

# Miniature Amplified Pressure Sensors

±0.3 psi to 100 psi Pressure Sensors



## Features

- 0 to ±0.3 to 0 to 30 psi Pressure Ranges
- Ratiometric 4V Output
- Temperature Compensated
- Calibrated Zero and Span

## Applications

- Medical Instrumentation
- Environmental Instrumentation
- HVAC Instrumentation

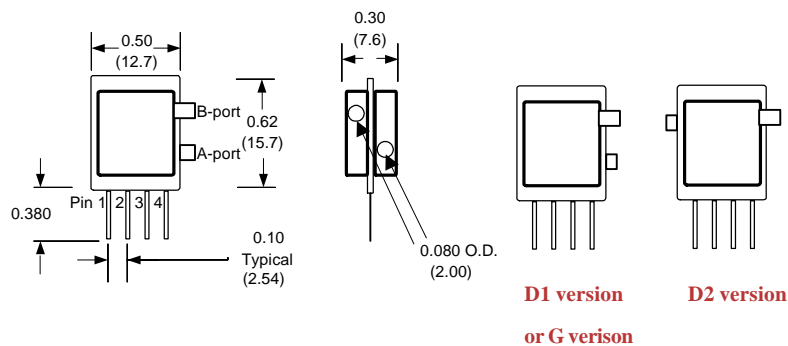
## General Description

The Miniature Amplified line of pressure sensors is based upon technology developed over years of development in the pressure sensor industry. This model provides a ratiometric 4-volt output with superior output characteristics. The sensor housing has been designed specifically to reduce package induced parasitic stress and strain. In addition the sensor utilizes a silicon, micromachined, stress concentration enhanced structure to provide a very linear output to measured pressure.

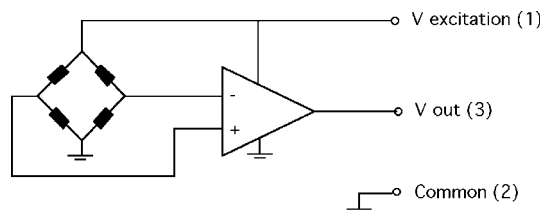
These calibrated and temperature compensated sensors give an accurate and stable output over a wide temperature range. Each sensor is internally compensated using an ASIC compensation technique. This series is intended for use with non-corrosive, non-ionic working fluids such as air, dry gases and the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



## 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.)	250°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

Part Number	Operating Pressure	Nominal Span	Proof Pressure	Burst Pressure
0.3 PSI-Dx-4V-MINI	±0.3 PSI	4 V	5 PSI	10 PSI
0.3 PSI-G-4V-MINI	0 - 0.3 PSI	4 V	5 PSI	10 PSI
1 PSI-Dx-4V-MINI	±1 PSI	4 V	5 PSI	10 PSI
1 PSI-G-4V-MINI	0 - 1 PSI	4 V	5 PSI	10 PSI
5 PSI-Dx-4V-MINI	± 5 PSI	4 V	15 PSI	30 PSI
5 PSI-G-4V-MINI	0 - 5 PSI	4 V	15 PSI	30 PSI
15 PSI-A-4V-MINI	0 - 15 PSIA	4 V	45 PSI	60 PSI
15 PSI-Dx-4V-MINI	±15 PSI	4 V	45 PSI	60 PSI
15 PSI-G-4V-MINI	0 - 15 PSI	4 V	45 PSI	60 PSI
30 PSI-A-4V-MINI	0 - 30 PSIA	4V	60 PSI	60 PSI
30 PSI-Dx-4V-MINI	±30 PSI	4V	60 PSI	60 PSI
30 PSI-G-4V-MINI	0 - 30 PSI	4V	60 PSI	100 PSI
BARO-A-4V-MINI	600 - 1100mbar	4V	45 PSI	60 PSI

## Performance Characteristics for 0.3 PSI-Dx-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		±0.3		PSI
Output Span, note 5	±1.90	±20	±2.10	volt
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	volt
Offset Temperature Shift (5°C-50°C), note 2			±40	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C-50°C), note 2			±2	%span

### 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 VOLTAGE ADDED TO THE OFFSET VOLTAGE AT FULL SCALE PRESSURE. NOMINALLY THE OUTPUT VOLTAGE RANGE IS 0.25 TO 4.25 VOLTS FOR MINUS TO PLUS FULL SCALE PRESSURE.

## Performance Characteristics for 0.3 PSI-G-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		0.3		PSI
Output Span, note 5	3.90	4.0	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C-50°C), note 2			±40	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C-50°C), note 2			±2	%span

## Performance Characteristics for 1 PSI-D-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		±1.0		PSI
Output Span, note 5	±1.90	±2.0	±2.10	volt
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±40	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for: 1 PSI-G-4V-MINI

Parameter, NOTE 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		1.0		PSI
Output Span, NOTE 5	3.90	4.0	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±40	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for: 5 PSI-D-4V-MINI

Parameter, NOTE 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		±5.0		PSI
Output Span, NOTE 5	±1.90	±2.0	±2.10	volt
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span



## Performance Characteristics for: 5 PSI-G-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		50		PSI
Output Span, note 5	3.90	40	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for 15 PSI-A-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	0		15	psia
Output Span, note 5	3.90	40	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for 15 PSI-Dx-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		±15.0		PSI
Output Span, note 5	±1.90	±20	±2.10	volt
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for BARO-A-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure	600		1100	mBar
Output Span, note 5	3.90	40	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

**Pressure Response:** for any pressure applied the response time to get to 90% of pressure applied is typically less than 100 useconds.

All Sensors reserves the right to make changes to any products herein. All Sensors does not assume any liability arising out of the application or use of any product or circuit described herein, neither does it convey any license under its patent rights nor the rights of others.

## Performance Characteristics for 15 PSI-G-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		15.0		PSI
Output Span, note 5	3.90	4.0	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for 30 PSI-Dx-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, differential pressure		±30.0		PSI
Output Span, note 5	±1.90	±2.0	±2.10	volt
Offset Voltage @ zero differential pressure	2.15	2.25	2.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for 30 PSI-G-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, gage pressure		30.0		PSI
Output Span, note 5	3.90	4.0	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

## Performance Characteristics for 30 PSI-A-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, absolute pressure		30.0		PSI
Output Span, note 5	3.90	4.0	4.10	volt
Offset Voltage @ zero pressure	0.15	0.25	0.35	volt
Offset Temperature Shift (5°C to 50°C), note 2			±20	mvolt
Linearity, hysteresis error, note 4			±0.5	%fs
Span Shift (5°C to 50°C), note 2			±1	%span

### 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 VOLTAGE ADDED TO THE OFFSET VOLTAGE AT FULL SCALE PRESSURE. NOMINALLY THE OUTPUT VOLTAGE RANGE IS 0.25 TO 4.25 VOLTS FOR MINUS TO PLUS FULL SCALE PRESSURE.





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.