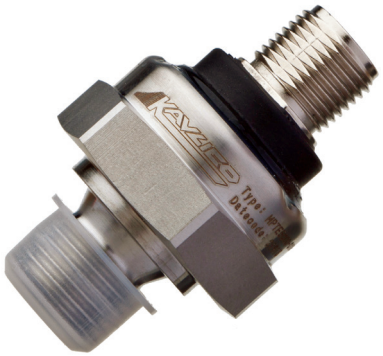
KAVLICO
Pressure Sensors

Data Sheet
P1E
Oxigen Service Pressure Sensor



Main Features

Pressure Ranges	10 bar up to 400 bar (gage)*
Electrical Connection	M12 - 4 Pole, 18mm connector, 9.4mm connector*
Pressure Connection	G1/4A DIN 3852-A*
Housing Material	304 Stainless Steel (1.4301)
Output Signal	4 - 20 mA*

* for more options see How to Order

Attributes

- Hermetically Sealed Compact & Light-weight
- Cleanliness in Accordance with ISO 15001
- Wetted Parts Free of Oil and Greas
- Resistant to Chemical Attack
- Superior Long-Term Stability & Repeatability
- No Internal Seal

Typical Applications

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

Description

Specially designed for oxygen service, supply and transport applications Kavlico's P1E pressure sensor apply ISO15001 cleaning procedures and are delivered with a protection cap on the thread in an individual hermetically sealed packaging. P1E sensors are approved to be used in medical gas service applications such as breathing oxygen and high pressure oxygen service and distribution applications.

The sensor offers a compact, low weight and a hermetically sealed design that incorporates Kavlico´s thin film strain gauge technology in a 304 stainless steel housing. Due to the hermetically sealed design the sense element is impervious to almost any media, and does not require an internal seal. The robust design ensures high repeatability and long term stability. P1E sensors are designed for a wide range of liquid and gaseous media and a wide temperature range from -30° C to +100°C (media to 120°C). To ensure a world-wide usage the senor is cULus listed and CE certified.

Technical Specifications

Pressure Ranges

from 0 to …	bar (gage)	10	16	25	100	250	400
Proof pressure	bar (gage)	20	32	50	200	375	600
Burst pressure	bar (gage)	100	160	200	600	1000	1600

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	Approx. 50 grams (without mating connector)
Ingress Protection	IP 65 or IP67 - depending on electrical connector
Medium Temperature	-30°C to + 120°C
Environmental Temperature	-30°C to + 100°C
Storage Temperature	-30°C to + 100°C
Media	All class II fluids and gases compatible with stainless steel 304 (1.4301)

Performance

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

*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
Operating Supply Signal	8-30 VDC
Power Consumption	≤ 600 mW
Overvoltage Protection	min. 33 VDC
Short-circuit Proofness	not applicable
Insulation Voltage	500 VDC
Reverse Polarity Protection	Yes *4
Load	≤ (Vsup-8 VDC)/(0.02 A) [Ω]
Response Time	≤ 2 ms max. to 63% of full scale pressure with step change on input

*4 for min. 10 seconds on assigned pins

Approvals & Certificates

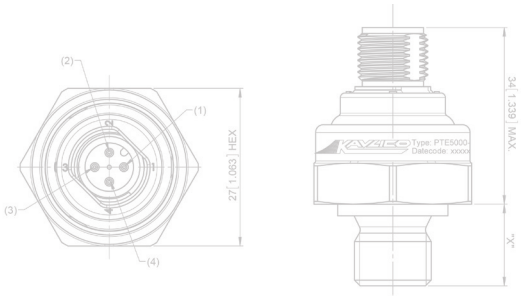
CE Compliance	Pressure equipment directive 97/23/EC EMC directive 2004/108/EEC, EN 61 326 Emission (Group 1, Class B) and Immunity (industrial locations), EMI, ESD protected
Cleanliness specification	In accordance with ISO 15001
ROHS	2011/65/EU ROHS Directive

Dimensions

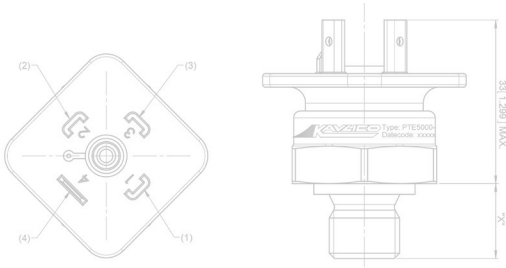
Pressure Sensor with Electrical Connection

Dimensions in mm [Inch]

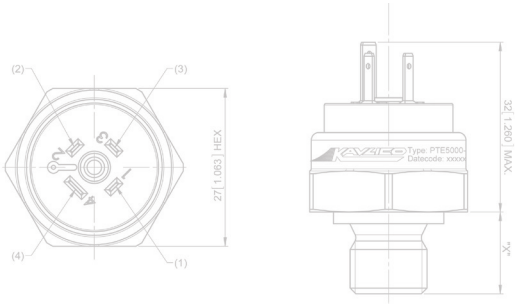
M12 Pin Call Outs				
Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	...	Iout	...



18 mm Pin Call Outs				
Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	Iout	...	...

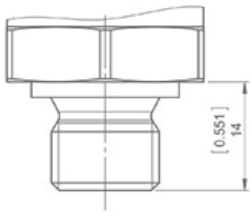


9.4 mm Pin Call Outs				
Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	Iout	...	...



Pressure Connections and Recommended Installation Torque

Dimensions in mm [Inch]



Name	G1/4A DIN 3852-A
Thread	External
Torque	20 Nm

How to Order

P1E | **100** | **1** | **A** | **4** | **A**

Pressure Ranges BarG

010 0 – 10
016 0 – 16
025 0 – 25
100 0 – 100
250 0 – 250
400 0 – 400

Output

1 4 - 20 mA

External Seal ring

A None
C Aluminium Washer G1/4
washer will be fixed with plastic cap
D Copper Washer G1/4
washer will be fixed with plastic cap

Pressure Connection (port)

4 G1/4”A DIN 3852-A

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 cable assembly

Example:
P1E-100-1-A-4-A

Description:
P1E Sensor, 0 - 100 bar Gage, 4…20 mA Electrical Output, no external seal ring, G1/4” A DIN 3582-A 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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