

# MINIATURE AMPLIFIED PRESSURE SENSORS

cm H<sub>2</sub>O calibrated for Medical applications



## Features

- cm H<sub>2</sub>O Pressure Ranges
- Matched pressure port volumes
- Temperature Compensated
- Calibrated Zero and Span

## Applications

- Medical Instrumentation
- Respiratory Breathing

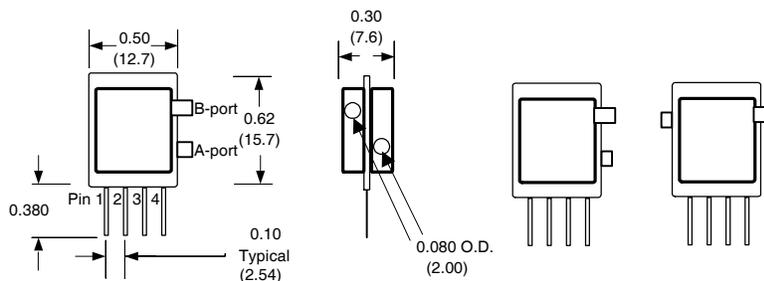
## General Description

The Miniature Amplified Output pressure sensors is based upon a proprietary technology to reduce all output offset or common mode errors. This model provides a calibrated amplified 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 between 4.5 and 5.5 volts.

## Physical Dimensions



## Pressure Sensor Characteristics Maximum Ratings

Supply Voltage $V_S$	+4.5 to
Common-mode pressure	+75.5Vdc
Lead Temperature (soldering 2-4 sec.)	10 psig 250°C

## Environmental Specifications

Temperature Ranges	
Compensated	see specification
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	Compensated Range	Proof Pressure	Burst Pressure
5 cmH <sub>2</sub> O-D1-4V-MINI	-0.2 to 5 cmH <sub>2</sub> O	5 to 50° C	50 cmH <sub>2</sub> O	200 cmH <sub>2</sub> O
20 cmH <sub>2</sub> O-D1-4V-MINI	-0.2 to 20 cmH <sub>2</sub> O	5 to 50° C	100 cmH <sub>2</sub> O	300 cmH <sub>2</sub> O
120 cmH <sub>2</sub> O-D1-4V-MINI	-10 to 120 cm H <sub>2</sub> O	5 to 50° C	300 cmH <sub>2</sub> O	600 cmH <sub>2</sub> O
5 cmH <sub>2</sub> O-D1-P4V-MINI	-0.2 to 5 cmH <sub>2</sub> O	-25 to 85° C	50 cmH <sub>2</sub> O	200 cmH <sub>2</sub> O
20 cmH <sub>2</sub> O-D1-P4V-MINI	-0.2 to 20 cmH <sub>2</sub> O	-25 to 85° C	100 cmH <sub>2</sub> O	300 cmH <sub>2</sub> O
120 cmH <sub>2</sub> O-D1-P4V-MINI	-10 to 120 cm H <sub>2</sub> O	-25 to 85° C	300 cmH <sub>2</sub> O	600 cmH <sub>2</sub> O

## 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 THE FRONT PORT.

NOTE 2: SHIFT IS RELATIVE TO 25°C.

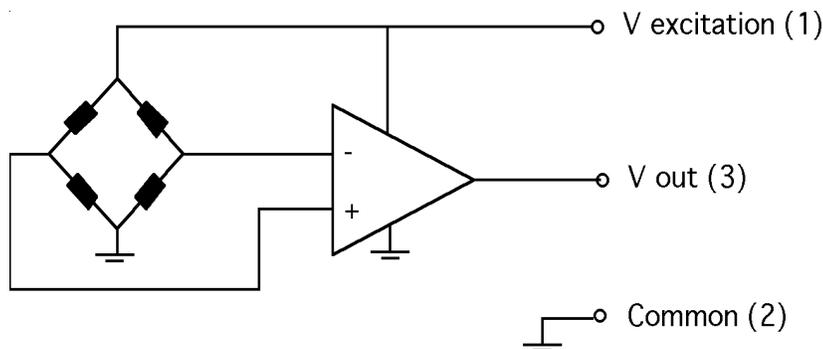
NOTE 3: SHIFT IS WITHIN THE FIRST HOUR OF EXCITATION APPLIED TO THE DEVICE.

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.

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## Equivalent Circuit



## Performance Characteristics for 5 cmH2O-D1-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-0.2		5	cmH2O
Output Voltage, @5 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-0.2 cmH2O	0.13	0.18	0.23	volt
Offset Temperature Shift (5°C-50°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±15		mvolt
Offset Position Sensitivity (±1g)		±15		mvolt
Offset Long Term Drift (one year)		±20		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (5°C-50°C), note 2			±1.0	%span

## Performance Characteristics for 20 cmH2O-D1-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-0.2		20	cmH2O
Output Voltage, @20 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-0.2 cmH2O	0.25	0.30	0.35	volt
Offset Temperature Shift (5°C-50°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±10		mvolt
Offset Position Sensitivity (±1g)		±10		mvolt
Offset Long Term Drift (one year)		±10		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (5°C-50°C), note 2			±1.0	%span

## Performance Characteristics for 120 cmH2O-D1-4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-10		120	cmH2O
Output Voltage, @120 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-10 cmH2O	0.23	0.28	0.33	volt
Offset Temperature Shift (5°C-50°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±15		mvolt
Offset Position Sensitivity (±1g)		±15		mvolt
Offset Long Term Drift (one year)		±20		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (5°C-50°C), note 2			±1.0	%span



## Performance Characteristics for 5 cmH2O-D1-P4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-0.2		5	cmH2O
Output Voltage, @5 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-0.2 cmH2O	0.13	0.18	0.23	volt
Offset Temperature Shift (-25 to 85°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±15		mvolt
Offset Position Sensitivity (±1g)		±15		mvolt
Offset Long Term Drift (one year)		±20		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (-25 to 85°C), note 2			±1.0	%span

## Performance Characteristics for 20 cmH2O-D1-P4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-0.2		20	cmH2O
Output Voltage, @20 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-0.2 cmH2O	0.25	0.30	0.35	volt
Offset Temperature Shift (-25 to 85°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±10		mvolt
Offset Position Sensitivity (±1g)		±10		mvolt
Offset Long Term Drift (one year)		±10		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (-25 to 85°C), note 2			±1.0	%span

## Performance Characteristics for 120 cmH2O-D1-P4V-MINI

Parameter, note 1	Minimum	Nominal	Maximum	Units
Operating Range, pressure	-10		120	cmH2O
Output Voltage, @120 cmH2O	4.40	4.5	4.6	volt
Output Voltage @ zero pressure	0.30	0.35	0.40	volt
Output Voltage @-10 cmH2O	0.23	0.28	0.33	volt
Offset Temperature Shift (-25 to 85°C), note 2			±1.0	%span
Offset Warm-up Shift, note 3		±15		mvolt
Offset Position Sensitivity (±1g)		±15		mvolt
Offset Long Term Drift (one year)		±20		mvolt
Linearity, hysteresis error, note 4		0.05	±0.25	%fs
Span Shift (-25 to 85°C), note 2			±1.0	%span



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

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