

MODEL 82 Ultrastable

316 SS Pressure Sensor
High Performance, 19 mm
0-100 mV Output
Absolute and Gage
Low Pressure

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



DESCRIPTION

The Model 82 is a 19 mm small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The Model 82 is designed for O-ring mounting. The sensing package utilizes silicon oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element.

The Model 82 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 threaded pressure fittings, weldable flush sensors and high pressure stainless steel sensors are also available. Please contact the factory for more information.

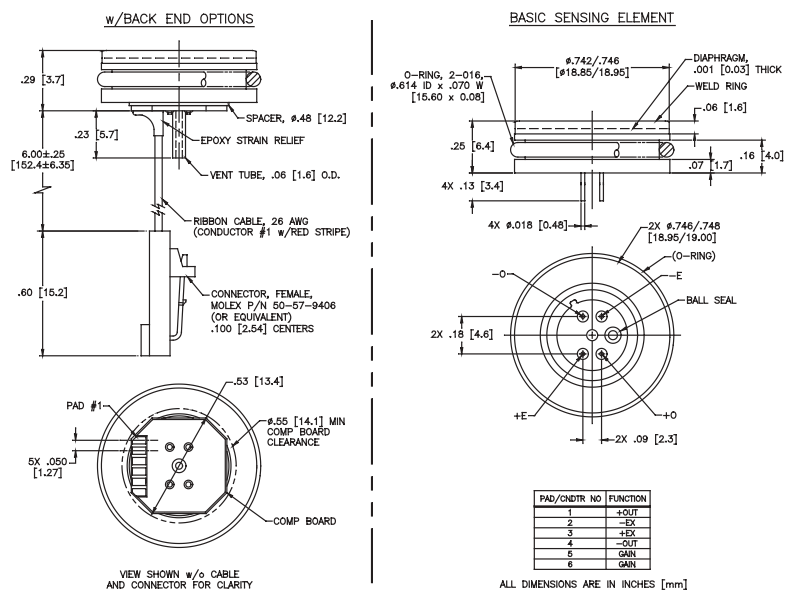
FEATURES

- O-ring Flush Mount
- -20°C To +85°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 5 | see low pressure version | |
| 0 to 15 | • | • |
| 0 to 30 | • | • |
| 0 to 50 | • | • |
| 0 to 100 | • | • |
| 0 to 300 | • | • |
| 0 to 500 | • | • |

DIMENSIONS



Internet: www.msusa.com

Tel: 1-757-766-1500

North America Toll Free: 1-800-745-8008

Fax: 1-757-766-4297

PERFORMANCE SPECIFICATIONS

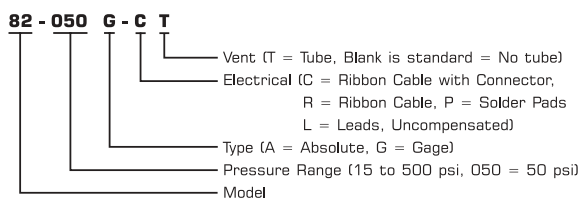
All parameters specified at 1.5mA and at 25°C, after 10 second warm up, unless otherwise indicated. Unless specifically indicated, only those parameters indicated as tested are verified on each part. Parameters are specified for the compensated version only.

| 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 to 85°C) | -0.75 | | +0.75 | % Span | 4 |
| Temperature Error - Offset (-20 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 of Span | | 0.1 | | ±% Span/yr. | |
| Long Term Stability of Offset | | 0.1 | | ±% Span/yr. | |
| 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, Fluorosilicon Rubber and 316L Stainless Steel | | | | |
| Weight | 12 grams | | | | |

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.
- For gage units used at pressures below atmosphere, the span accuracy is not guaranteed.
- Standard gauge units are not recommended for vacuum applications. For vacuum applications below 1/2 atmosphere, contact factory.

ORDERING INFORMATION



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

CONNECTIONS

| Pad. No./Cable | Function |
|----------------|----------|
| 1 | +OUT |
| 2 | -EX |
| 3 | +EX |
| 4 | -OUT |
| 5 | GAIN |
| 6 | GAIN |

APPLICATION SCHEMATIC

