

PC Board Mountable Pressure Sensor

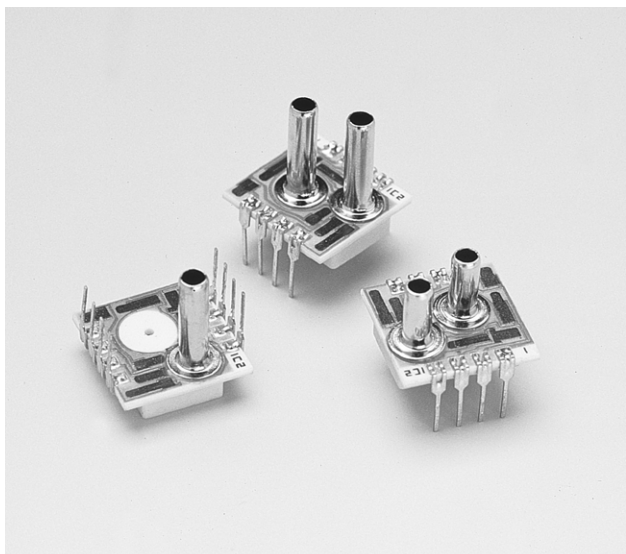
0-10" H₂O to 0-1 PSI

0-50 mV Output

Low Cost

Temperature Compensated

- ▶ Medical Instruments
- ▶ Air Flow Measurement
- ▶ HVAC
- ▶ Process Control
- ▶ Factory Automation
- ▶ Leak Detection



DESCRIPTION

The Model 1220 is a temperature compensated, piezoresistive silicon pressure sensor packaged in a dual-in-line configuration and intended for cost sensitive applications where excellent performance and long-term stability are required. The 1220 is a fixed voltage referenced, current set version, designed for 1% interchangeability to provide a 50 mV span at 1 PSI.

Integral temperature compensation is provided over a range of 0-50°C using laser-trimmed resistors. An additional laser-trimmed resistor is included to adjust the gain of an external differential amplifier. This provides sensitivity interchangeability of $\pm 1\%$.

The sensing element used in the low pressure Model 1220 includes a double bossed design that produces a sensor output of 100 mV (typical) at 1 PSI.

The 1220 is also available in ranges up to 0-100 PSI. For a compensated sensor using a gain set resistor as opposed to a current set resistor, please refer to the Model 1210.

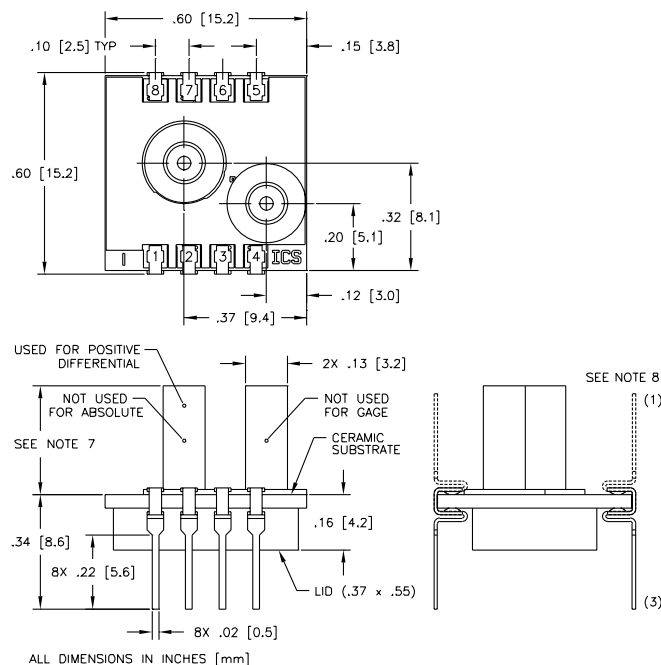
FEATURES

- ▶ Dual-in-line Package
- ▶ $\pm 0.1\%$ Non-linearity
- ▶ 1.0% Interchangeable Span (provided by current set resistor)
- ▶ Temperature Compensated
- ▶ Solid State Reliability
- ▶ Low Power

STANDARD RANGES

Range	psi	in H ₂ O
0 to 1	●	●
0 to 10	●	●

DIMENSIONS



PERFORMANCE SPECIFICATIONS

Supply Voltage: See application schematic

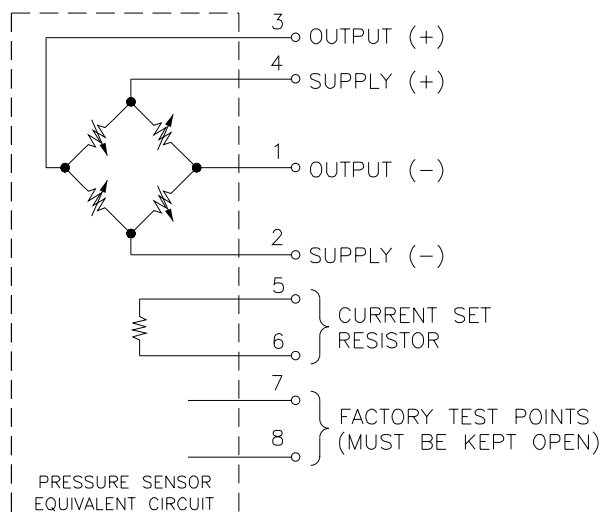
Ambient Temperature: 25°C (Unless otherwise specified)

PARAMETERS	PRESSURE RANGE						UNITS	NOTES
	0 - 1 psi			0 - 10 in H ₂ O (Note 10)				
	MIN	TYP	MAX	MIN	TYP	MAX		
Full Scale Output Span	49.5	50	50.5	24.75	25	25.25	mV	1
Zero Pressure Output			2			2	±mV	2
Pressure Non-linearity		0.1	0.25		0.05	0.1	±% Span	3
Pressure Hysteresis		0.01	0.05		0.01	0.1	±% Span	
Input & Output Resistance	2500	4400	6000	2500	4400	6000	Ω	
Temperature Error – Span		0.5	1.0		0.5	1.0	±% Span	4
Temperature Error – Zero		0.5	1.0		1.0	3.0	±% Span	4
Thermal Hysteresis – Zero		0.1			0.2		±% Span	4
Supply Current		1.5	2.0		1.5	2.0	mA	
Response Time (10% TO 90%)		1.0			1.0		mS	5
Output Noise		1.0			1.0		μV p-p	6
Output Load Resistance	2			2			MΩ	
Insulation Resistance (50 VDC)	50			50			MΩ	
Long Term Stability		0.2			0.5		±% Span/yr	
Pressure Overload			20			20	psi	
Operating Temperature	-40°C to +125°C							
Storage Temperature	-50°C to +150°C							
Media	Non-corrosive Gases Compatible with Wetted Materials							9
Weight	3 Grams							

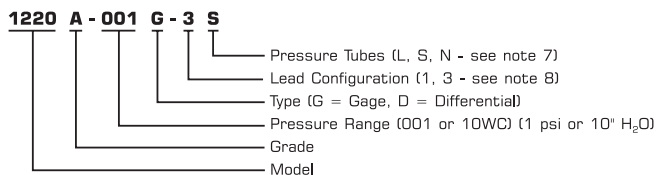
Notes

- Output span of unamplified sensor.
- Compensation resistors are in an integral part of the sensor package; no additional external resistors are required.
- Best Fit Straight Line.
- Temperature range: 0-50°C in reference to 25°C.
- For a zero-to-full scale pressure step change.
- 10 Hz to 1kHz.
- Tube length: L=470 ± 5 mil, S=300 ± 3 mil, N=no tube.
- Lead pins can either be in the same or the opposite direction as the pressure tube. See Dimensions drawing for lead configurations.
- Wetted materials are glass, ceramic, silicon, RTV, nickel, and aluminum.
- 0-10" water column performance is based on testing at 1 psi full scale pressure.

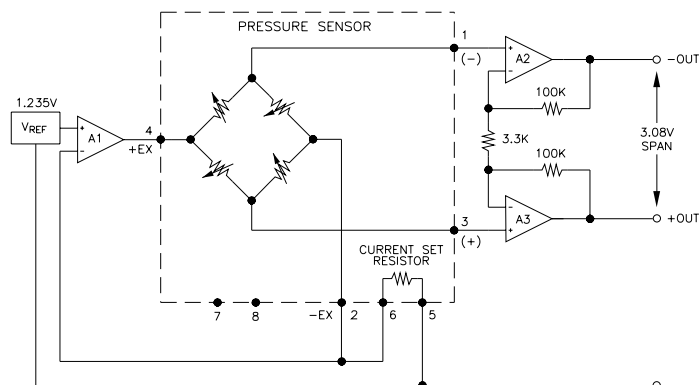
CONNECTIONS



ORDERING INFORMATION



APPLICATION SCHEMATIC



April 2000

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西安分公司：西安高新开发区 20 所(中国电子科技集团导航技术研究所)

西安劳动南路 88 号电子商城二楼 D23 号

TEL: 029-81022619 13072977981 FAX:029-88789382