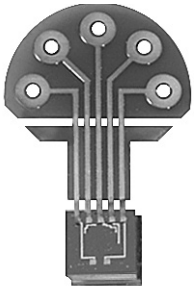
Piezoresistive Low Cost Pressure Sensor

Series 1 TAB

ABSOLUTE PRESSURE

The TAB 1 pressure measuring cells are designed to measure absolute pressures. They are offered in two different version: Version 1 to be soldered on a glass feed through and welded in an oil filled housing as for industrial transmitters. Version 2 can be soldered directly on printed circuit boards of instruments as for the measurement of depths or altitude, where the surrounding pressure is measured.

TAB (Tape Automated Bonding) is a special process for contacting the diffused resistors on the chip. The resistor aluminum contacts are provided with 0,1 mm thick gold bumps. The pretinned ends of the copper strips on the flexible circuit material are soldered to the these goldbumps. Each contact is able to withstand a force of more than 1 Newton. TAB bonded cells withstand extreme conditions in shock or vibration. TAB bonded cells may be surrounded by high viscosity gels or mouldings in water depth instruments without danger of contact braking as with wire bonded cell.

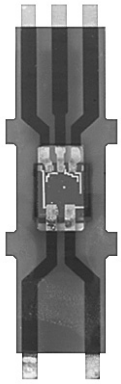


Series 1 TAB: Version 1

Specifications. Excitation I = 4 mA

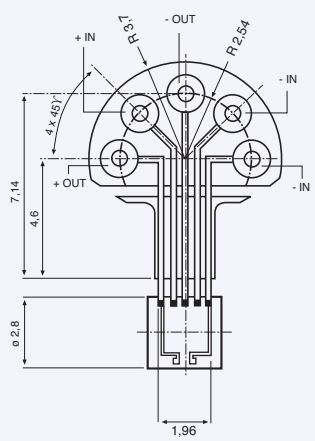
Pressure Ranges (FS)	bar	10	20	50	100	200	400	600
Signal Output typ.	mV	900	900	900	900	900	900	900
Overpressure	bar	20	30	75	150	300	600	800
Bridge Resistance @ 25 °C		3500			± 20%			
Constant Supply	mA	4 nominal			5 max.			
Operating Temperature	°C	-20…100						
Storage Temperature	°C	-40…120						
Material of Flexible Circuit		Polyamide						
Weight		2 g						
Volume Displacement		< 0,1 mm³						
Accuracy [1]	%FS	0,5 typ.			1 max.			
Offset à 25 °C	mV	< 20						
Temperature Error								
– Zero	mV/°C	0,1 typ.			0,2 max.			
– Sensitivity	%/°C	0,02 typ.			0,03 max.			
Long Term Stability typ.	mV	2						
Time Constant	ms	< 1						

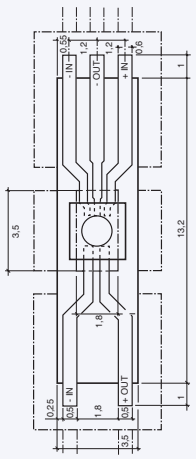
[1] Including linearity, hysteresis and repeatability. Linearity calculated as best straight line through zero.

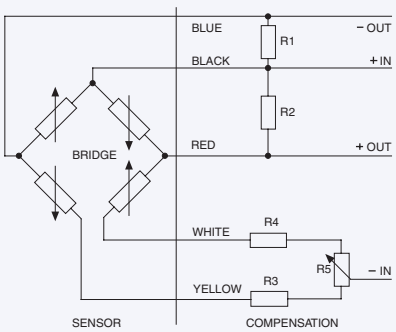


Series 1 TAB: Version 2

Note: To be sure that the sensors reach the Offset and Temperature Error performance, the sensor must be tested and the compensation resistors may have to be added.







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Edition 04/1999
Subject to alterations
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