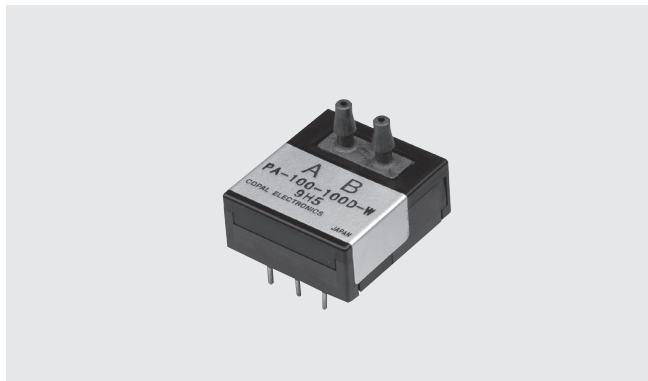


## PRESSURE TRANSDUCERS WITH AMP.

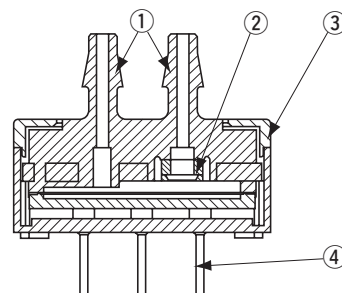
# PA-100



### FEATURES

- Covers low pressure range
- Built-in a compact amplifier circuit
- Measures differential pressure

### INTERNAL STRUCTURE



| Part name |               | Material                                               |
|-----------|---------------|--------------------------------------------------------|
| ①         | Pressure Port | LCP (Liquid crystal polymer)                           |
| ②         | Sensor chip   | Silicone                                               |
| ③         | Housing       | POM (Polyoxymethylene)<br>PPS (Polyphenylene sulphide) |
| ④         | Terminal pin  | Brass + Tin-plated                                     |

### MODEL NUMBER DESIGNATION

PA-100-100D-S

Series name

Rated pressure range

100D-S : 0 ~ 1 kPa {102 mmHg:0}  
 200D-S : 0 ~ 2 kPa {204 mmHg:0}  
 500D-S : 0 ~ 5 kPa {510 mmHg:0}  
 100D-W : -1 ~ 1 kPa {± 102 mmHg:0}  
 200D-W : -2 ~ 2 kPa {± 204 mmHg:0}  
 500D-W : -5 ~ 5 kPa {± 510 mmHg:0}

### LIST OF MODEL NUMBERS

| Pressure reference          | Differential  |               |               |               |               |               |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| kPa<br>Rated pressure range | 0 ~ 1         | 0 ~ 2         | 0 ~ 5         | -1 ~ 1        | -2 ~ 2        | -5 ~ 5        |
| Model number                | PA-100-100D-S | PA-100-200D-S | PA-100-500D-S | PA-100-100D-W | PA-100-200D-W | PA-100-500D-W |

※ Verify the above model numbers when placing orders.

# PA-100

## PRESSURE TRANSDUCERS WITH AMP.

### STANDARD SPECIFICATIONS

● Unless otherwise specified, the specs are defined at an ambient temperature of 25±5 °C and excitation voltage of 5 V DC.

| Item / Model number    |                                                                         |                | PA-100                                                    |          |        |            |        |        |
|------------------------|-------------------------------------------------------------------------|----------------|-----------------------------------------------------------|----------|--------|------------|--------|--------|
|                        |                                                                         |                | 100D-S                                                    | 200D-S   | 500D-S | 100D-W     | 200D-W | 500D-W |
| General specifications | Pressure reference                                                      |                | Differential ※ 1                                          |          |        |            |        |        |
|                        | Rated pressure range                                                    | kPa            | 1                                                         | 2        | 5      | ± 1        | ± 2    | ± 5    |
|                        | Maximum pressure                                                        | kPa            | 5                                                         | 10       | 25     | ± 5        | ± 10   | ± 25   |
|                        | Break-down pressure                                                     | kPa            | 50                                                        |          |        |            |        |        |
|                        | Line pressure                                                           | kPa            | 50                                                        |          |        |            |        |        |
|                        | Operating temp. range                                                   | °C             | − 20 ~ 70                                                 |          |        |            |        |        |
|                        | Compensated temp. range                                                 | °C             | 0 ~ 50                                                    |          |        |            |        |        |
|                        | Operating humidity                                                      | %RH            | 35 ~ 85 (No condensation)                                 |          |        |            |        |        |
|                        | Storage temp.                                                           | °C             | − 20 ~ 80 (Atmospheric pressure, humidity 65 %RH maximum) |          |        |            |        |        |
|                        | Pressure medium                                                         |                | Non-corrosive gases                                       |          |        |            |        |        |
|                        | Insulation resistance                                                   | MΩ minimum     | 100 (50 V DC)                                             |          |        |            |        |        |
|                        | Dielectric strength                                                     |                | 50 V AC, 60 s (Leakage current 1 mA maximum)              |          |        |            |        |        |
|                        | Pressure port                                                           | mm             | φ 2.5                                                     |          |        |            |        |        |
|                        | Net weight                                                              | g              | Approx. 8                                                 |          |        |            |        |        |
|                        | Power                                                                   | Supply voltage | V DC                                                      | 5 ± 10 % |        |            |        |        |
| Consumption current    |                                                                         | maximum        | 5 mA                                                      |          |        |            |        |        |
| Analog output          | Output voltage                                                          | V              | 0.5 ~ 4.5                                                 |          |        |            |        |        |
|                        | Zero voltage                                                            | ※ 3 V          | 0.5 ± 0.08                                                |          |        | 2.5 ± 0.08 |        |        |
|                        | Span voltage                                                            | ※ 3 V          | 4.0 ± 0.08                                                |          |        | 2.0 ± 0.08 |        |        |
|                        | Output current                                                          | mA maximum     | 0.5 (10 kΩ 以上 Load resistance 10 kΩ minimum)              |          |        |            |        |        |
|                        | Linearity/Hysteresis                                                    | %F.S.          | ± 0.5                                                     |          |        |            |        |        |
|                        | Thermal error<br>(Reference temp.: 25 °C)                               | ZERO %F.S.     | ± 5                                                       | ± 3      | ± 2    | ± 5        | ± 3    | ± 2    |
|                        |                                                                         | SPAN %F.S.     | ± 2                                                       |          |        |            |        |        |
|                        | ※ 2                                                                     | Response       | ms                                                        | 5        |        |            |        |        |
|                        | Gravitational effect<br>(From vertical position to horizontal position) | %F.S. max.     | − 2                                                       | − 1      | − 0.4  | − 2        | − 1    | − 0.4  |

※ 1 PA-100- □□□ D-S pressure range Pressure A port – B port = 0 ~ Rated pressure range

PA-100- □□□ D-W pressure range Pressure A port – B port = – Rated pressure range ~ Rated pressure range

※ 2 Defined at 5 V of supply voltage.

※ 3 The zero and span voltages vary in proportion to the supply voltage.

# PA-100

## PRESSURE TRANSDUCERS WITH AMP.

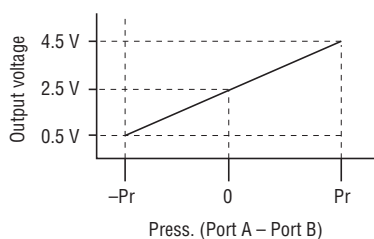
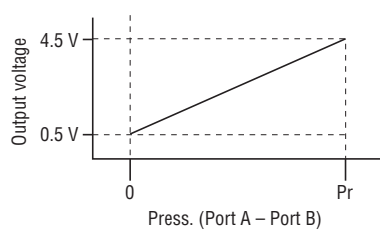
### ENVIRONMENTAL CHARACTERISTICS

| Test item           | Test conditions (At $25 \pm 5^\circ\text{C}$ )                                  | Permissible change                                                                                 |
|---------------------|---------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| Vibration           | 10 ~ 500 Hz, 1.5 mm maximum/49 m/s <sup>2</sup> , 3 directions for 2 hours each | Zero voltage/Span voltage:<br>$\pm 2\%$ F.S. (100D/200D) maximum<br>and $\pm 1\%$ F.S. (500D) each |
| Shock               | 490 m/s <sup>2</sup> , 3 directions for 3 times each                            |                                                                                                    |
| Pressure cycling    | 0 ~ Rated pressure, $10^6$ cycles                                               |                                                                                                    |
| Moisture resistance | 40 °C, 90 ~ 95 %RH, 240 hrs.                                                    |                                                                                                    |

### OUTPUT VOLTAGE VS PRESSURE

PA-100- □□□ D-S type

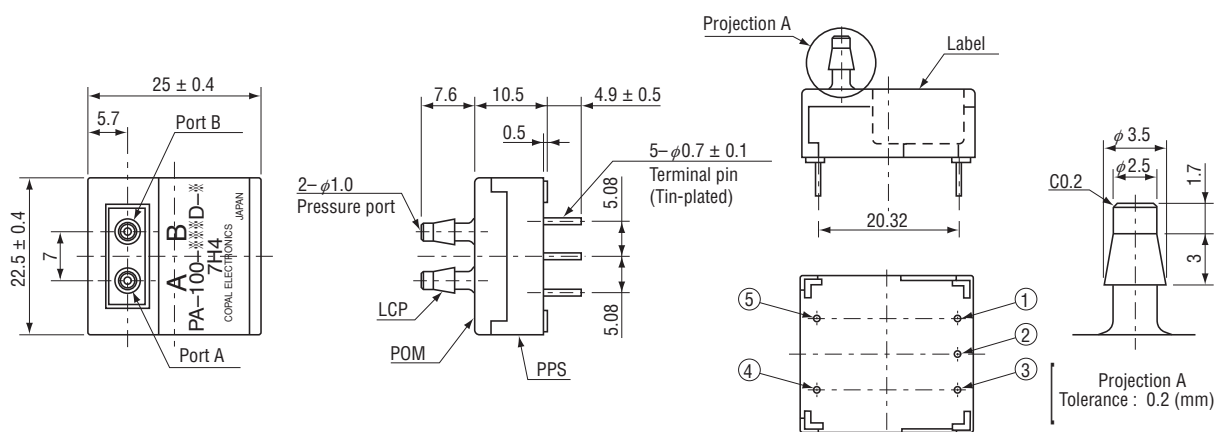
PA-100- □□□ D-W type



| Pin | Connection |
|-----|------------|
| ①   | Power ⊕    |
| ②   | Output     |
| ③   | Common     |
| ④   | N.C.       |
| ⑤   | N.C.       |

### OUTLINE DIMENSIONS

Unless otherwise specified, tolerance :  $\pm 0.5$  (Unit: mm)



### INTERNAL ELECTRICAL SCHEMATICS

