



✓ RoHS

## 89 Compensated

### SPECIFICATIONS

- ♦ **316L SS Pressure Sensor**
- ♦ **High Pressure**
- ♦ **0 - 100mV Output**
- ♦ **Absolute and Sealed Gage**

The 89 compensated is a small profile, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The 89 compensated features 5/16-32 UNEF threads and can be welded in place. It can also be packaged in a variety of threaded fittings such as 1/4 and 1/8NPT, 1/4BSP as well as custom process fittings. Contact factory for threaded fitting options.

The 89 compensated is designed for high pressure 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 compensated 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 89 uncompensated and constant voltage datasheets for more information on different features of the 89.

## FEATURES

- ◆ Threaded Process Fittings or O-Ring Mount
- ◆ -40°C to +125°C Operating Temperature Range
- ◆  $\pm 0.25\%$  Pressure Non Linearity
- ◆ Solid State Reliability

## APPLICATIONS

- ◆ Hydraulic Controls
- ◆ Process Control
- ◆ Pressure Calibrators
- ◆ Refrigeration/Compressors

## STANDARD RANGES

| Range     | psia | psis |
|-----------|------|------|
| 0 to 1000 | ◆    | ◆    |
| 0 to 3000 | ◆    | ◆    |
| 0 to 5000 | ◆    | ◆    |
| 0 to 10K  | ◆    | ◆    |

## PERFORMANCE SPECIFICATIONS

**Supply Current: 1.5 mA**

**Ambient Temperature: 25°C (unless otherwise specified)**

| PARAMETERS                      | MIN                                                        | TYP  | MAX  | UNITS    | NOTES |
|---------------------------------|------------------------------------------------------------|------|------|----------|-------|
| Full Scale Output Span          | 75                                                         | 125  | 210  | mV       | 1     |
| Zero Pressure Output            | -1.0                                                       |      | 1.0  | mV       |       |
| Pressure Non Linearity          | -0.25                                                      |      | 0.25 | %Span    | 2     |
| Pressure Hysteresis             | -0.1                                                       |      | 0.1  | %Span    |       |
| Input Resistance                | 3000                                                       | 4000 | 5000 | Ω        |       |
| Output Resistance               | 4000                                                       |      | 6000 | Ω        |       |
| Temperature Error – Span        | -0.75                                                      |      | 0.75 | %Span    | 3     |
| Temperature Error – Zero        | -0.75                                                      |      | 0.75 | %Span    | 3     |
| Thermal Hysteresis – Span       | -0.25                                                      |      | 0.25 | %Span    | 3     |
| Thermal Hysteresis – Zero       | -.025                                                      |      | 0.25 | %Span    | 3     |
| Long Term Stability – Zero/Span |                                                            | ±0.1 |      | %Span/yr |       |
| Supply Current                  | 0.5                                                        | 1.5  | 2.0  | mA       |       |
| Output Load Resistance          | 5                                                          |      |      | MΩ       | 4     |
| Insulation Resistance (50Vdc)   | 50                                                         |      |      | MΩ       | 5     |
| Pressure Overload               |                                                            |      | 3X   | Rated    | 6     |
| Pressure Burst                  |                                                            |      | 4X   | Rated    | 7     |
| Operating Temperature           | -40                                                        |      | +125 | °C       | 8     |
| Compensated Temperature Range   | -20                                                        |      | +85  | °C       | 3     |
| Storage Temperature             | -50                                                        |      | +125 | °C       | 8     |
| Weight                          |                                                            |      | 9    | grams    |       |
| Media – Pressure Port           | Liquids and Gases compatible with 316/316L Stainless Steel |      |      |          |       |

### Notes

1. Calculated at FSP, 3000psi and 5000psi parts are tested at 2500psi.
2. Best fit straight line between 0 and FSP.
3. Over the compensated temperature range with respect to +25°C.
4. Load resistance to reduce measurement errors due to output loading.
5. Between case and sensing element.
6. 3X or 20,000psi, whichever is less.
7. 4X or 30,000psi, whichever is less. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
8. Maximum temperature range for this product with standard cable and connector is -20°C to +105°C.

DIMENSIONS

DIMENSIONS ARE IN INCHES [mm]

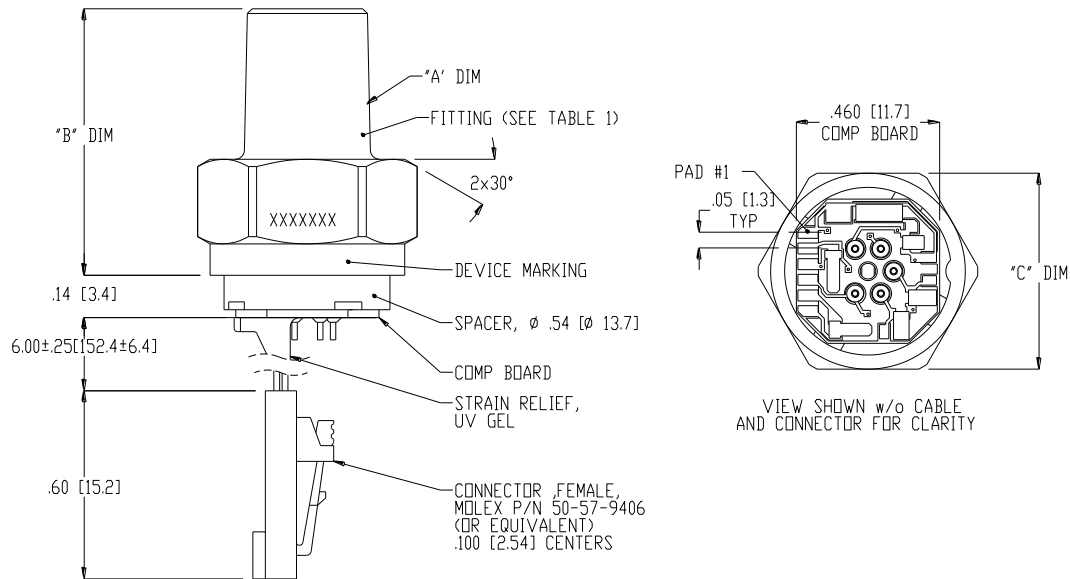
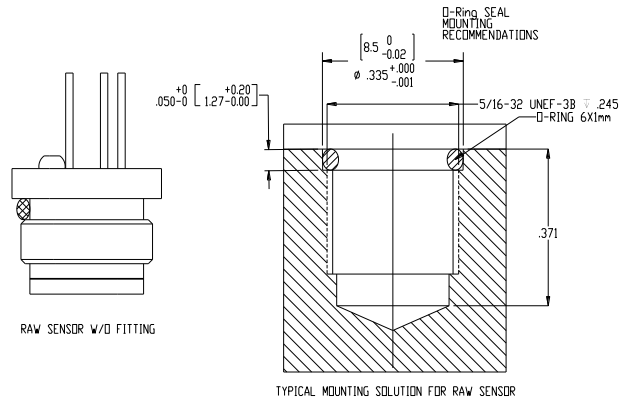
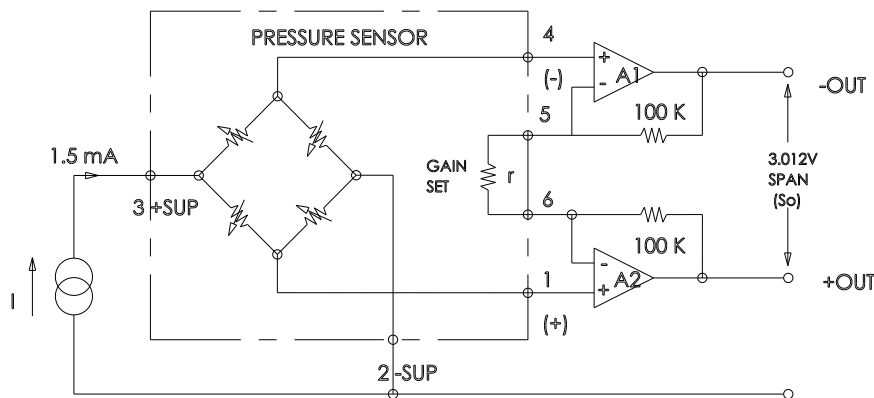


TABLE 1: FITTING DIMENSION

| TABLE 1: FITTING DIMENSION                                                |                                                                             |             |           |                |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------|-------------|-----------|----------------|
| FITTING TYPE                                                              | MEAS P/N                                                                    | "A" DIM     | "B" DIM   | "C" DIM        |
| 1                                                                         | IC-D00364                                                                   | 1/4-18 NPT  | .93[23.6] | 7/8 [22.2] HEX |
| 2                                                                         | IC-D00365                                                                   | 1/8-27 NPT  | .91[23.1] | 7/8 [22.2] HEX |
| 3                                                                         | IC-D00366                                                                   | 7/16-20 UNF | .77[19.6] | 7/8 [22.2] HEX |
| 4                                                                         | IC-D00348                                                                   | 1/4-18 NPT  | .82[20.8] | 5/8 [15.9] HEX |
| 5                                                                         | IC-D00367                                                                   | 1/4-19 BSP  | .82[20.8] | 3/4 [19.0] HEX |
| 8                                                                         | IC-D00349                                                                   | 1/8-27 NPT  | .69[17.5] | 5/8 [15.9] HEX |
| 9                                                                         | IC-D00368                                                                   | 1/4-19 BSP  | .89[22.6] | 7/8 [22.2] HEX |
| 0                                                                         | NO FITTING, CERAMIC NOT SOLDERED ON PINS BUT ATTACHED TOGETHER FOR SHIPPING |             |           |                |
| NOTE : FITTING TYPE "4" ASSEMBLY SHOWN<br>ALL DIMS ARE FOR REFERENCE ONLY |                                                                             |             |           |                |



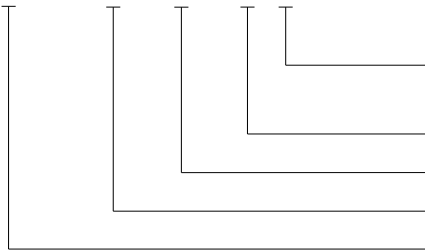
CONNECTIONS



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

ORDERING INFORMATION

89 - 01K A - 0 P



Electrical (P = Solder Pads, R = Ribbon Cable,  
C = Cable w/ Connector)  
Fitting Type  
Type (A = Absolute, S = Sealed Gage)  
Pressure Range  
Model

NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
Tel: 800-522-6752  
Email: [customercare.frmt@te.com](mailto:customercare.frmt@te.com)

EUROPE

Measurement Specialties (Europe), Ltd.,  
a TE Connectivity Company  
Tel: 800-440-5100  
Email: [customercare.lcsb@te.com](mailto:customercare.lcsb@te.com)

ASIA

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a TE Connectivity Company  
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