82VC

Vacuum Gage, Compensated

SPECIFICATIONS

- **316L SS Pressure Sensor**
- **19mm Diameter Package**
- **0 - 100mV Output**
- **Vacuum Gage**
- **Temperature Compensated**

FEATURES

- O-Ring Mount/Threaded Process Fittings
- -40ºC to +125ºC Operating Temperature Range
- Up to ±0.1% 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	psi
0 to 15	•
0 to 30	•
0 to 50	•
0 to 100	•
0 to 300	•
0 to 500	•

Model 82VC is a compensated, micro-machined, piezoresistive silicon pressure sensor designed for vacuum gage applications, packaged in a 316L Stainless Steel housing. This pressure sensor is offered in a standard O-ring mountable configuration or with a variety of threaded fittings such as 1/4NPT, 1/8NPT and 1/4BSP. Custom fittings can be manufactured upon request.

This product 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. 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 ±1%.

For additional Model 82 products designed for vacuum gage applications, a datasheet for the Uncompensated configuration is available.

PERFORMANCE SPECIFICATIONS

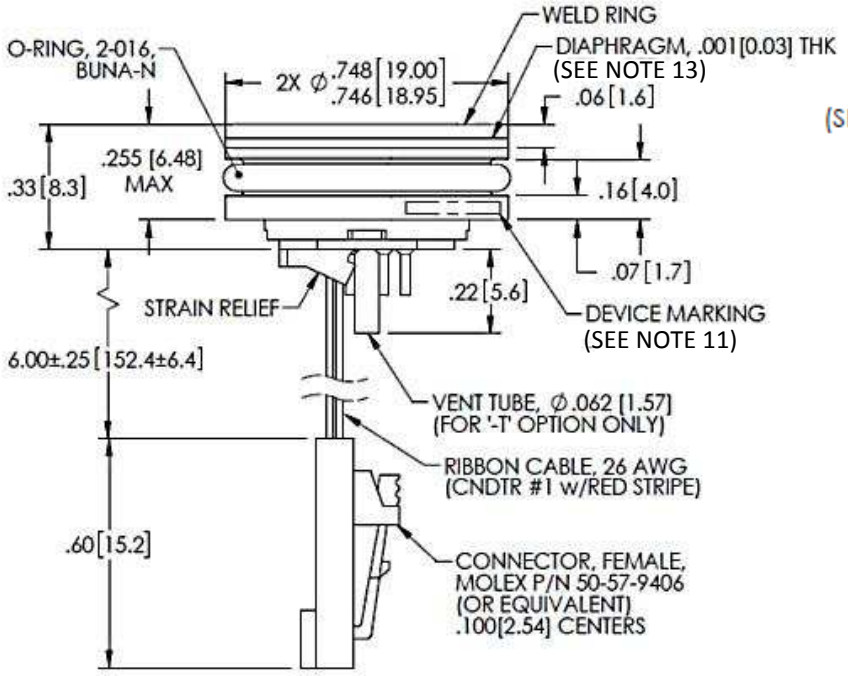
Unless otherwise specified: Supply Current: 1.5mA; Ambient Temperature: 25°C

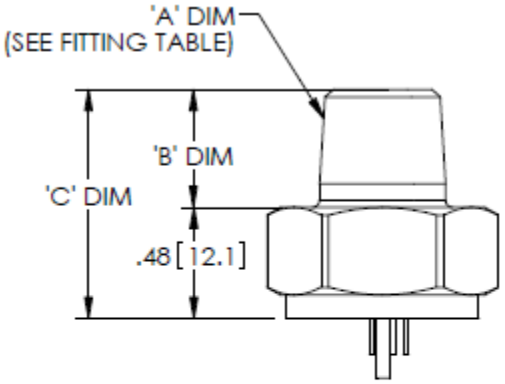
PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Span	75	100	150	mV	1
Zero Pressure Output	-1.0	0	1.0	mV	2
Pressure Nonlinearity	-0.10		0.10	%Span	3
Pressure Hysteresis	-0.05	±0.02	0.05	%Span	
Repeatability		±0.02		%Span	
Input Resistance	2000	3500	5800	Ω	
Output Resistance	4000		6000	Ω	
Temperature Error – Span	-0.75		0.75	%Span	4
Temperature Error – Offset	-0.75		0.75	%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 (50Vdc)	50			MΩ	7
Output Noise (10Hz to 1KHz)		1.0		µV p-p	
Response Time (10% to 90%)		0.1		ms	
Pressure Overload			3X	Rated	8
Pressure Burst			4X	Rated	9
Compensated Temperature	-20		+85	ºC	
Operating Temperature	-40		+125	ºC	10
Storage Temperature	-50		+125	ºC	10
Media – Pressure Port	Liquids and Gases compatible with 316/316L Stainless Steel				

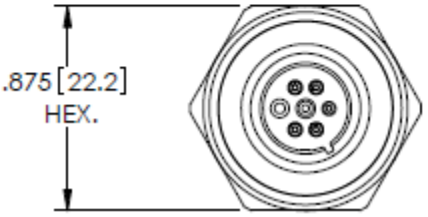
Notes

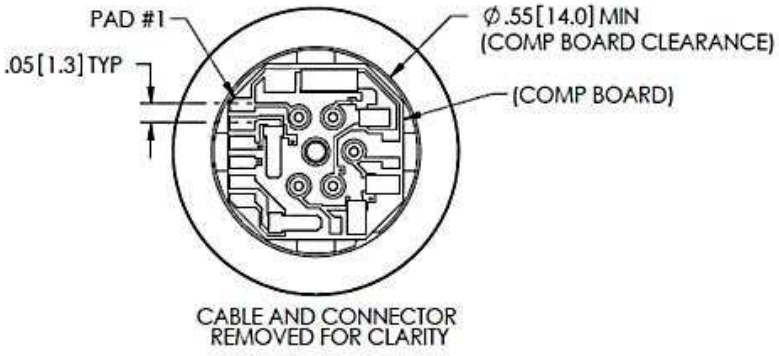
1. For amplified output circuits, 3.012V ±1% interchangeability with gain set resistor. See application schematic.
2. Measured at Ambient Pressure
3. Best fit straight line.
4. Over the compensated temperature range with respect to 25°C.
5. Guarantees output/input ratiometricity.
6. Load resistance to reduce measurement errors due to output loading.
7. Between case and sensing element.
8. The maximum pressure that can be applied without changing the transducer's performance or accuracy
9. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
10. The maximum temperature range for product with standard cable and connector is -20°C to +105°C.
11. Device marking:
    Each part is identified with Model Number, Pressure Range, Type, Lot Number, Serial Number and Date Code.
12. Shipping/Packaging
    The stainless steel diaphragm is protected by a static dissipative cap (no fitting options only). Each unit is packaged individually in a plastic vial with antistatic foam.
13. 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 caps whenever devices are not in use.

DIMENSIONS





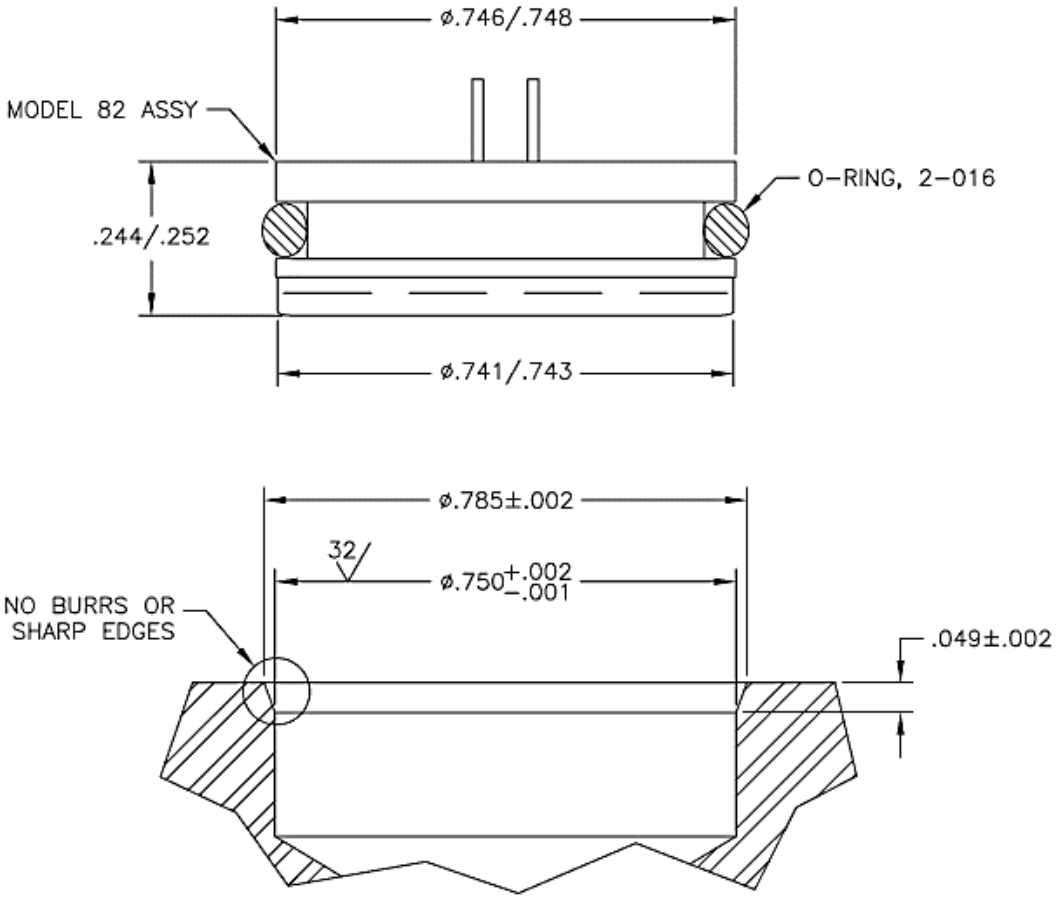




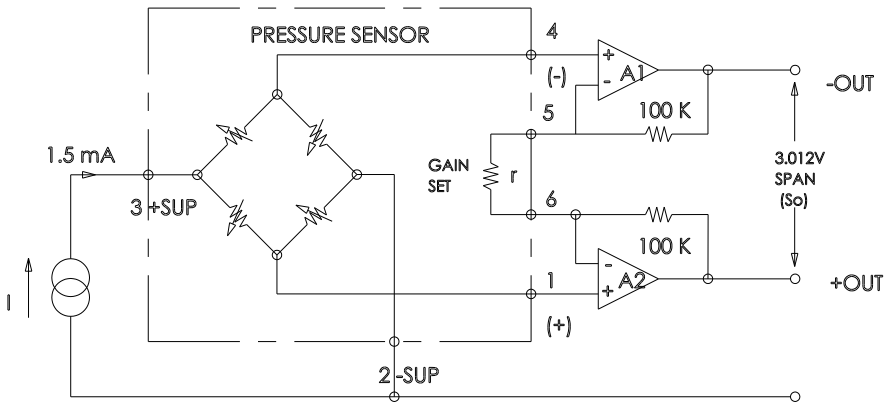
SENSOR PINOUT	
PAD NO	FUNCTION
1	+OUT
2	-EX
3	+EX
4	-OUT
5	GAIN
6	

PROCESS FITTING DIMENSIONS				
FITTING TYPE	MEMS P/N	'A' DIM	'B' DIM	'C' DIM
1	IC-7152	1/4-18 NPT	.50[12.7]	.98[24.9]
2	IC-D00510	1/8-27 NPT	.47[11.9]	.95[24.1]
3	IC-D00511	7/16-20 UNF	.33[8.4]	.80[20.3]
9	IC-D00512	1/4-19 BSP	.45[11.4]	.93[23.3]
NOTE: FITTING TYPE '1' ASSEMBLY SHOWN ALL DIMS ARE FOR REFERENCE.				

RECOMMENDED MOUNTING DIMENSIONS



APPLICATION SCHEMATIC



ORDERING INFORMATION

82 – 030 V – 3 P T

Pressure Range [psi]
015
030
050
100
300
500

Pressure Type	
V	Vacuum Gage

Vent	
T	Tube
[Blank]	No Tube

Electrical	
P	Solder Pads
R	Ribbon Cable
C	Cable w/Connector

Fitting Type	
[Blank]	Weldable (No Fitting)
1	1/4-18 NPT
2	1/8-27 NPT
3	7/16-20 UNF
9	1/4-19 BSP

Refer to Fitting Table for more information

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