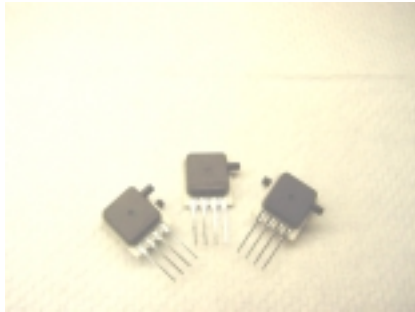


# MINIATURE BASIC PRESSURE SENSORS

Offset Compensated  
Pressure Sensors



## Features

- 0 to 1 "H<sub>2</sub>O to 0 to 30 "H<sub>2</sub>O Pressure Ranges
- 0.5 % linearity
- Offset Compensated

## Applications

- Medical Instrumentation
- Environmental Controls
- HVAC

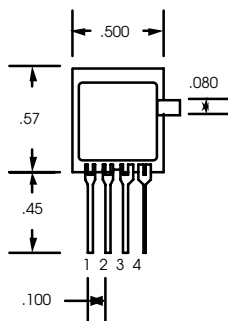
## General Description

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

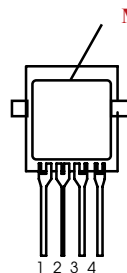
The output of the device is ratiometric to the supply voltage and operation from any D.C. supply voltage up to +6V is acceptable.

## Physical Dimensions



**One Pressure Port**

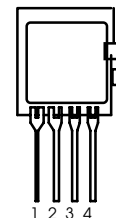
**Warning: Do Not Cover  
Hole on the Back**



**Two Pressure Port Opposite Side**

### Marking Color Code:

- 1 INCH: yellow**
- 5 INCH: pink**
- 10 INCH: orange**
- 20 INCH: green**
- 30 INCH: purple**



**Two Pressure Port Same Side**



## Pressure Sensor Characteristics Maximum Ratings

Supply Voltage VS	6 Vdc
Common-mode pressure	5 psig
Lead Temperature (soldering 2-4 sec.)	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

One Port		Two Port Same Side	Two Port Opposite Side	
Part Number	Operating Pressure	Part Number	Part Number	Proof Pressure
1 INCH-G-BASIC	0 - 1 "H2O	1 INCH-D1-BASIC	1 INCH-D2-BASIC	3 PSI
5 INCH-G-BASIC	0 - 5 "H2O	5 INCH-D1-BASIC	5 INCH-D2-BASIC	3 PSI
10 INCH-G-BASIC	0 - 10 "H2O	10 INCH-D1-BASIC	10 INCH-D2-BASIC	5 PSI
20 INCH-G-BASIC	0 - 20 "H2O	20 INCH-D1-BASIC	20 INCH-D2-BASIC	10 PSI
30 INCH-G-BASIC	0 - 30 "H2O	30 INCH-D1-BASIC	30 INCH-D2-BASIC	10 PSI

## Performance Characteristics for 1 INCH-G-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, negative pressure at port		1.0		"H2O
Output Span, note 5	4.0	7.0	10.0	mV
Offset Voltage @ zero pressure			±10	mV
Offset Temperature Shift (0°C-50°C), note 2		±0.1		mV
Linearity, hysteresis error, note 4		0.1	0.5	%fs
Offset Position Sensitivity (±1 g)		15		uV
Long Term Drift, one year		80		uV
Warmup Drift, note 3		10		uV

## Performance Characteristics for 5 INCH-G-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, negative pressure at port		5.0		"H2O
Output Span, note 5	15	22.5	30	mV
Offset Voltage @ zero pressure			±10	mV
Offset Temperature Shift (0°C-50°C), note 2		±0.1		mV
Linearity, hysteresis error, note 4		0.1	0.5	%fs
Offset Position Sensitivity (±1 g)		15		uV
Long Term Drift, one year		80		uV
Warmup Drift, note 3		10		uV

## Performance Characteristics for 10 INCH-G-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, negative pressure at port		10.0		"H2O
Output Span, note 5	15	30	45	mV
Offset Voltage @ zero pressure			±10	mV
Offset Temperature Shift (0°C-50°C), note 2		±0.1		mV
Linearity, hysteresis error, note 4		0.1	0.5	%fs
Offset Position Sensitivity (±1 g)		10		uV
Long Term Drift, one year		80		uV
Warmup Drift, note 3		10		uV

## Performance characteristics for 20 INCH-G-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, negative pressure at port		20.0		"H2O
Output Span, note 5	15	30	45	mV
Offset Voltage @ zero pressure			±10	mV
Offset Temperature Shift (0°C-50°C), note 2		±0.1		mV
Linearity, hysteresis error, note 4		0.1	0.5	%fs
Offset Position Sensitivity (±1 g)		5		uV
Long Term Drift, one year		80		uV
Warmup Drift, note 3		10		uV

### Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 4.5 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH NEGATIVE PRESSURE TO THE SINGLE PORT CONFIGURATION.

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.

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## Performance Characteristics for 30 INCH-G-BASIC

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, negative pressure at port		30.0		"H2O
Output Span, note 5	15	30	45	mV
Offset Voltage @ zero pressure			±10	mV
Offset Temperature Shift (0°C-50°C), note 2		±0.1		mV
Linearity, hysteresis error, note 4		0.1	0.5	%fs
Offset Position Sensitivity (±1 g)		5		µV
Long Term Drift, one year		80		µV
Warmup Drift, note 3		10		µV

### Specification Notes

NOTE 1: ALL PARAMETERS ARE MEASURED AT 4.5 VOLT EXCITATION, FOR THE NOMINAL FULL SCALE PRESSURE AND ROOM TEMPERATURE UNLESS OTHERWISE SPECIFIED. PRESSURE MEASUREMENTS ARE WITH NEGATIVE PRESSURE TO THE SINGLE PORT CONFIGURATION.

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### Equivalent Circuit

Input Resistance	1.7 k ohm
Output Resistance	1.7 k ohm
TCR	2600 ppm/° C
TCS	-2200 ppm/° C

