# P500
# Next Generation Ceramic Pressure Sensor

## Typical Applications

### Industrial

- Compressors
- Process Controls
- Instruments & Test Equipment
- Sterilizers
- Air Pressure

### Transportation

- Oil & Fuel Pressure
- Coolant Pressure
- Agricultural Equipment
- CNG & Natural Gas Engines

## Standard Full Scale Pressure Ranges

0-15 through 0-1,000 PSI
0-1 through 0-70 Bar
Absolute and Sealed Gage

## Features

- UL Certified Component
- Small Size (3/4" Hex)
- External Hex for Easy Installation
- Linear Amplified Output
- Temperature Compensated
- Superior Long-Term Stability
- Low Power Consumption
- Minimum Life Expectancy: Ten Million Cycles
- Outstanding Shock & Vibration Performance
- 36V Over Voltage and Reverse Polarity Protection

## Description

The P500 incorporates Kavlico's 4th generation ceramic capacitive sense element with the latest state-of-the-art ASIC. Available in brass or stainless steel housings, this multi-purpose sensor is rugged by design. Highly reliable, the P500 is ideal for measuring a broad range of process media including hydrocarbon based fluids, air, and gases.

The P500 package has a built-in Metri-Pack 150 series sealed electrical connector and is available with popular pressure connection thread options. The sensor is offered with seal materials suitable for diverse applications. Standard pressure ranges are available in PSI or Bar.

Specifically intended for high volume OEM applications, the P500 delivers the optimal solution without compromising performance or reliability.

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## Technical Specifications

Note: Performance Specifications with 5 Vdc ± 0.002 Vdc supply at 25°C

| | |
|---|---|
| Pressure Ranges: | See "How to Order" |
| Proof Pressure: | 3x F.S. Pressure (up to 200 PSI [14 Bar])<br>2x F.S. Pressure (above 200 PSI [14 Bar]) |
| Burst Pressure: | 1,500 PSI [100 Bar] (up to 350 PSI [24 Bar])<br>2,500 PSI [170 Bar] (above 350 PSI [24 Bar]) |
| Supply Voltage: | 5.0 ± 0.5 Vdc |
| Supply Current: | <5 mA |
| Nominal Output Voltage: | 0.5 to 4.5 Vdc |
| Linearity Error: | < ±0.5% of Span |
| Total Error Band[1]: | ±1.5% of Span (0°C ≤ T ≤ 85°C)<br>±2.0% of Span (T < 0°C, T > 85°C) |
| Output Impedance: | <100 Ω |
| Over Voltage Protection: | 36 Vdc |
| Reverse Polarity Protection: | -36 Vdc |
| Operating Temperature: | -40°C to +125°C (Seal Material Dependent) |
| Storage Temperature: | -40°C to +125°C (Seal Material Dependent) |
| Service Life: | 10 Million Full Pressure Cycles (Minimum) |
| Vibration: | 10 g's Peak-to-Peak Sine (10 to 2,000 Hz) |
| Mechanical Shock: | 75 g's, 1/2 Sine Wave |
| Ingress Protection: | IP67 |
| Stability: | ±0.5% of Full Span over 1-Year |
| Response Time: | < 2ms to 63% of Final Output Voltage<br>with step change in Input Pressure |
| Housing Material: | Brass (P ≤ 350 PSIA [24 BarA])<br>304 Stainless Steel (P > 350 PSIA [24 BarA]) |
| Weight: | < 50 grams |
| Electrical Termination: | Packard Electric Metri-Pack 150 Series[2] |
| Pressure Connection: | See "How to Order" |
| Output Load: | > 10 kΩ |

*1) Total Error Band includes all sources of error, including effects of Offset, Span, Temperature and Accuracy*

*2) Electrical termination (black) for pressure ranges ≤ 350 PSI [24 Bar], (white) for pressure ranges > 350 PSI [24 Bar]*

## How to Order

Use this diagram, working top to bottom and left to right to construct your model number. An example is shown below. Custom OEM options are also available.

**P500 Next Generation Ceramic Pressure Sensor**

**Pressure Ranges**

| | | | |
|---|---|---|---|
| 15 | 0 - 15 PSI | 1B | 0 – 1 Bar |
| 20 | 0 - 20 PSI | 1.6B | 0 – 1.6 Bar |
| 30 | 0 - 30 PSI | 2.5B | 0 – 2.5 Bar |
| 50 | 0 - 50 PSI | 4B | 0 – 4 Bar |
| 75 | 0 - 75 PSI | 6B | 0 – 6 Bar |
| 100 | 0 - 100 PSI | 10B | 0 – 10 Bar |
| 150 | 0 - 150 PSI | 16B | 0 – 16 Bar |
| 200 | 0 - 200 PSI | 25B | 0 – 25 Bar |
| 300 | 0 - 300 PSI | 40B | 0 – 40 Bar |
| 500 | 0 - 500 PSI | 50B | 0 – 50 Bar |
| 750 | 0 - 750 PSI | 70B | 0 – 70 BarA Only |
| 1000 | 0 - 1000 PSIA Only | XXB | 0 – XX Bar |
| XXX | 0 - XXX PSI (Large Volume Only) | | (Large Volume Only) |

**Reference**

| | |
|---|---|
| A | Absolute |
| S | Sealed Gage (Referenced to 14.7 PSIA) |

**Seal Material**

| | |
|---|---|
| D | Fluorocarbon / Viton (-25° to +125°C) |
| E | Fluorosilicone (-40° to +125°C) |
| F | Ethylene Propylene (-40° to 120°C) |

**Pressure Connection**

| | |
|---|---|
| 1 | 1/4 - 18 NPT (External Threads) |
| 4 | 1/8 - 27 NPT (External Threads) |
| 5 | Stud End DIN 3852-B-G 1/4 (External Threads) |
| 6 | Tapped Hole DIN 3852-Y-G 1/4 (Internal Threads) |
| 9 | 3/8 - 24 UNF-2A Per SAE J1926/2 (External Threads) |
| 10 | 3/8 - 24 UNF-2B Per SAE J1926/2 (Internal Threads) |

**Electrical Connection***

| | |
|---|---|
| A | With Mating Connector, w/12", 18 AWG Leads |
| C | Without Mating Connector |

P500 - 100 - A - E - 1 - A

Example: P500 - 100 - A - E - 1 - A
Description: P500 Sensor, 0 - 100 PSI Absolute, Fluorosilicone Seal Material, 1/4 - 18 NPT Pressure Connection, with Mating Connector

Before installation and operation, ensure that the appropriate pressure sensor has been selected in terms of pressure range, design and specific measuring conditions. Non-compliance can result in serious injury and/or damage to the equipment.

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