

Model 47 UltraStable



PC Board Mountable Pressure Sensor

0-100 mV Output

Gage and Absolute Pressure

Wide Temperature Range

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



FEATURES

- ▶ TO-8 Package
- ▶ -20°C to +85°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	psig	psia
0 to 15	●	●
0 to 30	●	●
0 to 50	●	●
0 to 100	●	●
0 to 250	●	●

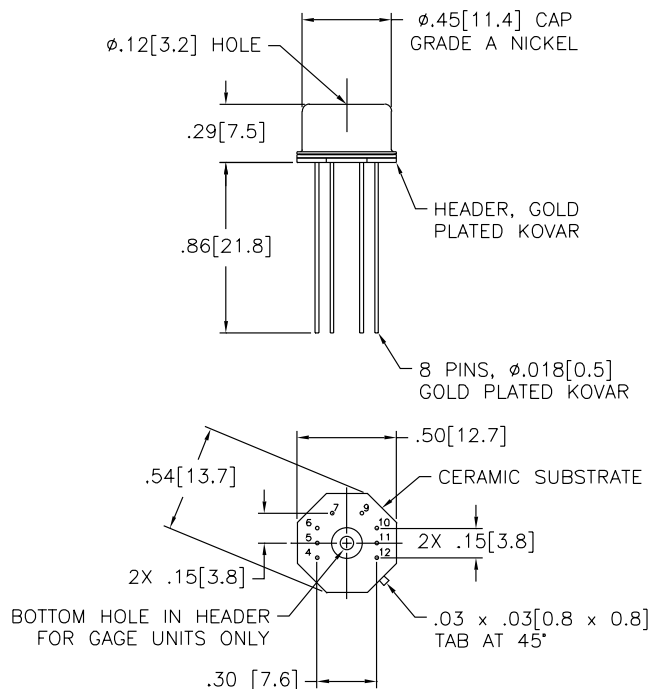
DESCRIPTION

The Model 47 is a high performance, temperature compensated, piezoresistive silicon pressure sensor packaged in a differential TO-8 configuration. It provides excellent performance and long-term stability.

Differential pressure ranges from 0-15 PSI to 0-250 PSI are available. Integral temperature compensation is provided over a range of -20°C to +85°C using laser-trimmed resistors. An additional laser-trimmed resistor is included to normalize pressure sensitivity variations by programming the gain of an external differential amplifier. This provides sensitivity interchangeability of $\pm 1\%$.

Please refer to the low pressure section for information on products with operating pressures less than 0-2 PSI. For an uncompensated sensor (Model 35) please contact the factory for additional information.

DIMENSIONS



DIMENSIONS ARE IN INCHES [mm]

PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA
Ambient Temperature: 25°C (Unless otherwise specified)

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Full Scale Output Span, (without gain set resistor)	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 - Resistance		0.145		%/°C	4
Thermal Hysteresis – Zero		0.05		±% Span	4
Short Term Stability of Offset		0.05		±% Span	11
Short Term Stability of Span		0.05		±% Span	11
Long Term Stability of Offset		0.1		±% Span	12
Long Term Stability of span		0.1		±% Span	12
Supply Current	0.5	1.5	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	13
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
1. Output span of unamplified sensor.

2. Best Fit Straight Line.

3. For Model 47, compensation resistors are an integral part of the sensor package; no additional external resistors are required. Pins 11 and 12 must be kept open. Model 47 is interchangeable only when used with a gain stage.

4. Temperature range: -20°C to +85°C in reference to 25°C.

5. Guarantees input/output ratiometricity.

6. For a zero-to-full scale pressure step change.

7. 10 Hz to 1 kHz.

8. Prevents increase of TC-Span due to output loading.

9. 3X or 500 psi maximum, whichever is less. 20 psi for 2 psi and 5 psi versions.

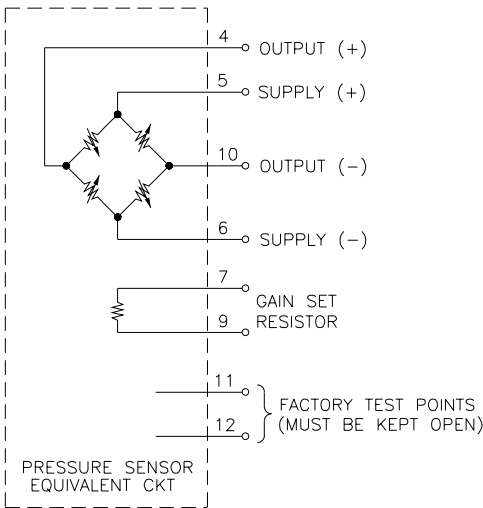
10. Wetted materials are glass, ceramic, silicon, RTV, nickel, gold, and aluminum.

11. Normalized offset bridge voltage: 7 days.

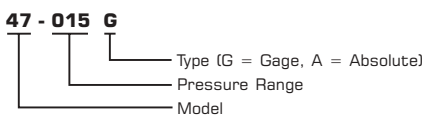
12. 1 year.

13. Between case and sensing element.

CONNECTIONS



ORDERING INFORMATION



APPLICATION SCHEMATIC

