Miniature Pressure Transducer
Model 81530

Application
This transducer is really versatile thanks to its flush-mounted front diaphragm and small size. Whether used for measurements in the food industry or engineering sector, it is equally at home in high-viscosity fluids as it is in corrosive liquids and gases. Its excellent dynamic response means that the transducer can also measure very rapid changes in pressure.

Areas of use:
► Plastics industry
► Aerospace engineering
► Chemicals industry
► Test station construction
► Biotechnology

Description
The diaphragm, body and bayonet connector form a single unit in this miniature pressure transducer. The thin diaphragm fabricated from a single piece with clamping ring, and the connector, are welded to the sensor body to provide a hermetic seal. Pressures are measured with respect to a sealed atmosphere of approximately 1 bar as reference pressure (kind of measurement: absolute pressure measurements). The screw thread of the pressure transducer ends in an O-ring groove, sealed by a rubber, plastic or metal O-ring according to the pressure range and medium.

- Measuring ranges between 0 ... 1 bar and 0 ... 1000 bar
- Flush-mounted diaphragm
- Temperature range up to 200 °C
- Suitable for static and dynamic measurements
- Made of stainless steel
- Reliable and robust
- Protection class IP68
### Technical Data

#### Electrical values
- Output resistance: foil strain gauge 350 Ω, nominal
- Excitation voltage: 5 VDC or AC
- Output signal: refer to table

#### Environmental conditions
- Limit temperature range: -55 °C ... 200 °C
- Nominal temperature range: 15 °C ... 150 °C
- Influence of temperature on zero: refer to table
- Influence of temperature on sensitivity: refer to table

#### Mechanical values
- Kind of measurement: absolute (reference 1 bar)
- Error of non-linearity and hysteresis:
  - measuring range ≤ 0 ... 5 bar: ± 1.3 % F.S.
  - measuring range ≥ 0 ... 10 bar: ± 1.0 % F.S.
- Error of variation:
  - measuring range ≤ 0 ... 5 bar: ± 0.3 % F.S.
  - measuring range ≥ 0 ... 10 bar: ± 0.1 % F.S.
- Change in volume: negligibly small
- Overload: 50 % over capacity
- Burst pressure: 400 % over capacity
- Natural Frequency:
  - measuring range 0 ... 5 bar: approx. 35 kHz
  - measuring range 0 ... 50 bar: approx. 100 kHz
  - measuring range 0 ... 500 bar: approx. 200 kHz
- Dynamic performance: recommended maximum 70 % of capacity, 100 % of capacity
- Design: flush-mounted, welded diaphragm
- Material: stainless steel 17-4 PH (like 1.4542)
- Pressure connection: external thread M 12 x 1,75
- Mounting torque: max. 5 Nm
- Wrench size: 19 mm
- Electrical connection:
  - 6 pin bayonet plug-in connector Souriau 851 07A 10 - 6P
  - Mating connector: model 9945
  - Amphenol 62 GB-16F-10-6S or Souriau 851-06E-C-10-6S usable up to 120 °C, included in scope of delivery
- Dimensions:
  - see scale drawing
- Weight: approx. 40 g
- Protection class acc. to EN 60529: IP68
- Wiring code: 81530 EN -2

### Table: Electrical values

<table>
<thead>
<tr>
<th>Order Code</th>
<th>Measuring Range</th>
<th>Nominal Sensitivity*</th>
<th>Influence of Temperature to zero [% F.S./K]</th>
<th>Influence of Temperature to Sensitivity [% Rdg./K]</th>
</tr>
</thead>
<tbody>
<tr>
<td>81530-1</td>
<td>0 ... 1 bar</td>
<td>0.3 mV/V</td>
<td>&lt; ± 0.18</td>
<td>&lt; ± 0.24</td>
</tr>
<tr>
<td>81530-2</td>
<td>0 ... 2 bar</td>
<td>0.6 mV/V</td>
<td>&lt; ± 0.10</td>
<td>&lt; ± 0.14</td>
</tr>
<tr>
<td>81530-5</td>
<td>0 ... 5 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.04</td>
<td>&lt; ± 0.05</td>
</tr>
<tr>
<td>81530-10</td>
<td>0 ... 10 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-20</td>
<td>0 ... 20 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-50</td>
<td>0 ... 50 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-100</td>
<td>0 ... 100 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-200</td>
<td>0 ... 200 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-500</td>
<td>0 ... 500 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
<tr>
<td>81530-1000</td>
<td>0 ... 1000 bar</td>
<td>1.5 mV/V</td>
<td>&lt; ± 0.02</td>
<td>&lt; ± 0.04</td>
</tr>
</tbody>
</table>

* Deviations from the stated value are possible. Please refer to the calibration protocol for more accurate values.

#### Accessories
- Welding sleeve with O-ring nut, material 17 - 4 PH, length 20 mm
  - Model 82996
- Mating connector usable up to 175 °C
- Model 9990-V544
- 6 pin socket with strain relief
- Model 9990
- Connecting cable usable up to 175 °C
- Model 99544-000A-0170030
- Open, color coded and tinned cable ends, length 3 m
- Model 99544-000A-0170030
- O-ring 12.8 x 1.8, usable up to 200 °C
  - Model 81530-Z001

#### Test and Calibration Certificate
- Included in delivery, et al. with specification of zero output, sensitivity and shunt calibration factor.

#### Factory Calibration Certificate (WKS)
- Calibration of a pressure transducer separately as well as connected to an indicator. Standard is a certificate with 11 points, starting at zero, running up and down in 20% increments and covering the complete measuring range. Special calibrations on request. Calculation of costs by base price plus additional costs per point.
- Order Code 81WKS-81XX