



86BC

SPECIFICATIONS

- ◆ **Low Cost**
- ◆ **316L Stainless Steel**
- ◆ **16mm Diameter Package**
- ◆ **0 - 100mV Output**
- ◆ **Gage and Absolute**
- ◆ **Wide Compensated Temperature Range**

The 86BC is a 16mm small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 86BC is designed with o-ring mounting for easy integration into industrial applications.

The 86BC is a low cost unit designed without a header for 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 +105°C Operating Temperature
- ◆ 1.0% Interchangeable Span
(provided by gain set resistor)
- ◆ Solid State Reliability
- ◆ $\pm 0.3\%$ Pressure Non Linearity

APPLICATIONS

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

STANDARD RANGES

| Range (psi) | Gage | Range (Bar) | Absolute |
|-------------|------|-------------|----------|
| 0 to 015 | ◆ | 0 to 001 | ◆ |
| 0 to 030 | ◆ | 0 to 002 | ◆ |
| 0 to 050 | ◆ | 0 to 004 | ◆ |
| 0 to 100 | ◆ | 0 to 007 | ◆ |
| | | 0 to 012 | ◆ |
| | | 0 to 018 | ◆ |
| 0 to 300 | ◆ | | |
| | | 0 to 028 | ◆ |

PERFORMANCE SPECIFICATIONS

Supply Current: 1.5mA

Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | MIN | TYP | MAX | UNITS | NOTES |
|--|--|-------|------|------------|-------|
| Span | 75 | 100 | 150 | mV | 1, 2 |
| Zero Pressure Output, Offset | -1 | 0 | +1 | mV | 2 |
| Pressure Non-Linearity | -0.3 | | 0.3 | %Span | 3 |
| Pressure Hysteresis | -0.2 | | 0.2 | %Span | |
| Repeatability | | ±0.02 | | %Span | |
| Input Resistance | 2.0 | 3.5 | 5.8 | kΩ | |
| Output Resistance | 3.0 | | 25.0 | kΩ | |
| Temperature Error – Span | -1.0 | | 1.0 | %Span | 4 |
| Temperature Error – Zero | -1.0 | | 1.0 | %Span | 4 |
| Thermal Hysteresis – Span | -0.25 | ±0.05 | 0.25 | %Span | 4 |
| Thermal Hysteresis – Offset | -0.25 | ±0.05 | 0.25 | %Span | 4 |
| Long Term Stability – Span | | ±0.10 | | %Span/Year | |
| Long Term Stability – Offset | | ±0.10 | | %Span/Year | |
| Supply Current | 0.5 | 1.5 | 2.0 | mA | 5 |
| Output Load Resistance | 5 | | | MΩ | 6 |
| Insulation Resistance (50V _{DC}) | 50 | | | MΩ | 7 |
| Output Noise (10Hz to 1kHz) | | 1.0 | | μV p-p | |
| Response Time (10% to 90%) | | 0.1 | | ms | |
| Pressure Overload | | | 2X | Rated | 8 |
| Pressure Burst | | | 3X | Rated | 9 |
| Compensated Temperature | -20 | | +85 | °C | 10 |
| Operating Temperature | -40 | | +105 | °C | 10 |
| Storage Temperature | -50 | | +105 | °C | 10 |
| Media – Pressure Port | Liquids and Gases compatible with 316/316L Stainless Steel | | | | |

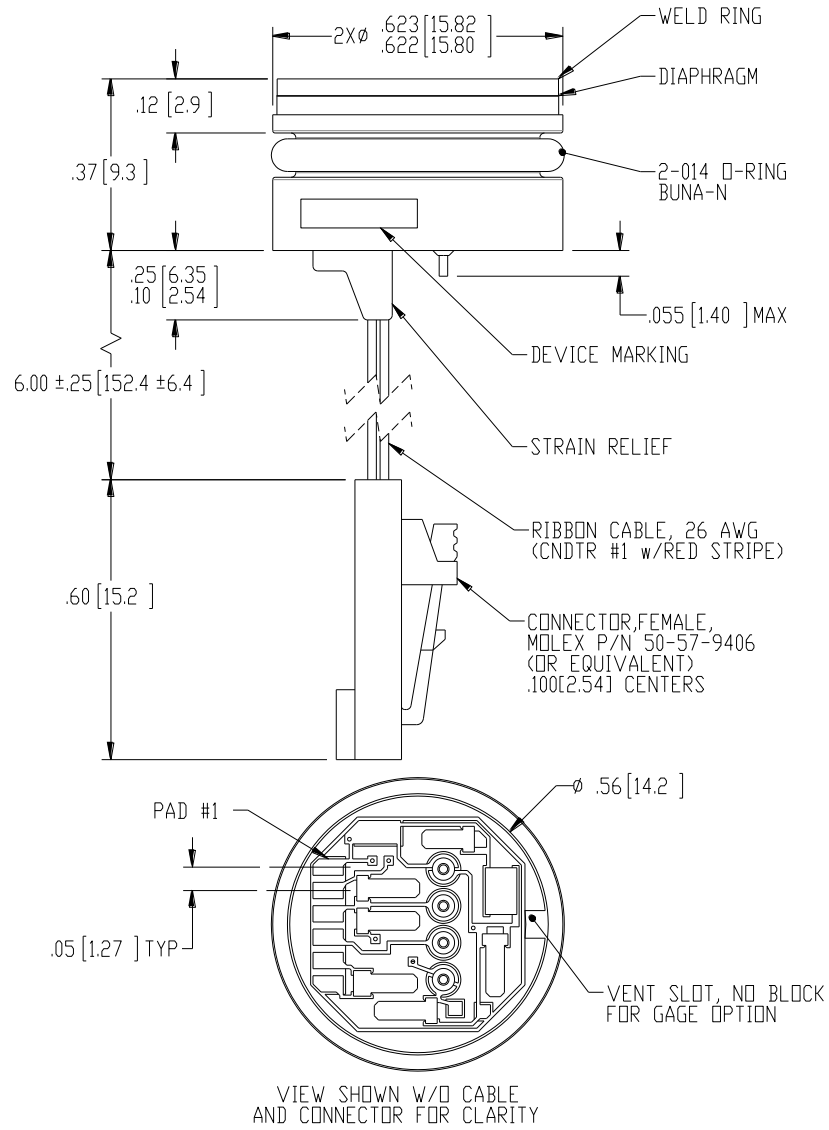
Notes

- For amplified output circuits, 3.012V ±1% interchangeability with gain set resistor. See application schematic.
- Measured at vacuum for absolute (A), ambient for gage (G).
- Best fit straight line.
- Over the compensated temperature range with respect to 25°C.
- Guarantees output/input ratiometricity.
- Load resistance to reduce measurement errors due to output loading.
- Between case and sensing element.
- 2X or 500psi, whichever is less. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
- 3X or 600psi, whichever is less. 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.

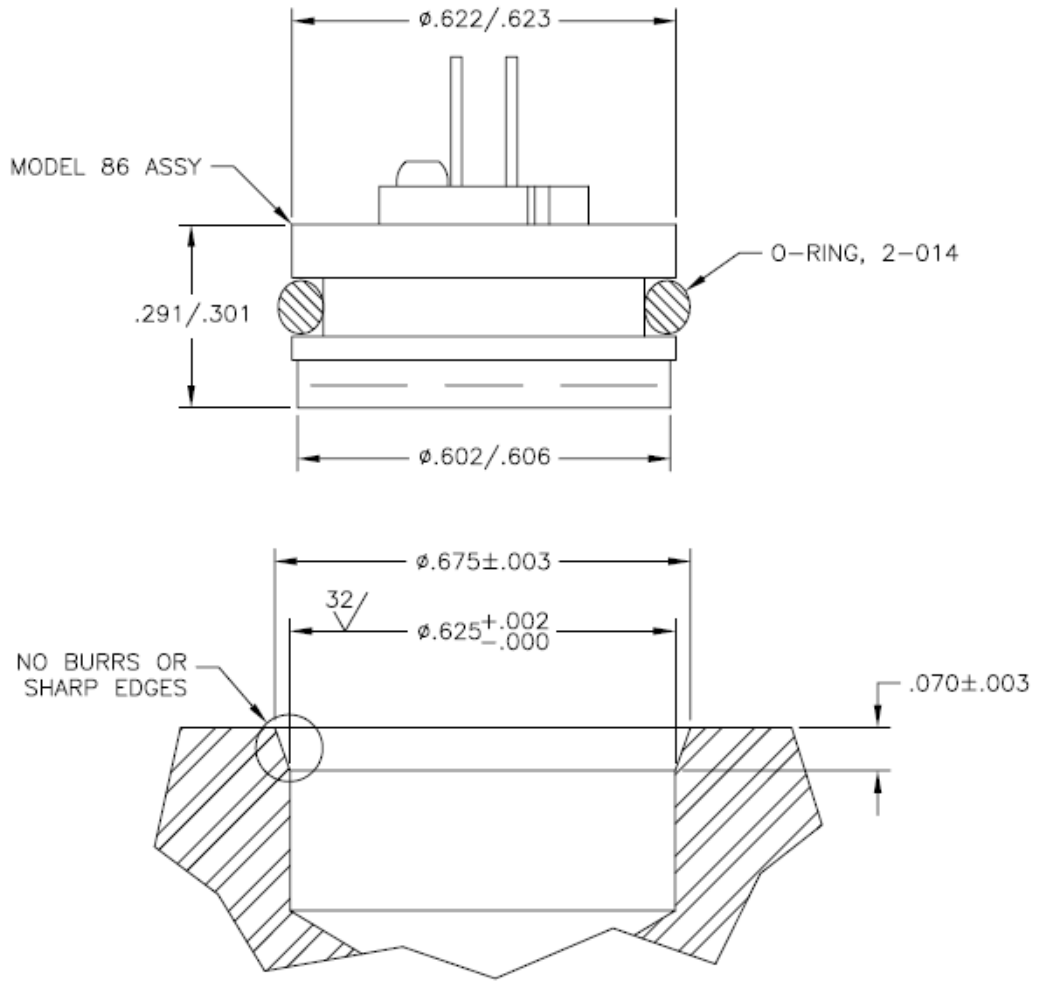
Additional Notes

- Direct mechanical contact with diaphragm is prohibited. Diaphragm surface must remain free of defects (scratches, punctures, dents, fingerprints, etc.) for device to operate properly. Caution is advised when handling parts with exposed diaphragms. Use protective cap whenever devices are not in use.
- Standard gage units are not recommended for vacuum applications.

DIMENSIONS



| SENSOR PINOUT | |
|---------------|----------|
| PIN NO. | FUNCTION |
| 1 | +OUT |
| 2 | -EX |
| 3 | +EX |
| 4 | -OUT |
| 5 | GAIN |
| 6 | |



APPLICATION SCHEMATIC

