Change @ 25 °C**

< 0.1 mm³ / FS

**Electrical Wires (optional)**

0.09 mm² (12 x Ø 0.1 mm), silicone sheathed Ø 1.2 mm, Length: 7 cm / 10 cm (PD) (1)

**Accuracy (2)**

0.5 % FS typ., 1 % FS max.

**Offset at 25 °C**

< 5 mV (compensatable with Rs of 20 Ω) (2)

**Temperature Coefficient**

0...50 °C -10...80 °C -55...150 °C

- Zero max. 0.025 mV/°C 0.05 mV/°C 0.075 mV/°C
- Sensitivity typ. (4) 0.02 %/°C 0.05 %/°C 0.07 %/°C

**Long Term Stability typ.**

0.5 mV 0.75 mV 1.25 mV

**Line Pressure Influence**

< 0.0125 mV/bar (PD 9)

**Natural Frequency (Resonance)**

> 30 kHz

The sensor characteristics may be influenced by installation conditions. Please follow the installation instructions on our product-specific web pages.

(1) Others on request.
(2) Including linearity, hysteresis and repeatability. Linearity calculated as best straight line through zero.
(3) Zero offset, in mV, with calculated compensation resistors
(4) Zero offset, in mV, with calculated compensation resistors (for factory computation only)
(5) Temperature zero error, in mV, with compensation resistors fitted
(6) Compensation resistor values R1 / R2 and R3 / R4 fitted (line adjustment of zero with Rs (potted sensor))
(7) Ambient pressure, zero reference for absolute sensors < 20 bar
(8) Sensitivity of pressure sensor
(9) Pressure test points
(10) Offset at pressure test points
(11) Linearity (best straight line)
(12) Results of long term stability
(13) Lot (on request, identification of silicon chip)
(14) Voltage insulation test
(15) Excitation (constant current)
(16) Date of test ------- Test equipment

**Options**

- Platinum- or Hastelloy C-276 diaphragm. Transducer all Hastelloy C-276
- Flush diaphragm
- Oil for low temperatures. Fluorinated oil. Olive oil
- Special characteristics: Linearity, overpressure, lower TC-zero and/or TC-sensitivity
- All pressure ranges between 0.1 and 200 bar
- Compensation PCB fitted
- Mathematical modelling: See data sheet Series 30 X