

# Model 96 UltraStable



**316L SS Pressure Sensor**  
**High Performance**  
**0-100 mV Output**  
**Absolute and Gage**  
**Low Pressure**

- ▶ Hydraulic Controls
- ▶ Process Control
- ▶ Oceanography
- ▶ Refrigeration/Compressors
- ▶ Pressure Transmitters
- ▶ Level Systems



## DESCRIPTION

The Model 96 is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The Model 96 is available with a standard 1/4 NPT fitting. The sensing package utilizes silicone oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element.

The Model 96 is designed for high performance, low pressure applications. A ceramic substrate is attached to the package that contains laser-trimmed resistors for temperature compensation and offset correction. An additional laser-trimmed resistor is included which can be used to adjust an external differential amplifier and provide span interchangeability to within  $\pm 1\%$ .

Sensors with O-ring fittings, and high pressure sensors are also available. Please contact factory for more information.

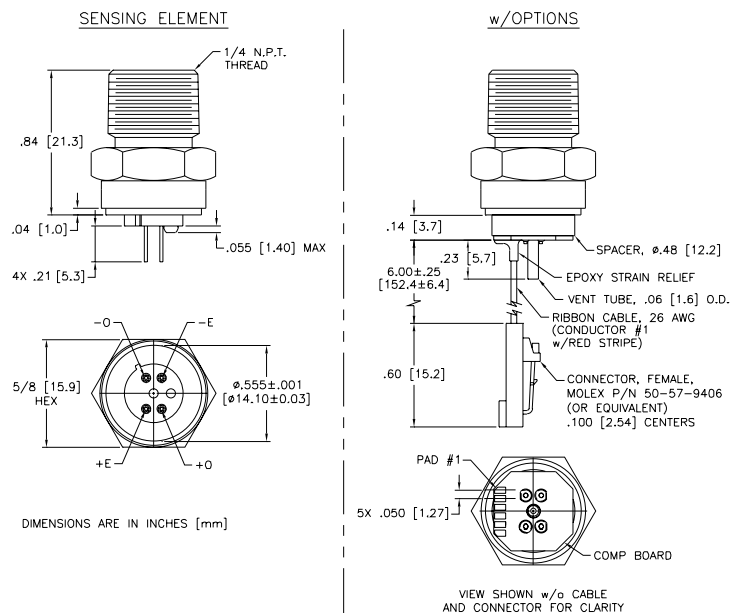
## FEATURES

- ▶ 1/4 NPT Thread, 5/8" Hex
- ▶  $-20^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$  Compensated Temperature Range
- ▶  $\pm 0.1\%$  Pressure Non-linearity
- ▶  $\pm 1.0\%$  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 300 | ●    | ●    |
| 0 to 500 | ●    | ●    |

## DIMENSIONS



### PERFORMANCE SPECIFICATIONS

All parameters specified at 1.5mA and at 25°C, after 10 second warm up, unless otherwise indicated. Unless specifically indicated, only those parameters indicated as tested are verified on each part. Parameters are specified for the compensated version only.

| PARAMETERS                                  | MIN  | TYP  | MAX   | UNITS        | NOTES |
|---|--|------|-------|--------------|-------|
| Full Scale Output Span                      | 75   | 100  | 150   | mV           | 1     |
| Zero Pressure Output (Offset)               | -1   | 0    | 1     | mV           | 2     |
| Pressure Non Linearity                      | -0.10  |      | 0.10  | ±% Span      | 3     |
| Pressure Hysteresis                         | -0.05  | 0.02 | +0.05 | ±% Span      |       |
| Repeatability                               |  | 0.02 |       | ±% Span      |       |
| Input Resistance                            | 2000   | 3500 | 4500  | Ω            |       |
| Output Resistance                           | 4000   |      | 25000 | Ω            |       |
| Temperature Error - Span (-20°C to +85°C)   | -0.75  |      | +0.75 | % Span       | 4     |
| Temperature Error - Offset (-20°C to +85°C) | -0.5   |      | +0.5  | % Span       | 4, 5  |
| Thermal Hysteresis - Span                   |  | 0.05 |       | % Span       | 4     |
| Thermal Hysteresis - Offset                 |  | 0.05 |       | % Span       | 4     |
| Long Term Stability - Span                  |  | 0.1  |       | ±% Span/year |       |
| Long Term Stability - Offset                |  | 0.1  |       | ±% Span/year |       |
| Supply Current                              | 0.5  | 1.5  | 2.0   | mA           | 6     |
| Output Load Resistance                      | 5  |      |       | MΩ           | 7     |
| Insulation Resistance (50 VDC)              | 50   |      |       | MΩ           | 8     |
| Pressure Overload                           |  |      | 3X    | Rated        |       |
| Compensated Temperature Range               | -20°C to +85°C   |      |       |              | 9     |
| Operating Temperature Range                 | -40°C to +125°C  |      |       |              | 9     |
| Storage Temperature Range                   | -50°C to +125°C  |      |       |              | 9     |
| Media - Pressure Port                       | Liquids and Gases compatible with 316L Stainless Steel                               |      |       |              |       |
| Media - Reference Port                      | Compatible with Silicon, Pyrex, Gold, Fluorosilicone Rubber and 316L Stainless Steel |      |       |              |       |
| Weight                                      | 27 g   |      |       |              | 10    |

**Notes**

- For amplified output circuits see application note TN-003.
- Measured at vacuum for absolute (A), ambient for gage (G).
- Best fit straight line.
- Over the temperature range -20°C to +85°C with respect to +25°C.
- 15 psi range sensors have an offset temperature error of ±0.75% (Max) from -20°C to +85°C.
- Guarantees output/input ratiometricity.
- Load resistance to reduce measurement errors due to output loading.
- Between case and sensing element.
- Maximum temperature range for product with standard cable and connector is -20°C to +105°C.
- Weight depends upon configuration (cable, connector, pressure fitting).
- For gage units used at pressures below atmosphere, the span accuracy is not guaranteed.

### ORDERING INFORMATION

**96 - 050 G - 4 C T**

- T = Vent Tube, Blank is standard = No tube
- Electrical (C = Ribbon Cable with Connector, P = Solder Pads, R = Ribbon Cable, L = Lead, Uncompensated)
- Pressure Port (4 = 1/4 NPT)
- Type (A = Absolute, G = Gage)
- Pressure Range (15 to 500 psi, 050 = 50 psi)
- Model

For other pressure ranges, process fittings and electrical connections contact factory.

### CONNECTIONS

| PAD / CONDUCTOR NO | FUNCTION |
|--------------------|----------|
| 1                  | +OUT     |
| 2                  | -EX      |
| 3                  | +EX      |
| 4                  | -OUT     |
| 5                  | GAIN     |
| 6                  | GAIN     |

### APPLICATION SCHEMATIC

