Millivolt Output Prime Pressure Sensors

Low Pressure (2" H_2O to 30 " H_2O) Sensors

Features

- 0 to 2" H_2O to 0 to 30" H_2O Pressure Ranges
- Temperature Compensated
- Calibrated Zero and Span
- Linearity error 0.1%

Applications

- Medical Instrumentation
- Environmental Controls

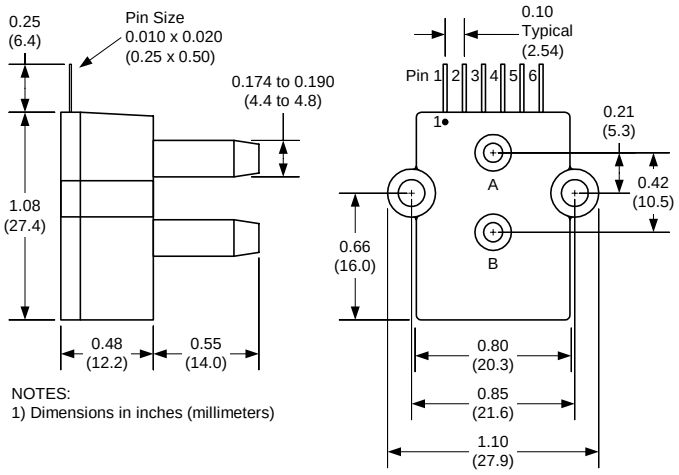
General Description

The Millivolt Output pressure sensors is based upon a proprietary technology to reduce all output offset or common mode errors. This model provides a calibrated millivolt output with superior output offset characteristics. Output offset errors due to change in temperature, stability to warm-up, stability to long time period, and position sensitivity are all significantly reduced when compared to conventional compensation methods. 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 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

a 16035 Vineyard Blvd. Morgan Hill, CA 95037 p 408 225 4314 f 408 225 2079 e www.allsensors.com all sensors

Pressure Sensor Ratings

Supply Voltage VS, max	16 Vdc
Common-mode pressure	-10 to +10 psig
Lead Temperature, max (soldering 2-4 sec.)	250°C

Environmental Specifications

Temperature Ranges	
Compensated	0 to 50(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
2 INCH-D-PRIME-MV	0-2 "H2O	10mv	100 "H2O	200 "H2O
5 INCH-D-PRIME-MV	0-5 "H2O	20mV	200 "H2O	300 "H2O
10 INCH-D-PRIME-MV	0-10 "H2O	20mV	200 "H2O	300 "H2O
20 INCH-D-PRIME-MV	0-20 "H2O	20mV	200 "H2O	500 "H2O
30 INCH-D-PRIME-MV	0-30 "H2O	20mV	200 "H2O	800 "H2O

Performance Characteristics for 2 INCH-D-PRIME-MV

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		2.0		"H2O
Output Span, note 5	9.0	10.0	11.0	mV
Offset Voltage @ zero differential pressure			±100	uV
Offset Temperature Shift (0°C-50°C), note 2			±50	uV
Offset Warm-up Shift, note 3			±100	uV
Offset Position Sensitivity (1g)			±50	uV
Offset Long Term Drift (one year)			±100	uV
Linearity error, note 4		0.05	0.10	%fs
Pressure Hysteresis error, note 4			0.10	%fs
Full Scale Shift (0°C-50°C), note 2			±100	uV

Performance Characteristics for 5 INCH-D-PRIME-MV

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		5.0		"H2O
Output Span, note 5	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure			±100	uV
Offset Temperature Shift (0°C-50°C), note 2			±50	uV
Offset Warm-up Shift, note 3			±20	uV
Offset Position Sensitivity (1g)			±10	uV
Offset Long Term Drift (one year)			±50	uV
Linearity error, note 4		0.05	0.10	%fs
Pressure Hysteresis error, note 4			0.10	%fs
Full Scale Shift (0°C-50°C), note 2			±100	uV

Performance Characteristics for 10 INCH-D-PRIME-MV

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		10.0		"H2O
Output Span, note 5	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure			±100	uV
Offset Temperature Shift (0°C-70°C), note 2			±50	uV
Offset Warm-up Shift, note 3			±50	uV
Offset Position Sensitivity (1g)			±5	uV
Offset Long Term Drift (one year)			±100	uV
Linearity error, note 4		0.05	0.10	%fs
Pressure Hysteresis error, note 4			0.10	%fs
Full Scale Shift (0°C-50°C), note 2			±200	uV

Performance Characteristics for 20 INCH-D-PRIME-MV

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		5.0		"H2O
Output Span, note 5	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure			±100	uV
Offset Temperature Shift (0°C-70°C), note 2			±50	uV
Offset Warm-up Shift, note 3			±50	uV
Offset Position Sensitivity (1g)			±5	uV
Offset Long Term Drift (one year)			±100	uV
Linearity error, note 4		0.05	0.10	%fs
Pressure Hysteresis error, note 4			0.10	%fs
Full Scale Shift (0°C-50°C), note 2			±200	uV

a 16035 Vineyard Blvd. Morgan Hill, CA 95037 p 408 225 4314 f 408 225 2079 e www.allsensors.com

Performance Characteristics for 30 INCH-D-PRIME-MV

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		30.0		"H2O
Output Span, note 5	19.0	20.0	21.0	mV
Offset Voltage @ zero differential pressure			±100	uV
Offset Temperature Shift (0°C-70°C), note 2			±50	uV
Offset Warm-up Shift, note 3			±50	uV
Offset Position Sensitivity (1g)			±5	uV
Offset Long Term Drift (one year)			±100	uV
Linearity error, note 4		0.05	0.10	%fs
Pressure Hysteresis error, note 4			0.10	%fs
Full Scale Shift (0°C-50°C), note 2			±100	uV

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.

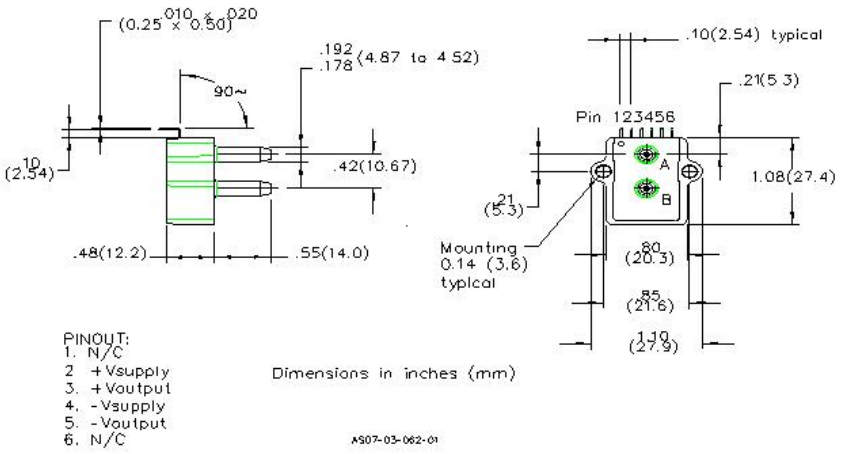
NOTE 3: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.

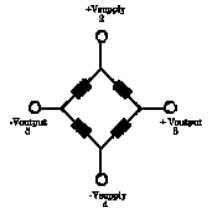
NOTE 4: MEASURED AT ONE-HALF FULL SCALE RATED PRESSURE USING BEST STRAIGHT LINE CURVE FIT.

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.

Optional 90 degree lead bend





Input Resittance	4.5 k ohm
Output Resistance	1.5 k ohm

Equivalent Circuit