



## DP86

### Constant Voltage with Fitting

#### SPECIFICATIONS

- ◆ **316L SS**
- ◆ **Wet/Wet Differential**
- ◆ **Low Pressure**
- ◆ **0 – 100mV Output**

The DP86 constant voltage with fitting differential pressure sensor is a double-sided, media compatible, piezoresistive silicon pressure sensor packaged in a 316L stainless steel housing. The DP86 constant voltage with fitting can be designed with up to 8 different threaded process fittings. The sensing package utilizes silicone oil to transfer pressure from the two 316L stainless steel diaphragms to a single sensing element.

The DP86 constant voltage with fitting is designed for high performance, low pressure applications where differential pressure measurement is required. The stainless steel package makes it suitable for use in liquids and corrosive environments.

Please refer to the DP86, uncompensated, non-silicone oil, constant current and constant voltage (fittings and cable design) for more information on different features of the DP86.

## FEATURES

Threaded Process Fittings  
 Up to -40°C to +125°C Operating Range  
 Up to ±0.1% Pressure Non Linearity  
 Solid State Reliability  
 Low Pressure

## APPLICATIONS

Level Controls  
 Tank Level Measurement  
 OEM Equipment  
 Corrosive Fluids and Gas Measurement Systems  
 Flow Measurements

## STANDARD RANGES

| Range    | psid | Range    | bard |
|----------|------|----------|------|
| 0 to 1   | *    | 0 to .07 | *    |
| 0 to 5   | *    | 0 to .35 | *    |
| 0 to 15  | *    | 0 to 001 | *    |
| 0 to 30  | *    | 0 to 002 | *    |
| 0 to 50  | *    | 0 to 3.5 | *    |
| 0 to 100 | *    | 0 to 007 | *    |
| 0 to 300 | *    | 0 to 020 | *    |
| 0 to 500 | *    | 0 to 035 | *    |

## PERFORMANCE SPECIFICATIONS

Supply Voltage: 10Vdc

Ambient Temperature: 25°C (unless otherwise specified)

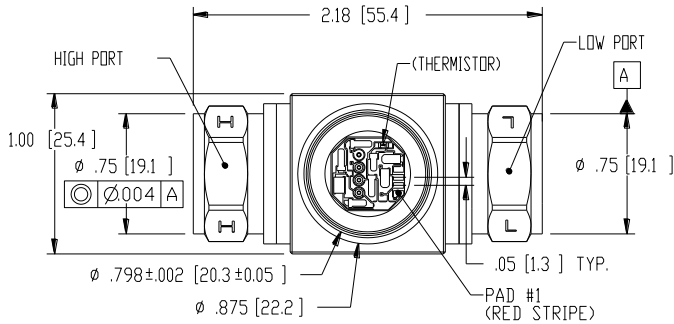
| PARAMETERS                    | ≤005PSI   |   |       | ≥015PSI |       |       | UNITS       | NOTES |
|-------------------------------|---|---|-------|---------|-------|-------|-------------|-------|
|                               | MIN   | TYP   | MAX   | MIN     | TYP   | MAX   |             |       |
| Span                          |   | 1psi: 77, 80, 83<br>5psi: 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        |   | 1psi: -0.30 to 0.30<br>5psi: -0.20 to 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       |       |
| Accuracy RMS of NL, HY, RP    |   | ±0.6  | ±1.0  |         | ±0.6  | ±1.0  | %Span       |       |
| Input Resistance              | 5500  | 9000  | 12500 | 5500    | 9000  | 12500 | Ω           |       |
| Output Resistance             | 4000  |   | 30000 | 4000    |       | 25000 | 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       | 4     |
| 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  |       |
| Line (Common Mode) Pressure   |   |   | 1000  |         |       | 1000  | psi         |       |
| Line Pressure Effect on Zero  |   | 1psi: 4.0 Max<br>5psi: 0.8 Max                |       |         |       | 0.5   | %Span/1Kpsi |       |
| Supply Voltage                |   | 10  | 14    |         | 10    | 14    | V           | 4     |
| Output Load Resistance        | 5   |   |       | 5       |       |       | MΩ          | 5     |
| Insulation Resistance (50Vdc) | 50  |   |       | 50      |       |       | MΩ          | 6     |
| Output Noise (10Hz to 1KHz)   |   | 1.0   |       |         | 1.0   |       | uV p-p      |       |
| Response Time (10% to 90%)    |   | 0.1   |       |         | 0.1   |       | ms          |       |
| Pressure Overload             |   | 1psi: 10X Max<br>5psi: 3X Max                 |       |         |       | 3X    | Rated       | 7     |
| Pressure Burst                |   | 1psi: 12X Max<br>5psi: 4X Max                 |       |         |       | 4X    | Rated       | 7     |
| Compensated Temperature       |   | 1psi: 0°C to 50°C<br>5psi: 0°C to 70°C        |       | -20     |       | +85   | °C          |       |
| Operating Temperature         |   | 1psi: -40°C to +85°C<br>5psi: -40°C to +125°C |       | -40     |       | +125  | °C          | 8     |
| Storage Temperature           | -40   |   | +125  | -40     |       | +125  | °C          | 8     |
| Voltage Breakdown             | 500V rms @ 50Hz, Leakage Current < 1mA                                |   |       |         |       |       |             |       |
| Shock                         | 50g, 1msec half sine shock per MIL-STD-202G, Method 213B, Condition A |   |       |         |       |       |             |       |
| Vibration                     | ±20g MIL-STD 810C, Procedure 514.2, Figure 514.2-2, Curve L           |   |       |         |       |       |             |       |
| Media – Pressure Port         | Liquids and gases compatible with 316/316L Stainless Steel            |   |       |         |       |       |             |       |

## Notes

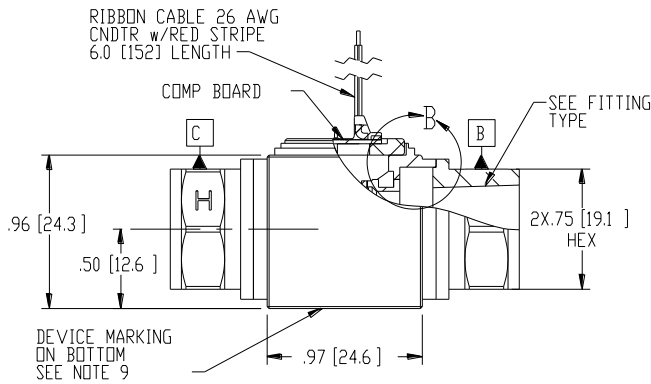
1. Measured at ambient.
2. Best fit straight line
3. Over the compensated temperature range with respect to 25°C.
4. Guarantees output/input ratiometricity.
5. Load resistance to reduce measurement errors due to output loading.
6. Between case and sensing element.
7. For “H” (high-end) port, rated or 1000psi whichever is less. For “L” (low-end) port rated or 150psi whichever is less. The maximum pressure that can be applied to a transducer without rupture of either the sensing element or transducer.
8. -40°C to +125°C for 5psi. Maximum temperature for product with standard cable and connector is -20°C to +105°C.

**DIMENSIONS**

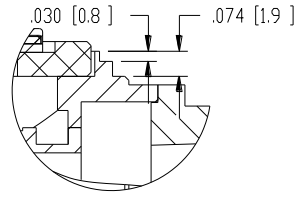
Dimensions are in inches [mm]



VIEW SHOWN w/o CABLE FOR CLARITY



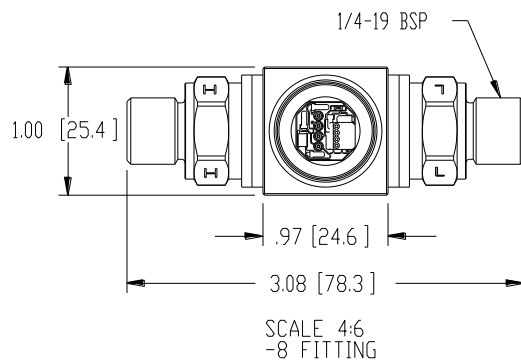
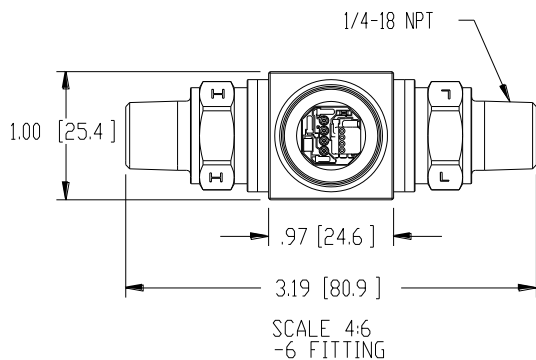
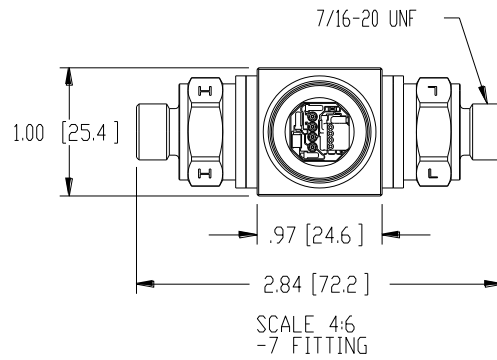
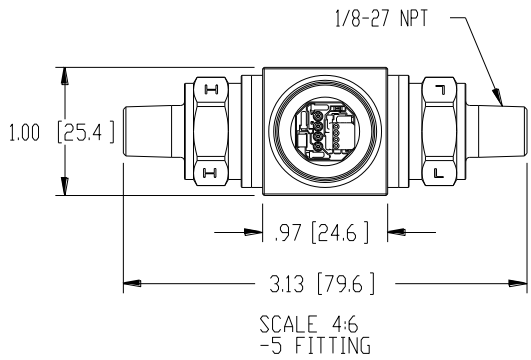
SCALE 1:1  
-1~-4 FITTING



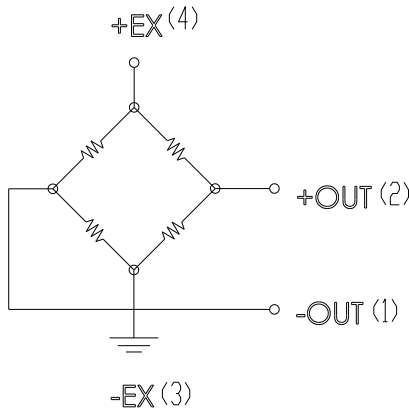
DETAIL B  
SCALE 2 : 1

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

| FITTING TYPE |                              |
|--------------|------------------------------|
| 1            | 1/8-27 NPT, FEMALE, 3/4 HEX  |
| 2            | 1/4-18 NPT, FEMALE, 3/4 HEX  |
| 3            | 7/16-20 UNF, FEMALE, 3/4 HEX |
| 4            | 1/4-19 BSP, FEMALE, 3/4 HEX  |
| 5            | 1/8-27 NPT, MALE, 3/4 HEX    |
| 6            | 1/4-18 NPT, MALE, 3/4 HEX    |
| 7            | 7/16-20 UNF, MALE, 3/4 HEX   |
| 8            | 1/4-19 BSP, MALE, 3/4 HEX    |

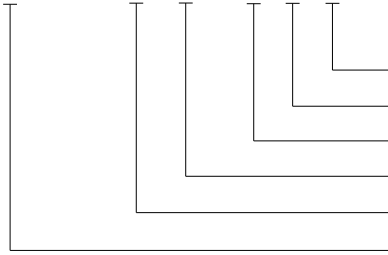


CONNECTIONS



ORDERING INFORMATION

DP86 - 015P - 1 V R



- Electrical (C = Ribbon Cable with Connector, R = Ribbon Cable)
- Type (V = Constant Voltage, Compensated)
- Fitting (See Fitting Table)
- Unit (P = psi, B = Bar)
- Pressure Range
- Model



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