



86 Compensated

SPECIFICATIONS

- ◆ **316L SS Pressure Sensor**
- ◆ **Small Profile**
- ◆ **0 - 100mV Output**
- ◆ **Absolute and Gage**
- ◆ **Temperature Compensated**

The 86 compensated is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 86 compensated is designed for o-ring mounting and OEM applications where compatibility with corrosive media is required.

The sensing package utilizes silicon oil to transfer pressure from the 316L stainless steel diaphragm to the sensing element. 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 $\pm 1\%$.

Please refer to the 86 uncompensated and constant voltage datasheets for more information on different features of the 86.

FEATURES

- ◆ O-Ring Mount
- ◆ -40°C to +125°C Operating Temperature Range
- ◆ ±0.2% Pressure Non Linearity
- ◆ 1.0% Interchangeable Span (provided by gain set resistor)
- ◆ Solid State Reliability

APPLICATIONS

- ◆ Medical Instruments
- ◆ Process Control
- ◆ Fresh & Waste Water Measurements
- ◆ Partial Vacuum Gas Measurement
- ◆ Pressure Transmitters
- ◆ Tank Level Systems (RV & Industrial)

STANDARD RANGES

| Range | psig | psia |
|----------|------|------|
| 0 to 5 | ◆ | ◆ |
| 0 to 15 | ◆ | ◆ |
| 0 to 30 | ◆ | ◆ |
| 0 to 50 | ◆ | ◆ |
| 0 to 100 | ◆ | ◆ |
| 0 to 300 | ◆ | ◆ |
| 0 to 500 | ◆ | ◆ |

PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA

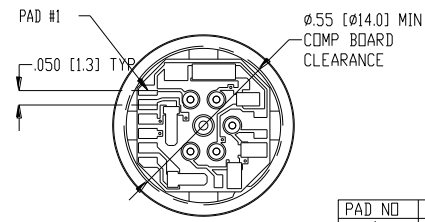
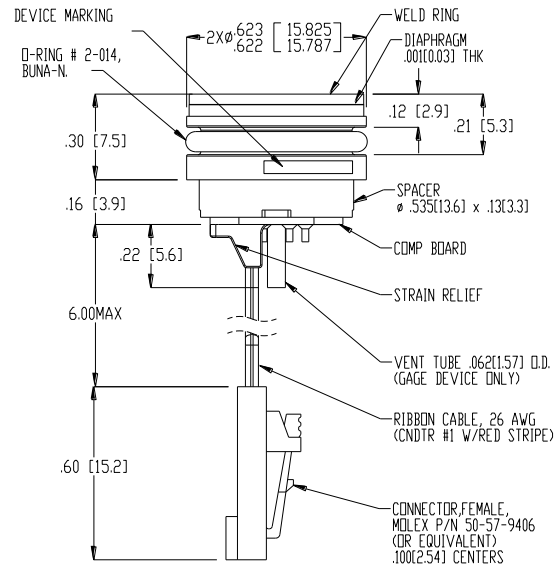
Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | 005PSI | | | ≥015PSI | | | UNITS | NOTES |
|-------------------------------|---|-------|------|---------|-------|------|------------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Span | 50 | 100 | 150 | 75 | 100 | 150 | mV | 1 |
| Zero Pressure Output | -2.0 | 0 | 2.0 | -1.0 | 0 | 1.0 | mV | 2 |
| Pressure Non Linearity | -0.2 | | 0.2 | -0.1 | | 0.1 | %Span | 3 |
| Pressure Hysteresis | -0.10 | ±0.02 | 0.10 | -0.05 | ±0.02 | 0.05 | %Span | |
| Repeatability | | ±0.02 | | | ±0.02 | | %Span | |
| Input Resistance | 2.5K | 5.0K | 6.5K | 2.0K | 3.5K | 5.8K | Ω | |
| Output Resistance | 4.0K | | 7.0K | 4.0K | | 6.0K | Ω | |
| Temperature Error – Span | -1.0 | | 1.0 | -0.75 | | 0.75 | %Span | 4 |
| Temperature Error – Offset | -1.5 | | 1.5 | -0.50 | | 0.50 | %Span | 4, 5 |
| Thermal Hysteresis – Span | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | %Span | 4 |
| Thermal Hysteresis – Offset | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | %Span | 4 |
| Long Term Stability – Span | | ±0.10 | | | ±0.10 | | %Span/Year | |
| Long Term Stability – Offset | | ±0.25 | | | ±0.10 | | %Span/Year | |
| Supply Current | 0.5 | 1.5 | 2.0 | 0.5 | 1.5 | 2.0 | mA | 6 |
| Output Load Resistance | 5M | | | 5M | | | Ω | 7 |
| Insulation Resistance (50Vdc) | 50M | | | 50M | | | Ω | 8 |
| Output Noise (10Hz to 1KHz) | | 1.0 | | | 1.0 | | μV p-p | |
| Response Time (10% to 90%) | | 0.1 | | | 0.1 | | ms | |
| Pressure Overload | | | 3X | | | 3X | Rated | |
| Pressure Burst | | | 4X | | | 4X | Rated | 9 |
| Compensated Temperature | 0 | | 50 | -20 | | +85 | °C | |
| Operating Temperature | -20 | | +70 | -40 | | +125 | °C | 10 |
| Storage Temperature | -50 | | +125 | -50 | | +125 | °C | 10 |
| Media – Pressure Port | Liquids and Gases compatible with 316/316L Stainless Steel | | | | | | | |
| Media – Reference Port | Compatible with Silicon, Pyrex, Gold, Fluorosilicone Rubber, and 316/316L Stainless Steel | | | | | | | |

Notes

- For amplified output circuits, 3.012V ±1% interchangeability with gain set resistor. See application schematic.
- Measured at vacuum for absolute (A) and at ambient for gage (G).
- Best fit straight line.
- Over the compensated temperature range with respect to 25°C.
- 15-psi range sensors have a temperature error of °0.75% (max) of zero 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.
- The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
- Maximum temperature range for product with standard cable and connector is -20°C to +105°C.

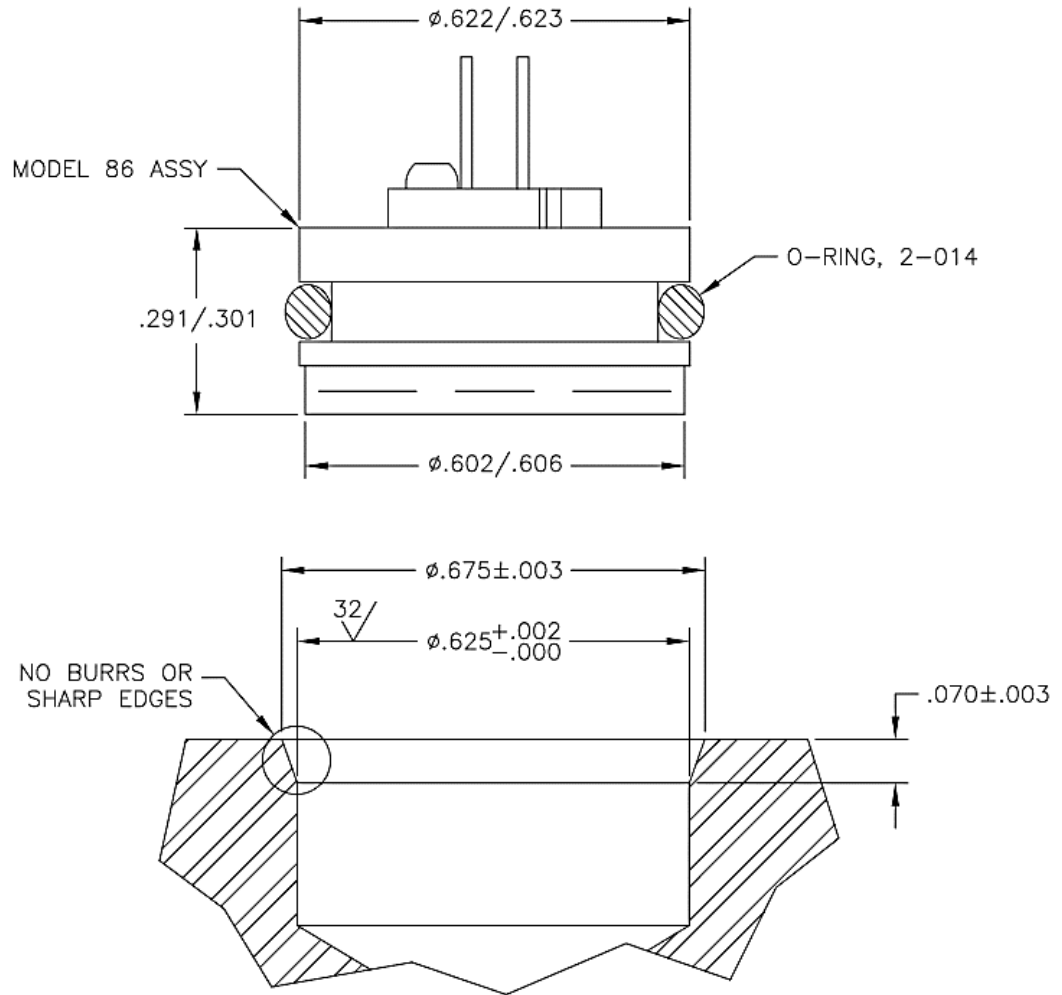
DIMENSIONS



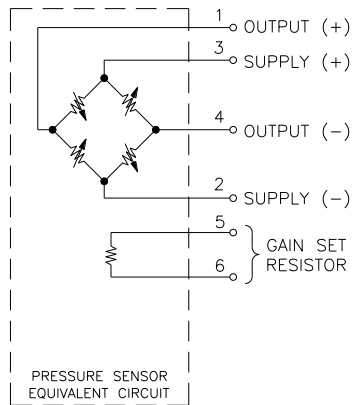
VIEW SHOWN W/O CABLE AND CONNECTOR FOR CLARITY

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

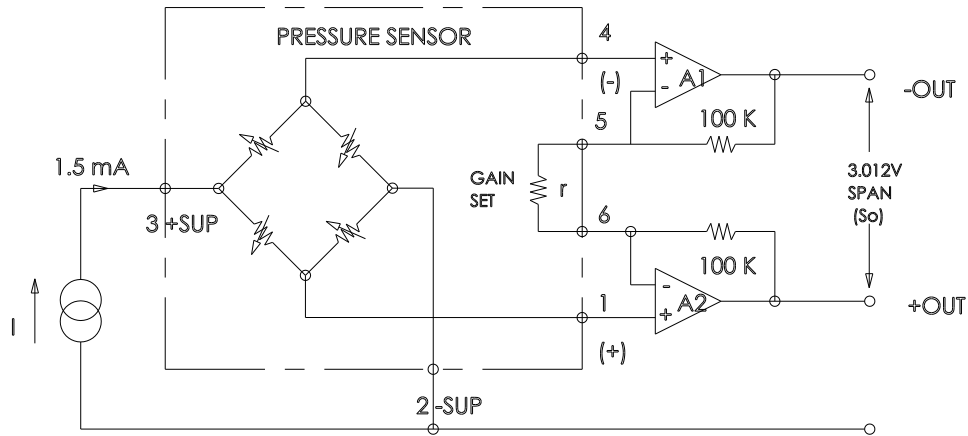
DIMENSIONS ARE IN INCHES [mm]



CONNECTIONS



APPLICATION SCHEMATIC



ORDERING INFORMATION

| | | | | |
|-------------------------------|------------------|----------|----------|----------|
| 86 | 030 | G | U | T |
| Model Name | | | | |
| Pressure range [psi] | | | | |
| 005 | 050 | 500 | | |
| 015 | 100 | | | |
| 030 | 300 | | | |
| Pressure Type | | | | |
| A = Absolute | G = Gage | | | |
| Electrical Connections | | | | |
| P = Solder Pads | R = Ribbon Cable | | | |
| C = Cable with Connector | | | | |
| Vent Type* | | | | |
| T = Tube | | | | |

*If No Tube, leave blank.

NORTH AMERICA

Measurement Specialties, Inc.,
a TE Connectivity Company
Tel: 800-522-6752
Email: customercare.frm@te.com

EUROPE

Measurement Specialties (Europe), Ltd.,
a TE Connectivity Company
Tel: 800-440-5100
Email: customercare.lcsb@te.com

ASIA

Measurement Specialties (China), Ltd.,
a TE Connectivity Company
Tel: 0400-820-6015
Email: customercare.shzn@te.com

TE.com/sensorsolutions

Measurement Specialties, Inc., a TE Connectivity company.

Measurement Specialties, TE Connectivity, TE Connectivity (logo) and EVERY CONNECTION COUNTS are trademarks. All other logos, products and/or company names referred to herein might be trademarks of their respective owners.

The information given herein, including drawings, illustrations and schematics which are intended for illustration purposes only, is believed to be reliable. However, TE Connectivity makes no warranties as to its accuracy or completeness and disclaims any liability in connection with its use. TE Connectivity's obligations shall only be as set forth in TE Connectivity's Standard Terms and Conditions of Sale for this product and in no case will TE Connectivity be liable for any incidental, indirect or consequential damages arising out of the sale, resale, use or misuse of the product. Users of TE Connectivity products should make their own evaluation to determine the suitability of each such product for the specific application.

© 2015 TE Connectivity Ltd. family of companies All Rights Reserved.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

TE Connectivity:

[86-050G-C](#) [86-300G-C](#) [86-005G-C](#) [86-015G-C](#) [86-100A-C](#) [86-015A-C](#) [86-030A-C](#) [86-100G-C](#) [86-300A-C](#) [86-050A-U](#) [86-015A-R](#) [86-100G-RT](#) [86-005G-R](#) [86-300G-RT](#) [86-300G-R](#) [86-015G-RT](#) [86-500A-R](#) [86-100G-R](#) [86-500G-R](#) [86-100A-R](#) [86-030A-R](#) [86-050G-RT](#) [86-030G-R](#) [86-050A-R](#) [86-005G-RT](#) [86-050A-C](#) [86-050G-R](#) [86-005G-CT](#) [86-015G-R](#)