

# High Pressure Transducer

## Model 8221

Code:	8221 EN
Delivery:	ex stock
Warranty:	24 months



**Resistant to shock  
and vibration**

- Measuring ranges from 0 ... 1000 bar to 0 ... 5000 bar
- Accuracy  $\leq 0.2\%$  F.S.
- Medium temperature range from  $-30\text{ }^{\circ}\text{C}$  ...  $120\text{ }^{\circ}\text{C}$
- Ideal for dynamic measurements
- Protection class IP66
- Digital calibration with the option of integrated instrumentation amplifier

### Application

The reliability and safety of a sensor is extremely important, particularly in high-pressure applications such as water-jet cutting equipment and hydraulic circuits. The dynamic loading encountered in these applications requires the use of sensors that are specially adapted for high pressure ranges. It is exactly these tough requirements that are satisfied by the model number 8221 sensor. With dynamic pressures, for example, an unlimited number of measurements can be taken if the pressure lies within the range from 0 ... 70% full scale.

The strong construction allows liquid or gaseous media to be measured in the laboratory, production department or in mobile hydraulic applications.

Range of applications:

- ▶ Laboratory
- ▶ Production
- ▶ Aeronautical engineering
- ▶ Cutting equipment
- ▶ Hydraulics
- ▶ Test benches

### Description

The monolithic sensor membrane guarantees a high level of precision, reliability and safety, since the medium does not come into any contact with welded seams. Great emphasis has been placed on safety in the mechanical design. It is fitted with relief holes, which permit the measurement of static and dynamic pressures, even under unfavorable environmental conditions.

In order to facilitate the exchange of the sensors without having to recalibrate the following electronics, the sensitivity of the high-pressure sensor is standardized at  $1.0\text{ mV/V}$ . The sensor is fitted with an integrated shunt resistor to enable easy calibration or checking of the subsequent electronics.

In combination with the option of an integrated amplifier (0 ... 10 V, 0 ... 5 V and 4 ... 20 mA) the new, innovative function for digital calibration can be used: All that is necessary is to touch the marked surface of the sensor with the enclosed magnetic pen.

**Technical Data**

Order Code	Measuring Range
8221-6001	0 ... 1000 bar
8221-6002	0 ... 2000 bar
8221-6003	0 ... 3500 bar
8221-6004	0 ... 4000 bar
8221-6005	0 ... 5000 bar

**Electrical values**

Bridge resistance: metal-coated strain gauge 350 Ω, nominal  
 Calibration resistor: integrated in sensor;  
 Activated by bridging pin E and F. The resulting bridge output voltage is shown in the test certificate 80 % F.S. ± 1 %  
 Excitation voltage: 10 ... 15 VDC or AC  
 Nominal sensitivity: 1,0 mV/V ± 1 %  
 Insulation resistance: > 1000 MΩ at 50 V DC

**Environmental conditions**

Range of operating temperature: - 30 °C ... 105 °C  
 Nominal temperature range: - 10 °C ... 85 °C  
 Medium temperature range: - 30 °C ... 120 °C  
 Influence of temperature on zero: ± 0.02 % F.S./K  
 Influence of temperature on sensitivity: ± 0.02 % F.S./K

**Mechanical values**

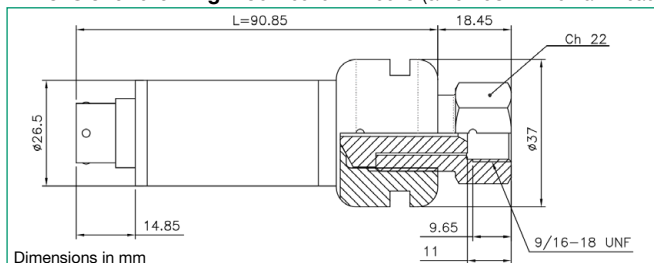
Accuracy: sum of linearity error, hysteresis error and precision error: ≤ 0.2 % F.S.  
 Kind of measurement: against atmosphere (relative)  
 Measuring range: refer to table  
 Dead volume: 74 mm<sup>3</sup>  
 Overload: 100 % over capacity or maximum 6 kbar  
 Burst pressure: 300 % over capacity or maximum 7.5 kbar  
 Resonance frequency: all measuring ranges 2 kHz  
 Dynamic performance recommended: 70 % of capacity  
 maximum: 100 % of capacity  
 Material: Measuring element stainless steel 15-5PH (similar 1.4545)  
 Housing AISI 304  
 Pressure port: autoclave F-250-C; internal thread 9/16 -18 UNF or internal thread M 16 x 1.5  
 Torque assembling: max. 100 Nm  
 Sealing: by metallic cone, 60° sealing cone  
 Electrical connection: 6 pin bayonet model connector or 4 pin M 12 x 1, series 713  
 Dimensions: see technical drawing  
 Weight: approx. 350 g  
 Protection class: acc. to EN 60529 IP66  
 Resistance to shock meeting IEC 60068-2-27: 100 g/11 msec  
 Resistance to vibration meeting IEC 60068-2-6: max. 20 g at 10 ... 2000 Hz

**Technical Data of the Internal Amplifier**

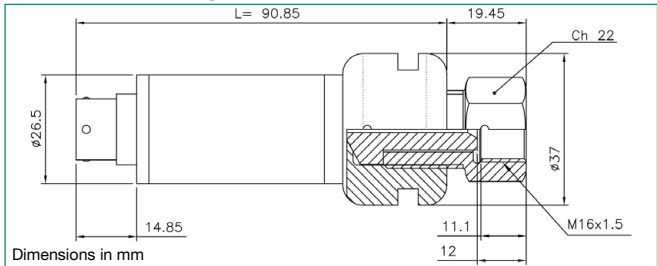
	Voltage output	Current output
Excitation	15 ... 30 VDC	10 ... 30 VDC
Power input	max. 13 mA	max. 32 mA
Wiring technology	4-wire	2-wire
Load impedance	-	500 Ω
Nominal temperature ranges	- 10 °C ... 85 °C	
Operating temperature	- 30 °C ... 85 °C	
Maximum response time (0-90 % F.S.)	< 1 ms	
Protection against short-circuit and polarity	yes	

Digital calibration function --> see manual

**Dimensional drawing 1 Connection F-250-C (9/16-18UNF internal thread)**



**Dimensional drawing 2 Connection M 16 x 1.5 internal thread**



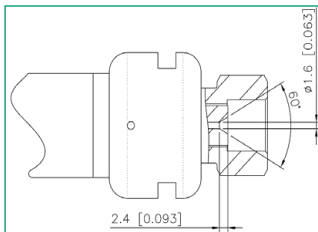
The CAD drawing (3D/2D) for this sensor can be imported online directly into your CAD system.

Download via www.burster.com or directly www.traceparts.com. For further information about the burster traceparts cooperation refer to data sheet 80-CAD-EN.

Wiring code:

Pin	Without amplifier	With amplifier	
		Voltage output	Current output
A	Signal +	Signal +	Connection for +
B	Signal -	Signal -	Connection for -
C	Excitation +	Excitation +	NC
D	Excitation -	Excitation -	NC
E	Calibration shunt	Calibration *	Calibration *
F	Calibration shunt	Calibration *	Calibration *

\* see manual



Detail of sealing cone

**Accessories**

Connecting cable for sensors without amplifier, bending radius > 5 mm, PVC insulation, shielded, length 3 m  
 for burster bench-top units other than 9163 **99141-545H-0160030**  
 to 9163, 9235 or 9311 **99209-545B-0160030**  
 with open, color-coded and tinned cable ends **99545-000G-0160030**  
 to 7281 with burster TEDS **99229-545B-0160030**  
 Mating connector bayonet (included in delivery) **9945**  
 Mating connector M 12 x 1, series 713 **9900-V624**  
 Connecting cable with coupling socket M12 x 1, series 713, shielded, bending radius > 5 mm, PVC insulation, standard length 5 m with open cable ends **9900-K304**

**Test and Calibration Certificate**

Included in delivery, et al. with specification of zero output, sensitivity and shunt calibration factor.

**Order Code**

High Pressure Transducer	8221-XXXX-V1	
6 pin bayonet model connector	0	
4 pin model connector M 12 x 1, series 713	1	
Without amplifier	0	
Internal amplifier with current output 4 ... 20 mA	3	
Internal amplifier with voltage output 0 ... 5 V	6	
Internal amplifier with voltage output 0 ... 10 V	7	
Internal thread 9/16-18 UNF	0	
Internal thread M 16 x 1.5	1	

**Order Information**

High Pressure Transducer, measuring range 0 ... 2000 bar, internal amplifier with voltage output 0 ... 5 V, M 16 x 1.5 **8221-6002-V1061**  
 without amplifier, 9/16-18 UNF **8221-6002-V1000**

**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 **82WKS-6005**