

## | P4000

Pressure Sensor

### Introduction

The P4000 series of pressure sensors incorporates a stainless steel isolation diaphragm and welded construction to withstand harsh environments. The sensor uses piezo-resistive sensing technology and is paired with our custom ASIC to produce a stable, accurate output. Using a 5 Vdc input, the sensors provide a 0.5 to 4.5 Vdc output proportional to pressure. Internal temperature compensation provides an accurate, easy-to-use device. The rugged construction of the P4000 series is specifically designed to withstand high overpressure spikes and provide compatibility with a wide range of process media including refrigerants and hydraulic oils.



### Features

- Welded Stainless Steel Construction
- Isolation Diaphragm
- Absolute or Sealed Gage Reference
- Low Power Consumption
- High Vibration Tolerance
- Outstanding EMI/RFI Protection
- Amplified Linear Output
- Temperature Compensated

### Applications

- On & Off-Highway Vehicle
- Hydraulic Systems
- Pressurized Tools
- Instruments
- Pneumatic Controls
- Refrigerant Control & Recovery

### MAIN FEATURES

|                              |                                                                         |
|------------------------------|-------------------------------------------------------------------------|
| <b>Pressure Ranges</b>       | 0 to 100 up to 0 to 5000 PSI                                            |
| <b>Electrical Connection</b> | Packard Electric Metri-Pack 150 Series, Deutsch                         |
| <b>Pressure Connection</b>   | 1/8 – 27 NPT, 7/16 – 20 UNF – for more options see how to order section |
| <b>Housing Material</b>      | 304 Stainless Steel (1.4301)                                            |
| <b>Output Signal</b>         | 0.5 - 4.5 VDC                                                           |



## TECHNICAL SPECIFICATIONS

### Pressure Ranges

| From 0 to ... <sup>(1)</sup> | PSI (gage) | 100  | 200  | 300  | 500  | 750  | 1000  | 1500  | 2000  | 3000  | 4000  | 5000  |
|------------------------------|------------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|
| Proof pressure               | PSI (gage) | 300  | 900  | 900  | 150  | 1500 | 3000  | 5000  | 5000  | 8000  | 8000  | 8000  |
| Burst pressure               | PSI (gage) | 3750 | 3750 | 3750 | 3750 | 3750 | 15000 | 15000 | 15000 | 15000 | 15000 | 15000 |

### Physical

| Operating Life Cycle      | min. 1 million full pressure cycles over the full range  |
|---------------------------|----------------------------------------------------------|
| Vibration Resistance      | MIL-STD 202, Method 204, Condition A (10 G's sinusoidal) |
| Shock Resistance          | 75 G's ½ sine wave                                       |
| Drop Test                 | 1m onto concrete surface                                 |
| Weight                    | 80 grams (without mating connector)                      |
| Ingress Protection        | IP67                                                     |
| Media Temperature         | -40°C to + 150°C                                         |
| Environmental Temperature | - 40°C to + 125 °C                                       |
| Storage Temperature       | - 40°C to + 125 °C                                       |
| Media                     | All fluids compatible with stainless steel 304 (1.4301)  |

### Performance

| Total error band <sup>(2)</sup> | +/-2% of span (-40 ≤ T ≤ 125° C) |
|---------------------------------|----------------------------------|
|---------------------------------|----------------------------------|

### Electrical

| Output Signal               | 0.5...4.5 VDC ratiometric                                            |
|-----------------------------|----------------------------------------------------------------------|
| Operating Supply Signal     | 5.0 ± 0.5 VDC 10%                                                    |
| Power Consumption           | <16 mW                                                               |
| Excitation Current          | < 3 mA                                                               |
| Overvoltage Protection      | 16 VDC                                                               |
| Short-circuit Proofness     | Yes <sup>(3)</sup>                                                   |
| Reverse Polarity Protection | Yes <sup>(4)</sup>                                                   |
| Output Load                 | ≥ 25 kΩ                                                              |
| Response Time               | ≤ 10 ms max. to 63% of full scale pressure with step change on input |



## GENERAL NOTES

<sup>(1)</sup> For more options see Ordering Options

<sup>(2)</sup> Including accuracy, calibration, temperature, non-linearity, hysteresis, non-repeatability, error

<sup>(3)</sup> For min. 3 intervals at 5 minutes each

<sup>(4)</sup> For min. 10 seconds on assigned pins



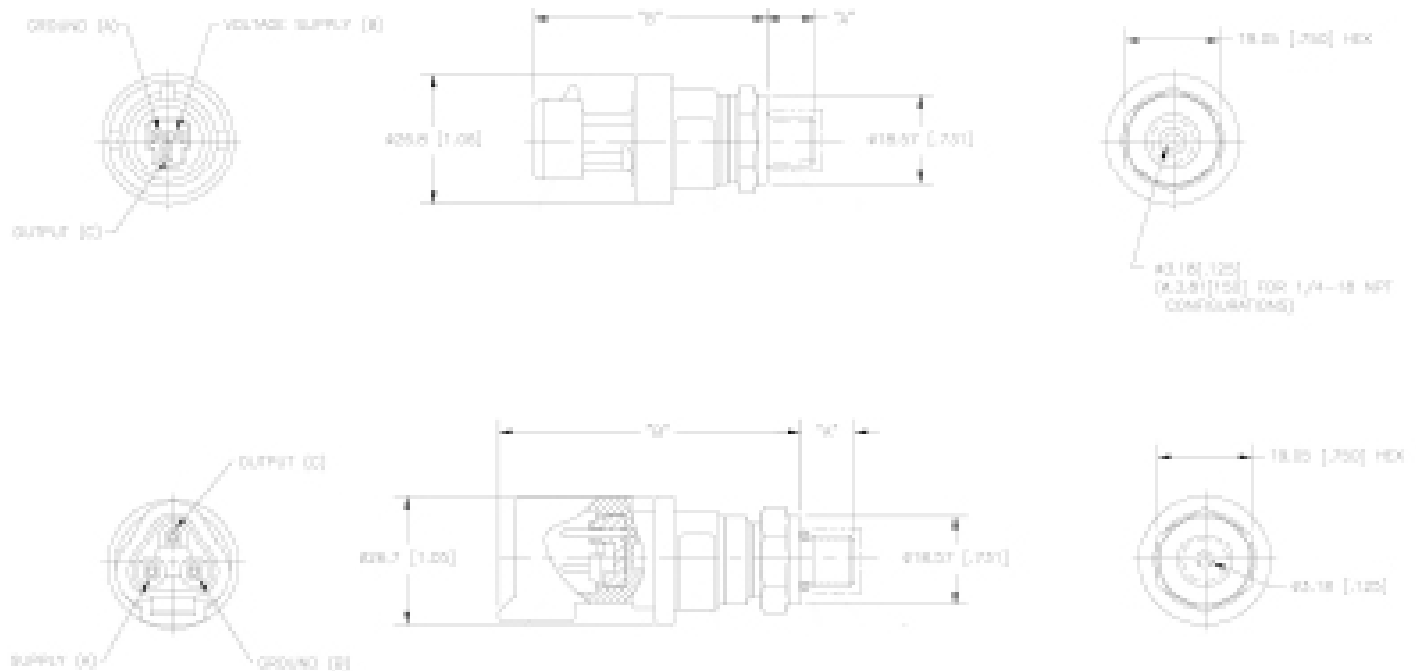
## DIMENSIONS

Dimensions in mm [Inch]

### Pressure Sensor with Electrical Connection

| Packard (metri-pack 150) Pin Call Outs |       |       |       |
|----------------------------------------|-------|-------|-------|
| Output                                 | Pin 1 | Pin 2 | Pin 3 |
| 0.5-4.5 VDC ratiometric                | GND   | Vsup  | Vout  |

| Thread Size               | DIM "A"     | DIM "B" (Low Pressure) Connector |                  | DIM "B" (High Pressure) Connector |                  |
|---------------------------|-------------|----------------------------------|------------------|-----------------------------------|------------------|
|                           |             | Packard                          | Deutsch          | Packard                           | Deutsch          |
| 1/8 - 27 NPT              | 9.91 [.39]  | 48.01 [1.89] MAX                 | 56.39 [2.22] MAX | 53.85 [2.12] MAX                  | 61.98 [2.44] MAX |
| Schrader (7/16 - 20 UNF)  | 12.45 [.49] | 48.01 [1.89] MAX                 | 56.39 [2.22] MAX | -                                 | -                |
| 7/16 - 20 UNF SAE J1926/2 | 11 [.433]   | 48.01 [1.89] MAX                 | 56.39 [2.22] MAX | 53.85 [2.12] MAX                  | 61.98 [2.44] MAX |
| 1/2 - 20 UNF SAE J1926/2  | 11 [.433]   | 48.01 [1.89] MAX                 | 56.39 [2.22] MAX | 53.85 [2.12] MAX                  | 61.98 [2.44] MAX |



### Approvals & Certificates

UL Standard(s) for Safety: Electrical Equipment for measurement, Control and Laboratory Use - UL SA10552



## ORDERING OPTIONS

### Example : P4000-1000-AB1BA

P4000 Pressure Sensor, 0 – 1000 PSI Absolute, Nitrile External O- Ring, 1/8-27 NPT Pressure Connection, with Deutsch Built-in Connector , without further electrical options

| Family                                                               | P4000        | 1000         | A | B | 1 | B | A |
|----------------------------------------------------------------------|--------------|--------------|---|---|---|---|---|
| <b>Pressure Ranges (PSI)</b>                                         |              |              |   |   |   |   |   |
| 100: 0-100                                                           | 600: 0-600   | 3000: 0-3000 |   |   |   |   |   |
| 150: 0-150                                                           | 750: 0-750   | 3500: 0-3500 |   |   |   |   |   |
| 200: 0-200                                                           | 1000: 0-1000 | 4000: 0-4000 |   |   |   |   |   |
| 250: 0-250                                                           | 1500: 0-1500 | 4500: 0-4500 |   |   |   |   |   |
| 300: 0-300                                                           | 2000: 0-2000 | 5000: 0-5000 |   |   |   |   |   |
| 500: 0-500                                                           | 2500: 0-2500 |              |   |   |   |   |   |
| <b>Reference</b>                                                     |              |              |   |   |   |   |   |
| A: Absolute                                                          |              |              |   |   |   |   |   |
| S: Sealed Gauge                                                      |              |              |   |   |   |   |   |
| <b>External O-Ring</b>                                               |              |              |   |   |   |   |   |
| A: None                                                              |              |              |   |   |   |   |   |
| B: Nitrile                                                           |              |              |   |   |   |   |   |
| <b>Pressure Connection (port)</b>                                    |              |              |   |   |   |   |   |
| 1: 1/8 - 27 NPT                                                      |              |              |   |   |   |   |   |
| 2: Schrader (7/16 - 20 UNF)                                          |              |              |   |   |   |   |   |
| 3: 7/16 - 20 UNF SAE J1926/2                                         |              |              |   |   |   |   |   |
| 4: 1/2 - 20 UNF SAE J1926/2                                          |              |              |   |   |   |   |   |
| 5: 1/4 - 18 NPT                                                      |              |              |   |   |   |   |   |
| <b>Built-in Connection</b>                                           |              |              |   |   |   |   |   |
| A: Packard PA66 GF33                                                 |              |              |   |   |   |   |   |
| B: Deutsch                                                           |              |              |   |   |   |   |   |
| C: Deutsch, Voltage regulated                                        |              |              |   |   |   |   |   |
| D: Packard with mating connector 36" leads 16 AWG                    |              |              |   |   |   |   |   |
| E: Deutsch with mating connector 36" leads 16 AWG                    |              |              |   |   |   |   |   |
| F: Deutsch, voltage regulated with mating connector 36" leads 16 AWG |              |              |   |   |   |   |   |
| G: Packard PEI GF30                                                  |              |              |   |   |   |   |   |
| H: Packard with mating connector 12" leads 16 AWG                    |              |              |   |   |   |   |   |
| J: M12 with straight mating connector assy (2 meter leads, 22 AWG)   |              |              |   |   |   |   |   |
| K: Metripack 150, with mating connector assy 48" leads 16 AWG        |              |              |   |   |   |   |   |
| <b>Options</b>                                                       |              |              |   |   |   |   |   |
| A: 4.5 VDC @ full scale pressure                                     |              |              |   |   |   |   |   |
| B: 4.75 VDC @full scale pressure                                     |              |              |   |   |   |   |   |



## WARNINGS



### RISK OF MATERIAL DAMAGE AND HOT ENCLOSURE

- The product's side panels may be hot, allow the product to cool before touching
- Follow proper mounting instructions including torque values
- Do not allow liquids or foreign objects to enter this product

**Failure to follow these instructions can result in serious injury, or equipment damage.**



### HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Disconnect all power before installing or working with this equipment
- Verify all connections and replace all covers before turning on power

**Failure to follow these instructions will result in death or serious injury.**

Page 4

Sensata Technologies, Inc. ("Sensata") data sheets are solely intended to assist designers ("Buyers") who are developing systems that incorporate Sensata products (also referred to herein as "components"). Buyer understands and agrees that Buyer remains responsible for using its independent analysis, evaluation and judgment in designing Buyer's systems and products. Sensata data sheets have been created using standard laboratory conditions and engineering practices. Sensata has not conducted any testing other than that specifically described in the published documentation for a particular data sheet. Sensata may make corrections, enhancements, improvements and other changes to its data sheets or components without notice.

Buyers are authorized to use Sensata data sheets with the Sensata component(s) identified in each particular data sheet. HOWEVER, NO OTHER LICENSE, EXPRESS OR IMPLIED, BY ESTOPPEL OR OTHERWISE TO ANY OTHER SENSATA INTELLECTUAL PROPERTY RIGHT, AND NO LICENSE TO ANY THIRD PARTY TECHNOLOGY OR INTELLECTUAL PROPERTY RIGHT, IS GRANTED HEREIN. SENSATA DATA SHEETS ARE PROVIDED "AS IS". SENSATA MAKES NO WARRANTIES OR REPRESENTATIONS WITH REGARD TO THE DATA SHEETS OR USE OF THE DATA SHEETS, EXPRESS, IMPLIED OR STATUTORY, INCLUDING ACCURACY OR COMPLETENESS. SENSATA DISCLAIMS ANY WARRANTY OF TITLE AND ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, QUIET ENJOYMENT, QUIET POSSESSION, AND NON-INFRINGEMENT OF ANY THIRD PARTY INTELLECTUAL PROPERTY RIGHTS WITH REGARD TO SENSATA DATA SHEETS OR USE THEREOF.

All products are sold subject to Sensata's terms and conditions of sale supplied at [www.sensata.com](http://www.sensata.com) SENSATA ASSUMES NO LIABILITY FOR APPLICATIONS ASSISTANCE OR THE DESIGN OF BUYERS' PRODUCTS. BUYER ACKNOWLEDGES AND AGREES THAT IT IS SOLELY RESPONSIBLE FOR COMPLIANCE WITH ALL LEGAL, REGULATORY AND SAFETY-RELATED REQUIREMENTS CONCERNING ITS PRODUCTS, AND ANY USE OF SENSATA COMPONENTS IN ITS APPLICATIONS, NOTWITHSTANDING ANY APPLICATIONS-RELATED INFORMATION OR SUPPORT THAT MAY BE PROVIDED BY SENSATA.

Mailing Address: Sensata Technologies, Inc., 529 Pleasant Street, Attleboro, MA 02703, USA.

## CONTACT US

### Americas

+1 (800) 350 2727

[sensors@sensata.com](mailto:sensors@sensata.com)

[switches@sensata.com](mailto:switches@sensata.com)

### Europe, Middle East & Africa

+359 (2) 809 1826

[pressure-info.eu@sensata.com](mailto:pressure-info.eu@sensata.com)

### Asia Pacific

[sales.isasia@list.sensata.com](mailto:sales.isasia@list.sensata.com)

China +86 (21) 2306 1500

Japan +81 (45) 277 7117

Korea +82 (31) 601 2004

India +91 (80) 67920890

Rest of Asia +886 (2) 27602006

ext 2808

## Данный компонент на территории Российской Федерации

**Вы можете приобрести в компании MosChip.**

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9