

Model 1240 UltraStable



PC Board Mountable Pressure Sensor

0-50 mV Output

Absolute, Differential and Gage

Temperature Compensated

- ▶ Medical Instrumentation
- ▶ Calibration
- ▶ Process Control
- ▶ Factory Automation
- ▶ Air Flow Management
- ▶ Leak Detection



DESCRIPTION

The Model 1240 is a high performance 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 -20°C to $+85^{\circ}\text{C}$ using laser-trimmed resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations, for interchangeability of $\pm 1\%$.

Gage and Differential pressure ranges from 0-15 PSI to 0-100 PSI are available. Absolute pressure ranges of 0-15 PSIA and 0-30 PSIA 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 1230.

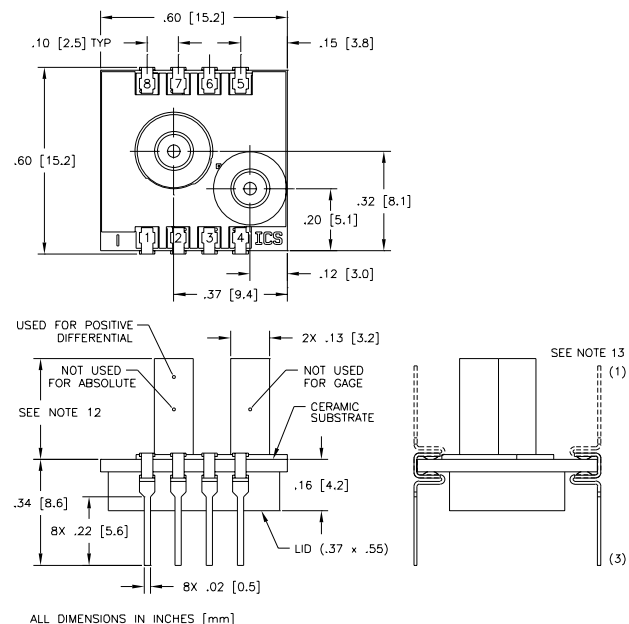
FEATURES

- ▶ -20°C to $+85^{\circ}\text{C}$ Compensated Temperature Range
- ▶ $\pm 0.1\%$ Non-linearity
- ▶ $\pm 0.5\%$ Temperature Performance
- ▶ 1.0% Interchangeable Span (provided by current set resistor)
- ▶ Solid State Reliability
- ▶ Low Power

STANDARD RANGES

| Range | psig | psid | psia |
|----------|------|------|------|
| 0 to 15 | ● | ● | ● |
| 0 to 30 | ● | ● | ● |
| 0 to 50 | ● | ● | ● |
| 0 to 100 | ● | ● | ● |

DIMENSIONS



PERFORMANCE SPECIFICATIONS

Supply Voltage: See application schematic

Ambient Temperature: 25°C (Unless otherwise specified)

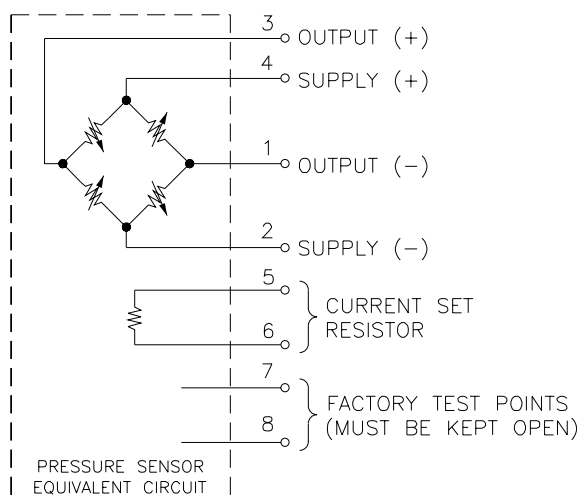
| PARAMETERS | MIN | TYP | MAX | UNITS | NOTES |
|--------------------------------------|--|-------|------|---------|-------|
| Full Scale Output Span | 49.5 | 50.0 | 50.5 | mV | 1, 3 |
| Zero Pressure Output | | | 2 | ±mV | 3 |
| Pressure Non-linearity | | 0.05 | 0.1 | ±% Span | 2 |
| Pressure Hysteresis | | 0.01 | 0.1 | ±% Span | |
| Input Resistance | 2500 | 3500 | 4500 | Ω | |
| Temperature Error – Span | | 0.3 | 0.5 | ±% Span | 3, 4 |
| Temperature Error – Zero | | 0.1 | 0.5 | ±% Span | 3, 4 |
| Temperature Coefficient – Resistance | | 0.145 | | %/°C | 4 |
| Thermal Hysteresis – Zero | | 0.05 | | ±% Span | 4 |
| Short Term Stability of Offset | | 0.05 | | ±% Span | 14 |
| Short Term Stability of Span | | 0.05 | | ±% Span | 14 |
| Long Term Stability of Offset | | 0.1 | | ±% Span | 15 |
| Long Term Stability of span | | 0.1 | | ±% Span | 15 |
| Supply Current | | | 2.0 | mA | 5 |
| Response Time (10% to 90%) | | 1.0 | | msec | 6 |
| Output Noise | | 1.0 | | μV p-p | 7 |
| Output Load Resistance | 5 | | | MΩ | 8 |
| Insulation Resistance (50 VDC) | 50 | | | MΩ | |
| Pressure Overload | | | 3X | Rated | 9 |
| Operating Temperature | -40°C to +125°C | | | | |
| Storage Temperature | -50°C to +150°C | | | | |
| Media | Non-corrosive Gases Compatible with Wetted Materials | | | | 10 |
| Weight | 3 Grams | | | | |

Notes

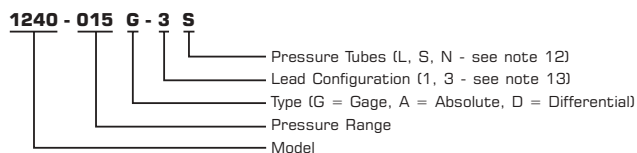
- Output span of unamplified sensor using current set resistor.
- Best Fit Straight Line.
- Compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 7 and 8 must be kept open.
- Temperature range: -20 to +85°C in reference to 25°C.
- Guarantees input/output ratiometricity.
- 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.
- Wetted materials are glass, ceramic, silicon, RTV, nickel, gold, and aluminum.
- Soldering of lead pins: 250°C for 5 seconds maximum.
- Tube length: $L=470 \pm 5$ mil, $S=300 \pm 3$ mil, $N=\text{no tube}$.
- Lead pins can either be in the same or the opposite direction as the pressure tube. See Connections/Dimensions drawing for lead configurations.
- Normalized offset bridge voltage: 7 days.
- 1 year.

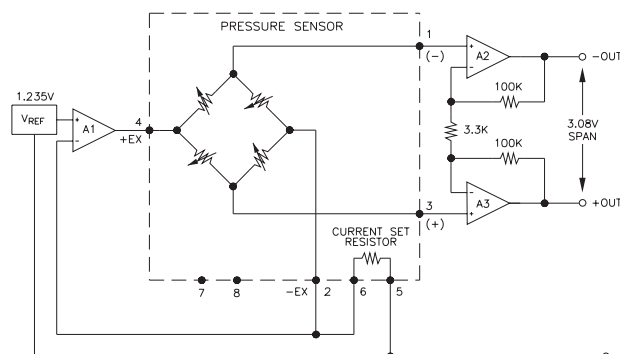
CONNECTIONS



ORDERING INFORMATION



APPLICATION SCHEMATIC



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