

# MODEL 1230 Ultrastable

PC Board Mountable Pressure Sensor  
 0-100 mV Output  
 Absolute, Differential, and Gage  
 Wide Temperature Range

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



## DESCRIPTION

The Model 1230 is a high performance temperature compensated, piezoresistive silicon pressure sensor packaged in a dual-in-line configuration. It is intended for cost sensitive applications where excellent performance and long-term stability are required.

Integral temperature compensation is provided over a range of  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  using laser-trimmed thick film resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations, for interchangeability of  $\pm 1\%$ , by programming the gain of an external differential amplifier.

Differential and gage pressure ranges from 0-15 PSI to 0-100 PSI are available. Absolute pressure ranges of 0-15 PSIA to 0-30 PSIA are available. Multiple lead and tube configurations are available for different 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 current set resistor as opposed to a gain set resistor, please refer to the Model 1240.

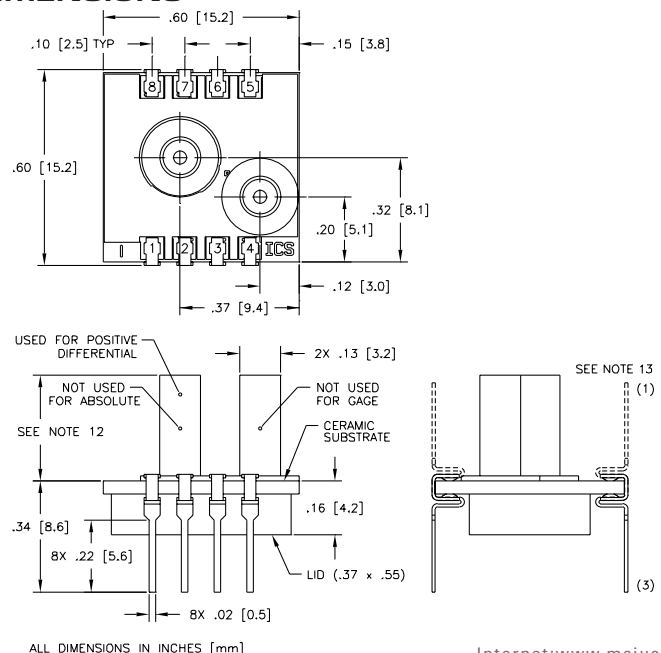
## FEATURES

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

## STANDARD RANGES

Range	psia	psid	psig
0 to 15	•	•	•
0 to 30	•	•	•
0 to 50	•	•	•
0 to 100	•	•	•

## DIMENSIONS



Internet: [www.msiusa.com](http://www.msiusa.com)  
 Tel: 1-757-766-1500  
 North America Toll Free: 1-800-745-8008  
 Fax: 1-757-766-4297

### PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA

Ambient Temperature: 25°C (Unless otherwise specified)

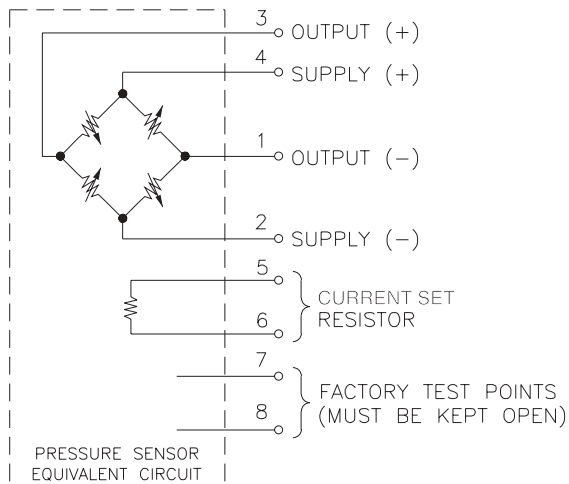
PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Full Scale Output Span	75	100	150	mV	1
Zero Pressure Output			2	±mV	3
Pressure Non-linearity		0.05	0.1	±% Span	2
Pressure Hysteresis		0.01	0.1	±% Span	
Input Resistance	2500	3500	4500	Ω	
Temperature Error - Span		0.3	0.5	±% Span	3, 4
Temperature Error - Zero		0.1	0.5	±% Span	3, 4
Temperature Coefficient - Resistant		0.145		%/°C	4
Thermal Hysteresis - Zero		0.05		±% Span	4
Short Term Stability of Offset		0.05		±% Span	13
Short Term Stability of Span		0.05		±% Span	13
Long Term Stability of Offset		0.1		±% Span	14
Long Term Stability of Span		0.1		±% Span	14
Supply Current	0.5	1.5	2.0	mA	
Response Time (10% to 90%)		1.0		msec	5
Output Noise		1.0		µV p-p	6
Output Load Resistance	5			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

- Output span of unamplified sensor.
- Best Fit Straight Line.
- For Model 1230, 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°C to +85°C in reference to 25°C.
- For a zero-to-full scale pressure step change.
- 10 Hz to 1kHz.
- 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.

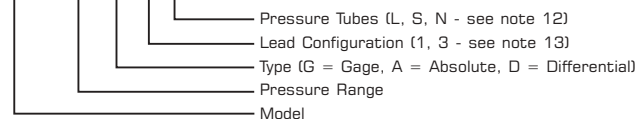
- Wetted materials are glass, ceramic, silicon, RTV, nickel, gold, and aluminum.
- Soldering of lead pins: 250°C for 5 seconds, maximum.
- Tube length: L=470 ± 5 mil, S=300 ± 3 mil, N=no tube.
- Lead pins can either be in the same or the opposite direction as the pressure tube. See Connections/Dimensions drawing for lead configurations.
- Normalized offset bridge voltage: 7 days.
- 1 year.

### CONNECTIONS



### ORDERING INFORMATION

1230 - 015 G - 3 S



### APPLICATION SCHEMATIC

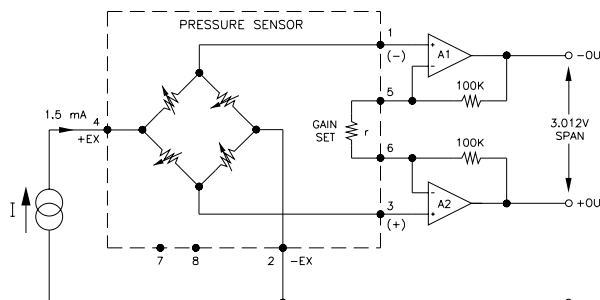


FIGURE 1: GAIN SET CIRCUIT