



## 154NVU

### Vacuum Gage, Uncompensated

#### SPECIFICATIONS

- 316L SS Pressure Sensor
- 19mm Diameter
- Vacuum Gage

#### FEATURES

- O-Ring Mount
- -40°C to +125°C Operating Temperature
- Up to  $\pm 0.2\%$  Pressure Non-Linearity
- Solid State Reliability

#### APPLICATIONS

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

Model 154NVU is an uncompensated, micro-machined, piezoresistive silicon pressure sensor designed for vacuum gage applications, packaged in a 316L Stainless Steel housing.

This product features O-ring mounting and is designed for OEM applications where compatibility with corrosive media is required. The sensing package utilizes silicone oil to transfer pressure from the 316L Stainless Steel diaphragm to the sensing element.

For additional Model 154N products designed for vacuum gage applications, datasheets for Compensated and Constant Voltage configurations are available.

#### STANDARD RANGES

| Range    | psi |
|----------|-----|
| 0 to 15  | •   |
| 0 to 30  | •   |
| 0 to 50  | •   |
| 0 to 100 | •   |
| 0 to 300 | •   |
| 0 to 500 | •   |

## PERFORMANCE SPECIFICATIONS

Unless otherwise specified: Supply Current: 1.5mA, Ambient Temperature: 25°C

| PARAMETERS                                 | MIN  | TYP   | MAX  | UNITS      | NOTES |
|--|--|-------|------|------------|-------|
| Sensitivity                                | 12   |       | 27   | mV/V @Span |       |
| Zero Pressure Output                       | -6.0   |       | 8.0  | mV/V       | 1     |
| Pressure Non-Linearity                     | -0.2   |       | 0.2  | %Span      | 2     |
| Pressure Hysteresis                        | -0.05  |       | 0.05 | %Span      |       |
| Repeatability                              |  | ±0.02 |      | %Span      |       |
| Bridge Resistance                          | 3.8  |       | 5.8  | kΩ         | 3     |
| Thermal Hysteresis – Span                  | -0.25  | ±0.05 | 0.25 | %Span      | 4     |
| Thermal Hysteresis – Offset                | -0.25  | ±0.05 | 0.25 | %Span      | 4     |
| Temperature Coefficient – Resistance       | 1.30   | 1.51  | 1.75 | kPPM/°C    | 4     |
| Temperature Coefficient – Span             | -1.65  | -1.25 | -1.0 | kPPM/°C    | 4     |
| Temperature Coefficient – Offset           | -30  |       | 30   | μV/V/°C    | 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         |       |
| Supply Voltage                             |  | 5     | 9.5  | V          |       |
| Output Noise (10Hz to 1kHz)                |  | 1.0   |      | μV p-p     |       |
| Response Time (10% to 90%)                 |  | 0.1   |      | ms         |       |
| Insulation Resistance (50V <sub>DC</sub> ) | 50   |       |      | MΩ         | 5     |
| Pressure Overload                          |  |       | 3X   | Rated      | 6     |
| Pressure Burst                             |  |       | 4X   | Rated      | 7     |
| Operating Temperature                      | -40  |       | +125 | °C         |       |
| Storage Temperature                        | -50  |       | +125 | °C         |       |
| Media – Pressure Port                      | Liquids and Gases compatible with 316/316L Stainless Steel |       |      |            |       |

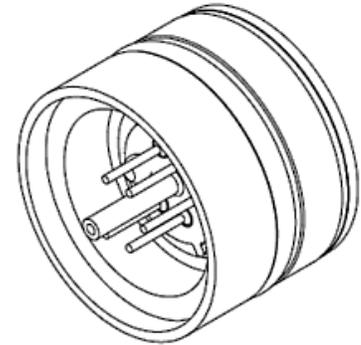
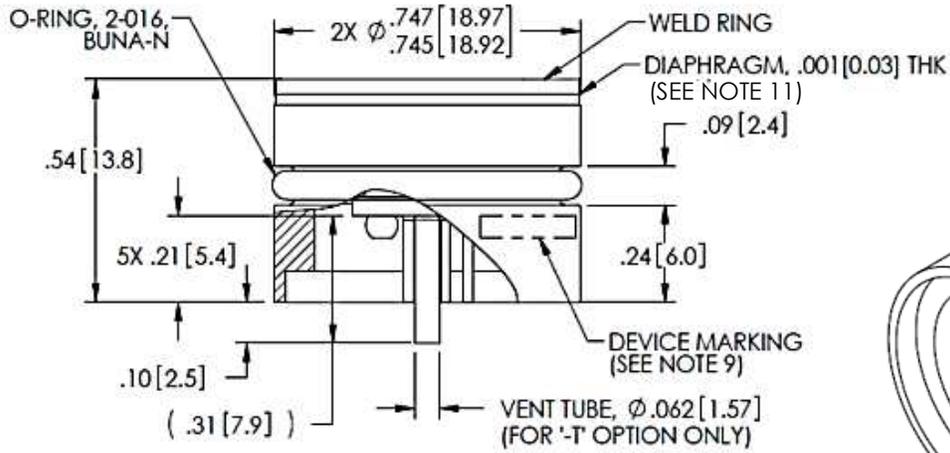
## Notes

1. Measured at Ambient Pressure.
2. Best fit straight line.
3. Bridge resistance is measured with both –E pins shorted together.
4. TC values are first order coefficients to a quadratic fit over a temperature range of -20 to +85°C.
5. Between case and sensing element.
6. The maximum pressure that can be applied without changing the transducer's performance or accuracy.
7. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
8. Testing:
  - 8.1 Units are not tested over temperature or pressure
  - 8.2 A final electrical test (@ 1.5mA) is performed to verify parts are electrically alive.
  - 8.3 All units are subjected to 100% drift test.
9. Marking:
 

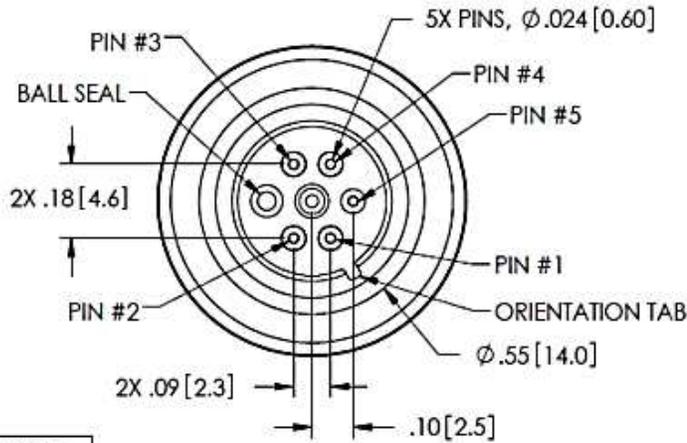
Each part is identified with Model Number, Pressure Range, Type, Lot Number, Serial Number and Date Code
10. Shipping/Packaging:
 

The diaphragm is protected by static dissipative cap. Each is packaged individually in a plastic vial with anti-static foam.
11. 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.

DIMENSIONS



REFERENCE VIEW

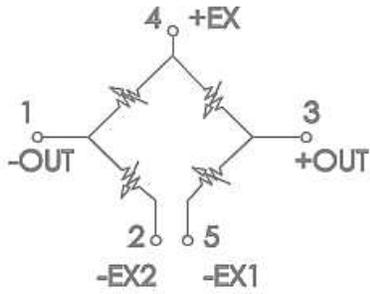


| SENSOR PINOUT |          |
|---------------|----------|
| PIN NO        | FUNCTION |
| 1             | -OUT     |
| 2             | -EX2     |
| 3             | +OUT     |
| 4             | +EX      |
| 5             | -EX1     |

# 154N

Vacuum Gage, Uncompensated

## CONNECTIONS



## ORDERING INFORMATION

154N - 030 V - U I

| Pressure Range [psi] |  |
|----------------------|--|
| 015                  |  |
| 030                  |  |
| 050                  |  |
| 100                  |  |
| 300                  |  |
| 500                  |  |

| Pressure Type |             |
|---------------|-------------|
| V             | Vacuum Gage |

| Vent    |         |
|---------|---------|
| T       | Tube    |
| [Blank] | No Tube |

| Electrical |                     |
|------------|---------------------|
| U          | Open Bridge, Uncomp |