

## Pressure Sensor

### PS-A series

**Built-in amplifier and compensating circuit**



### Feature

- Built-in amplifier and temperature compensation circuit, no need for circuit design and characteristic adjustment.
- High accuracy and reliability : overall accuracy  $\pm 1.25\%$  FS (Standard),  $\pm 2.5\%$  FS (Low-pressure type)
- Compact size, space-saving : compatible size for PS type (Standard/Economy, S and M packages)
- RoHS compliant

### Typical applications

- Industrial use : Pressure switches and pneumatic components, compressed air pressure measuring devices
  - Medical use : Blood pressure meters, oxygen generator and airbeds
  - Others : Pressure sensing devices for air pressure mediums
- [Low-pressure type]
- Water level detection for domestic appliances : Washing machines and dishwashers
  - Air pressure control : Cleanrooms and smoking rooms
  - Medical applications : Breathing pressure measuring devices

### Ordering information

#### ADP5

| Terminal profile | Code | Rated pressure            | Code | Package/Pressure inlet hole                                                                 | Code | Base type                            |
|------------------|------|---------------------------|------|---------------------------------------------------------------------------------------------|------|--------------------------------------|
| 1 : DIP terminal | 0    | $\pm 100$ kPa             | 0    | S package<br>length : 3 mm 0.118 inch, dia : 3 mm 0.118 inch                                | Nil  | With glass base<br>(Standard type)   |
|                  | 1    | $-100$ kPa                | 1    | M package<br>length : 5 mm 0.197 inch, dia : 3 mm 0.118 inch                                | 1    | Low pressure type                    |
|                  | 2    | 25 kPa                    | 2    | L package (Only low pressure type)<br>length : 13.5 mm 0.531 inch, dia : 5.45 mm 0.215 inch |      | Without glass base<br>(Economy type) |
|                  | 3    | 50 kPa                    | 3    | P package (Only low pressure type)<br>length : 15.6 mm 0.615 inch, dia : 5.45 mm 0.215 inch |      |                                      |
|                  | 4    | 100 kPa                   |      |                                                                                             |      |                                      |
| 2 : SMD terminal | 5    | 200 kPa                   |      |                                                                                             |      |                                      |
|                  | 6    | 500 kPa                   |      |                                                                                             |      |                                      |
|                  | 7    | 1000 kPa                  |      |                                                                                             |      |                                      |
|                  | A    | 40 kPa                    |      |                                                                                             |      |                                      |
|                  | B6   | 6 kPa (Low pressure type) |      |                                                                                             |      |                                      |

Note : Some part numbers may not be available depending on the combination.  
Please refer to the Table of PRODUCT TYPES on the next page.

### Product types

Standard packing : Carton : 100 pcs.; Case : 1,000 pcs.

| Package<br>(Pressure inlet hole length) |          | Part No.                       |              |                                |              |                                |                                   |                                   |
|-----------------------------------------|----------|--------------------------------|--------------|--------------------------------|--------------|--------------------------------|-----------------------------------|-----------------------------------|
|                                         |          | Standard type                  |              | Standard / Economy type        |              | Low pressure type              |                                   |                                   |
|                                         |          | S package<br>(3 mm 0.118 inch) |              | M package<br>(5 mm 0.118 inch) |              | M package<br>(5 mm 0.197 inch) | L package<br>(13.5 mm 0.531 inch) | P package<br>(15.6 mm 0.614 inch) |
| Pressure                                | Terminal | DIP terminal                   | SMD terminal | DIP terminal                   | SMD terminal | DIP terminal                   | DIP terminal                      | DIP terminal                      |
| Standard                                |          |                                |              |                                |              |                                |                                   |                                   |
| $\pm 100$ kPa                           |          | ADP5100                        | ADP5200      | ADP5101                        | ADP5201      | —                              | —                                 | —                                 |
| $-100$ kPa                              |          | ADP5110                        | ADP5210      | ADP5111                        | ADP5211      | —                              | —                                 | —                                 |
| 25 kPa                                  |          | ADP5120                        | —            | ADP5121                        | —            | —                              | —                                 | —                                 |
| 50 kPa                                  |          | ADP5130                        | —            | ADP5131                        | —            | —                              | —                                 | —                                 |
| 100 kPa                                 |          | ADP5140                        | ADP5240      | ADP5141                        | ADP5241      | —                              | —                                 | —                                 |
| 200 kPa                                 |          | ADP5150                        | ADP5250      | ADP5151                        | ADP5251      | —                              | —                                 | —                                 |
| 500 kPa                                 |          | ADP5160                        | ADP5260      | ADP5161                        | ADP5261      | —                              | —                                 | —                                 |
| 1000 kPa                                |          | ADP5170                        | ADP5270      | ADP5171                        | ADP5271      | —                              | —                                 | —                                 |
| Economy type (without glass base)       |          |                                |              |                                |              |                                |                                   |                                   |
| 40 kPa                                  |          | —                              | —            | ADP51A11                       | —            | —                              | —                                 | —                                 |
| Low pressure type                       |          |                                |              |                                |              |                                |                                   |                                   |
| 6 kPa                                   |          | —                              | —            | —                              | —            | ADP51B61                       | ADP51B62                          | ADP51B63                          |

## Rating

## ● Standard type

|                                        |                                                                 |            |    |    |     |     |     |                              |
|----------------------------------------|-----------------------------------------------------------------|------------|----|----|-----|-----|-----|------------------------------|
| Item                                   | Standard type (with glass base)                                 |            |    |    |     |     |     |                              |
| Type of pressure                       | Gauge pressure                                                  |            |    |    |     |     |     |                              |
| Pressure medium                        | Air <sup>*1</sup>                                               |            |    |    |     |     |     |                              |
| Rated pressure (kPa)                   | ±100                                                            | -100       | 25 | 50 | 100 | 200 | 500 | 1000                         |
| Max. applied pressure                  | Twice of the rated pressure                                     |            |    |    |     |     |     | 1.5 times the rated pressure |
| Ambient temperature                    | -10 °C to +60 °C 14 °F to +140 °F (no freezing or condensation) |            |    |    |     |     |     |                              |
| Storage temperature                    | -20 °C to +85 °C -4 °F to +185 °F (no freezing or condensation) |            |    |    |     |     |     |                              |
| Drive voltage                          | 5±0.25 V                                                        |            |    |    |     |     |     |                              |
| Temperature compensation               | 0 °C to 50 °C 32 °F to 122 °F                                   |            |    |    |     |     |     |                              |
| Offset voltage <sup>*2,3,5</sup>       | 2.5±0.05                                                        | 0.5±0.05 V |    |    |     |     |     |                              |
| Rated output voltage <sup>*2,3,5</sup> | 4.5±0.05<br>(+when +100kPa)                                     | 4.5±0.05 V |    |    |     |     |     |                              |
| Overall accuracy                       | ±1.25 %FS <sup>*3,4,5</sup>                                     |            |    |    |     |     |     |                              |
| Current consumption                    | Max. 10 mA <sup>*2,3</sup>                                      |            |    |    |     |     |     |                              |
| Output impedance                       | 15 Ω (Typical) <sup>*2</sup>                                    |            |    |    |     |     |     |                              |
| Source current                         | Max. 0.2 mA <sup>*2,3</sup>                                     |            |    |    |     |     |     |                              |
| Sink current                           | Max. 2 mA <sup>*2,3</sup>                                       |            |    |    |     |     |     |                              |

\*1: Please consult us for pressure media other than air.

\*2: Indicates output when temperature is 25 °C 77 °F.

\*3: Indicates output when drive voltage is 5 V. Although output fluctuates due to fluctuations in the drive voltage, this is not included.

\*4: Overall accuracy indicates the accuracy of the offset voltage and rated output voltage at a temperature compensation range of 0 to 50 °C 32 to 122 °F.

\*5: Accuracy is the value at the time of our shipping. Please set Zero-point calibration function on your products in order to safely use if the offset voltage is shifted.

## ● Economy type

| Item                                       | Economy type (without glass base)                               |  |  |  |  |  |  |  |
|--------------------------------------------|-----------------------------------------------------------------|--|--|--|--|--|--|--|
| Type of pressure                           | Gauge pressure                                                  |  |  |  |  |  |  |  |
| Pressure medium                            | Air <sup>*1</sup>                                               |  |  |  |  |  |  |  |
| Rated pressure (kPa)                       | 40                                                              |  |  |  |  |  |  |  |
| Max. applied pressure                      | Twice of the rated pressure                                     |  |  |  |  |  |  |  |
| Ambient temperature                        | -5 °C to +50 °C 23 °F to +122 °F (no freezing or condensation)  |  |  |  |  |  |  |  |
| Storage temperature                        | -20 °C to +70 °C -4 °F to +158 °F (no freezing or condensation) |  |  |  |  |  |  |  |
| Drive voltage                              | 3±0.15 V                                                        |  |  |  |  |  |  |  |
| Temperature compensation                   | 5 °C to 45 °C 41 °F to 113 °F                                   |  |  |  |  |  |  |  |
| Offset voltage                             | 0.3±0.09 V <sup>*2,3,5</sup>                                    |  |  |  |  |  |  |  |
| Span voltage                               | 2.4±0.03 V <sup>*2,3,5</sup>                                    |  |  |  |  |  |  |  |
| Offset voltage temperature characteristics | ±4.0 %FS <sup>*3,4,5</sup>                                      |  |  |  |  |  |  |  |
| Sensitivity temperature characteristics    | 1.3 %FS <sup>*3,4,5</sup>                                       |  |  |  |  |  |  |  |
| Current consumption                        | Max. 3 mA <sup>*2</sup>                                         |  |  |  |  |  |  |  |
| Output impedance                           | 20 Ω (Typical) <sup>*2,3</sup>                                  |  |  |  |  |  |  |  |
| Source current                             | Max. 0.15 mA <sup>*2,3</sup>                                    |  |  |  |  |  |  |  |
| Sink current                               | Max. 1.5 mA <sup>*2,3</sup>                                     |  |  |  |  |  |  |  |

\*1: Please consult us for pressure media other than air.

\*2: Indicates output when temperature is 25 °C 77 °F.

\*3: Indicates output when drive voltage is 3 V. Although output fluctuates due to fluctuations in the drive voltage, this is not included.

\*4: Indicates from output value at 25 °C 77 °F and the change of output at 5 and 45 °C 41 to 113 °F.

\*5: Accuracy is the value at the time of our shipping. Please set Zero-point calibration function on your products in order to safely use if the offset voltage is shifted.