P500
Pressure Sensor

Description

The P500 incorporates Kavlico's 4th generation ceramic capacitive sense element with the latest state of the art proprietary 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.

Features

- 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

Applications

- Compressors
- Process Controls
- Instruments & Test Equipment
- Sterilizers
- Air Pressure
- Oil & Fuel Pressure
- Coolant Pressure
- Agricultural Equipment
- CNG & Natural Gas Engines

MAIN FEATURES

Pressure Ranges	0 - 1 up to 0 - 70 Bar, 0 - 15 up to 0 - 1000 PSI
Electrical Connection	Packard Electric Metri-Pack 150 Series
Pressure Connection	1/4-18 NPT (external), 1/8-27 NPT (external) - for more options see how to order
Housing Material	Brass (up to 300 psi) and stainless steel (above 300 psi)
Output Voltage	0.5 to 4.5 Vdc

TECHNICAL SPECIFICATIONS

Pressure Ranges

Bar A, S or G	0 - 1	0 - 1.6	0 - 2.5	0 - 4	0 - 6	0 - 10	0 - 16	0 - 25	0 - 40	0 - 50	0 - 70	
PSI A, S or G	0 - 15	0 - 20	0 - 30	0 - 50	0 - 75	0 - 100	0 - 150	0 - 200	0 - 300	0 - 500	0 - 750	0 - 1000

For custom pressure ranges consult Kavlico Pressure Sensors.

Physical

Durability/Service Life	10 million full pressure cycles (minimum)
Proof Pressure	3X FS Pressure (upto 14 Bar / 200 PSI) 2X FS Pressure (above 14 Bar / 200 PSI)
Burst Pressure	1500 PSI (upto 24 Bar / 350 PSI) 2500 PSI (above 24 Bar / 350 PSI)
Humidity	93 +/- 3% RH
Vibration	10 g's peak to peak sine (10 - 2000 Hz)
Shock	75 g's, 1/2 Sine Wave
Drop Test	1 meter drop on concrete as per SAE J1455
Weight	< 50 gm
Ingress Protection	IP67

Performance

Linearity Error	≤ +/- 0.5% of span
Total Error Band	+/-1.5% of span (0 ≤ T ≤ 85 C°) +/-2.0% of span (T < 0 C°,T < 85 C°)
Stability Coefficient	+/-0.3 % of Full span over 1 year
Operating Temperature	-40 C° to 125 C° (Seal material dependent. See Ordering Options)
Storage Temperature	-40 C° to 125 C° (Seal material dependent. See Ordering Options)

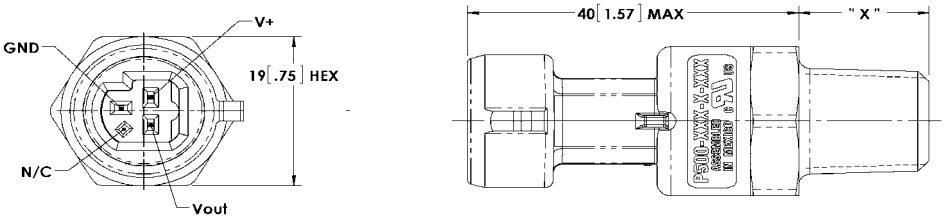
Electrical

Supply Voltage	5.0 Vdc +/- 0.5
Output Voltage	0.5 to 4.5 Vdc
Supply Current	≤ 5 mA
Output Impedance	≤ 100 Ω
Output load	≥ 10 KΩ
Output response time	≤ 2 ms to 63 % of final output voltage with step change in input pressure
Overvoltage protection	36 Vdc
Reverse Voltage	-36 Vdc
Short Circuit protected	Output to supply, Output to Ground: Indefinite
Isolation Voltage	R ≥ 100 MΩ, 500 Vdc / 1 min
Warmup time	3 mSec Max.
EMC	Meets ISO 7637-3, ISO 11452-4, ISO 11452-2, CISPR 25, MIL-STD 461 E
ESD	IEC 1000-4.2 (8kV contact, 15kV air), ISO 10605 (8kV contact, 25kV air)

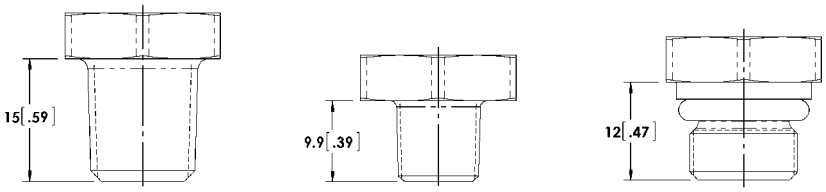
DIMENSIONS

Dimensions in mm [Inch]

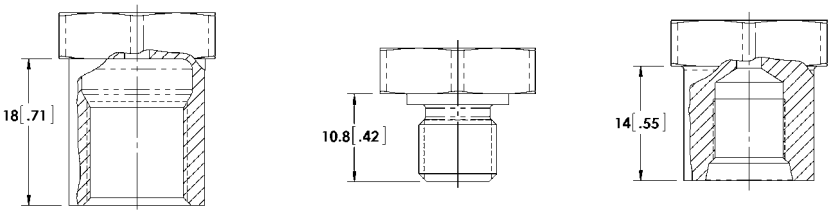
Pressure Sensor with Electrical Connection



Pressure Connections and Recommended Installation Torque



Name	1/4 - 18 NPT	1/8 - 27 NPT	Stud End DIN 3852-B-G1/4
Thread	External	External	External
Torque	25 Nm	20 Nm	20 Nm



Name	Tapped Hole DIN 3852-Y-G1/4	3/8-24 UNF-2A PER SAE J 1926/2	3/8-24 UNF-2B PER SAE J 1926/1
Thread	Internal	External	Internal
Torque	15 Nm	22 Nm	22 Nm

ORDERING OPTIONS

Example: P500-16B-A-E1A

P500 Sensor, 0 - 16 Bar Absolute, Fluorosilicone Seal Material, 1/4 - 18 NPT Pressure Connection, with Mating Connector

P500 – 16B – A – E 1 A

Family

P500

Pressure Ranges

1B: 0 – 1 Bar
1.6B: 0 – 1.6 Bar
2.5B: 0 – 2.5 Bar
4B: 0 – 4 Bar
6B: 0 – 6 Bar
10B: 0 – 10 Bar
16B: 0 – 16 Bar
25B: 0 – 25 Bar
40B: 0 – 40 Bar
50B: 0 – 50 Bar
70B: 0 – 70 Bar

15: 0 – 15 PSI
20: 0 – 20 PSI
30: 0 – 30 PSI
50: 0 – 50 PSI
75: 0 – 75 PSI
100: 0 – 100 PSI
150: 0 – 150 PSI
200: 0 – 200 PSI
300: 0 – 300 PSI
500: 0 – 500 PSI
750: 0 – 750 PSI
1000: 0 – 1000PSI

Reference

A: Absolute
G: Gage
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 (-30° to 120°C)

Pressure Connection (Port)

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 J1926/1 (Internal Threads)

Built-in Electrical Connection

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

AGENCY APPROVALS & CERTIFICATIONS

EN 61326-1, 2006
IEC 61000-4-2, 2001
IEC 61000-4-3, 2006
IEC 61000-4-8, 2001

2002/95/EC RoHS Directive

File # SA10552

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