



## | 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   |



## Pressure Ranges

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

## Physical

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

## Performance

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

## Electrical

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



<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



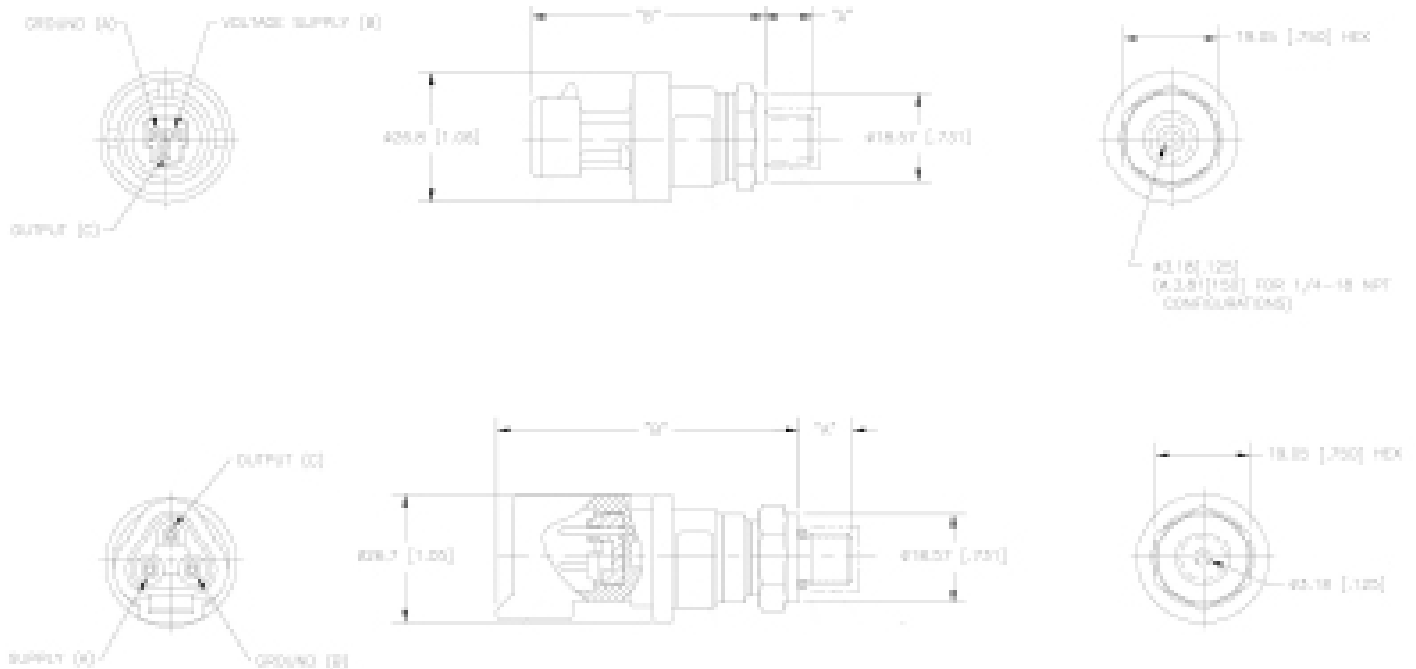
# DIMENSIONS

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

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

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