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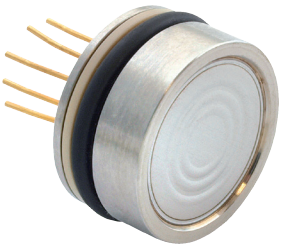
High-Temperature OEM Pressure Transducer Series 7 LI

200 °C / 200…1000 bar



The Series 7 LI OEM pressure transducers, ø 15 mm, are designed for high-pressure and high-temperature applications.

Robust and corrosion-resistant

A high-sensitivity piezoresistive silicon chip is built in as the pressure-sensing element. Pressure is transmitted via an oil filling. The upstream separating diaphragm completely isolates the pressure chip from the medium to be measured.

The fully heat-sealed housing and the laser-welded separating diaphragm are made of Inconel 718, which aside from its strength also guarantees a high resistance to aggressive media.

High sensitivity

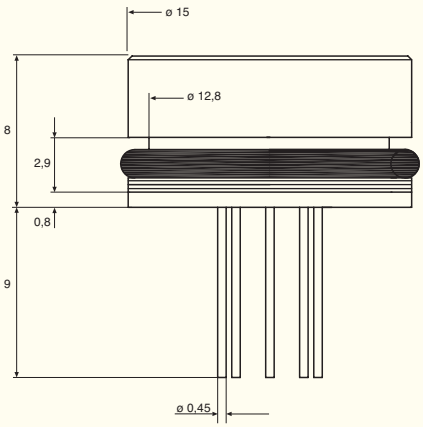
Thanks to the piezoresistive technology, the typical full signal output for all available measuring ranges is 150 mV with a constant current supply of 1 mA.

Flexible use

The absolute pressure transducers are available in four nominal measuring ranges from 200 to 1000 bar, with a maximum permissible operating temperature of 200 °C. The transducer may optionally be provided with an integrated PT100 or PT1000 temperature probe, making independent temperature detection possible.

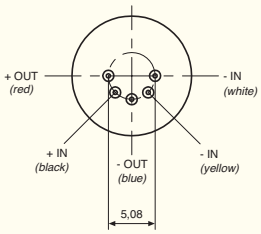
Quality

Each pressure transducer is carefully tested for pressure and temperature properties, and is supplied together with an individual calibration sheet setting out its characteristic values and the results of all tests carried out. Special testing programmes can be carried out on request. For high-precision compensation, a mathematical model can be established over the desired pressure and temperature range.



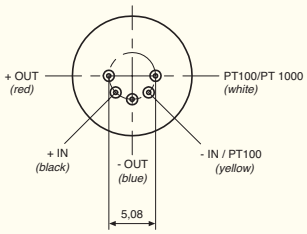
Electrical Connections

5-Pin Transducer



Half-open
measuring bridge

5-Pin Transducer with
Temperature Probe



Closed
measuring bridge

Subject to alterations 06/2016

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Specifications

	Pressure Ranges (FS)				
PA-7 LI / PAA-7 LI	200	400	600	1000	bar
Overpressure	300	600	900	1100	bar

PAA: Absolute. Zero at vacuum PA: Absolute. Zero at 1 bar

Output Signal @ Supply 1 mA	150 mV typ.	
Bridge Resistance @ 25 °C	3,5 kΩ	± 20%
Constant Current Supply	0,5…1,5 mA	
Isolation @ 500 VDC	100 MΩ	
Compensated Range	20…200 °C (1)	
Storage-/Operating Temperature	-40…200 °C	
Vibration (20 to 5000 Hz)	20 g	
Endurance @ 25 °C	> 10 million FS cycles	
Housing and Diaphragm	Inconel 718	
Seal Ring	Viton® (-20…200 °C) (1), Ø 12 x 1,5 mm	
Support Ring	Arlon®, Ø 15 x 12,8 x 0,75 mm	
Oil Filling	Silicone oil (1)	
Weight	≤ 9,2 g	
Dead Volume Change @ 25 °C	< 0,1 mm³ / FS	
Accuracy (2) typ.	0,5 %FS (1)	
Temperature Coefficient	**20...200 °C**	
- Zero max.	0,015 %FS/°C	
- Sensitivity typ. (3)	0,03 %/°C up to 100 °C	
	0,06 %/°C up to 200 °C	
Long Term Stability typ.	0,75 mV	

The sensor characteristics may be influenced by installation conditions. Please follow the installation instructions on our product-specific web pages.

(1) Others on request.

(2) Including linearity, hysteresis and repeatability. Linearity calculated as best straight line through zero.
Note: Generally, accuraand overload is improved by factor of 2 to 4 if the sensor is used in the range of 0...50 %FS.

(3) On request, a maximal TC Sensitivity can be guaranteed or the value for the compensation resistor (Rp) can be indicated.

Options

- Other pressure ranges between 200 and 1000 bar
- Higher pressure ranges on project basis
- Mathematical modelling over desired pressure and temperature range
- Integrated PT100 / PT1000 temperature probe
- Screw-in housing
- Mathematical modelling: See data sheet Series 30 X

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PA-7 LI/1000 bar/81467.08(a) SN 16582I

(b) Temp [°C]	(c) Zero [mV]	(d) +1000 [mV]	(e) Comp [mV]	(f) dZero [mV]
20.0	-1.6	-4.3	-1.6	0.0
50.0	-1.6	-4.8	-1.6	0.0
80.0	-1.6	-5.3	-1.6	0.0
119.9	-1.7	-6.2	-1.7	-0.0
149.7	-1.7	-7.0	-1.7	-0.0
179.4	-1.4	-7.6	-1.4	0.2
199.3	-0.5	-7.2	-0.5	1.2

COMP R1 / R2 open (g) R4 = 0.0 Ohm (g)
ZERO -1.6 mV (h) P_atm 965 mbar (i)
SENS 0.155 mV/bar at 1.000 mA (j)

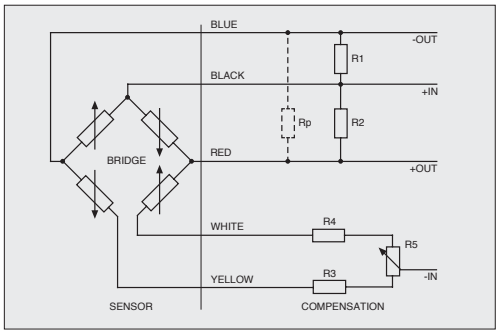
LIN. (k) [bar]	(l) [mV]	(m) Lnorm [%Fs]	(n) Lbfsl [%Fs]
0.000	0.0	0.00	0.20
250.000	38.4	-0.24	-0.10
500.000	77.1	-0.27	-0.20
750.000	116.1	-0.11	-0.11
1000.000	155.4	0.27	0.20

Long Term Stability Ok (o)
Lot C28/64/22 (p)
Test 500 Volt ok (q)
Supply 1.000 mA (r)
14.06.15 (s) ---------- LAB6.E03GkS (s)

Each sensor is delivered with a calibration sheet with the following data:

(a) Type (PA-7 LI) and range (1000 bar) of pressure sensor
(b) Test temperatures
(c) Uncompensated zero offset in mV
(d) Zero offset values, in mV, with resistance R1 (+) or R2 (-), in kΩ (for factory computation only)
(e) Zero offset, in mV, with calculated compensation resistors
(f) Temp. zero error, in mV, with compensation resistors
(g) Compensation resistor values R1 / R2 and R3 / R4
(h) Offset with compensation resistors R1/ R2 and R3 / R4 fitted (fine adjustment of zero with R5 potentiometer)
(i) Ambient pressure, zero reference for absolute sensors < 20 bar
(j) Sensitivity of pressure sensor
(k) Pressure test points
(l) Signal at pressure test points
(m) Linearity (best straight line through zero)
(n) Linearity (best straight line)
(o) Results of long term stability
(p) Lot (on request, identification of silicon chip)
(q) Voltage insulation test
(r) Excitation (constant current)
(s) Date of test --------Test equipment

Remarks:
- The indicated specifications only apply for constant current supply. The sensor should be excited between 0,5 and 1,5 mA. The output voltage is proportional to the current supply (excitation).
- If exposed to extreme temperatures, the compensation resistors should have a temperature coefficient of < 50 ppm/°C.
  Note: Sensor and resistors can be exposed to different temperatures.
- The sensors may be ordered with integrated compensation resistors (surcharge).



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