

# Data Sheet

## P1E

### Oxygen 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 sensor 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 <sup>*1</sup>	≤ 0.5 % of span <sup>*3</sup>
Non-linearity <sup>*2</sup>	0.2 % of span <sup>*3</sup>
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

<sup>\*1</sup> 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.

<sup>\*2</sup> BFSL according to IEC 61298-2 reference conditions to EN 61298-1

<sup>\*3</sup> Others on request

---

## Electrical

Output Signal	4...20 mA
Operating Supply Signal	8-30 VDC
Power Consumption	≤ 600 mW
Overtoltage Protection	min. 33 VDC
Short-circuit Proofness	not applicable
Insulation Voltage	500 VDC
Reverse Polarity Protection	Yes <sup>*4</sup>
Load	≤ (Vsup-8 VDC)/(0.02 A) [Ω]
Response Time	≤ 2 ms max. to 63% of full scale pressure with step change on input

<sup>\*4</sup> 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]

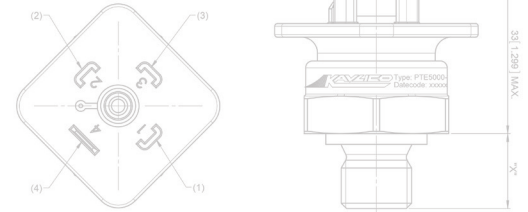
#### M12 Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	...	lout	...



#### 18 mm Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	lout	...	...



#### 9.4 mm Pin Call Outs

Output	Pin 1	Pin 2	Pin 3	Pin 4
4-20 mA	Vsup	lout	...	...



### 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.

**Warning:** The product information contained in this catalogue is given purely as information and does not constitute a representation, warranty or any form of contractual commitment. Kavlico reserve the right to modify their products without notice. It is imperative that we should be consulted over any particular use or application of our products and it is the responsibility of the buyer to establish, particularly through all the appropriate tests, that the product is suitable for the use or application. Under no circumstances will our warranty apply, nor shall we be held responsible for any application (such as any modification, addition, deletion, use in conjunction with other electrical or electronic components, circuits or assemblies, or any other unsuitable material or substance) which has not been expressly agreed by us prior to the sale of our products.

- Manufacturing Facility
- Commercial Office



## Contact Information

### North America

Custom Sensors & Technologies (CST)  
235 E. Main St., Suite 102A  
Northville, MI 48167, USA  
Phone: +1 (248) 465-0815  
Fax: +1 (248) 465-0810  
E-mail: [pressure.sensors@kavlico.com](mailto:pressure.sensors@kavlico.com)

### India

Custom Sensors & Technologies (CST)  
Trident Tower, No. 23, 4th Floor, 100 Feet Road  
Ashoka Pillar Road, 2nd Block, Jaydnagar  
Bangalore - 560011, India  
Phone: +91 80 4113-2204/05  
Fax: +91 80 4113-2206  
E-mail: [india@cstsensors.com](mailto:india@cstsensors.com)

### Europe

Custom Sensors & Technologies (CST)  
Potsdamer Strasse 14  
32423 Minden, Germany  
Phone: +49 571 3859-0  
Fax: +49 571 3859-119  
E-mail: [info@kavlico.de](mailto:info@kavlico.de)

### South Korea

Custom Sensors & Technologies (CST)  
14F, Kbiz DMC Tower, 189,  
Seongam-ro, Mapo-gu,  
Seoul, Korea 121-904  
Phone: +82 2 2629-8312  
Fax: +82 2 2629-8310  
E-mail: [korea@cstsensors.com](mailto:korea@cstsensors.com)

### China

Custom Sensors & Technologies (CST)  
11th Floor, Chang Feng  
International Tower, 89  
Yunling Road (east), Putuo District  
Shanghai - 200062, China  
Phone: +86 (21) 8025 7166  
Fax: +86 (21) 6107 1771  
E-mail: [china@cstsensors.com](mailto:china@cstsensors.com)

### East Asia & Pacific Countries

Custom Sensors & Technologies (CST)  
10/F, Wharf T&T Centre, Harbour City,  
7 Canton Road, Tsim Sha Tsui,  
Kowloon, HONG KONG  
Phone: +852 3960 6473  
Fax: +852 3669 7111  
E-mail: [eap@cstsensors.com](mailto:eap@cstsensors.com)

Компания «Океан Электроники» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Поставка оригинальных импортных электронных компонентов напрямую с производств Америки, Европы и Азии, а так же с крупнейших складов мира;
- Широкая линейка поставок активных и пассивных импортных электронных компонентов (более 30 млн. наименований);
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Поставка электронных компонентов под контролем ВП;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- При необходимости вся продукция военного и аэрокосмического назначения проходит испытания и сертификацию в лаборатории (по согласованию с заказчиком);
- Поставка специализированных компонентов военного и аэрокосмического уровня качества (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Actel, Aeroflex, Peregrine, VPT, Syfer, Eurofarad, Texas Instruments, MS Kennedy, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Компания «Океан Электроники» является официальным дистрибьютором и эксклюзивным представителем в России одного из крупнейших производителей разъемов военного и аэрокосмического назначения «JONHON», а так же официальным дистрибьютором и эксклюзивным представителем в России производителя высокотехнологичных и надежных решений для передачи СВЧ сигналов «FORSTAR».



## JONHON

«JONHON» (основан в 1970 г.)

Разъемы специального, военного и аэрокосмического назначения:

(Применяются в военной, авиационной, аэрокосмической, морской, железнодорожной, горно- и нефтедобывающей отраслях промышленности)

«FORSTAR» (основан в 1998 г.)

ВЧ соединители, коаксиальные кабели, кабельные сборки и микроволновые компоненты:

(Применяются в телекоммуникациях гражданского и специального назначения, в средствах связи, РЛС, а так же военной, авиационной и аэрокосмической отраслях промышленности).



Телефон: 8 (812) 309-75-97 (многоканальный)

Факс: 8 (812) 320-03-32

Электронная почта: [ocean@oceanchips.ru](mailto:ocean@oceanchips.ru)

Web: <http://oceanchips.ru/>

Адрес: 198099, г. Санкт-Петербург, ул. Калинина, д. 2, корп. 4, лит. А