

## H-Grade Pressure Sensors



- 0 to 4" H2O to 0 to 100 PSI Pressure Ranges
- 0.5 % linearity...high accuracy version
- Temperature Compensated
- Calibrated Zero and Span

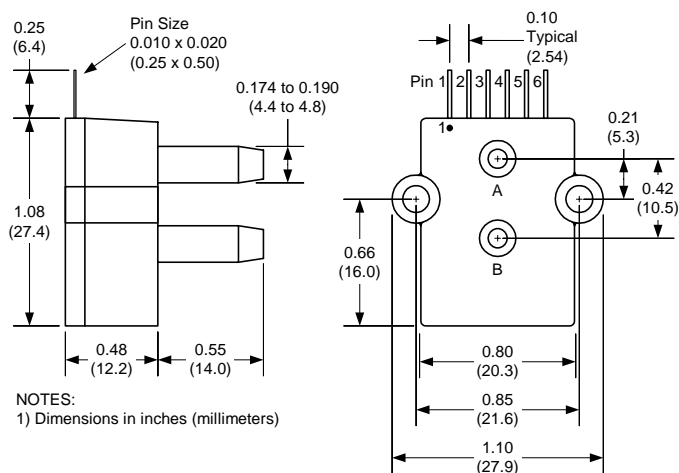
- Medical Instrumentation
- Environmental Controls
- HVAC

The Millivolt Output pressure sensors is based upon a proprietary packaging technology to reduce output offset or common mode errors. This model provides a calibrated millivolt output with excellent output offset characteristics. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The H-GRADE is a high accuracy version of the millivolt output pressure sensors.

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage up to +16 V is acceptable.

## Physical Dimensions



pin 1: N/C  
pin 2: +V supply  
pin 3: +Voutput  
pin 4: -Vsupply  
pin 5: -Voutput  
pin 6: N/C



## Pressure Sensor Characteristics Maximum Ratings

|  |         |
|--|---------|
| Supply Voltage VS                        | 16 Vdc  |
| Common-mode pressure                     | 50 psig |
| Lead Temperature<br>(soldering 2-4 sec.) | 250°C   |

## Environmental Specifications

|                    |                                 |
|--------------------|---------------------------------|
| Temperature Ranges |                                 |
| Compensated        | 0 to 70° C                      |
| Operating          | -25 to 85° C                    |
| Storage            | -40 to 125° C                   |
| Humidity Limits    | 0 to 95% RH<br>(non condensing) |

## Standard Pressure Ranges

| Part Number         | Operating Pressure | Nominal Span | Proof Pressure | Burst Pressure |
|---------------------|--------------------|--------------|----------------|----------------|
| 4 INCH-D-HGRADE-MV  | 0 - 4" H2O         | 40 mV        | 3 PSI          | 15 PSI         |
| 0.3 PSI-D-HGRADE-MV | 0 - 0.3 PSI        | 20 mV        | 5 PSI          | 15 PSI         |
| 1 PSI-D-HGRADE-MV   | 0 - 1 PSI          | 18 mV        | 5 PSI          | 15 PSI         |
| 5 PSI-D-HGRADE-MV   | 0 - 5 PSI          | 60 mV        | 10 PSI         | 30 PSI         |
| 15 PSI-D-HGRADE-MV  | 0 - 15 PSI         | 90 mV        | 60 PSI         | 120 PSI        |
| 30 PSI-D-HGRADE-MV  | 0 - 30 PSI         | 90 mV        | 90 PSI         | 150 PSI        |
| 100 PSI-D-HGRADE-MV | 0 - 100 PSI        | 100 mV       | 200 PSI        | 250 PSI        |
| 15 PSI-A-HGRADE-MV  | 0 - 15 PSIA        | 60 mV        | 60 PSIA        | 120 PSI        |

## Performance Characteristics for 4 INCH-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 4       |         | "H2O  |
| Output Span, note 5                         | 39.5    | 40.0    | 40.5    | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

## Performance Characteristics for 0.3 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 0.3     |         | PSI   |
| Output Span, note 5                         | 19.8    | 20.0    | 20.2    | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

## Performance Characteristics for 1 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 1.0     |         | PSI   |
| Output Span, note 5                         | 17.82   | 18.0    | 18.18   | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

## Performance Characteristics for 5 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 5.0     |         | PSI   |
| Output Span, note 5                         | 59.4    | 60.0    | 60.6    | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

## Performance Characteristics for 15 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 15.0    |         | PSI   |
| Output Span, note 5                         | 89.1    | 90.0    | 90.9    | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

## Performance Characteristics for 30 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 30.0    |         | PSI   |
| Output Span, note 5                         | 89.1    | 90.0    | 90.9    | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |



Performance Characteristics for 100 PSI-D-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, differential pressure      |         | 100.0   |         | PSI   |
| Output Span, note 5                         | 99      | 100     | 101     | mV    |
| Offset Voltage @ zero differential pressure |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

Performance Characteristics for 15 PSI-A-HGRADE-MV

| Parameter, note 1                           | Minimum | Nominal | Maximum | Units |
|---|---------|---------|---------|-------|
| Operating Range, absolute pressure          |         | 15.0    |         | PSIA  |
| Output Span, note 5                         | 89.1    | 90.0    | 90.9    | mV    |
| Offset Voltage @ zero absolute pressure     |         |         | ±0.5    | mV    |
| Offset Temperature Shift (0°C-70°C), note 2 |         |         | ±500    | uV    |
| Linearity, hysteresis error, note 4         |         | 0.25    | 0.5     | %fs   |
| Span Shift (0°C-70°C), note 2               |         |         | ±1      | %fs   |

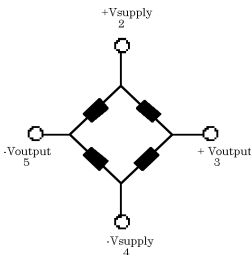
Specification Notes

- NOTE 1: ALL PARAMETERS ARE MEASURED AT 12.0 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH POSITIVE PRESSURE APPLIED TO PORT B.
- NOTE 2: SHIFT IS RELATIVE TO 25°C.
- NOTE 3: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.
- NOTE 4: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.
- NOTE 5: THE VOLTAGE ADDED TO THE OFFSET VOLTAGE AT FULL SCALE PRESSURE.

Pressure Response: for any pressure applied the response time to get to 90% of pressure applied is typically less than 100 useconds.

Equivalent Circuit

Input Resittance 5.0 k ohm  
Output Resistance 3.0 k ohm



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