



## | 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)
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## 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



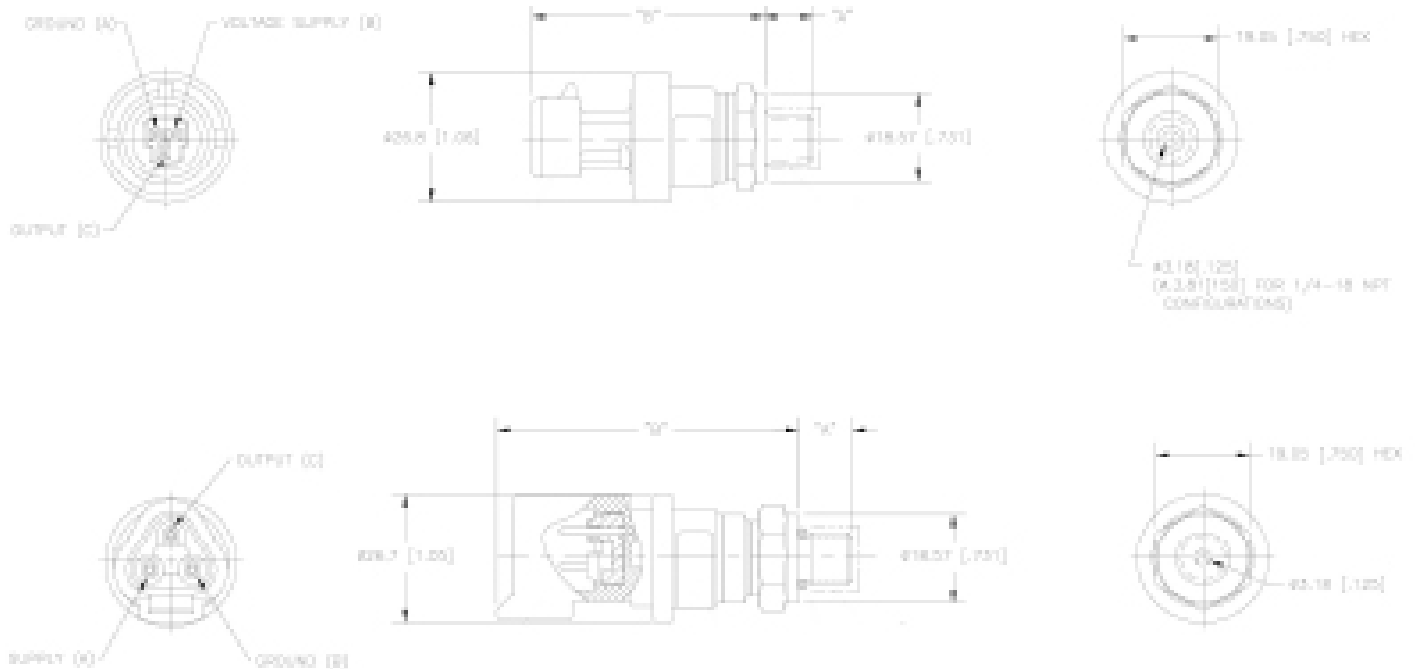
# DIMENSIONS

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

**Family** P4000

**Pressure Ranges (PSI)**

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	

**Reference**

A: Absolute  
S: Sealed Gauge

**External O-Ring**

A: None  
B: Nitrile

**Pressure Connection (port)**

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

**Built-in Connection**

A: Packard PA66 GF33	G: Packard PEI GF30
B: Deutsch	H: Packard with mating connector 12" leads 16 AWG
C: Deutsch, Voltage regulated	J: M12 with straight mating connector assy (2 meter leads, 22 AWG)
D: Packard with mating connector 36" leads 16 AWG	K: Metripack 150, with mating connector assy 48" leads 16 AWG
E: Deutsch with mating connector 36" leads 16 AWG	
F: Deutsch, voltage regulated with mating connector 36" leads 16 AWG	

**Options**

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.**

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