



# KAVLICO PRESSURE SENSORS PRODUCT OVERVIEW

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## ABOUT

### KAVLICO PRESSURE SENSORS

For more than 50 years Kavlico Pressure Sensors has been a leading expert in designing, developing, and manufacturing a broad range of precision, pressure, pressure and temperature, fluid level, and specialty sensors.

Focused on premium products, and adapting innovative technologies to meet customer needs, Kavlico Pressure Sensors is the reliable solutions provider for the harshest and most demanding applications across the globe.

Kavlico Pressure Sensors is a brand of Sensata Technologies.

### Sensata Technologies

Our highly engineered devices satisfy the world's growing need for safety, energy efficiency, and a clean environment. These are devices that improve safety, efficiency and comfort for millions of people every day and are used in automotive, appliance, aircraft, industrial, military, heavy vehicle, heating, air conditioning, data, telecommunications, recreational vehicle and marine applications.

Until 2006, we were called Texas Instruments Sensors & Controls. Today we are the world's leading supplier of sensors and controls across a broad range of markets and applications.

[www.sensata.com](http://www.sensata.com)



## KAVLICO MISSION STATEMENT

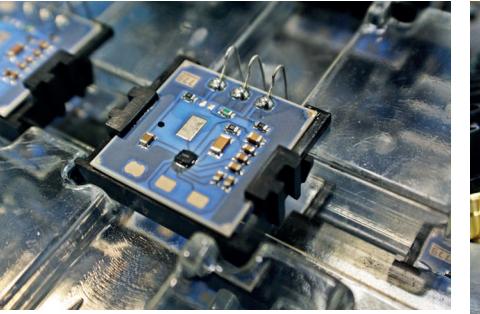
At Kavlico Pressure Sensors, designing and developing pressure sensors for mission critical applications is our focus and specialty.

Our strength lies in our ability to apply our state-of-the-art pressure sensing and signal treatment technologies such as:

- Thin Film,
- Ceramic Capacitive,
- Piezo-resistive and
- Silicon Capacitive

to meet any application specific requirement and provide perfect package expertise to adapt to customer specifications.

We are using an extensive network of development and support functions to design, develop, validate, and manufacture pressure sensors to fit the highest quality requirements in the harshest environments.



## CUSTOMIZATION EXPERTISE

Kavlico's customization team is a dedicated and highly qualified engineering team, adapting our pressure sensors to meet customer specific requirements.

Extended by the latest testing and analysis capabilities, Kavlico Pressure Sensors' customization team is offering exclusive designs tailored for unique applications.

**Kavlico Pressure Sensors - The right sensor for your application!**

### Customization Features

- Pressure Range
- Pressure References  
(Absolute, Gage, Seal Gage & Differential\*)
- Pressure Fittings Port
- Output  
(Voltage, Current\*, Frequency\*)
- Electrical Connectors
- Media Seal
- Cable Assemblies

\* Available on selected models

### Test Capabilities

- BCI Enclosure
- Constant Temp Exposure
- EMI Tester
- ESD Generator
- Force & Hardness Tester
- TEM Cell & GTEM Chambers
- Salt Spray / Fog Chamber
- Temperature / Vibration Tester
- Temperature Cycling & Humidity Chamber
- Thermal Shock Chamber Air to Air
- Thermal Shock Liquid to Liquid
- 3D Measurement Machine
- Differential Scanning Calorimetry

### Analysis Capabilities

- Energy Dispersive X-Ray Spectrometer
- Fourier Transform Infrared Spectrometer
- Real Time X-Ray Vision Machine
- Residual Dirt Analyses
- Scanning Electron Microscope
- X-ray Package Analyser
- Thermo Gravimetical Analyzer

## PRESSURE MEASUREMENT METHODS

### REFERENCE

#### Gage (G) Pressure



#### Sealed Gage (SG) Pressure



#### Differential (DP) Pressure



#### Absolute (A) Pressure



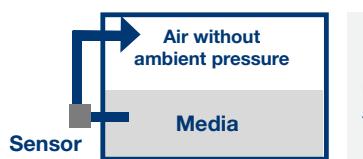
### APPLICATION EXAMPLE



Pressure measurement referenced against ambient air pressure



Pressure measurement without ambient air pressure, but with sealed vacuum in sensor



Pressure difference measurement between two media



Pressure measurement referenced to vacuum

## PRESSURE MEASUREMENT DEVICES

### Pressure Sensors

Today many measuring principles are used in electronic pressure measurement instruments. Most methods are based on the measurement of a displacement or force.

This pressure sensor is the basis of electronic pressure measurement systems. While mechanical Gage element displacements of between 0.004 and 0.012 inches are standard, the deformations in electronic pressure sensors amount to no more than a few microns.

Thanks to this minimal deformation, electronic pressure measurement instruments have excellent dynamic characteristics and low material strain resulting in high resistance to alternating loads and long-term durability.

### Pressure Transducers

Pressure transducers are an advanced form of the pressure sensor element. The simplest form of an electronic pressure measurement system is the pressure sensor. It is the pressure sensor which changes the physical variable pressure into a quantity that can be processed electronically.

A pressure transducer is the next level of sophistication. In a pressure transducer, the sensor element and housing are in electrical contact and have pressure connections.

Typical output signals from pressure transducers are between 10 mV and around 100mV, depending on the sensor type. These signals are not standardized, however, nor are they compensated. With thin-film type pressure transducers it is customary for just the sensor element to be welded to the pressure connections and then bonded electrically.

Piezoresistive pressure transducers, on the other hand, require far more production steps since the semiconductor sensor element has to be protected from the various media by a chemical seal.

### Pressure Transmitters

Pressure Transmitters, a sub-group of pressure transducers, feature additional reset and calibration options. With some sensor types it is possible:

- to re-set the measuring span over large ranges. This calibration option is usually referred to by such terms as scale down, span reset or turn down.

- to shift the zero point over a wide range and to calibrate the damping of the output signal between 0 and 32 seconds. Smart transmitters such as Hart®, which also have logging capabilities, can be calibrated, tested and reset via the control desk or hand terminals. Transmitters are often used in process applications where they can be combined with various chemical seals.

## MARKETS

With extensive experience and a long term commitment to innovation, Kavlico Pressure Sensors is the trusted source to design, develop, and manufacture robust and reliable sensors for mission critical applications in the most demanding global markets.

For over half a century, Kavlico Pressure Sensors has been successfully addressing the pressure, fluid level, and specialty sensors needs of customers in the following markets:



Transportation



Building Equipment



Food and Beverages



Commercial OEMs



Industrial OEMs



Energy & Infrastructure



Medical



Aerospace & Defense

## PRODUCT SELECTION GUIDE

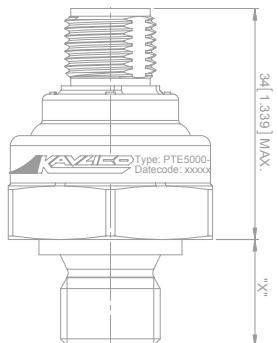
Select the product that fits your needs!

Technology	Page	Product	Pressure Range	Transportation	Building Equipment	Food & Beverages	Commercial	Industrial	Energy & Infrastructure
Thin Film Pressure Sensors	10	PTE5000	Bar	x		x	x	x	x
	12	PTA5000	PSI	x		x	x	x	x
	14	P1E	Bar		x		x	x	x
	16	P1A	Bar & PSI	x	x	x	x	x	x
	18	P500	Bar & PSI	x	x	x	x	x	x
	20	P528	Bar & PSI	x	x	x	x	x	x
	22	P265	PSI	x		x	x	x	x
	24	PS312	Bar		x	x	x	x	x
	26	PS162	Bar		x	x	x	x	x
	28	PE2000	Bar & PSI	x	x		x	x	x
Ceramic Capacitive Pressure Sensors	30	P321	PSI	x	x		x	x	x
	32	P6000	Bar & PSI		x		x	x	x
	34	P4000	Bar & PSI	x	x		x	x	x
	36	P4055	PSI	x	x	x	x	x	x
	38	P4056	PSI	x	x	x	x	x	x
	40	P1J	Bar & PSI		x		x	x	x
	42	P1K	Bar & PSI		x		x	x	x
	44	P992	Bar & PSI		x		x	x	x
	46	P993	Bar & PSI		x		x	x	x
	48	PS1A	Bar & PSI		x	x		x	x
Pressure Switches	50	PS1B	Bar		x	x	x	x	x

## PTE5000

### Hermetically Sealed Modular Pressure Sensor

Thin Film



Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

#### Main Features

Pressure Ranges 0 - 6 up to 0 - 600 bar

Pressure Connections G 1/4" A DIN 3852-E or -A, 1/4"-18NPT,  
7/16"-20UNF-2A or 2B with Schrader Deflator

Electrical Connection M12-4 Pin, DIN175301-803A , DIN175301-803-C  
Packard Metri-Pack 150, Overmold connector

Housing Material 304 Stainless Steel (1.4301)

Output Signal 4 - 20 mA, 0 - 10 VDC, 0.5 - 4.5 VDC ratiometric

For further options, please see Main Options

#### Attributes

- Hermetically Sealed
- Rugged & Durable
- Compact & Light-weight
- Resistant to Chemical Attack
- Superior Long-Term Stability & Repeatability
- Outstanding Shock & Vibration Performance

#### Typical Applications

- Compressors
- Hydraulic Systems
- Agricultural Equipment
- Construction Equipment
- Heat Pumps
- Chemical Industry

## PTE5000 - MAIN OPTIONS

#### Pressure Ranges

0 - 6	Bar	0 - 100	Bar
0 - 10	Bar	0 - 160	Bar
0 - 16	Bar	0 - 250	Bar
0 - 25	Bar	0 - 400	Bar
0 - 40	Bar	0 - 600	Bar
0 - 60	Bar		

#### Pressure References

- Gage

#### Output

- 4 - 20 mA
- 0.5 - 4.5 VDC Ratiometric
- 0 - 5 VDC
- 0 - 10 VDC

#### External Seal Material

- Fluorocarbon FKM (Viton®) Seal Material\*
- Aluminium Washer G1/4"\*\*
- Copper Washer G1/4"\*\*\*

\* only for pressure port option G1/4"A DIN 3852-E

\*\* only for pressure port option G1/4"A DIN 3852-A

#### Pressure Connections

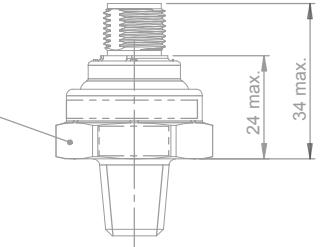
- G1/4"A DIN 3852-E
- 7/16"-20 UNF-2B (female) SAE J1926/1 (modified) w/  
45° Cone and Schrader deflator  
(for pressure range 6 - 60 bar)
- 7/16"-20 UNF-2A (male) SAE J1926/2  
(modified) w/ 45° Cone
- G1/4"A DIN 3852-A

#### Built-in Electrical Connections

- Compatible with DIN 175301-803 A (18 mm)
- GDS 307 Industrial Standard (9.4 mm)
- M12-4 Pin
- Packard Metri-Pack 150
- Overmold Connectors, Cable Length 1, 2 and 5 m

## PTA5000

### Hermetically Sealed Modular Pressure Sensor



#### Main Features

Pressure Ranges	0 - 100 up to 0 - 10000 PSI
Pressure Connections	1/4"-18 NPT
Electrical Connection	M12-4 Pin, Packard Metri-Pack 150, Overmold connector
Housing Material	304 Stainless Steel (1.4301)
Output Signal	4 - 20 mA, 0 - 10 VDC, 0.5 - 4.5 VDC ratiometric

For further options, please see Main Options

#### Attributes

- Hermetically Sealed
- Rugged & Durable
- Compact & Light-weight
- Resistant to Chemical Attack
- Superior Long-Term Stability & Repeatability
- Outstanding Shock & Vibration Performance

#### Typical Applications

- Compressors
- Hydraulic Systems
- Agricultural Equipment
- Construction Equipment
- Heat Pumps
- Chemical Industry



#### PTA5000 - MAIN OPTIONS

##### Pressure Ranges

0 - 100 PSI	0 - 2000 PSI
0 - 150 PSI	0 - 3000 PSI
0 - 200 PSI	0 - 6000 PSI
0 - 300 PSI	0 - 9000 PSI
0 - 600 PSI	0 - 10000 PSI
0 - 1000 PSI	

##### Pressure References

- Gage

##### Output

- 4 - 20 mA
- 0.5 - 4.5 VDC Ratiometric
- 0 - 10 VDC

##### Pressure Connections

- 1/4" - 18 NPT

##### Built-in Electrical Connections

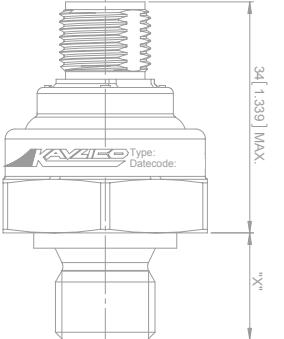
- M12-4 Pin
- Packard Metri-Pack 150
- Overmold Connectors, Cable Length 1, 2 and 5 m

## P1E

### Pressure Sensor for Oxygen Services



ISO 15001 Certified



#### Main Features

Pressure Ranges	0 - 6 up to 0 - 400 bar (Gage)
Pressure Connections	G1/4" A DIN 3852-A
Electrical Connection	M12-4 Pin, DIN175301-803A , GDS 307 Industrial Standard
Housing Material	304 Stainless Steel (1.4301)
Output Signal	4 - 20 mA

For further options, please see Main Options

#### Attributes

- Hermetically Sealed
- Wetted Parts Free of Oil & Grease
- Compact & Light-weight
- Resistant to Chemical Attack
- Superior Long-Term Stability & Repeatability
- Outstanding Shock & Vibration performance

#### Typical Applications

- Medical Gas Storage
- Oxygen Delivery Systems
- Nitrogen and Oxygen Plants
- Medical Air Plant Sector
- Medical Gas Control

## P1E - MAIN OPTIONS

#### Pressure Ranges

0 - 6	Bar
0 - 10	Bar
0 - 16	Bar
0 - 25	Bar
0 - 100	Bar
0 - 250	Bar
0 - 400	Bar

#### Pressure References

- Gage

#### External Seal Material

- None
- Fluorocarbon FKM (Viton®) Seal Material
- Aluminium washer G1/4"
- Copper washer G1/4"

#### Pressure Connections

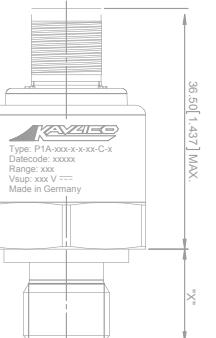
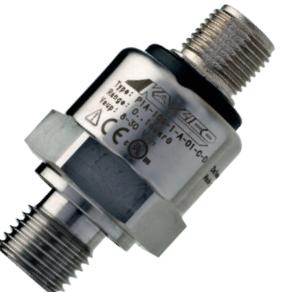
- G1/4" A DIN 3852-A

#### Built-in Electrical Connections

- Compatible with DIN 175301-803 A (18 mm)
- GDS 307 Industrial Standard (9.4 mm)
- M12-4 Pin
- Packard Metri-Pack 150



## P1A Pressure Sensor



Kavlico Pressure Sensors

Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges	0 - 0.25 up to 0 - 16 and -1 - 0 up to -1 - 1 bar (gage) 0 - 1.6 up to 0 - 16 bar (absolute)
Pressure Connections	G1/4" A DIN 3852-E or -A, 7/16"-20 UNF-2A or -2B with Schrader Deflator
Electrical Connection	M12-4 Pin, DIN175301-803A Packard Metri-Pack 150, Overmold connector
Housing Material	304 Stainless Steel (1.4301)
Output Signal	4 - 20 mA, 0 - 10 VDC, 0.5 - 4.5 VDC ratiometric

For further options, please see Main Options

### Attributes

- Small Compact Size
- Highly Modular Product Configurations
- Kavlico Ceramic Capacitive Technology
- Outstanding Long Term Stability and Performance
- Media Resistant CCAP Technology

### Typical Applications

- Vacuum Machinery and Plant
- Medical and Laboratory Sterilizers
- HVAC Systems
- Pneumatic Systems
- Waste Pumps and Water Management
- Industrial OEM Applications

### P1A - MAIN OPTIONS

#### Pressure Ranges

0 - 0.25 Bar*	0 - 16 Bar	0 - 75 PSI
0 - 0.4 Bar*	-1 - 0 Bar*	0 - 100 PSI
0 - 0.6 Bar*	-1 - 1 Bar*	0 - 150 PSI
0 - 1 Bar*	0 - 5 PSI*	0 - 200 PSI
0 - 1.6 Bar	0 - 10 PSI*	
0 - 2.5 Bar	0 - 15 PSI*	
0 - 4 Bar	0 - 20 PSI	
0 - 6 Bar	0 - 30 PSI	
0 - 10 Bar	0 - 50 PSI	

\*in gage only

#### Pressure References

- Absolute
- Gage

#### Output

- 4 - 20 mA
- 0.5 - 4.5 VDC radiometric
- 0-5 VDC
- 0 - 10 VDC

#### External Seal Material

- Fluorocarbon - FKM (Viton®) Only for Pressure Connections G 1/4" A DIN 3852-E lower temperature limited to -20°C
- Fluorosilicone - FVMQ
- Ethylene Propylene - EPDM

#### Pressure Connections

- G 1/4" A DIN 3852-E
- 7/16"-20UNF-2B (Female) SAE J1926-1 (Modified); with 45° cone and schrader deflator
- 7/16"-20UNF-2A (Male) SAE J1926-2 (Modified); with 45° cone
- G1/4" A DIN 3852-A
- 1/4"-19 BSPT is equivalent to 1/4"-19PT and R1/4"-19 per DIN EN 10226
- 1/4"-18 NPT (Male)
- 1/8"-27 NPT (Male)

#### Built-in Electrical Connections

- 18mm, EN 175301-803-A003MS, 4 pole
- M12-4 Pin according to IEC 61076-2-101
- Packard Metri-Pack 150, 3 pole Sensor
- Overmold Connectors, Cable Length 1, 2 and 5 m

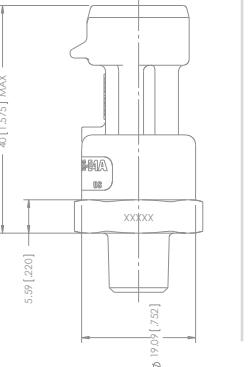
#### Internal Seal Material

- Neoprene - CR
- Fluorocarbon - FKM (Viton®)
- Fluorosilicone - FVMQ
- Ethylene Propylene - EPDM

Perfect fit

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## P500 Pressure Sensor



### Main Features

Pressure Ranges	0 - 1 up to 0 - 70 bar, 0 - 15 up to 0 - 1000 PSI
Pressure Connections	1/4"-18 NPT (external), 1/8"-27 NPT (external)
Electrical Connection	Packard Metri-Pack 150
Housing Material	Brass and 304 Stainless Steel (1.4301)
Output Signal	0.5 to 4.5 VDC

For further options, please see Main Options

### Attributes

- Small Size (3/4" Hex)
- External Hex for Easy Installation
- Temperature Compensated
- Superior Long-Term Stability
- Low Power Consumption
- 36 VDC Over Voltage and Reverse Polarity Protection

### Typical Applications

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

## P500 - MAIN OPTIONS

### Pressure Ranges

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

### Pressure References

- Absolute
- Gage
- Sealed Gage (Referenced to 14.7 PSIA)

### External Seal Material

- Fluorocarbon / Viton® (-25° to +125°C)
- Fluorosilicone (-40° to +125°C)
- Ethylene Propylene (-30° to 120°C)

### Pressure Connections

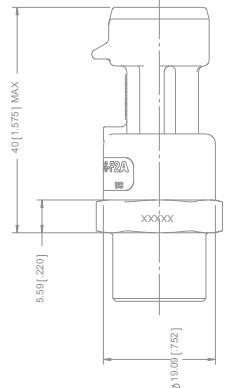
- 1/4" - 18 NPT (Ext. Threads)
- 1/8" - 27 NPT (Ext. Threads)
- Stud End DIN 3852-B-G 1/4" (Ext. Threads)
- Tapped Hole DIN 3852-Y-G 1/4" (Int. Threads)
- 3/8" - 24 UNF-2A Per SAE J1926/2 (Ext. Threads)
- 3/8" - 24 UNF-2B Per SAE J1926/2 (Int. Threads)

### Built-in Electrical Connections

- Packard Metri-Pack 150

## P528

### Pressure Sensor for Refrigeration



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

#### Pressure Ranges

0 - 6 up to 0 - 70 bar and 0 - 100 up to 0 - 100 PSI

#### Pressure Connections

1/4" SAE Female Flare w/ Schrader Deflator  
7/16"-20UNF-2A external thread  
1/4"-18 NPT and 1/8"-27 NPT (external threads)

#### Electrical Connection

Packard Metri Pack 150

#### Housing Material

Brass or S304 Stainless Steel (1.4301)

#### Output Signal

0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

- SAE female Pressure Connections with Built-in Schrader Deflator
- Low Power Consumption
- Outstanding Shock & Vibration Performance
- 36 VDC Over Voltage and Reverse Polarity Protection

### Typical Applications

- High and Low Side Pressure Measurements in Refrigeration Systems
- Product Refrigeration
- Refrigerant Recovery
- Transport Refrigeration
- Environmental Test Equipment

## P528 - MAIN OPTIONS

### Pressure Ranges

0 - 6	Bar	0 - 100	PSI
0 - 10	Bar	0 - 150	PSI
0 - 16	Bar	0 - 300	PSI
0 - 25	Bar	0 - 500	PSI
0 - 40	Bar	0 - 600	PSI
0 - 50	Bar	0 - 750	PSI
0 - 70	Bar	0 - 1000	PSI

### Pressure References

- Absolute
- Gage
- Sealed Gage (Referenced to 14.7 PSIA)

### External Seal Material

- Neoprene (-30° to 120°C)
- Ethylene Propylene (-40° to +120°C)
- HNBR (-25° to +125°C)

### Pressure Connections

- 1/4" - 18 NPT (Ext. Threads)
- 1/4" SAE Female Flare w/ Schrader Deflator (7/16"- 20 UNF-2B Int. Threads)
- 7/16"- 20 UNF-2A Per SAE J513f (Ext. Threads)
- 1/8"- 27 NPT (Ext. Threads)

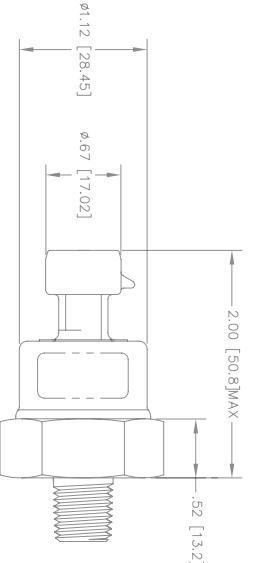
### Built-in Electrical Connections

- Packard Metri-Pack 150

## P265 Pressure Transducer



CE



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges	0 - 15 up to 0 - 1000 PSI
Pressure Connections	1/8"-27 NPT, 1/4"-18 NPT
Electrical Connection	Packard Metri-Pack 150
Housing Material	Stainless steel
Output Signal	0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

- Dry Media
- Superior Long Term Stability
- Superior EMI/RFI Rejection
- Temperature Compensated
- Ten Million Cycle Life Expectancy
- Outstanding Shock & Vibration Performance

### Typical Applications

- Steam Sterilizers
- Gasoline & Diesel Engines
- Natural Gas & CNG Engines
- Agricultural Chemical Equipment
- Hydraulic Systems
- Level Measurement
- Test Equipment
- Injection Molding
- Coolant Pressure
- Industrial Compressors

## P265 - MAIN OPTIONS

### Pressure Ranges

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

### Pressure Connections

- 1/4"- 18 NPT (Ext. Threads)
- 3/8"- 24 UNF-2A (Male)
- 3/8"- 24 UNF-2B (Female)
- 1/8"- 27 NPT

### Built-in Electrical Connections

- Packard Metri-Pack 150

Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

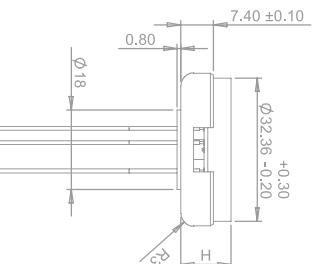
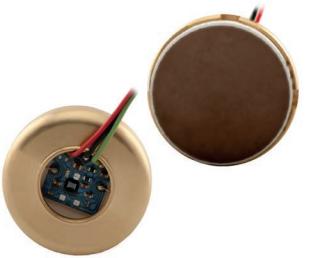
Pressure Switches

## PS312

### Ceramic Capacitive Low Pressure Sensing Module



CE



#### Main Features

Pressure Ranges	0 - 0.07 bar up to 0 - 20 bar (gage) 0 - 1 up to 0 - 20 bar (absolute)
Electrical Connection	3 isolated color coded wires
Housing Material	Brass Spacer
Output Signal	1 - 4 VDC, 0.5 - 4.5 VDC (at 100% pressure)

For further options, please see Main Options

#### Attributes

- Media Resistant
- Superior Long-Term Stability & Repeatability
- High Overpressure Capability
- Shock & Vibration Resistant

#### Typical Applications

- Industrial Pumps & Compressors
- Refrigeration
- Heating, Ventilation and Air-conditioning (HVAC)
- Process Controls
- Fuel Cells
- Water Management
- Hydraulic Systems

## PS312 - MAIN OPTIONS

#### Pressure Ranges

0 - 0.70	barG	0 - 1	barA
0 - 0.75	barG	0 - 2	barA
0 - 1	barG	0 - 3.50	barA
0 - 2	barG	0 - 5	barA
0 - 3.50	barG	0 - 7	barA
0 - 5	barG	0 - 10	barA
0 - 7	barG	0 - 20	barA
0 - 10	barG		
0 - 20	barG		

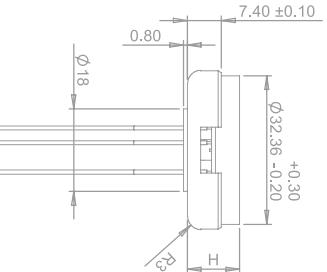
#### Output

- 1 - 4 VDC at 100% Pressure
- 0.5 - 4.5 VDC at 100% Pressure

## PS162

### Ceramic Capacitive High Pressure Sensing Module

Thin Film



Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories



#### Main Features

Pressure Ranges	0 - 0.04 bar up to 0 - 60 bar (gage) 0 - 1 up to 0 - 60 bar (absolute)
Electrical Connection	3 isolated color coded wires
Housing Material	Brass Spacer
Output Signal	1 - 4 VDC, 0.5 - 4.5 VDC (at 0 - 100% pressure)

For further options, please see Main Options

#### Attributes

- Media Resistant
- Superior Long-Term Stability & Repeatability
- High Overpressure Capability
- Shock & Vibration Resistant

#### Typical Applications

- Industrial Pumps & Compressors
- Refrigeration
- Heating, Ventilation and Air-conditioning (HVAC)
- Process Controls
- Fuel Cells
- Water Management
- Hydraulic Systems

## PS162 - MAIN OPTIONS

#### Pressure Ranges

0 - 0.40	barG	0 - 1	barA
0 - 1	barG	0 - 2	barA
0 - 2	barG	0 - 3.50	barA
0 - 3.50	barG	0 - 5	barA
0 - 5	barG	0 - 7	barA
0 - 7	barG	0 - 10	barA
0 - 10	barG	0 - 20	barA
0 - 20	barG	0 - 35	barA
0 - 35	barG	0 - 60	barA
0 - 60	barG		

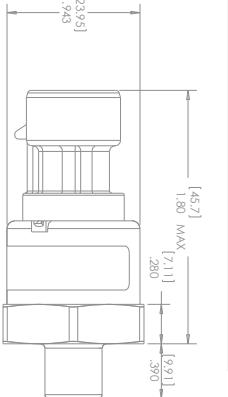
#### Output

- 1 - 4 VDC at 100% Pressure
- 0.5 - 4.5 VDC at 100% Pressure

## PE2000 OEM Pressure Sensor



CE



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges	0 - 0.25 up to 0 - 25 bar 0 - 5 up to 0 - 300 PSI
Pressure Connections	1/8"-27 NPT, 1/4"-18 NPT
Electrical Connection	Packard Metri-Pack 150, DIN Bayonet 72585-A1-3.1-SN
Housing Material	Stainless Steel
Output Signal	0.5 - 4.5 VDC ratiometric

For further options, please see Main Options

### Attributes

- Wet & Dry Media
- Superior Long Term Stability
- Superior EMI Protection
- Temperature Compensated
- Minimum Life Expectancy:  
10 Million Cycles
- Outstanding Shock & Vibration  
Performance

### Typical Applications

- Compressors
- Instruments & Test  
Equipment
- Hydraulic Systems
- Air, Oil, Fuel and Coolant  
Pressure
- Agricultural Equipment
- CNG & Natural Gas Engines

## PE2000 - MAIN OPTIONS

### Pressure Ranges

0 - 0.25 Bar*	0 - 5 PSI*
0 - 0.4 Bar*	0 - 10 PSI*
0 - 0.6 Bar*	0 - 15 PSI*
0 - 1 Bar*	0 - 20 PSI
0 - 1.6 Bar	0 - 30 PSI
0 - 2.5 Bar	0 - 50 PSI
0 - 4 Bar	0 - 75 PSI
0 - 6 Bar	0 - 100 PSI
0 - 10 Bar	0 - 150 PSI
0 - 16 Bar	0 - 200 PSI
0 - 25 Bar	0 - 300 PSI

\*in gage only

### External Seal Material

- Silicone
- Nitrile
- Neoprene
- Fluorocarbon
- Fluorosilicone
- Ethylene Propylene

### Pressure Connections

- 1/8"-27 NPT
- 1/4"-18 NPT

### Built-in Electrical Connections

- Packard Metri-Pack 150
- DIN Bayonet 72585-A1-3.1-SN

## P321 Wet Wet Differential Pressure Sensor



Main Features	
Pressure Ranges	0 - 350 mbar
Housing Material	Polyetherimide
Bracket Material	Carbon Steel
Gasket Material	Fluorosilicone
Output Signal	0.5 VDC @ 0.0 mbarD to 4.5 VDC @ 350 mbarD

For further options, please see Main Options

### Attributes

- Temperature Compensated
- Low Power Consumption
- Rugged Design
- High Temperature Performance
- Compatible with Harsh Environments & Exhaust Media

### Typical Applications

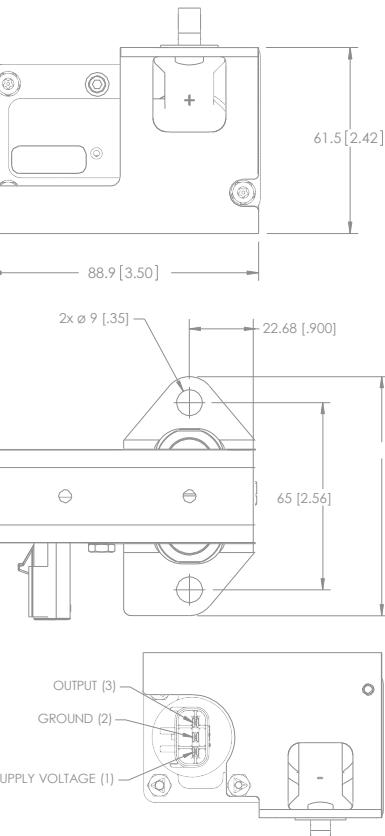
- Exhaust Gas Recirculation (EGR)
- Diesel Particulate Filter (DPF)
- Chillers
- Differential Pressure for Natural Gas Power Generation
- Oil Differential Sensing on Compressors

## P321 - MAIN OPTIONS

The P321 is a **customized product series** of Wet Wet Differential Pressure Sensors that use a 5 VDC input to measure the differential pressure between two pressure ports, providing a 0.5 to 4.5 VDC output proportional to pressure. Incorporating an oil-filled capacitive sense element, these sensors are able to withstand vacuum (negative) pressures as well as high common mode pressures. The large diaphragm protects these sensors from the accumulation of soot and other harsh materials.

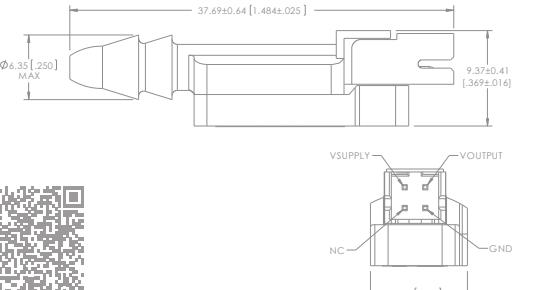
Packaged in Ultem 2000 Series Plastic and using a carbon steel metal bracket as its mounting feature, the P321 is rugged and durable by design. It is temperature compensated to meet the accuracy requirements of the customer, and is rated to perform continuously at temperatures up to 125°C.

Specifically intended to withstand high common mode pressures, high vibration environments, and with its resistance to soot and other acidic media, the P321 pressure sensor delivers the optimal solution without compromising performance or reliability.



## P6000 Remote Mount Miniature Pressure Sensor

Thin Film



### Main Features

Pressure Ranges	0 - 2.5 and 0 - 5 PSIG 0 - 15 to 0 - 100 PSIA or PSIG 0 - 200 and 0 - 500 mbarG 0 - 1 to 0 - 7 barG or barA
Pressure Connections	Barb for 3/16" ID tubing
Electrical Connection	Pin Header Pin Header with Mating Connector 12" Lead Wires
Housing Material	PET (30% glass lled)
Output Signal	0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

- Rugged, Miniature Package
- Amplified, Temperature Compensated Linear Output
- Remote Mounting Option
- Custom Packaging and Pressure Ranges

### Typical Applications

- Oxygen Concentrators
- Respirators
- Sleep Apnea
- Instrumentation
- Pneumatic Controls
- Robotics

## P6000 - MAIN OPTIONS

### Pressure Ranges

0 - 2.5	PSIG	0 - 200	mbarG
0 - 5	PSIG	0 - 500	mbarG
0 - 15	PSIG or PSIA	0 - 1	barG or barA
0 - 30	PSIG or PSIA	0 - 2	barG or barA
0 - 50	PSIG or PSIA	0 - 3.5	barG or barA
0 - 75	PSIG or PSIA	0 - 5	barG or barA
0 - 100	PSIG or PSIA	0 - 7	barG or barA

### External Seal Material

- Pin Header
- Pin Header with Mating Connector 12" Lead Wires

### Pressure References

- Absolute
- Gage

## P4000 Hermetically Sealed Pressure Sensor

Thin Film

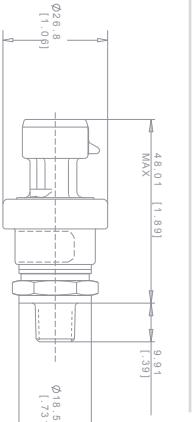
Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories



### Main Features

Pressure Ranges	0 - 100 up to 0 - 5000 PSI
Pressure Connections	1/8"-27 NPT, 1/4"-18 NPT
Electrical Connection	Packard Metri-Pack 150
Housing Material	304 Stainless Steel
Output Signal	0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

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

### Typical Applications

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

## P4000 - MAIN OPTIONS

### Pressure Ranges

0 - 100 PSI	0 - 1500 PSI
0 - 150 PSI	0 - 2000 PSI
0 - 200 PSI	0 - 2500 PSI
0 - 250 PSI	0 - 3000 PSI
0 - 300 PSI	0 - 3500 PSI
0 - 500 PSI	0 - 4000 PSI
0 - 600 PSI	0 - 4500 PSI
0 - 750 PSI	0 - 5000 PSI
0 - 1000 PSI	

### Pressure Connections

- 1/8"- 27 NPT
- 1/4" SAE Female Schrader Deflator
- 7/16"- 20 UNF SAE J1926/2
- 1/4"- 18 NPT

### Built-in Electrical Connections

- Packard Metri-Pack 150
- Deutsch DT04 (3 Pin)

### Pressure References

- Absolute
- Sealed Gage

### Output

- 0.5 - 4.5 VDC

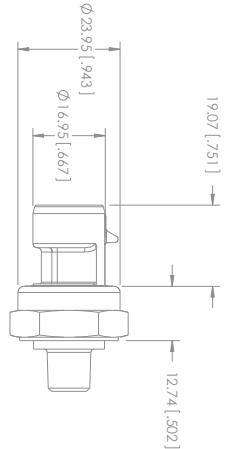
### External Seal Material

- None
- Nitrile

## P4055 Pressure Transducer



CE



### Main Features

Pressure Ranges 0 - 3 to 0 - 300 PSI

Pressure Connections 1/4"-18NPT, G1/4", M10x1, M12x1.5

Electrical Connection Packard Metri-Pack 150

Housing Material Brass

Output Signal 0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

- Small Size
- Back-side PRT Configuration
- High Vibration Tolerance
- Superior EMI/RFI Performance
- Temperature Compensated

### Typical Applications

- Pumps & Compressors
- Process Controls
- Filter Restriction
- Oil and Fuel Pressures
- Water & Level Management
- Test & Monitoring Equipment

## P4055 - MAIN OPTIONS

### Pressure Ranges

0 - 3	PSI	0 - 75	PSI
0 - 5	PSI	0 - 100	PSI
0 - 10	PSI	0 - 150	PSI
0 - 15	PSI	0 - 200	PSI
0 - 30	PSI	0 - 300	PSI
0 - 50	PSI		

### Pressure Connections

- 1/4"-18 NPT
- M12 x 1.5-6g per ISO 6149
- M10 x 1-6g per ISO 6149
- 1/8"-27 NPT
- Stud end per DIN 3852-A-G1/4" (sealing washer, not supplied)
- M14 x 1.5-6g er ISO 6149
- Stud end per DIN 3852-C-R1/4" (1/4"-19 BSPT)
- 7/16"-20UNF-2A
- M16 x 1.5-6g
- Stud end per DIN 3852-C-R1/8" (1/8"-28 BSPT)

### Built-in Electrical Connections

- Packard Metri-Pack 150

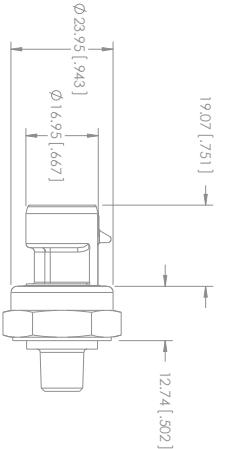
Pressure Switches



## P4056 Pressure Transducer



CE



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges	0 - 200 mbar up to 0 - 20 bar
Pressure Connections	1/4"-18NPT, G1/4", M10x1, M12x1.5
Electrical Connection	Packard Metri-Pack 150
Housing Material	Brass
Output Signal	0.5 - 4.5 VDC

For further options, please see Main Options

### Attributes

- Small Size
- High Vibration Tolerance
- Superior EMI/RFI Performance
- Temperature Compensated

### Typical Applications

- Pumps & Compressors
- Process Controls
- Filter Restriction
- Oil and Fuel Pressures
- Water Management
- Test & Monitoring Equipment

## P4056 - MAIN OPTIONS

### Pressure Ranges

0 - 200	mBarG	0 - 7	Bar
0 - 300	mBarG	0 - 10	Bar
0 - 1	Bar	0 - 15	Bar
0 - 2	Bar	0 - 20	Bar
0 - 4	Bar		
0 - 5	Bar		

### Pressure Connections

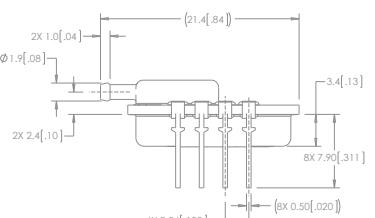
- 1/4"-18 NPT
- M12 x 1.5-6g per ISO 6149
- M10 x 1-6g per ISO 6149
- 1/8"-27 NPT
- Stud end per DIN 3852-A-G1/4" (sealing washer, not supplied)
- M14 x 1.5-6g er ISO 6149
- Stud end per DIN 3852-C-R1/4" (1/4"-19 BSPT)
- 7/16"-20UNF-2A
- M16 x 1.5-6g
- Stud end per DIN 3852-C-R1/8" (1/8"-28 BSPT)

### Built-in Electrical Connections

- Packard Metri-Pack 150

## P1J

### Digital Low Range Differential Pressure Sensor



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges 2, 5, 10,  $\pm$  2, and  $\pm$  5 in of H<sub>2</sub>O

Pressure Connections 1/8" diameter tube fitting with barb  
for 3/16" ID tubing

Electrical Connection PCB solderable pin

Housing Material PPS and Ceramic

Output Signal SPI, and I<sub>2</sub>C

For further options, please see Main Options

### Attributes

- Rugged Package
- EMI/RFI & ESD Protected
- Frequency Output Option  
(Consult Factory)
- Superior Output Signal Stability
- Connects to Standard PCB
- Socket Receptacles

### Typical Applications

- Variable Air Volume Systems
- Filter Pressure Monitoring
- Duct Air Flow
- Modulated Furnace Controls
- Combustion Air Flow
- Gaseous Leak Detection

### P1J - MAIN OPTIONS

#### Pressure Ranges

0-2"	H <sub>2</sub> O	0-5	mbar
+/- 2"	H <sub>2</sub> O	+/- 5	mbar
0-5"	H <sub>2</sub> O	0-12.5	mbar
+/- 5"	H <sub>2</sub> O	+/- 12.5	mbar
0-10"	H <sub>2</sub> O	0-25	mbar

#### Pressure Connections

- Tube Fitting with Barb

#### Built-in Electrical Connections

- PCB Terminal Pin

#### Output

- SPI
- I<sub>2</sub>C, 28 Hex
- I<sub>2</sub>C, 38 Hex
- I<sub>2</sub>C, 48 Hex
- I<sub>2</sub>C, 58 Hex
- I<sub>2</sub>C, 68 Hex
- I<sub>2</sub>C, 78 Hex
- I<sub>2</sub>C, 88 Hex
- I<sub>2</sub>C, 98 Hex

## P1K

### Analog Low Range Differential Pressure Sensor



Thin Film

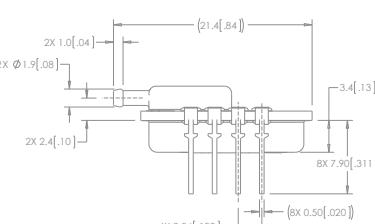
Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories



#### Main Features

Pressure Ranges	1, 2, 5, 10, $\pm 1$ , $\pm 2$ , and $\pm 5$ in of H <sub>2</sub> O
Pressure Connections	1/8" diameter tube fitting with barb for 3/16" ID tubing
Electrical Connection	PCB solderable pin
Housing Material	PPS and Ceramic
Output Signal	0.25 - 4.0 VDC

For further options, please see Main Options

#### Attributes

- Rugged Package
- EMI/RFI & ESD Protected
- Frequency Output Option (Consult Factory)
- Superior Output Signal Stability
- Connects to Standard PCB
- Socket Receptacles

#### Typical Applications

- Variable Air Volume Systems
- Filter Pressure Monitoring
- Duct Air Flow
- Modulated Furnace Controls
- Combustion Air Flow
- Gaseous Leak Detection

#### P1K - MAIN OPTIONS

##### Pressure Ranges

0-1"	H <sub>2</sub> O	0-2.5	mbar
+/- 1"	H <sub>2</sub> O	+/- 2.5	mbar
0-2"	H <sub>2</sub> O	0-5	mbar
+/- 2"	H <sub>2</sub> O	+/- 5	mbar
0-5"	H <sub>2</sub> O	0-12.5	mbar
+/- 5"	H <sub>2</sub> O	+/- 12.5	mbar
0-10"	H <sub>2</sub> O	0-25	mbar

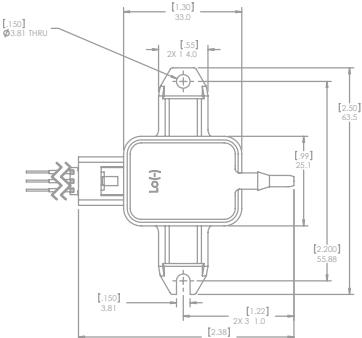
##### Pressure Connections

- Tube Fitting with Barb

##### Built-in Electrical Connections

- PCB Terminal Pin

## Low Range Differential Pressure Sensor



### Main Features

Pressure Ranges	1, 2, 5, 10, $\pm 1$ , $\pm 2$ , and $\pm 5$ in of H <sub>2</sub> O
Pressure Connections	1/8" diameter tube fitting with barb for 3/16" ID tubing
Electrical Connection	PCB Mount
Housing Material	PET (30% glass filled)
Output Signal	0.25 - 4.0 VDC

For further options, please see Main Options

### Attributes

- Rugged Package
- Mounting Configurations
- No Position Sensitivity
- EMI/RFI & ESD Protected
- Frequency Output Option (Consult Factory)
- Superior Output Signal Stability

### Typical Applications

- Variable Air Volume Systems
- Filter Pressure Monitoring
- Duct Air Flow
- Modulated Furnace Controls
- Combustion Air Flow
- Gaseous Leak Detection

## P992 - MAIN OPTIONS

### Pressure Ranges

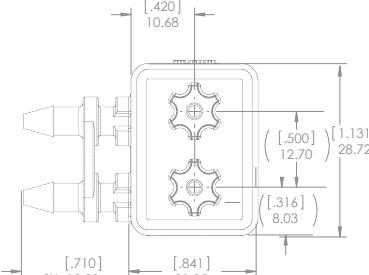
0-1"	H <sub>2</sub> O	0-2.5	mbar
+/- 1"	H <sub>2</sub> O	+/- 2.5	mbar
0-2"	H <sub>2</sub> O	0-5	mbar
+/- 2"	H <sub>2</sub> O	+/- 5	mbar
0-5"	H <sub>2</sub> O	0-12.5	mbar
+/- 5"	H <sub>2</sub> O	+/- 12.5	mbar
0-10"	H <sub>2</sub> O	0-25	mbar

### Mounting Configurations

- PCB Mount
- 3 Foot PCB (Compatible with Kavlico P892)
- 2 Foot PCB with lead wires

P993

## Low Range Differential Pressure PCB Mount Sensor



## P993 - MAIN OPTIONS

### Pressure Ranges

0-1"	H <sub>2</sub> O	0-2.5	mbar
+/- 1"	H <sub>2</sub> O	+/- 2.5	mbar
0-2"	H <sub>2</sub> O	0-5	mbar
+/- 2"	H <sub>2</sub> O	+/- 5	mbar
0-5"	H <sub>2</sub> O	0-12.5	mbar
+/- 5"	H <sub>2</sub> O	+/- 12.5	mbar
0-10"	H <sub>2</sub> O	0-25	mbar

### Main Features

Pressure Ranges	1, 2, 5, 10, ±1, ±2, and ±5 inches of H <sub>2</sub> O
Pressure Connections	1/8" diameter tube fitting with barb for 3/16" ID tubing
Electrical Connection	PCB Mount
Housing Material	PET (30% glass filled)
Output Signal	0.25 - 4.0 VDC

For further options, please see Main Options

### Attributes

- Rugged PCB Mount Package
- Amplified Temperature
- Compensated Linear Output
- No Position Sensitivity
- EMI/RFI & ESD Protected
- Superior Output Signal Stability

### Typical Applications

- Variable Air Volume Systems
- Filter Pressure Monitoring
- Duct Air Flow
- Modulated Furnace Controls
- Combustion Air Flow
- Gaseous Leak Detection

## PS1A Pressure Switch



Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories

### Main Features

Pressure Ranges	0 - 0.25 up to 0 - 16 and -1 - 0 up to -1 - 1 bar (gage) 0 - 1.6 up to 0 - 16 bar (absolute)
Pressure Connections	G1/4" A DIN 3852-E
Electrical Connection	M12-4 Pin
Output Signal	4 - 20 mA

For further options, please see Main Options

### Attributes

- Programmable switching output
- 64x64 matrix OLED display
- Excellent display readability
- Highest degree of freedom of the display, approximately 700°
- Media resistant ceramic-capacitive technology
- Measurement of Vacuum up to 16 bar (gage and absolute)

### Typical Applications

- Food and beverage industry
- Pharmaceutical industry
- Dispensing and packaging machines
- Sanitary applications (water and wastewater treatment)
- Combustion air flows
- Oil and gas refineries
- Chemical Processing
- Fertilizer Manufacturing

## PS1A - MAIN OPTIONS

### Pressure Ranges

0 - 0.25 Bar*	0 - 16 Bar	0 - 75 PSI
0 - 0.4 Bar*	-1 - 0 Bar*	0 - 100 PSI
0 - 0.6 Bar*	-1 - 1 Bar*	0 - 150 PSI
0 - 1 Bar*	0 - 5 PSI*	0 - 200 PSI
0 - 1.6 Bar	0 - 10 PSI*	
0 - 2.5 Bar	0 - 15 PSI*	
0 - 4 Bar	0 - 20 PSI	
0 - 6 Bar	0 - 30 PSI	
0 - 10 Bar	0 - 50 PSI	

\*in gage only

### Pressure References

- Absolute
- Gage

### Output

- 4 - 20 mA

### External Seal Material

- Fluorocarbon - FKM (Viton®) - lower temperature limited to -20°C
- Ethylene Propylene - EPDM
- None

### Pressure Connections

- G 1/4A DIN 3852-E

### Built-in Electrical Connections

- M12-4 Pin according to IEC 61076-2-101

### Internal Seal Material

- Neoprene - CR
- Fluorocarbon - FKM (Viton®)
- Fluorosilicone - FVMQ
- Ethylene Propylene - EPDM

## PS1B Pressure Switch

Thin Film

Ceramic Capacitive

Piezo Resistive

Silicon Capacitive

Pressure Switches

Accessories



### Main Features

Pressure Ranges 0 - 6 up to 0 - 600 bar

Pressure Connections G 1/4" A DIN 3852-E or -A

Electrical Connection M12-4 Pin

Output Signal 4 - 20 mA

For further options, please see Main Options

### Attributes

- Programmable switching output
- 64x64 matrix OLED display
- Excellent display readability
- Highest degree of freedom of the display, approximately 700°
- Media resistant thin-film technology
- Measurement from 6 to 600 bar (gage)

### Typical Applications

- Food and beverage industry
- Pharmaceutical industry
- Dispensing and packaging machines
- Sanitary applications (water and wastewater treatment)
- Combustion air flows
- Oil and gas refineries
- Chemical Processing
- Fertilizer Manufacturing

## PS1B - MAIN OPTIONS

### Pressure Ranges

0 - 6	Bar	0 - 100	Bar
0 - 10	Bar	0 - 160	Bar
0 - 16	Bar	0 - 250	Bar
0 - 25	Bar	0 - 400	Bar
0 - 40	Bar	0 - 600	Bar
0 - 60	Bar		

### External Seal Material

- Fluorocarbon FKM (Viton®) Seal Material\*
- Aluminium Washer G1/4"\*\*
- Copper Washer G1/4"\*\*

\* only for pressure port option G1/4"A DIN 3852-E

\*\* only for pressure port option G1/4"A DIN 3852-A

### Pressure Connections

- G 1/4"A DIN 3852-E
- G 1/4"A DIN 3852-A

### Built-in Electrical Connections

- M12-4 Pin

## PS1C Pressure Display and Switch Device

Thin Film



CE



Silicon Capacitive

Pressure Switches

Accessories



### Main Features

Displayed Value Range	-14,5 to 6000 with 27 Selectable Value Ranges
Power Supply	24 VDC
Electrical Connection	M12 Female, 4 Pin Output: M12 Male, 4 Pin
Digital Output	PNP or NPN, NO/NC Programmable
Output Signal	4 - 20 mA
Degree of Protection	IP65, IP67, and IP69K
Operating Temperature	-20 to +70°C

### Attributes

#### Easy to mount

- Flexible mounting options: remotely with an electrical jumper or directly on the pressure transmitter
- Quick fix brackets, for vertical (1) or horizontal (2) placement, or attachment to a pipe
- Rotating body

#### Easy to set up

- Fast and intuitive configuration of just three parameters: display range, set point, reset point
- Adjustment screws compatible with standard screwdrivers

#### Easy to maintain

- Display status tested at each device start up & confirmed by display light up
- Convenient replacement without interrupting the pressure in the system

## PS1C - REFERENCES

Output 1	Output 2	Hysteresis	Windows
-	-	PS1C-5000-1	PS1C-5000-2
4...20 mA	PNP	PS1C-5000-3	PS1C-5000-4
4...20 mA	NPN	PS1C-5000-5	-
PNP	PNP	PS1C-5000-6	-
NPN	NPN	PS1C-5000-7	-
<b>Vertical surface fixing</b>		<b>Horizontal surface fixing</b>	
43E-1073		43E-1072	
		12E-1027	
<b>M12 Jumper cable 1.5m</b>			

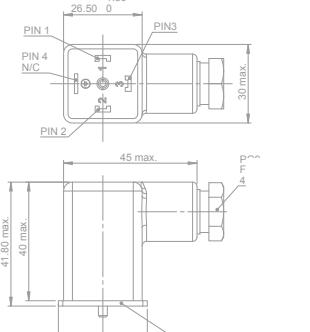


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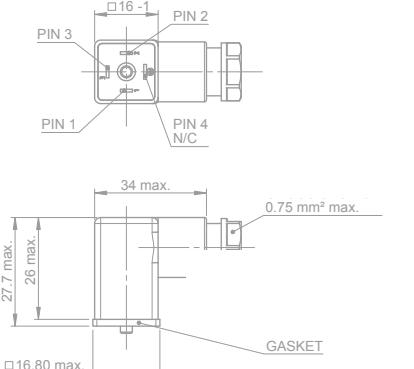
Perfect fit for...
PTE5000 Page 10
PTA5000 Page 12
P1E Page 14
P1A Page 16

## ACCESSORIES

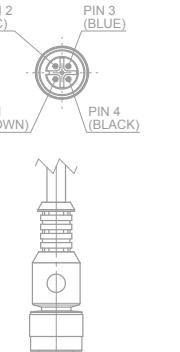
Mating Connector  
18mm with NBR Gasket



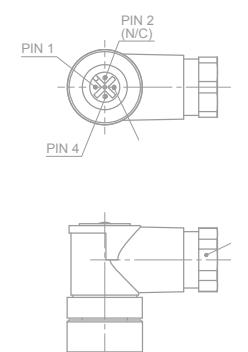
Mating Connector  
9.4mm with NBR Gasket



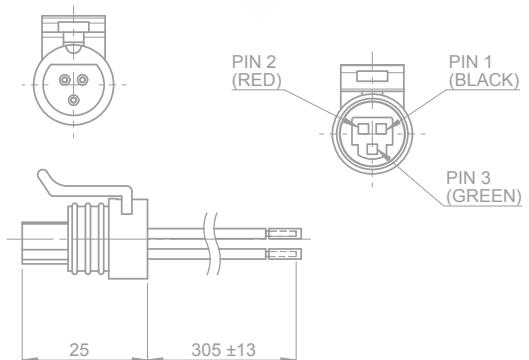
Mating Connector  
M12, Straight



Mating Connector  
M12, RT-Angle



Mating Connector  
Packard Metri-Pack, Cable Assembly



## NOTES



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