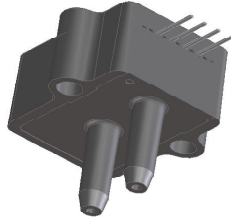


# Millivolt Output Medium Pressure Sensors

**C-Grade**  
Pressure Sensors



## Features

- 0 to 0.3 PSI to 0 to 100 PSI Pressure Ranges
- 1 % linearity version
- Temperature Compensated
- Calibrated Zero and Span

## Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

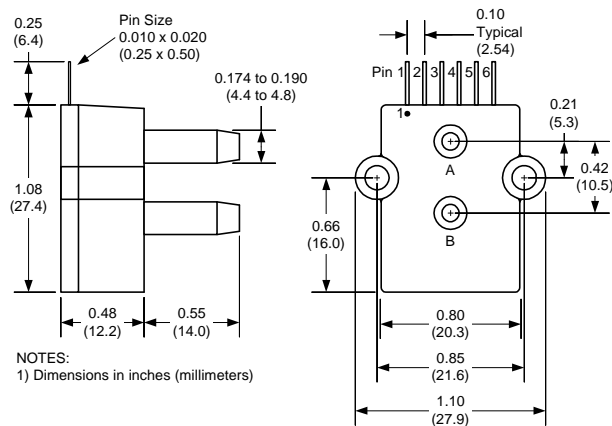
## General Description

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 good 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 C-GRADE is a lowest cost 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**

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

**Environmental Specifications**

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

**Standard Pressure Ranges**

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

**Performance Characteristics for 4 INCH-D-CGRADE-MV**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		4.0		"H2O
Output Span, note 5	38	40.0	42	mV
Offset Voltage @ zero differential pressure			±1.5	mV
Offset Temperature Shift (0°C-50°C), note 2			±1.5	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-50°C), note 2			±2	%fs

**Performance Characteristics for 0.3 PSI-D-CGRADE-MV**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		0.3		PSI
Output Span, note 5	18	20.0	22	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

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

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		1.0		PSI
Output Span, note 5	16	18	20	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

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

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		5.0		PSI
Output Span, note 5	57	60	63	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

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

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		15.0		PSI
Output Span, note 5	86	90.0	94	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

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

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		30.0		PSI
Output Span, note 5	86	90	94	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

**Performance Characteristics for 100 PSI-D-CGRADE-MV**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		100.0		PSI
Output Span, note 5	96	100	104	mV
Offset Voltage @ zero differential pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

**Performance Characteristics for 15 PSI-A-CGRADE-MV**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure		15.0		PSIA
Output Span, note 5	86	90.0	94	mV
Offset Voltage @ zero absolute pressure			±1	mV
Offset Temperature Shift (0°C-70°C), note 2			±1	mV
Linearity, hysteresis error, note 4		0.5	1.0	%fs
Span Shift (0°C-70°C), note 2			±2	%fs

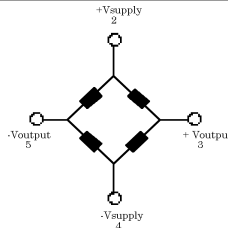
**Specification Notes**

- 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 Resistance      15 kohm  
 Output Resistance      3.0 kohm



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