

# 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        |

\*1 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) <sup>*4</sup> |
| Storage Temperature       | -30°C to + 100°C (dep. on electrical connector & external seal ring capability) <sup>*4</sup> |
| Media                     | All class II fluids and gases compatible with stainless steel 304 (1.4301)                    |

<sup>\*4</sup> For more details see How to Order

## 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 <sup>*3</sup>                                     |
| 1-year stability            | 0.2 % of span <sup>*3</sup>                                     |
| 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 % |

<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                                                                         | 0.5...4.5 VDC<br>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 <sup>*5</sup>            | Yes <sup>*5</sup>          | Yes <sup>*5</sup>          |
| Insulation Voltage          | 500 VDC                                                                           | 500 VDC                      | 500 VDC                    | 500 VDC                    |
| Reverse Polarity Protection | Yes <sup>*6</sup>                                                                 | Yes <sup>*6</sup>            | Yes <sup>*6</sup>          | Yes <sup>*6</sup>          |
| 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               | $\leq 5 \text{ ms max. to 63\% of full scale pressure with step change on input}$ |                              |                            |                            |

<sup>\*5</sup> for min. 3 intervals at 5 minutes each

<sup>\*6</sup> for min. 10 seconds on assigned pins

## Approvals & Certificates

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

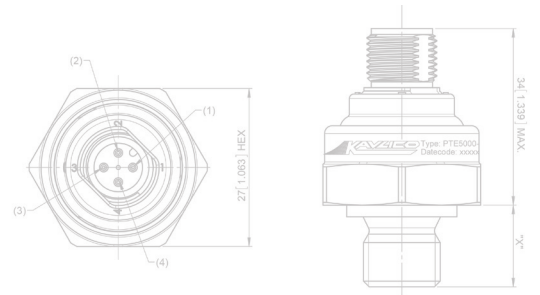
## Dimensions

### Pressure Sensor with Electrical Connection

Dimensions in mm [Inch]

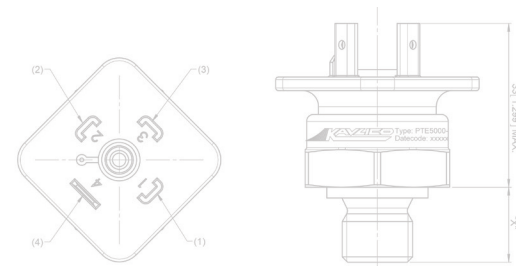
M12 Pin Call Outs

| 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   |



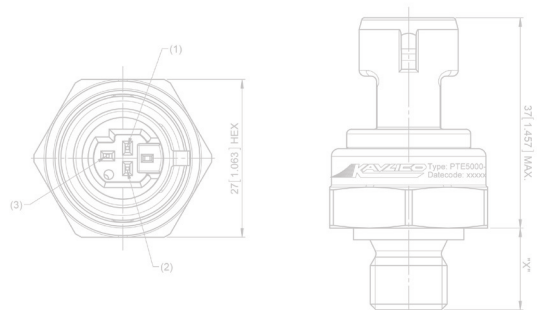
18 mm Pin Call Outs

| 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   | ...   |



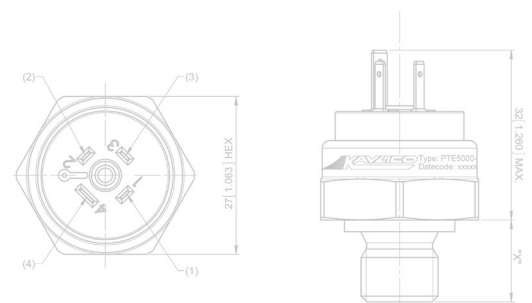
Packard (metri-pack 150) Pin Call Outs

| 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  |



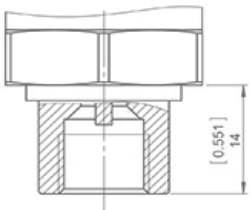
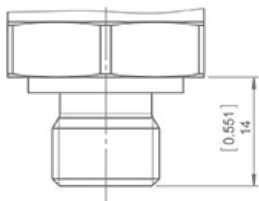
9.4 mm Pin Call Outs

| 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   | ...   |

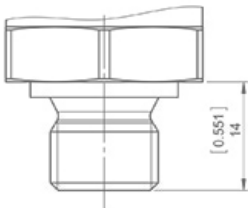
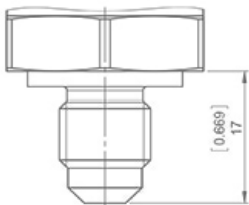


Pressure Connections and Recommended Installation Torque

Dimensions in mm [Inch]

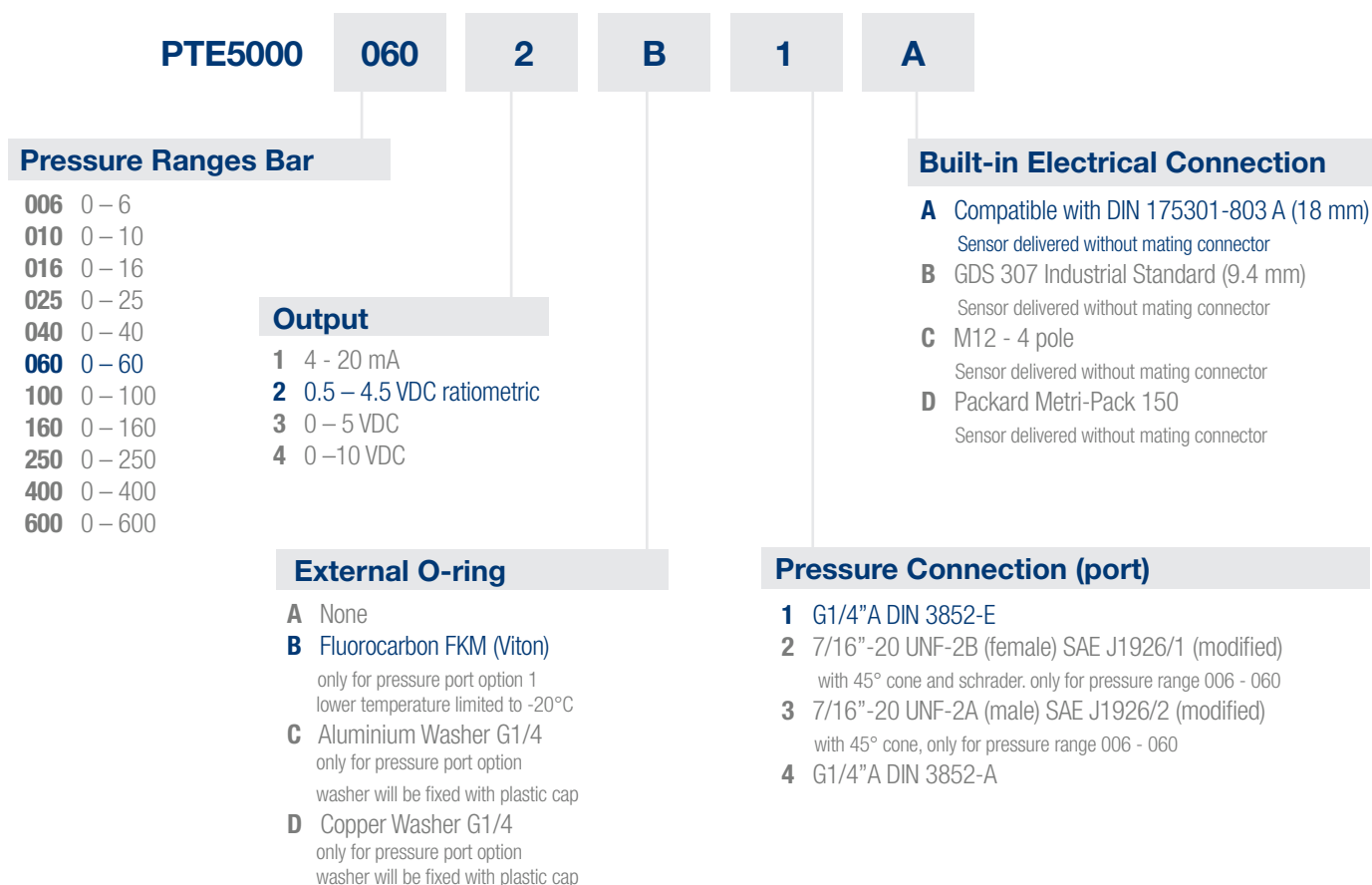


|        |                  |                               |
|--------|------------------|-------------------------------|
| Name   | G1/4A DIN 3852-E | 7/16-20 UNF-2B<br>SAE J1926-1 |
| Thread | External         | Internal                      |
| Torque | 20 Nm            | 20 Nm                 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



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

## How to Order



### 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.

**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)

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Sensata:

|                                     |                                     |                                     |                                     |                                     |
|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| <a href="#">PTE5000-400-4-C-4-D</a> | <a href="#">PTE5000-400-4-C-4-Z</a> | <a href="#">PTE5000-016-4-A-4-D</a> | <a href="#">PTE5000-600-1-B-1-A</a> | <a href="#">PTE5000-016-4-D-4-Z</a> |
| <a href="#">PTE5000-400-2-A-4-X</a> | <a href="#">PTE5000-400-4-A-1-Y</a> | <a href="#">PTE5000-400-4-A-3-Y</a> | <a href="#">PTE5000-400-2-C-4-Y</a> | <a href="#">PTE5000-400-3-A-3-C</a> |
| <a href="#">PTE5000-400-1-A-3-C</a> | <a href="#">PTE5000-400-2-A-1-A</a> | <a href="#">PTE5000-016-3-D-4-B</a> | <a href="#">PTE5000-016-3-D-4-W</a> | <a href="#">PTE5000-016-3-B-1-D</a> |
| <a href="#">PTE5000-040-2-D-4-D</a> | <a href="#">PTE5000-040-3-A-3-C</a> | <a href="#">PTE5000-040-3-A-4-Z</a> | <a href="#">PTE5000-400-4-B-1-X</a> | <a href="#">PTE5000-016-3-C-4-X</a> |
| <a href="#">PTE5000-016-3-D-4-C</a> | <a href="#">PTE5000-400-4-A-1-C</a> | <a href="#">PTE5000-016-3-A-1-Z</a> | <a href="#">PTE5000-016-3-B-1-Z</a> | <a href="#">PTE5000-400-4-A-3-Z</a> |
| <a href="#">PTE5000-400-4-A-4-Y</a> | <a href="#">PTE5000-016-3-A-1-X</a> | <a href="#">PTE5000-016-3-A-2-B</a> | <a href="#">PTE5000-400-4-A-1-B</a> | <a href="#">PTE5000-016-3-D-4-Y</a> |
| <a href="#">PTE5000-400-4-B-1-Y</a> | <a href="#">PTE5000-016-3-C-4-V</a> | <a href="#">PTE5000-400-4-A-3-C</a> | <a href="#">PTE5000-400-4-A-1-A</a> | <a href="#">PTE5000-400-4-A-3-B</a> |
| <a href="#">PTE5000-400-4-A-3-W</a> | <a href="#">PTE5000-400-3-D-4-X</a> | <a href="#">PTE5000-400-3-A-4-D</a> | <a href="#">PTE5000-400-3-B-1-A</a> | <a href="#">PTE5000-400-3-C-4-W</a> |
| <a href="#">PTE5000-400-4-A-4-Z</a> | <a href="#">PTE5000-016-4-A-1-A</a> | <a href="#">PTE5000-400-3-D-4-W</a> | <a href="#">PTE5000-400-4-A-3-A</a> | <a href="#">PTE5000-400-4-A-1-V</a> |
| <a href="#">PTE5000-400-3-A-4-V</a> | <a href="#">PTE5000-400-3-A-4-B</a> | <a href="#">PTE5000-400-3-D-4-Z</a> | <a href="#">PTE5000-400-3-A-4-Y</a> | <a href="#">PTE5000-400-2-A-3-W</a> |
| <a href="#">PTE5000-400-2-A-3-Y</a> | <a href="#">PTE5000-400-2-B-1-Y</a> | <a href="#">PTE5000-400-2-D-4-X</a> | <a href="#">PTE5000-400-3-B-1-V</a> | <a href="#">PTE5000-400-2-A-3-X</a> |
| <a href="#">PTE5000-400-2-D-4-Y</a> | <a href="#">PTE5000-400-1-D-4-Y</a> | <a href="#">PTE5000-400-1-A-3-W</a> | <a href="#">PTE5000-400-1-B-1-V</a> | <a href="#">PTE5000-400-3-A-3-V</a> |
| <a href="#">PTE5000-400-1-A-3-Z</a> | <a href="#">PTE5000-400-2-A-4-B</a> | <a href="#">PTE5000-400-2-A-3-B</a> | <a href="#">PTE5000-400-2-A-4-Y</a> | <a href="#">PTE5000-400-3-B-1-B</a> |
| <a href="#">PTE5000-400-2-A-3-V</a> | <a href="#">PTE5000-400-1-B-1-Y</a> | <a href="#">PTE5000-400-2-A-1-C</a> | <a href="#">PTE5000-400-2-A-1-D</a> | <a href="#">PTE5000-016-3-A-4-C</a> |
| <a href="#">PTE5000-250-4-D-4-Y</a> | <a href="#">PTE5000-400-1-A-1-X</a> | <a href="#">PTE5000-400-2-A-4-C</a> | <a href="#">PTE5000-400-2-D-4-D</a> | <a href="#">PTE5000-400-3-A-1-X</a> |
| <a href="#">PTE5000-400-2-A-4-D</a> | <a href="#">PTE5000-250-4-D-4-B</a> | <a href="#">PTE5000-400-1-A-1-B</a> | <a href="#">PTE5000-400-3-A-3-B</a> | <a href="#">PTE5000-400-3-A-3-W</a> |
| <a href="#">PTE5000-400-1-B-1-X</a> | <a href="#">PTE5000-400-2-A-3-Z</a> | <a href="#">PTE5000-400-3-C-4-C</a> | <a href="#">PTE5000-400-3-C-4-Z</a> | <a href="#">PTE5000-400-2-A-4-W</a> |
| <a href="#">PTE5000-400-2-A-4-Z</a> | <a href="#">PTE5000-400-2-B-1-B</a> | <a href="#">PTE5000-400-2-C-4-A</a> | <a href="#">PTE5000-400-1-D-4-B</a> | <a href="#">PTE5000-400-1-D-4-Z</a> |
| <a href="#">PTE5000-250-4-B-1-C</a> | <a href="#">PTE5000-250-4-B-1-X</a> | <a href="#">PTE5000-400-1-C-4-C</a> | <a href="#">PTE5000-400-3-A-3-D</a> | <a href="#">PTE5000-400-2-B-1-D</a> |
| <a href="#">PTE5000-400-3-A-1-V</a> | <a href="#">PTE5000-016-3-B-1-A</a> | <a href="#">PTE5000-250-4-C-4-C</a> | <a href="#">PTE5000-400-1-A-1-C</a> | <a href="#">PTE5000-400-1-A-1-V</a> |