

Data Sheet

PTE5000

Hermetically Sealed Modular Pressure Sensor



Main Features

Pressure Ranges	0 to 6 up to 0 to 600 bar (gage)
Electrical Connection	Packard Electric Metri-Pack 150 Series, M12 - 4 Pole *
Pressure Connection	G1/4A DIN 3852-E, G1/4A DIN 3852-A *
Housing Material	304 Stainless Steel (1.4301)
Output Signal	4 - 20 mA, 0.5 - 4.5 VDC, 0 - 5 VDC, 0 - 10 VDC

* for more options see How to Order

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
- Wind Energy
- HVAC Systems
- Chemical Industry

Description

The PTE5000 utilizes Kavlico's thin film strain gauge sensing technology, incorporating an hermetically sealed design with no internal sealing required. Designed for harsh environments, a rugged 304 stainless steel housing surrounds the PTE5000 transducer.

The PTE5000's small, compact design as well as its low overall weight makes it ideal for applications with spacing and weight limitations. This easy-to-use sensor is media resistant, which allows it to be used for a broad range of liquid and gaseous media. It can be used at high operating temperatures and has internal temperature compensation. Highly reliable, the PTE5000 provides accurate, high pressure measurements every time.

Technical Specifications

Pressure Ranges

from 0 to ...	bar (gage)	6	10	16	25	40	60	100	160	250	400	600
Proof pressure	bar (gage)	12	20	32	50	80	120	200	320	500	800	1200
Burst pressure	bar (gage)	60	100	160	200	320	480	600	960	1000	1600	2400

Physical

Operating Life Cycle	min. 10 million full pressure cycles over the full range
Vibration Resistance	IEC 60068-2-64 (RANDOM) 20 PSD
Shock Resistance	25 g minimum according to DIN EN 60068-2-27
Drop Test	1 meter drop on concrete as per SAE J1455 / DIN EN 60068-2-3-1
Weight	≤ 50 grams (without mating connector)
Ingress Protection	IP 65 or IP67 - depending on electrical connector
Medium Temperature	-30°C to + 120°C (others on request)
Environmental Temperature	-30°C to + 100°C (dep. on electrical connector & external seal ring capability) ^{*4}
Storage Temperature	-30°C to + 100°C (dep. on electrical connector & external seal ring capability) ^{*4}
Media	All class II fluids and gases compatible with stainless steel 304 (1.4301)

^{*4} For more details see How to Order

Performance

Accuracy ^{*1}	≤ 0.5 % of span ^{*3}
Non-linearity ^{*2}	0.2 % of span ^{*3}
Non-repeatability	0.1 % of span ^{*3}
1-year stability	0.2 % of span ^{*3}
Temp. Coefficients - Zero	0.2 % of span / 10 K within temperature range 0°C to + 80°C. 2 %
Temp. Coefficients - Span	0.2 % of span / 10 K within temperature range 0°C to + 80°C. 2 %

^{*1} Including non-linearity, hysteresis, non-repeatability, zero point and full scale error (corresponds to error of measurement per IEC 61298-2). Adjusted in vertical mounting position with pressure port down.

^{*2} BFSL according to IEC 61298-2 reference conditions to EN 61298-1

^{*3} Others on request

Electrical

Output Signal	4...20 mA	0.5...4.5 VDC ratiometric	0...5 VDC	0...10 VDC
Operating Supply Signal	8-30 VDC	5 VDC \pm 5%	8-30 VDC	14-30 VDC
Power Consumption	\leq 600 mW	\leq 25 mW	\leq 600 mW	\leq 600 mW
Overvoltage Protection	min. 33 VDC	min. 6 VDC	min. 33 VDC	min. 33 VDC
Short-circuit Proofness	not applicable	Yes ^{*5}	Yes ^{*5}	Yes ^{*5}
Insulation Voltage	500 VDC	500 VDC	500 VDC	500 VDC
Reverse Polarity Protection	Yes ^{*6}	Yes ^{*6}	Yes ^{*6}	Yes ^{*6}
Load	$\leq (V_{sup}-8 \text{ VDC})/(0.02 \text{ A}) [\Omega]$	$\geq 4.7 \text{ k}\Omega$	$\geq 4.7 \text{ k}\Omega$	$\geq 4.7 \text{ k}\Omega$
Response Time	$\leq 5 \text{ ms max. to 63\% of full scale pressure with step change on input}$			

^{*5} for min. 3 intervals at 5 minutes each

^{*6} for min. 10 seconds on assigned pins

Approvals & Certificates

CE Compliance	Pressure equipment directive 97/23/EC EMC directive 2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations), EMI, ESD protected
UL	Standard(s) for Safety: Electrical Equipment for Measurement, Control and Laboratory Use - UL 61010-1
ROHS	2011/65/EU ROHS Directive

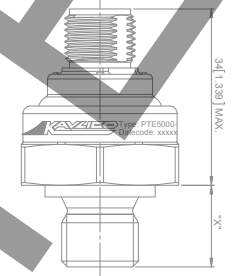
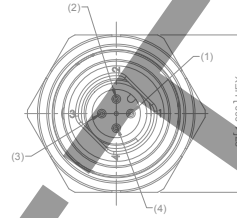
Dimensions

Pressure Sensor with Electrical Connection

Dimensions in mm [Inch]

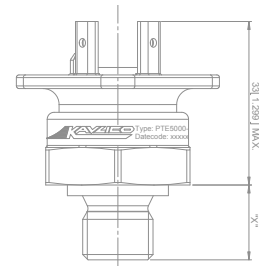
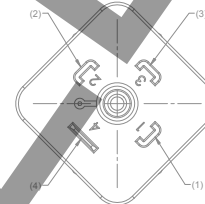
M12 Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	...	Iout	...
0.5-4.5 VDC ratiometric	Vsup	...	Vout	GND
0-5 VDC	Vsup	...	Vout	GND
0-10 VDC	Vsup	...	Vout	GND



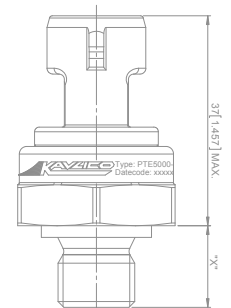
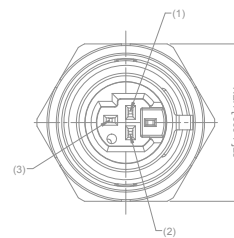
18 mm Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	Iout
0.5-4.5 VDC ratiometric	Vsup	Vout	GND	...
0-5 VDC	Vsup	Vout	GND	...
0-10 VDC	Vsup	Vout	GND	...



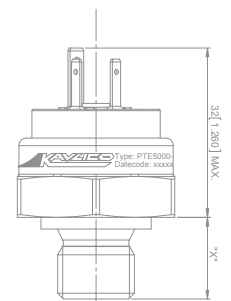
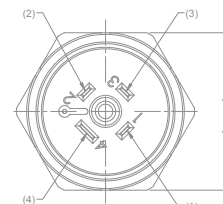
Packard (metri-pack 150) Pin Call Outs

Output	Pin 1	Pin 2	Pin 3
4-20 mA	Iout	Vsup	...
0.5-4.5 VDC ratiometric	GND	Vsup	Vout
0-5 VDC	GND	Vsup	Vout
0-10 VDC	GND	Vsup	Vout



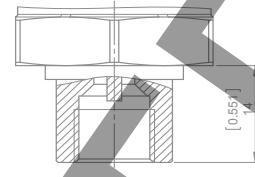
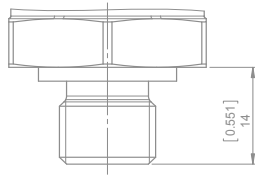
9.4 mm Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	Iout
0.5-4.5 VDC ratiometric	Vsup	Vout	GND	...
0-5 VDC	Vsup	Vout	GND	...
0-10 VDC	Vsup	Vout	GND	...

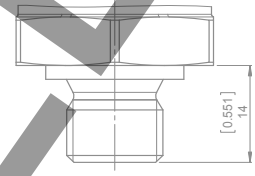
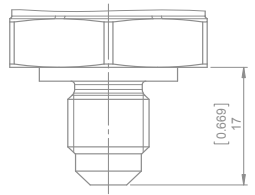


Pressure Connections and Recommended Installation Torque

Dimensions in mm [Inch]



Name	G1/4A DIN 3852-E	7/16-20 UNF-2B SAE J1926-1
Thread	External	Internal
Torque	20 Nm	20 Nm



Name	7/16-20 UNF-2A SAE J1926-2	G1/4A DIN 3852-A
Thread	External	External
Torque	20 Nm	20 Nm

How to Order

PTE5000

060

2

B

1

A

Pressure Ranges Bar

006	0 – 6
010	0 – 10
016	0 – 16
025	0 – 25
040	0 – 40
060	0 – 60
100	0 – 100
160	0 – 160
250	0 – 250
400	0 – 400
600	0 – 600

Output

- 1** 4 - 20 mA
- 2** 0.5 – 4.5 VDC ratiometric
- 3** 0 – 5 VDC
- 4** 0 – 10 VDC

External O-ring

- A** None
- B** Fluorocarbon FKM (Viton)
only for pressure port option 1
lower temperature limited to -20°C
- C** Aluminium Washer G1/4
only for pressure port option
washer will be fixed with plastic cap
- D** Copper Washer G1/4
only for pressure port option
washer will be fixed with plastic cap

Built-in Electrical Connection

- A** Compatible with DIN 175301-803 A (18 mm)
Sensor delivered without mating connector
- B** GDS 307 Industrial Standard (9.4 mm)
Sensor delivered without mating connector
- C** M12 - 4 pole
Sensor delivered without mating connector
- D** Packard Metri-Pack 150
Sensor delivered without mating connector

Pressure Connection (port)

- 1** G1/4" A DIN 3852-E
- 2** 7/16"-20 UNF-2B (female) SAE J1926/1 (modified)
with 45° cone and schrader. only for pressure range 006 - 060
- 3** 7/16"-20 UNF-2A (male) SAE J1926/2 (modified)
with 45° cone, only for pressure range 006 - 060
- 4** G1/4" A DIN 3852-A

Example:

PTE5000 -060 - 2 - B - 1 - A

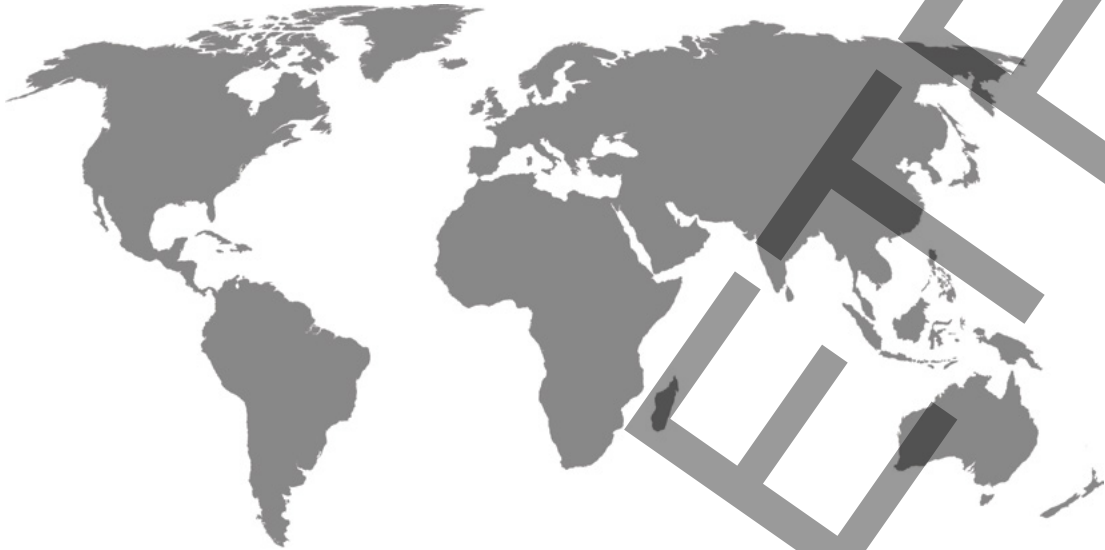
Description:

PTE5000 Sensor, 0 - 60 Bar Gage, 0.5 - 4.5 VDC Ratiometric Electrical Output, Fluorocarbon FKM (Viton) External O-Ring, G1/4" A DIN 3852-E Pressure Connection, with Built-in Connector Compatible with DIN175301-803 A (18mm)



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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Main Contact

Sensata Germany GmbH
Potsdamer Strasse 14,
32423 Minden
Tel: +49 571 3859-0
Fax: +49 571 3859-119
www.kavlico.com
www.sensata.com

Your local sales contact: