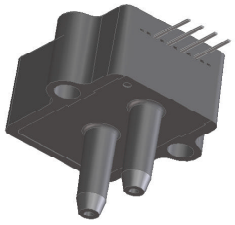
Millivolt Output Medium Pressure Sensors

H-Grade
Pressure Sensors



Features

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

Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

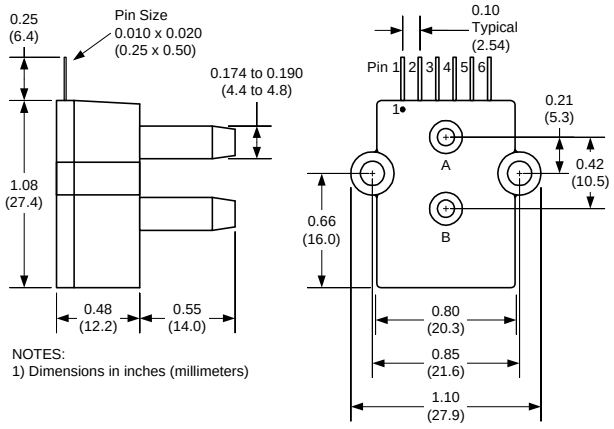
General Description

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 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



NOTES:
1) Dimensions in inches (millimeters)

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 Supply Voltage VS	16 Vdc
Common-mode pressure	50 psig
Lead Temperature (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 (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			±0.3	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			±0.3	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			±0.3	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			±0.3	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			±0.3	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			±0.3	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	15 k ohm
Output Resistance	3.0 k ohm