

MODEL 27 UltraStable™



PC Board Mountable Pressure Sensor

0-100 mV Output

Differential Pressure

Wide Temperature Range

DESCRIPTION

The **Model 27** is a high performance, temperature compensated, piezoresistive silicon pressure sensor packaged in a bottom tube TO-8 configuration. It provides excellent performance and long-term stability.

Gage 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.

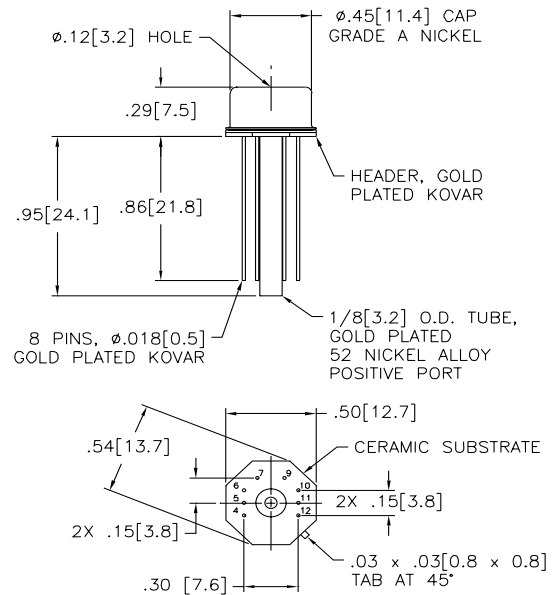
FEATURES

- ◆ TO-8 Package
- ◆ -20 °C to +85 °C Compensated Temperature Range
- ◆ +/-1% Non-linearity
- ◆ +/-0.5% Temperature Performance
- ◆ 1.0% Interchangeable Span (provided by gain set resistor)
- ◆ Solid State Reliability
- ◆ Low Power

APPLICATIONS

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

dimensions



DIMENSIONS ARE IN INCHES [mm]

standard ranges

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



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performance specifications

Supply Current: 1.5 mA

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	0.10	±%Span	2
Pressure Hysteresis		0.01	0.01	±%Span	
Input & Output 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
Thermal Coefficient - Resistance		0.145		±%/°C	4
Thermal Hysteresis - Zero		0.5		±%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, 14
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				

1. Output span of unamplified sensor.

2. Best Fit Straight Line.

3. For Model 27, 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 27 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 for span.

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. For top side application, 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, and gold.

11. Normalized offset bridge voltage: 7 days.

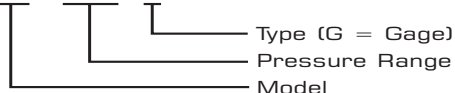
12. 1 year.

13. Between case and sensing element.

14. For backside application, 3X not to exceed 100 psi on all ranges.

ordering information

27 - 015 G



application schematic

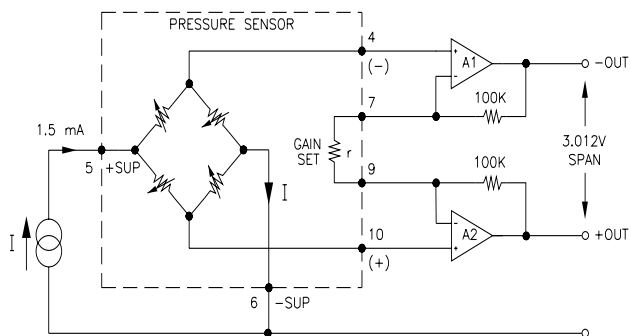
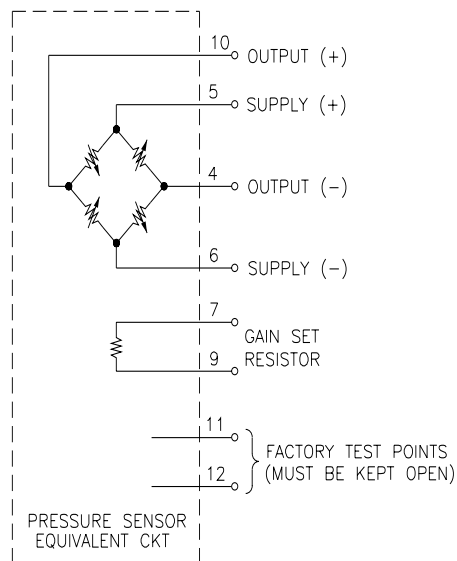


FIGURE 1: BOTTOM ENTRY FOR GAGE

connections



Distribuidor

Brasil e América do Sul

CONTATO

Endereço

Rua Sete de Setembro, 2671 - Centro
13560-181 - São Carlos - SP - Brasil

Telefone

+55 (16) 3371-0112

Fax

+55 (16) 3372-7800

Internet

www.metrolog.net
metrolog@metrolog.net

