



85 Constant Voltage

SPECIFICATIONS

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

The 85CV is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 85-constant voltage 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.

This product 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.

Please refer to the 85 uncompensated and compensated datasheets for more information on different features of the 85.

FEATURES

- Weldable and Threaded Process Fittings
- -40°C to +125°C Operating Temperature
- Up to $\pm 0.1\%$ 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)

STANDARD RANGES

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

PERFORMANCE SPECIFICATIONS

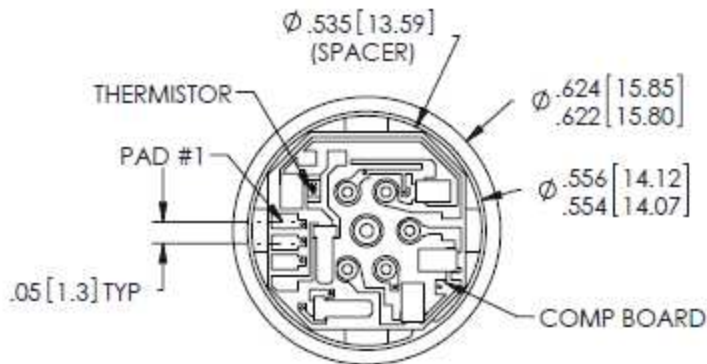
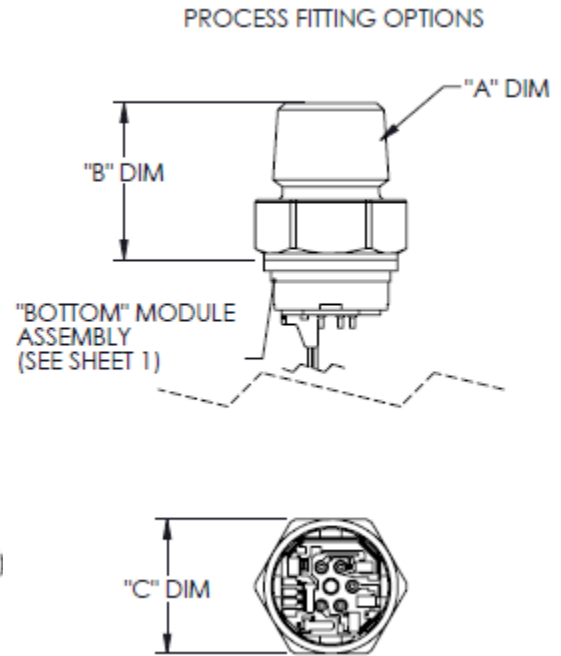
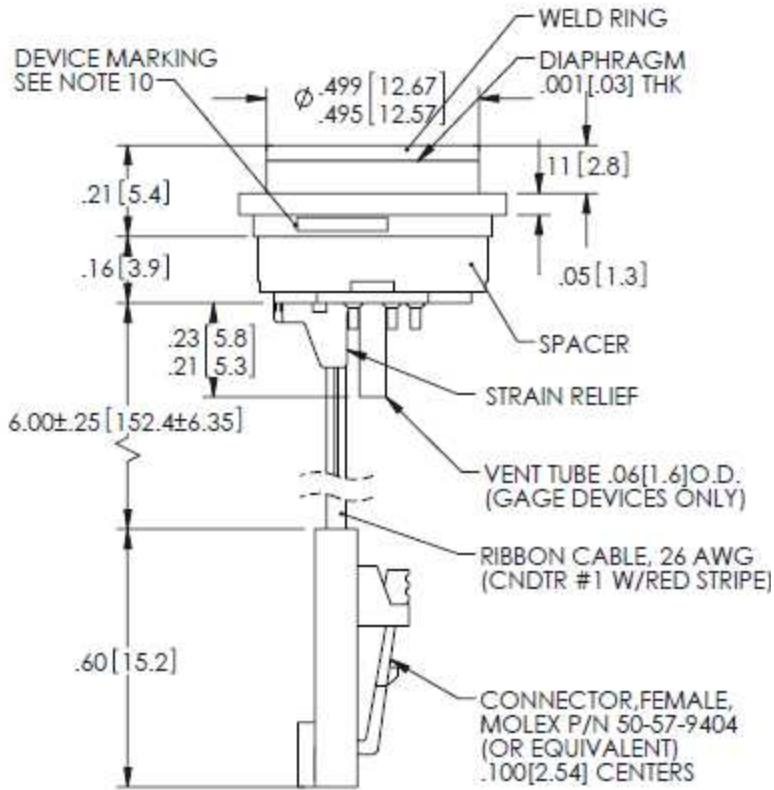
Unless otherwise specified: Supply Voltage: 10V_{DC}; Ambient Temperature: 25°C

| PARAMETERS | 005PSI | | | ≥015PSI | | | UNITS | NOTES |
|--|---|-------|-------|---------|-------|-------|-----------------|-------|
| | MIN | TYP | MAX | MIN | TYP | MAX | | |
| Span | 98 | 100 | 102 | 99 | 100 | 101 | mV | |
| Zero Pressure Output | -2.0 | 0 | 2.0 | -1.0 | 0 | 1.0 | mV | 1 |
| Pressure Non-Linearity | -0.20 | | 0.20 | -0.10 | | 0.10 | %Span | 2 |
| Pressure Hysteresis | -0.10 | ±0.02 | 0.10 | -0.05 | ±0.02 | 0.05 | %Span | |
| Repeatability | | ±0.02 | | | ±0.02 | | %Span | |
| Input Resistance | 5.5K | 9.0K | 12.5K | 5.5K | 9.0K | 12.5K | Ω | |
| Output Resistance | 4.0K | | 6.0K | 4.0K | | 6.0K | Ω | |
| Temperature Error – Span | -1.5 | | 1.5 | -1.0 | | 1.0 | %Span | 3 |
| Temperature Error – Offset | -2.5 | | 2.5 | -1.0 | | 1.0 | %Span | 3 |
| Thermal Hysteresis – Span | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | %Span | 3 |
| Thermal Hysteresis – Offset | -0.25 | ±0.05 | 0.25 | -0.25 | ±0.05 | 0.25 | %Span | 3 |
| Long Term Stability – Span | | ±0.10 | | | ±0.10 | | %Span/Year | |
| Long Term Stability – Offset | | ±0.25 | | | ±0.10 | | %Span/Year | |
| Supply Voltage | | 10 | 14 | | 10 | 14 | V _{DC} | 4 |
| Output Load Resistance | 5M | | | 5M | | | Ω | 5 |
| Insulation Resistance (50V _{DC}) | 50M | | | 50M | | | Ω | 6 |
| 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 | 7 |
| Compensated Temperature | 0 | | +50 | -20 | | +85 | °C | 8 |
| Operating Temperature | -20 | | +70 | -40 | | +125 | °C | 8 |
| Storage Temperature | -40 | | +125 | -50 | | +125 | °C | 8 |
| 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

1. Measured at vacuum for absolute (A), ambient for gage (G).
2. Best fit straight line.
3. Over the compensated temperature range with respect to 25°C.
4. Guarantees output/input ratiometricity.
5. Load resistance to reduce measurement errors due to output loading.
6. Between case and sensing element.
7. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
8. Maximum temperature range for product with standard cable and connector is -20 to +105°C.
9. Standard Gage units are **NOT** recommended for vacuum applications below 1/2 atmosphere, consult factory.
10. Device Marking:
Each part shall be identified with Model Number, Pressure Range, Type, Lot Number, Serial Number and Date Code
11. Shipping/Packaging
The Stainless Steel Diaphragm is protected by a plastic cap (No Fitting Options). Each unit will be packaged individually in a plastic vial with anti-static foam.
12. 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

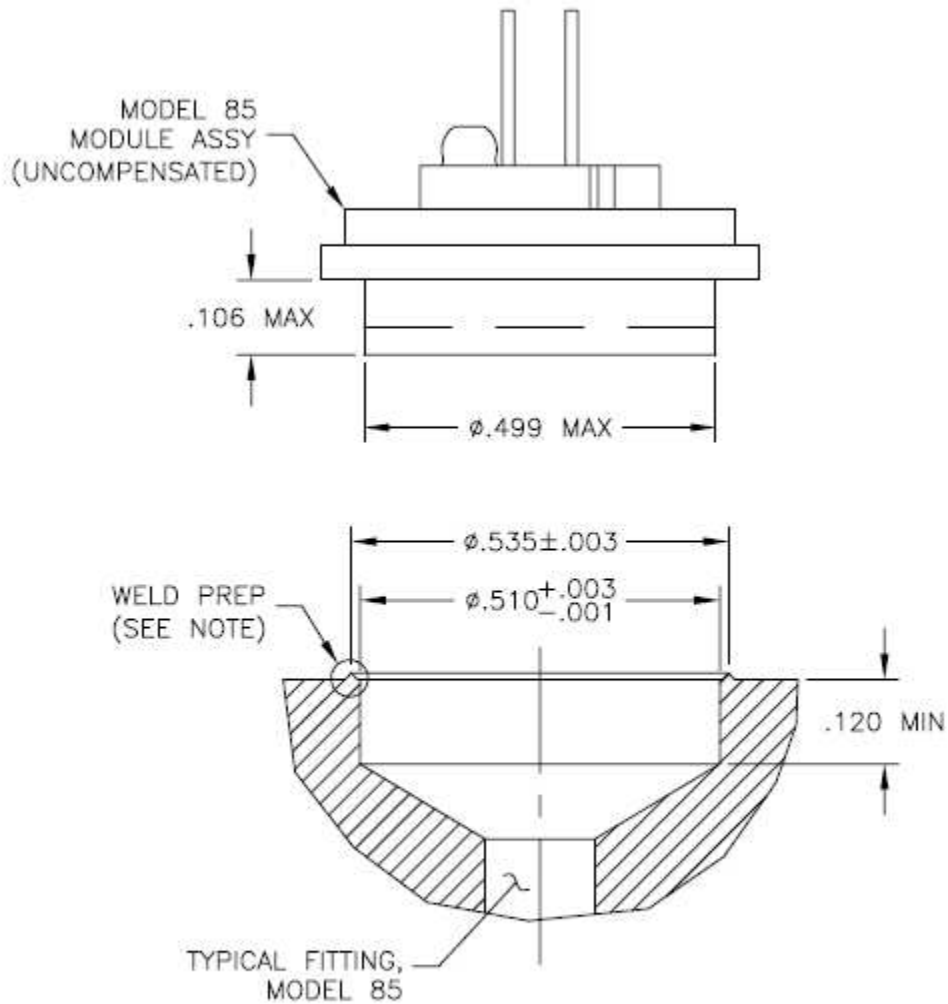


VIEW SHOWN W/O CABLE AND CONNECTOR FOR CLARITY

| FITTING DIMENSIONS | | | | |
|--------------------|---------------|-------------|------------|----------------|
| FITTING TYPE | MEAS PART NO. | "A" DIM | "B" DIM | "C" DIM |
| 1 | IC-7050 | 1/4-18 NPT | .99 [25.1] | 7/8 [22.2] HEX |
| 2 | IC-7049 | 1/8-27 NPT | .96 [24.4] | 7/8 [22.2] HEX |
| 3 | IC-7048 | 7/16-20 UNF | .81 [20.6] | 7/8 [22.2] HEX |
| 4 | IC-6754 | 1/4-18 NPT | .73 [18.5] | 5/8 [15.9] HEX |
| 5 | IC-5010 | 1/4-19 BSP | .76 [19.3] | 3/4 [19.0] HEX |
| 8 | IC-6800 | 1/8-27 NPT | .60 [15.2] | 5/8 [15.9] HEX |
| 9 | IC-7124 | 1/4-19 BSP | .94 [23.9] | 7/8 [22.2] HEX |

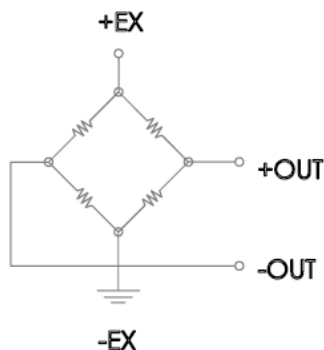
| PAD NO | FUNCTION |
|--------|----------|
| 1 | -OUT |
| 2 | +OUT |
| 3 | -EX |
| 4 | +EX |

RECOMMENDED MOUNTING DIMENSIONS



NOTE: WELD PREP SHOWN IS FOR RESISTANCE WELD. ACTUAL GEOMETRY VARIES PER CUSTOMER REQUIREMENTS.

APPLICATION SCHEMATIC



ORDERING INFORMATION

85CV - 030 A - 3 C I

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

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

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

| Electrical | |
|------------|--------------------|
| R | Ribbon cable |
| C | Cable w/ Connector |

| Fitting Type | |
|--------------|-------------------|
| Code | Port Type |
| 1 | 1/4 NPT, 7/8 HEX |
| 2 | 1/8 NPT, 7/8 HEX |
| 3 | 7/16 UNF, 7/8 HEX |
| 4 | 1/4 NPT, 3/4 HEX |
| 5 | 1/4 NPT, 3/4 HEX |
| 8 | 1/8 NPT, 5/8 Hex |
| 9 | 1/4 BSP, 7/8 HEX |

For Weldable Fitting, use '0'



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