

Pressure Transducer/Pressure Transmitters

Models 8103, 8106, 8107

Code:	8103 EN
Delivery:	2 - 3 weeks
Warranty:	24 months



Model 8103

Model 8106, 8107

- Measuring ranges between 0 ... 5 bar and 0 ... 1000 bar
- Accuracy < 0.5 %
- Flush mounted diaphragm
- Made of titanium
- Output 4 ... 20 mA available
- Not magnetic

Application

These transducers can be used anywhere thanks to their small size. The construction principle of a flush front diaphragm means they are particularly suitable for applications in which a dead volume is unacceptable, or only a very small dead volume can be tolerated.

Another suitable use is in environments where the nature of the medium makes a measurement chamber unsuitable e.g. in the food industry or chemical engineering. With a choice of threaded and welded adapters available, the range of applications can be widened still further.

Description

These pressure transducers are made entirely of titanium. The diaphragm used as the sensor element is fashioned from the solid material, and strain gauges are applied to its inner face. These convert the displacement of the diaphragm into a change in electrical resistance, which can be amplified, measured and processed by built-in or external electronic circuitry.

The transducers come in a choice of measuring ranges: the gauge sensor (measurements with respect to atmospheric pressure) is available in ranges up to 0 ... 20 bar, and the sealed sensor (measurements with respect to a sealed atmosphere) for the 0 ... 50 bar range upwards.

Their outstanding properties include excellent resistance to corrosion, extremely small hysteresis and superb long-term stability plus value for money and high dynamic load performance of up to 10⁸ load changes.

Technical Data

Order Code	* Measuring Range	Resonance Frequency [kHz]
8103-5	0 ... 5 bar	28
8103-10	0 ... 10 bar	28
8103-20	0 ... 20 bar	36
8103-50	0 ... 50 bar	54
8103-100	0 ... 100 bar	77
8103-200	0 ... 200 bar	108
8103-500	0 ... 500 bar	160
8103-1000	0 ... 1000 bar	229

* 0 ... 2 bar only for models 8106 and 8107

Electrical values model 8103

Bridge resistance: foil strain gauge	1000 Ω \pm 0.5 %
Excitation voltage:	5 V, max. 10 V DC or AC
Nominal sensitivity:	
measuring range 0 ... 5 bar	1 mV/V, nominal
measuring range \geq 0 ... 10 bar	2 mV/V, nominal

Electrical values models 8106 and 8107

Excitation voltage:	14 V ... 30 V
Current consumption:	70 mA, max.
Connection technology:	2 wire
Adjustable range of amplification:	75 % ... 125 %
Adjustable range of zero:	\pm 25 %
Cut-off frequency:	(-3 dB) 7 Hz
Load resistor:	at 24 V excitation max. 500 Ω

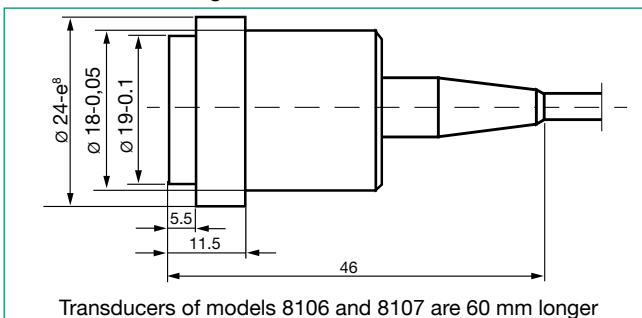
Environmental conditions

Range of operating temperature and nominal temperature:	
model 8103	- 55 °C ... 150 °C
models 8106, 8107	- 25 °C ... 85 °C
Influence of temperature on zero:	
measuring range 0 ... 5 bar	$< \pm$ 0.04 % F.S./K
measuring range \geq 0 ... 10 bar	$< \pm$ 0.02 % F.S./K
Influence of temperature on sensitivity:	$< \pm$ 0.02 % F.S./K

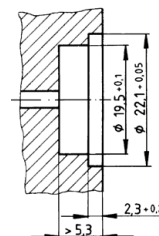
Mechanical values

Total error consisting of non-linearity, hysteresis and variation	$< \pm$ 0.5 % F.S.
Kind of measurement:	
measuring range \leq 0 ... 20 bar	against atmosphere
measuring range \geq 0 ... 50 bar	against sealed atmosphere
Measuring ranges:	refer to table
Overload:	300 % over capacity
Dynamic performance:	
recommended	70 % of capacity
maximum	100 % of capacity
Design:	pressure transducer with flush mounted diaphragm
Material:	diaphragm and housing made of titanium grade 5 (Material 3.7165)
Pressure connector:	refer to accessories, threaded and welding adapter
Sealing:	
The sealing of the transducer is made by an O-ring 18.77 x 1.78 (Shore 90), which is included in scope of delivery. The use of a support ring is recommended for dynamic pressures of above 200 bar.	
Mounting torque:	2 Nm
Electrical connection:	
models 8103, 8106	shielded, Teflon isolated cable, color-coded with open ends for soldering, bending radius $>$ 10 mm, length 2 m
model 8107	6 pin bayonett plug-in connector Souriau 851-07A-10-6P
Wiring code:	
model 8103	red excitation voltage positive
	blue excitation voltage negative
	green signal output positive
	yellow signal output negative
models 8106, 8107	A / red connection positive
	B / black connection negative

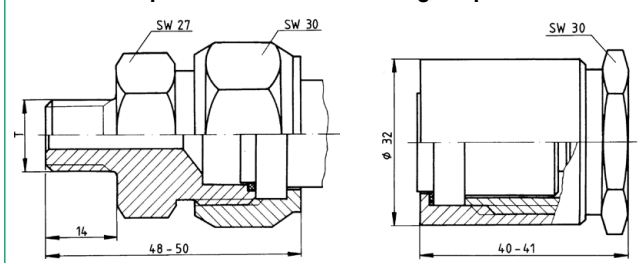
Dimensional drawing



Opening for mounting



Threaded adapter model 82993 Welding adapter model 82997



Mating connector:	model 9945
	Souriau 851-06E-C-10-6S or Amphenol 62 GB-16F-10-6S included in scope of delivery of model 8107
Dimensions:	see dimensional drawing
Weight:	model 8103 40 g
	models 8106, 8107 100 g
Protection class: acc. to EN 60529	model 8103 IP67
	models 8106, 8107 IP65

Order Information

Pressure transducer with cable connection	Model 8103-...
Pressure transducer with cable connection and internal amplifier for 4 ... 20 mA	Model 8106-...
Pressure transducer with plug-in connection and internal amplifier for 4 ... 20 mA	Model 8107-...
Mention measuring range in bar	

Accessories

Threaded adapter with O-ring, material Sandviken 1802 (SIS 2382) with connecting thread T = 1/4", refer to drawing	Model 82993
Welding adapter with O-ring, material 1.4057, refer to drawing	Model 82997
O-ring, Shore 90 A, Nitril Butadin	Model 8103-Z001
Support ring made of polycarbonat	Model 8103-Z002
O-ring PTFE (Teflon)	Model 8103-Z004
Mounting of a connector to the transducer cable	Model 99004

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...