

# MODEL 1220

**PC Board Mountable Pressure Sensor**  
**0-50 mV Output**  
**Gage, Differential and Absolute**  
**Temperature Compensated**

- Process Control
- Medical Instrumentation
- HVAC
- Barometric Pressure
- Air Flow Management
- Avionics



## FEATURES

- Dual-in-line Package
- $\pm 0.1\%$  Non-linearity
- $\pm 0.5\%$  Temperature Performance
- 1.0% Interchangeable Span (provided by gain set resistor)
- Solid State Reliability
- Low Power

## STANDARD RANGES

| Range    | psia | psid | psig |
|----------|------|------|------|
| 0 to 2   |      | •    | •    |
| 0 to 5   | •    | •    | •    |
| 0 to 15  | •    | •    | •    |
| 0 to 30  | •    | •    | •    |
| 0 to 50  | •    | •    | •    |
| 0 to 100 | •    | •    | •    |

## DESCRIPTION

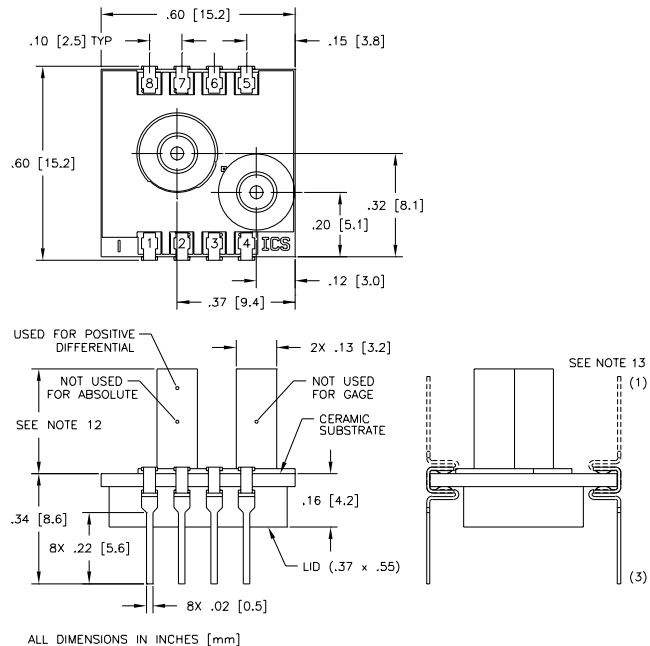
The Model 1220 is a temperature compensated, piezoresistive silicon pressure sensor packaged in a dual-in-line configuration and intended for cost sensitive applications where excellent performance and long-term stability are required.

Integral temperature compensation is provided over a range of 0-50°C using laser-trimmed resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations by setting the current drive to the sensor bridge, resulting in an interchangeability of  $\pm 1\%$  prior to amplification.

Gage, absolute, and differential pressure ranges from 0-2 PSI to 0-100 PSI are available. Multiple lead and tube configurations are also available for customizing the package for specific applications.

Please refer to the low pressure section for information on products with operating pressures less than 0-2 PSI. For a compensated sensor using a gain set resistor as opposed to a current set resistor, please refer to the Model 1210.

## DIMENSIONS



# PC Board Mountable Pressure Sensor

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### PERFORMANCE SPECIFICATIONS

Supply Voltage: See application schematic.

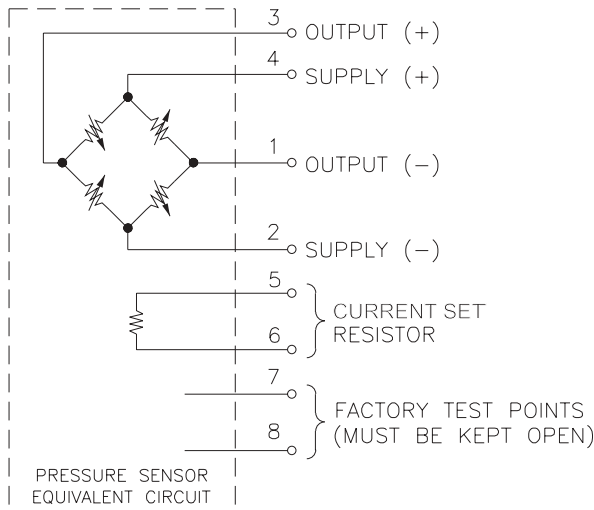
Ambient Temperature: 25°C (Unless otherwise specified)

| PARAMETERS                     | MIN  | TYP  | MAX  | UNITS   | NOTES   |
|--------------------------------|--|------|------|---------|---------|
| Full Scale Output Span         | 49.5   | 50.0 | 50.5 | mV      | 1       |
| Zero Pressure Output           |  |      | 2    | ±mV     | 2       |
| Pressure Non-linearity         |  | 0.05 | 0.1  | ±% Span | 3       |
| Pressure Hysteresis            |  | 0.01 | 0.1  | ±% Span |         |
| Input & Output Resistance      | 2500   | 4400 | 6000 | Ω       |         |
| Temperature Error - Span       |  | 0.3  | 0.5  | ±% Span | 2, 4    |
| Temperature Error - Zero       |  | 0.1  | 0.5  | ±% Span | 1, 2, 4 |
| Thermal Hysteresis - Zero      |  | 0.1  |      | ±% Span |         |
| Supply Current                 |  |      | 2.0  | mA      |         |
| Response Time                  |  | 1.0  |      | msec    | 5       |
| Output Noise                   |  | 1.0  |      | µV p-p  | 6       |
| Output Load Resistance         |  |      |      | MΩ      | 7       |
| Insulation Resistance (50 VDC) | 50   |      |      | MΩ      |         |
| Pressure Overload              |  |      | 3X   | Rated   | 8       |
| Operating Temperature          | -40°C to +125°C                                      |      |      |         |         |
| Storage Temperature            | -50°C to +150°C                                      |      |      |         |         |
| Media                          | Non-corrosive Gases Compatible with Wetted Materials |      |      |         |         |
| Weight                         | 3 grams  |      |      |         |         |

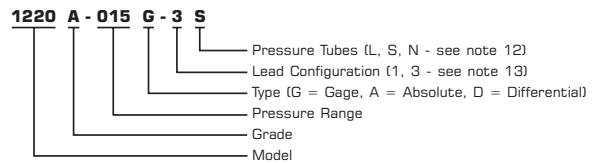
#### Notes

- For 2 psi output on a 5 psi sensor span is 20.0 mV ± 1%, amplified span is 1.232V and TC zero temperature error is ±1.25%.
- Compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 7 and 8 must be kept open.
- 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 1 kHz.
- Prevents increase of TC-Span due to output loading.
- 3X or 200 psi maximum, whichever is less. 20 psi for 2 psi and 5 psi versions.
- Wetted materials are glass, ceramic, silicon, RTV, nickel, gold, and aluminum.
- Soldering of lead pins: 250°C for 5 seconds maximum.
- 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.

### CONNECTIONS



### ORDERING INFORMATION



### APPLICATION SCHEMATIC

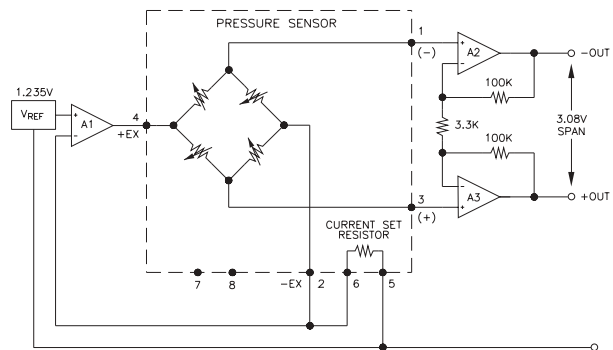


FIGURE 1: CURRENT SET CIRCUIT