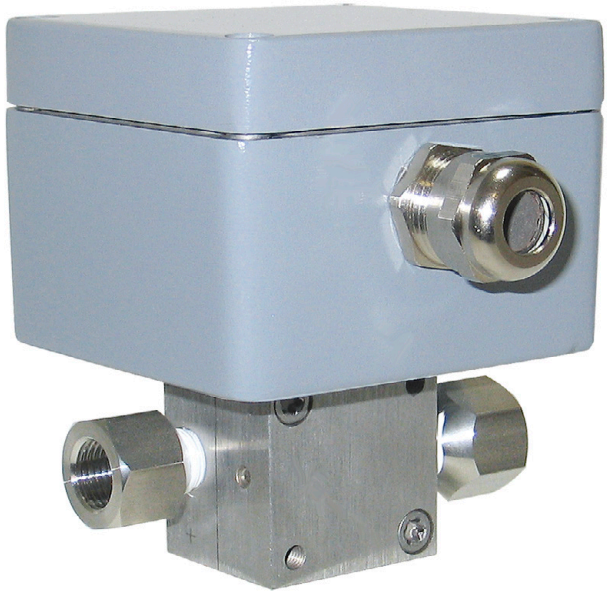
Miniature Differential Pressure Transmitter

Model 8303

Code:	8303 EN
Delivery:	4 - 5 weeks
Warranty:	24 months



8303 EN

- **Measuring ranges from 0 ... ± 50 mbar to 0 ... ± 10 bar**
- **Measurement accuracy < 0.5 %**
- **High line pressure**
- **For liquid or gaseous media**
- **Integrated measurement amplifier**

Application

The pressure transmitter illustrated here measures differences in pressure between the two connections of the measuring element. Pressure differences can be measured with respect to a reference pressure, such as atmosphere, or to the command variable of a regulation system. Equally, however, it is possible to measure pressure differences within systems that have a high static pressure. One practical example of this would be measuring a flow rate by determining the pressure drop occurring across a metering diaphragm.
The differential pressure transmitter measures in both directions and can therefore, for instance, be used on double-acting hydraulic cylinders. Its construction permits it to be used with liquid or gaseous media. Venting holes simplify installation. The robust design and the use of stainless steel make it possible to use the pressure transmitter under tough operating conditions.
It is fitted with integrated electronics to make the pressure transmitter even easier to use. This delivers the usual current or voltage outputs familiar in measurement and control engineering.

Description

The differential pressure transmitter has a chamber on each pressure port. The chambers are separated by a diaphragm. Coils are located, and hermetically sealed, within the two halves of the sensor housing on both sides of the diaphragm. If there is a difference in the pressures on the two sides of the center element, the diaphragm is deflected from its rest position. As a result, the reluctance of the two coils, which are wired as differential inductances, changes. The integrated electronics converts the changed inductance ratio into the desired output signals, which are then available for further processing.

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Technical Data

Order Code	Measuring Range	Overload one Side [bar]
8303 - 0.05 - ▭	0 ... ± 50 mbar	0.15
8303 - 0.1 - ▭	0 ... ± 100 mbar	0.3
8303 - 0.2 - ▭	0 ... ± 200 mbar	0.6
8303 - 0.5 - ▭	0 ... ± 500 mbar	1.5
8303 - 1 - ▭	0 ... ± 1 bar	3.0
8303 - 2 - ▭	0 ... ± 2 bar	6.0
8303 - 5 - ▭	0 ... ± 5 bar	15.0
8303 -10 - ▭	0 ... ± 10 bar	30.0

▭ Refer to the table below for the output signal codes.

Electrical values

Excitation voltage: 12 ... 30 V DC
Current consumption: load-dependent max. 25 mA
Internal carrier frequency: 5 kHz, ± 20 %
Range of amplification: ± 10 %
Range of zero adjustment: ± 10 %
Variation of output signal at load reversal: < 0.1 % at Δ R_L max
Variation of output signal at change of excitation voltage, between 12 V DC and 30 V DC: < 0.1 %
Rise time: 6 msec for 0 ... 100 %
Ripple of output voltage: 0.05 $\%_{eff}$ F.S.
Capacitive load: < 1 µF
Noise suppression: at 9 ... 32 V < 0.1 % F.S.
Reaction time (0 ... 100 %): 6 ms

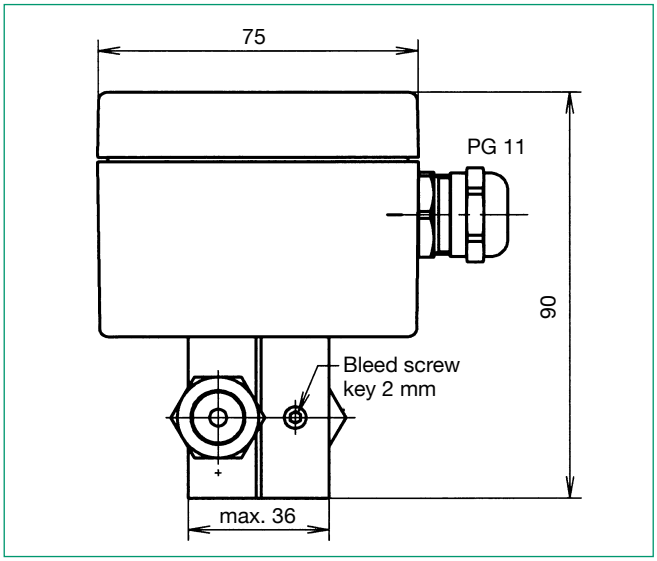
Environmental conditions

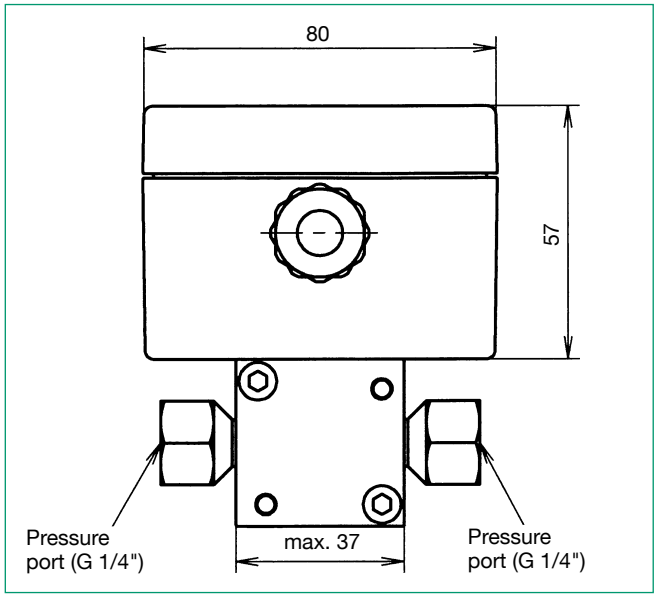
Range of operating temperature: - 25 °C ... 85 °C
Nominal temperature range: 0 °C ... 70 °C
Influence of temperature on zero: < ± 0.05 % F.S./K
Influence of temperature on sensitivity: < ± 0.05 % Rdg./K

Mechanical values

Kind of measurement: Measurement of differential pressure (both direct.)
Combined error of non-linearity, hysteresis and variation: < ± 0.5 % F. S.
Dead volume: on both sides 0.35 cm^3
Volume change: 0.03 cm^3
Line pressure: max. 100 bar
influence on zero signal (steady) < ± 1.5 % F.S.
Over load: refer to table
influence on zero signal (steady) < ± 0.5 %
Dynamic load:
recommended 70 % of nominal pressure
possible 100 % of nominal pressure
Design:
The pressure chambers are sealed hermetically, the protective membranes are welded.
Material: stainless steel AISI 410 (similar to material 1.4006)
Pressure connection: internal thread G 1/4"
Venting holes:
closed at delivery internal thread M4
Electrical connection:
terminal strip for max. wire cross-section 1.5 mm^2
wire cross-section 5 ... 10 mm
Wiring code: refer to diagram in housing
Dimensions: refer to dimensional drawing
Weight: 750 g
Protection class: IP65

Dimensional drawing model 8303





Order Information

Miniature differential pressure transmitter **Model 8303-0.5-D1**
Range 0 ... ± 500 mbar, analog output 0 ... ± 2.5 V for 0 ... ± 500 mbar.

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 83WKS-83...

...	A	B	BA	C	A1	B1	BA1	C1	D1
- End of Measuring Range	-	-	-	-	4 mA	0 mA	4 mA	0 V =	- 2.5 V =
0 bar	4 mA	0 mA	4 mA	0 V =	12 mA	10 mA	12 mA	2.5 V =	0 V =
+ End of Measuring Range	20 mA	20 mA	20 mA	5 V =	20 mA	20 mA	20 mA	5 V =	+ 2.5 V =
Number of Wires	2	3	3	4	2	3	3	4	3 oder 4
Load Resistance R_L	500 Ω at 20...30 V	< 700 Ω	< 700 Ω	> 5 kΩ	500 Ω at 20...30 V	< 700 Ω	< 700 Ω	> 5 kΩ	> 20 kΩ

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