

Miniature Pressure Transducer

Model 81530

Code:	81530 EN
Delivery:	ex stock
Warranty:	24 months



- Measuring ranges between 0 ... 1 bar and 0 ... 1000 bar
- Diaphragm at front side
- Temperature range up to 200 °C
- Suitable for static and dynamic measurements
- Made of stainless steel
- Reliable and robust

Application

Thanks to its compact size and rugged construction with front end diaphragm, this miniature pressure transducer can be used anywhere. Made of stainless steel and hermetically sealed, it is particularly suitable for use under harsh environmental conditions, for corrosive, viscous, liquid and gaseous media and for measurements on hydraulic systems in both damp and wet atmospheres.

The high resonance frequency of the transducer means that it can be used under the severest conditions e.g. in explosion tests and aerospace applications. It is very easy to install this transducer with no dead volume to distort the measurement result. A weldable coupler is available for these installation situations.

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. A four-legged film strain gauge bridge is applied to the rear diaphragm face, which is the sensor element of the transducer. Pressures are measured with respect to a sealed atmosphere of approximately 1 bar as reference pressure.

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. It is not permitted to have a seal directly against the front diaphragm. There is an O-ring inside the electrical plug-in connector. If a special watertight connector is used, the transducer can also be deployed in damp and wet environments.

Technical Data

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

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

Electrical values

Output resistance: foil strain gauge 350 Ω, nominal
 Excitation voltage: 5 V DC or AC
 Output signal: refer to table

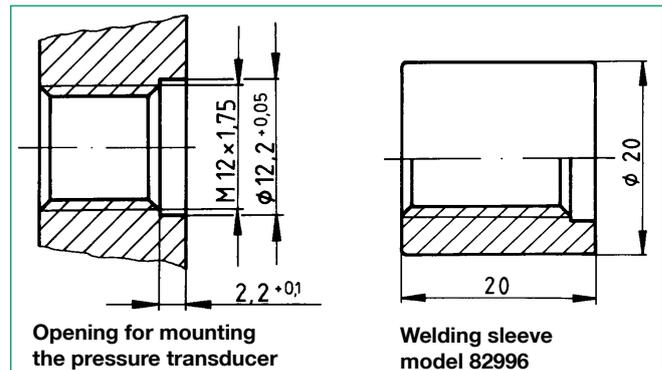
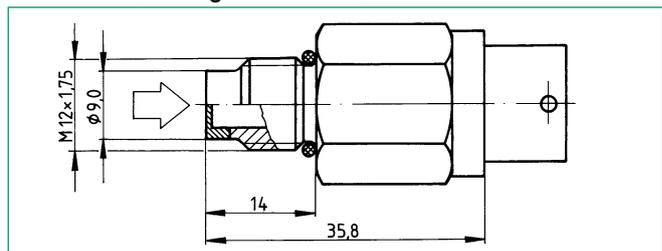
Environmental conditions

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 pressure measurement (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 70 % of capacity
 maximum 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
 Wiring code:
 pins A + B excitation voltage positive
 pins C + D excitation voltage negative
 pin E signal output negative
 pin F signal output positive
 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

Dimensional drawing model 81530



Accessories

Welding sleeve with O-ring nut, material 17 - 4 PH, length 20 mm **Model 82996**
 Mating connector usable up to 175 °C, 6 pin socket with strain relief **Model 9900-V544**
 Connecting cable usable to 175 °C for burster desktop devices with 12 pin connector, length 3 m **Model 9990**
 Connection cable (standard) for connection to burster desktop devices **Model 9911**
 Connecting cable usable to 175 °C, open, color coded and tinned cable ends, length 3 m **Model 99544-000A-0170030**
 O-ring 12.8 x 1.8, usable to 200 °C, 1 exemplar is included in scope of delivery **Model 81530-Z001**
 Evaluation electronics, amplifiers and process control units **refer to section 9 of the catalog**

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-81...