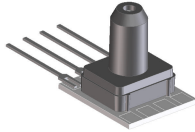


# Miniature Pressure Sensors

## H-Grade

Pressure Sensors



## Features

- 0 to 4" H<sub>2</sub>O 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

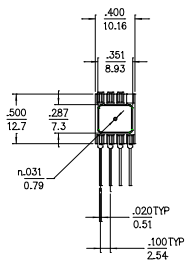
## General Description

The Miniature series pressure sensors are based upon a proprietary technology to reduce the size of the sensor and yet maintain a high level of performance. 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.

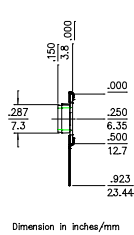
These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the like. The H-GRADE is a high accuracy version of the millivolt output pressure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

The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage.

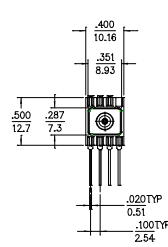
## Physical Dimensions



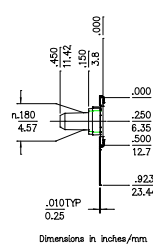
No Pressure Port



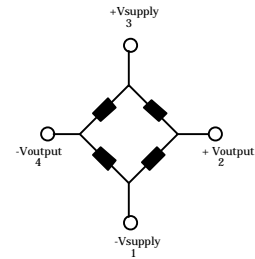
Dimension in inches/mm



Single Pressure Port



Dimensions in inches/mm.

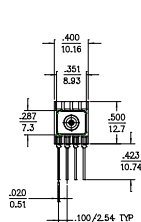


Input Resistance 15 kohm

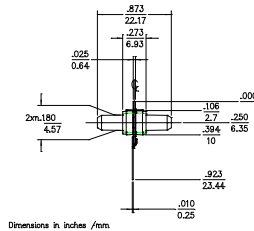
Output Resistance 3.0 kohm

## Equivalent Circuit

Marking:  
 right dot: Red: Prime Grade  
 left dot:  
 L10: yellow  
 0.3: pink  
 1.0: green  
 05: blue  
 15: purple  
 30: orange  
 100: brown



Dual Pressure Port



Dimensions in inches /mm.

**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 (50)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**

No Prssure Port		Single Pressure Port		Dual Pressure Port	Proof Pressure
Part Number	Operating Pressure	Part Number	Part Number	Part Number	
4 INCH-G-HGRADE-MINI	0 - 4 "H2O	4 INCH-GF-HGRADE-MINI	4 INCH-D-HGRADE-MINI		3 PSI
0.3 PSI-G-HGRADE-MINI	0 - 0.3 PSI	0.3 PSI-GF-HGRADE-MINI	0.3 PSI-D-HGRADE-MINI		3 PSI
10 INCH-G-HGRADE-MINI	0 - 10 "H2O	10 INCH-GF-HGRADE-MINI	10 INCH-D-HGRADE-MINI		5 PSI
1 PSI-G-HGRADE-MINI	0 - 1 PSI	1 PSI-GF-HGRADE-MINI	1 PSI-D-HGRADE-MINI		10 PSI
5 PSI-G-HGRADE-MINI	0 - 5 PSI	5 PSI-GF-HGRADE-MINI	5 PSI-D-HGRADE-MINI		20 PSI
15 PSI-A-HGRADE-MINI	0 - 15 PSIA	15 PSI-AF-HGRADE-MINI			60 PSI
15 PSI-G-HGRADE-MINI	0-15 PSIG	15 PSI-GF-HGRADE-MINI	15 PSI-D-HGRADE-MINI		60 PSI
30 PSI-G-HGRADE-MINI	0-30 PSIG	30 PSI-GF-HGRADE-MINI	30 PSI-D-HGRADE-MINI		60 PSI
100 PSI-G-HGRADE-MINI	0-100 PSIG	100-PSI-GF-HGRADE-MINI			150 PSI

**Performance Characteristics for 4 INCH-G-HGRADE-MINI**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		4.0		"H2O
Output Span, note 5	24	25	26	mV
Offset Voltage @ zero differential pressure			±0.5	mV
Offset Temperature Shift (0°C-50°C), note 2			±0.5	mV
Linearity, hysteresis error, note 4		0.25	0.5	% fs
Span Shift (0°C-50°C), note 2			±1	% fs

**Performance Characteristics for 10 INCH-G-HGRADE-MINI**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		10.0		"H2O
Output Span, note 5	19	20	21	mV
Offset Voltage @ zero differential pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-G-HGRADE-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		0.3		PSI
Output Span, note 5	19	20	21	mV
Offset Voltage @ zero differential pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-G-HGRADE-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		1.0		PSI
Output Span, note 5	17.82	18.00	18.18	mV
Offset Voltage @ zero differential pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-G-HGRADE-MINI

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			±0.5	mV
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-G-HGRADE-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		15.0		PSIG
Output Span, note 5	89.1	90.0	90.9	mV
Offset Voltage @ zero gage pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-MINI**

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 differential pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-G-HGRADE-MINI**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		30.0		PSIG
Output Span, note 5	89.1	90.0	90.9	mV
Offset Voltage @ zero gage pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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-G-HGRADE-MINI**

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		100.0		PSIG
Output Span, note 5	99.0	100.0	101.0	mV
Offset Voltage @ zero gage pressure			±0.5	mV
Offset Temperature Shift (0°C-70°C), note 2			±0.5	mV
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.**

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