# DP86 Constant Voltage with Cable



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

## DESCRIPTION

The DP86 constant voltage with cable 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 cable is designed for o-ring mounting. 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 cable 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

- O-Ring Mount
- Up to -40ºC to +125ºC 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 | • |

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## 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 | 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 | |
| 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 | ºC | 8 |
| Storage Temperature | -40 | | +125 | -40 | | +125 | ºC | 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 | | | | | | | |

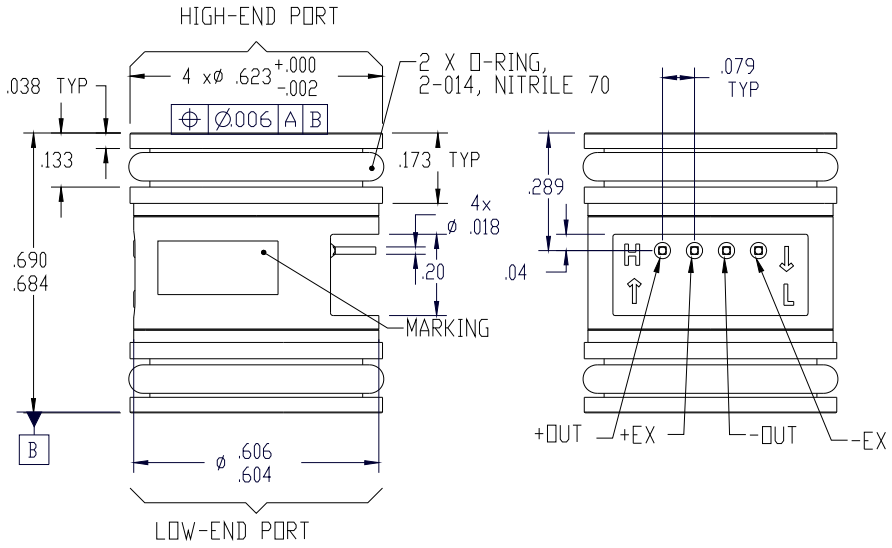
**Notes**

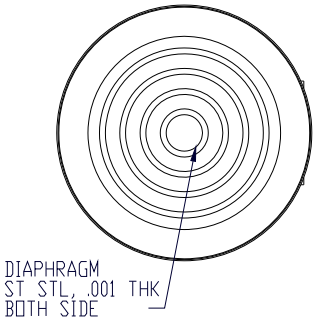
1. Measured at ambient.
2. Best fit straight line
3. Over the compensated temperature range with respect to 25°C.
4. Guarantees output/input ratiometricity.
5. Load resistance to reduce measurement errors due to output loading.
6. Between case and sensing element.
7. For “H” (high-end) port, rated or 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. Maximum temperature range for product with standard cable and connector is -20°C to +105°C.

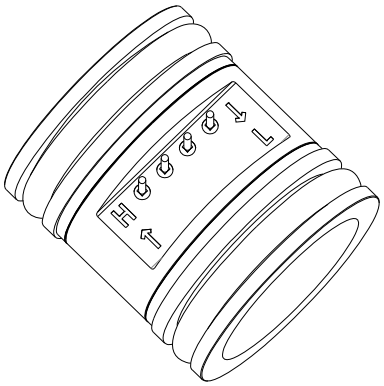
# DP86 Constant Voltage with Cable

## DIMENSIONS

Dimensions are in inches [mm]

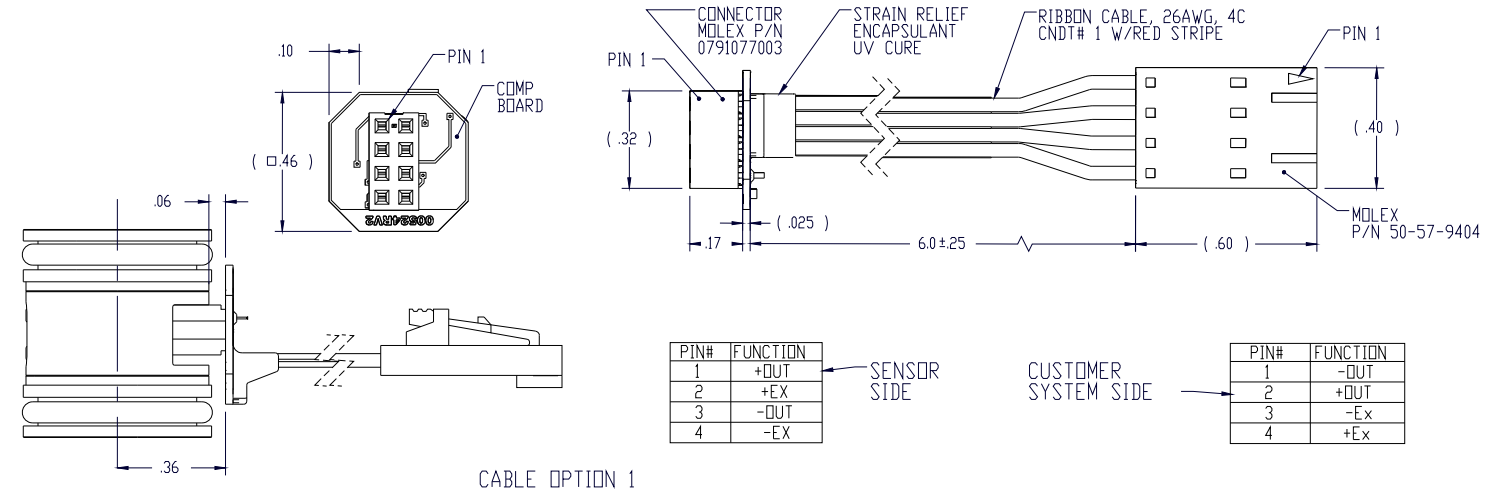


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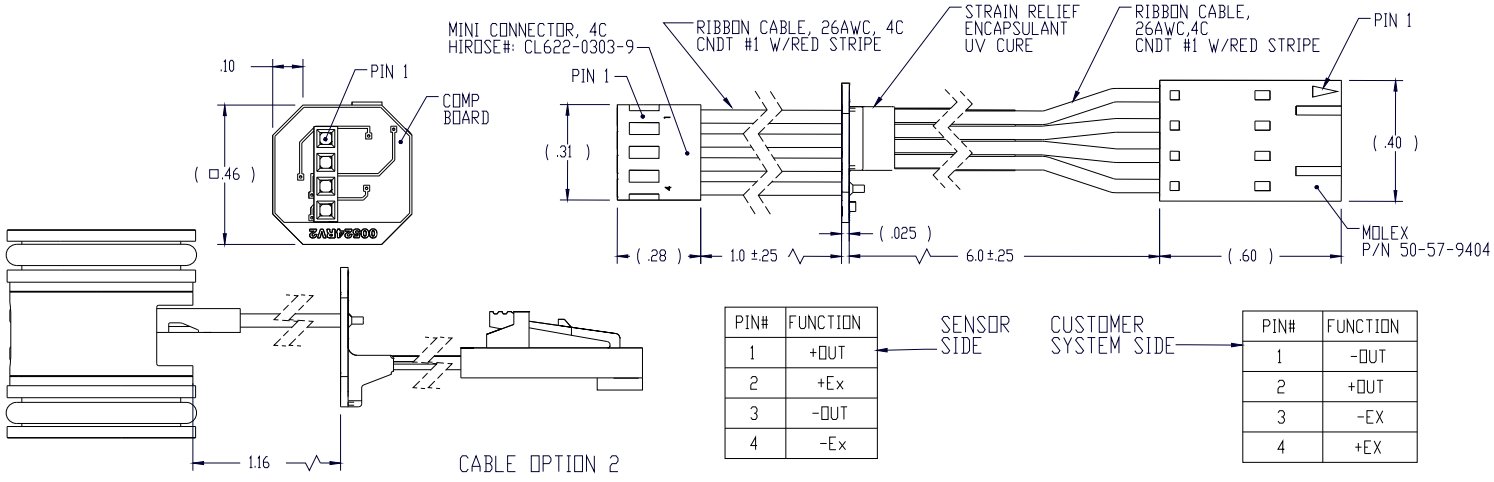

| PIN# | FUNCTION |
|---|---|
| 1 | +OUT |
| 2 | +EX |
| 3 | -OUT |
| 4 | -EX |

SENSOR SIDE

CUSTOMER SYSTEM SIDE

| PIN# | FUNCTION |
|---|---|
| 1 | -OUT |
| 2 | +OUT |
| 3 | -Ex |
| 4 | +Ex |

CABLE OPTION 1




| PIN# | FUNCTION |
|---|---|
| 1 | +OUT |
| 2 | +Ex |
| 3 | -OUT |
| 4 | -Ex |

SENSOR SIDE

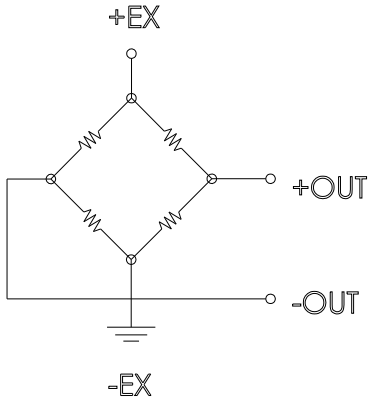
CUSTOMER SYSTEM SIDE

| PIN# | FUNCTION |
|---|---|
| 1 | -OUT |
| 2 | +OUT |
| 3 | -EX |
| 4 | +EX |

CABLE OPTION 2

# DP86 Constant Voltage with Cable

## CONNECTIONS




## ORDERING INFORMATION

DP86 - 015P - 0 V R - 1

- Cable (1 = No Cable on Pin Side, 2 = 1" Cable on Pin Side)
- Electrical (C = Ribbon Cable with Connector, R = Ribbon Cable)
- Type (V = Constant Voltage, Compensated)
- Fitting (Weldable, No Fitting)
- Unit (P = psi, B = Bar)
- Pressure Range
- Model


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