

## 85 Compensated

### SPECIFICATIONS

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

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  $\pm 1\%$ .

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

## FEATURES

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

Supply Current: 1.5mA

Ambient Temperature: 25°C (unless otherwise specified)

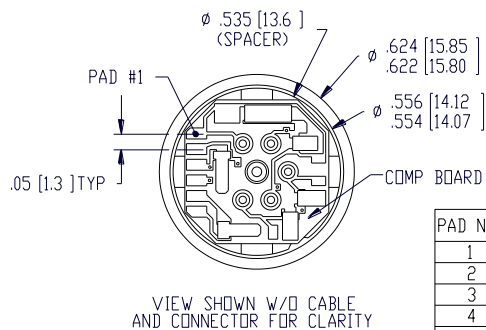
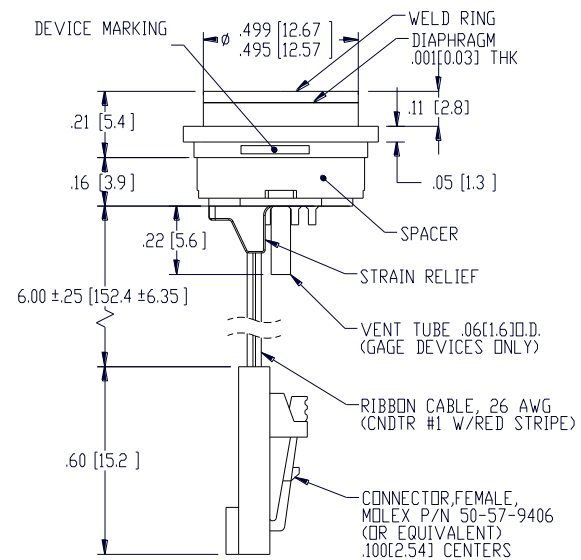
| PARAMETERS                    | 005PSI                                                                                    |       |      | ≥15PSI |       |      | UNITS      | NOTES |
|-------------------------------|-------------------------------------------------------------------------------------------|-------|------|--------|-------|------|------------|-------|
|                               | MIN                                                                                       | TYP   | MAX  | MIN    | TYP   | MAX  |            |       |
| Span                          | 75                                                                                        | 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              | 2.0K                                                                                      | 3.5K  | 5.8K | 2.0K   | 3.5K  | 5.8K | Ω          |       |
| Output Resistance             | 4.0K                                                                                      |       | 6.0K | 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 | °C         | 10    |
| Storage Temperature           | -50                                                                                       |       | +125 | -50    |       | +125 | °C         | 10    |
| 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

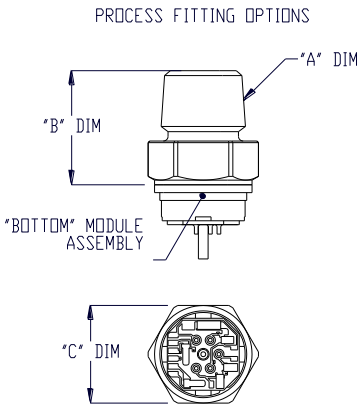
- For amplified output circuits, 3.012V ±1% interchangeability with gain set resistor. See application schematic.
- Measured at vacuum for absolute (A), ambient for gage (G).
- Best fit straight line.
- Over the compensated temperature range with respect to 25°C.
- 15psi range sensors have a temperature error – offset of ±0.75% (max).
- Guarantees output/input ratiometricity.
- Load resistance to reduce measurement errors due to output loading.
- Between case and sensing element.
- 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 to +105°C.

DIMENSIONS

DIMENSIONS ARE IN INCHES [mm]

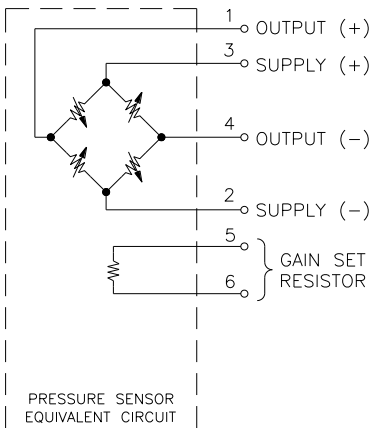


| PAD NO | FUNCTION |
|--------|----------|
| 1      | +OUT     |
| 2      | -EX      |
| 3      | +EX      |
| 4      | -OUT     |
| 5      | GAIN     |
| 6      |          |

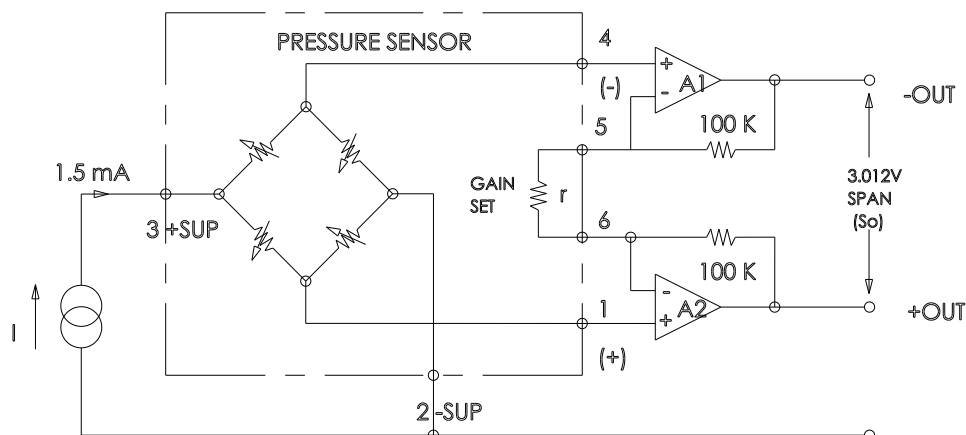


| FITTING DIMENSIONS                                               |               |             |           |               |
|------------------------------------------------------------------|---------------|-------------|-----------|---------------|
| FITTING TYPE                                                     | 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 |
| NOTE : FTG TYPE '4' ASSEMBLY SHOWN<br>ALL DIMS ARE FOR REFERENCE |               |             |           |               |

CONNECTIONS

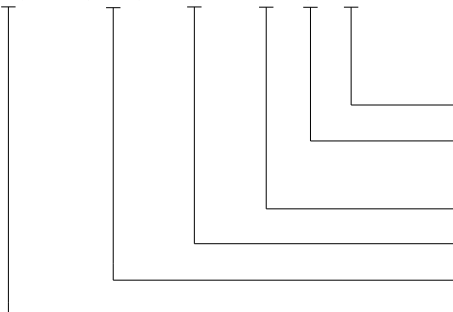


## APPLICATION SCHEMATIC



## ORDERING INFORMATION

**85 - 050 G - 0 C T**



Vent (T = Tube, Blank = No Tube)  
Electrical (P = Solder Pads, R = Ribbon Cable  
C = Cable with connector)  
Fitting Type (0 = Weldable, See Fittings)  
Type (A = Absolute, G = Gage)  
Pressure Range  
Model

### NORTH AMERICA

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