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# 85

## Compensated

## SPECIFICATIONS

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

## Features

- Weldable/Threaded Process Fittings
- -40ºC to +125ºC Operating Temperature Range
- Up to ±0.1% Pressure Non-Linearity
- Solid State Reliability
- 1.0% Interchangeable Span (provided by gain set resistor)

## Applications

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

The 85 compensated is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 85 compensated is offered in a weldable package or with a variety of threaded fittings such as 1/4 and 1/8NPT, 1/4BSP as well as custom process fittings.

The 85 compensated is designed for 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 ±1%.

Please refer to the 85 uncompensated and constant voltage datasheets for more information on different features of the 85

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## Specifications

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

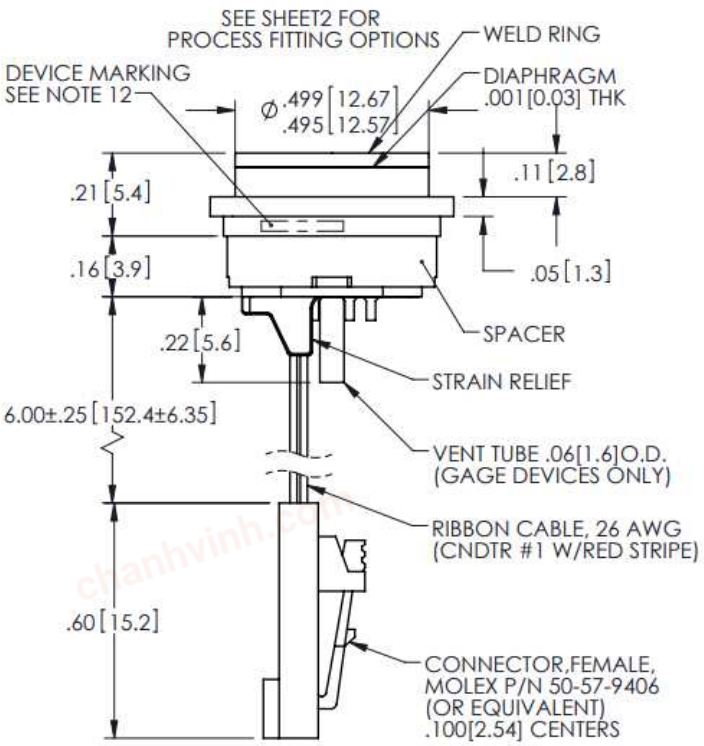
| PARAMETERS | 005PSI | | | ≥015PSI | | | UNITS | NOTES |
|---|---|---|---|---|---|---|---|---|
| | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Span | 50 | 100 | 150 | 75 | 100 | 150 | mV | 1 |
| Zero Pressure Output | -2.0 | 0 | 2.0 | -1.0 | 0 | 1.0 | mV | 2 |
| Pressure Non Linearity | -0.20 | - | 0.20 | -0.10 | - | 0.10 | %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 | 3.5K | 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 | -2.5 | - | 2.5 | -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 | ºC | 10 |
| Storage Temperature | -50 | - | 125 | -50 | - | 125 | ºC | 10 |
| Media – Pressure Port | Liquids and Gases compatible with 316/316L Stainless Steel | | | | | | | |

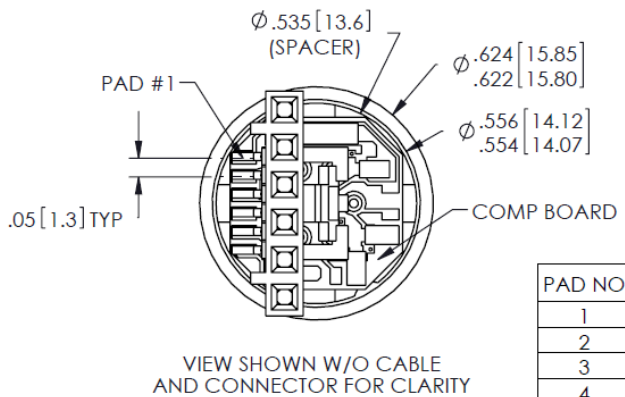
**Notes**

1. For amplified output circuits, 3.012V ±1% interchangeability with gain set resistor. See application schematic.
2. Measured at vacuum for absolute (A), ambient for gage (G).
3. Best fit straight line.
4. Over the compensated temperature range with respect to 25°C.
5. 15psi range sensors have a temperature error – offset of ±0.75% (max).
6. Guarantees output/input ratiometricity.
7. Load resistance to reduce measurement errors due to output loading.
8. Between case and sensing element.
9. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
10. Maximum temperature range for product with standard cable and connector is -20 to +105°C.
11. Standard Gage Units are not recommended for vacuum applications. For vacuum applications below1/2 atmosphere, consult factory.
12. Device marking:
    Each part shall be identified with Model Number, Pressure Range, Type, lot Number, Serial number and Date Code.
13. Shipping/Packaging requirements:
    The stainless steel diaphragm is protected by a plastic CAP. Each unit will be packaged individually in a plastic vial with anti-static foam.
14. 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

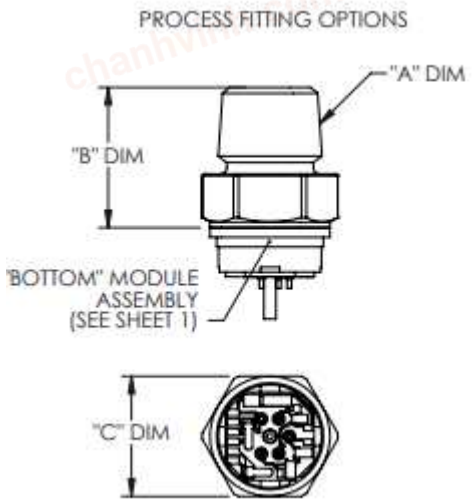
Dimensions are in inches【㎜】




VIEW SHOWN W/O CABLE
AND CONNECTOR FOR CLARITY

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

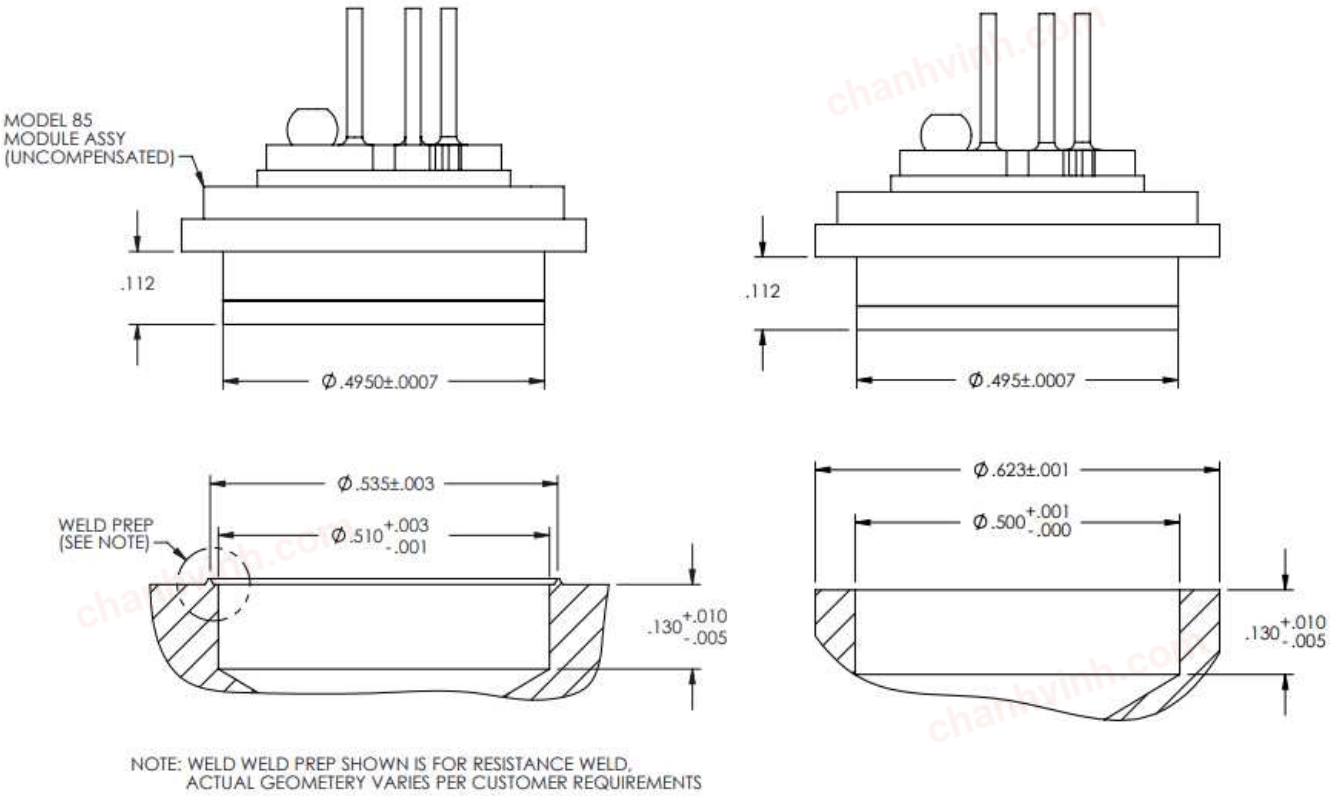



| FITTING DIMENSIONS | | | |
|---|---|---|---|
| FITTING TYPE | "A" DIM | "B" DIM | "C" DIM |
| 1 | 1/4-18 NPT | .99[25.1] | 7/8[22.2] HEX |
| 2 | 1/8-27 NPT | .96[24.4] | 7/8[22.2] HEX |
| 3 | 7/16-20 UNF | .81[20.6] | 7/8[22.2] HEX |
| 4 | 1/4-18 NPT | .73[18.5] | 5/8[15.9] HEX |
| 5 | 1/4-19 BSP | .76[19.3] | 3/4[19.0] HEX |
| 8 | 1/8-27 NPT | .60[15.2] | 5/8[15.9] HEX |
| 9 | 1/4-19 BSP | .94[23.9] | 7/8[22.2] HEX |
| NOTE : FTG TYPE '4' ASSEMBLY SHOWN<br>ALL DIMS ARE FOR REFERENCE | | | |

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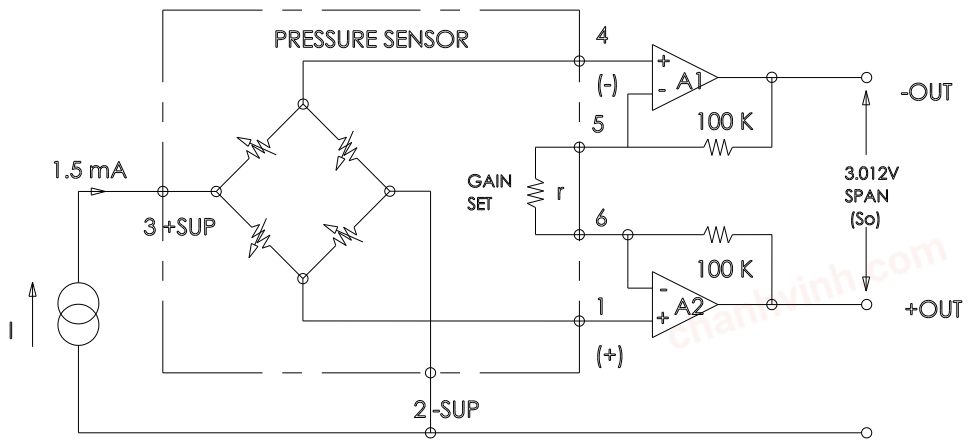


## RECOMMENDED MOUNTING DIMENSIONS




NOTE: WELD WELD PREP SHOWN IS FOR RESISTANCE WELD,
ACTUAL GEOMETERY VARIES PER CUSTOMER REQUIREMENTS

## APPLICATION SCHEMATIC



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## ORDERING INFORMATION

**Part Number**

85 – 030 G – 8 C T

| Pressure Range [psi] |
|---|
| 005 |
| 015 |
| 030 |
| 050 |
| 100 |
| 300 |
| 500 |

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

| Electrical | |
|---|---|
| R | Ribbon cable |
| C | Cable W Connector |
| P | Solder Pads |

| Pressure Type | |
|---|---|
| G | Gage |
| A | Absolute |

| Fitting Type | |
|---|---|
| Code | Port Type |
| 0 | Weldable,No thread |
| 1 | 1/4 NPT,7/8 HE X |
| 2 | 1/8 NPT,7/8 HEX |
| 3 | 7/16 UNF,7/8 HEX |
| 4 | 1/4 NPT,5/8 HEX |
| 5 | 1/4 BSP,3/4 HEX |
| 8 | 1/8 NPT,5/8 HEX |
| 9 | 1/4 BSP,7/8 HEX |

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