

# Amplified Very Low Pressure Sensors

AMPLIFIED Pressure Sensors



## Features

- 0.25 and 0.50 In H<sub>2</sub>O Pressure Ranges
- Ratiometric 4V Output
- Temperature Compensated
- Calibrated Zero and Span

## Applications

- Medical Breathing
- HVAC

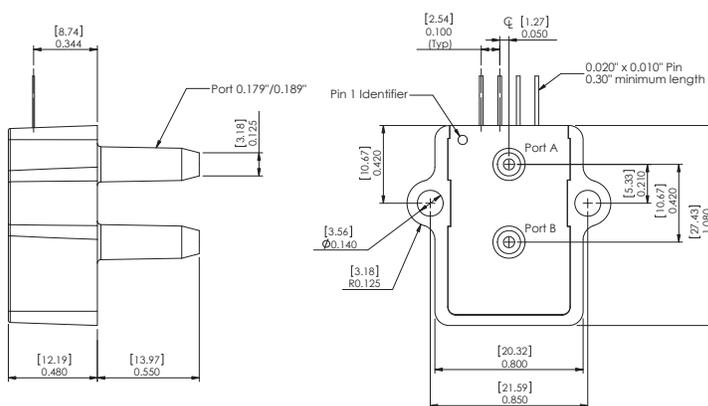
## General Description

The Amplified line of low pressure sensor is based upon a proprietary technology to reduce all output offset or common mode errors. This model provides a ratiometric 4-volt 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.

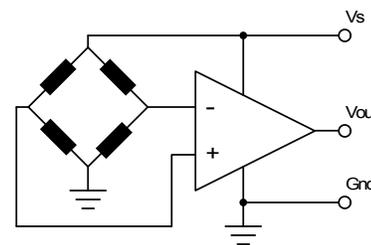
These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like.

The output of the device is ratiometric to the supply voltage over a supply voltage range of 4.5 to 5.5 volts.

## Physical Dimensions



## Equivalent Circuit



- pin 1: Vsupply**
- pin 2: Common**
- pin 3: Voutput**
- pin 4: do not connect**



## Pressure Sensor Ratings

Supply Voltage, $V_s$	+4.5 to +5.5 Vdc
Common-mode pressure	-10 to +10 psig
Lead Temperature, max (soldering 2-4 sec.)	270°C

## Environmental Specifications

Temperature Ranges	
Compensated	5 to 50° C
Operating	-25 to 85° C
Storage	-40 to 125° C
Humidity Limits	0 to 95% RH (non condensing)

## Standard Pressure Ranges

Device	Operating Range	Proof Pressure	Burst Pressure	Nominal Span <sup>(5)</sup>
0.25 INCH-D-4V	±0.25 inH2O	40 inH2O	80 inH2O	±2.0 V
0.25 INCH-G-4V	0.25 inH2O	40 inH2O	80 inH2O	4.0 V
0.5 INCH-D-4V	±0.5 inH2O	40 inH2O	80 inH2O	±2.0 V
0.5 INCH-G-4V	0.5 inH2O	40 inH2O	80 inH2O	4.0 V

## Performance Characteristics for: 0.25 INCH-D-4V NOTE 1

Parameter, <small>NOTE 1</small>	Minimum	Nominal	Maximum	Units
Output Span <small>NOTE 5</small>	±1.90	±2.0	±2.1	V
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	V
Offset Temperature Shift, <small>NOTE 2</small>	-	-	±60	mV
Offset Warm-up Shift, <small>NOTE 3</small>	-	±20	-	mV
Offset Position Sensitivity (±1g)	-	±20	-	mV
Offset Long Term Drift (one year)	-	±20	-	mV
Linearity, hysteresis error, <small>NOTE 4</small>	-	0.05	0.25	%FSS
Span Temperature Shift, <small>NOTE 2</small>	-	-	±3	%FSS

## Performance Characteristics for: 0.25 INCH-G-4V NOTE 1

Parameter, <small>NOTE 1</small>	Minimum	Nominal	Maximum	Units
Output Span <small>NOTE 5</small>	3.9	4.0	4.1	V
Offset Voltage @ zero gage pressure	0.15	0.25	0.35	V
Offset Temperature Shift, <small>NOTE 2</small>	-	-	±60	mV
Offset Warm-up Shift, <small>NOTE 3</small>	-	±20	-	mV
Offset Position Sensitivity (±1g)	-	±20	-	mV
Offset Long Term Drift (one year)	-	±20	-	mV
Linearity, hysteresis error, <small>NOTE 4</small>	-	0.05	0.25	%FSS
Span Temperature Shift, <small>NOTE 2</small>	-	-	±3	%FSS

Performance Characteristics for: 0.5 INCH-D-4V NOTE 1

Parameter, <small>NOTE 1</small>	Minimum	Nominal	Maximum	Units
Output Span <small>NOTE 5</small>	±1.90	±2.0	±2.1	V
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	V
Offset Temperature Shift, <small>NOTE 2</small>	-	-	±60	mV
Offset Warm-up Shift, <small>NOTE 3</small>	-	±20	-	mV
Offset Position Sensitivity (±1g)	-	±20	-	mV
Offset Long Term Drift (one year)	-	±20	-	mV
Linearity, hysteresis error, <small>NOTE 4</small>	-	0.05	0.25	%FSS
Span Temperature Shift, <small>NOTE 2</small>	-	-	±3	%FSS

Performance Characteristics for: 0.5 INCH-G-4V NOTE 1

Parameter, <small>NOTE 1</small>	Minimum	Nominal	Maximum	Units
Output Span <small>NOTE 5</small>	3.9	4.0	4.1	V
Offset Voltage @ zero gage pressure	0.15	0.25	0.35	V
Offset Temperature Shift, <small>NOTE 2</small>	-	-	±60	mV
Offset Warm-up Shift, <small>NOTE 3</small>	-	±20	-	mV
Offset Position Sensitivity (±1g)	-	±20	-	mV
Offset Long Term Drift (one year)	-	±20	-	mV
Linearity, hysteresis error, <small>NOTE 4</small>	-	0.05	0.25	%FSS
Span Temperature Shift, <small>NOTE 2</small>	-	-	±3	%FSS

Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 5.0 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 SPAN IS THE ALGEBRAIC DIFFERENCE BETWEEN FULL SCALE OUTPUT VOLTAGE AND THE OFFSET VOLTAGE.

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