

# 24PC Series *(mbar)*

## Unamplified, uncompensated pressure sensors

### FEATURES

- 0...50 mbar to 0...16 bar gage or differential
- High impedance bridge
- Miniature package
- Different pinning configurations
- Usable for wet/wet applications<sup>8</sup>

### SERVICE

All media compatible with

port 1: - polyetherimide  
- silver-filled silicone  
- silicon nitride

port 2<sup>9</sup>: - polyetherimide  
- fluor-silicone  
- silicon



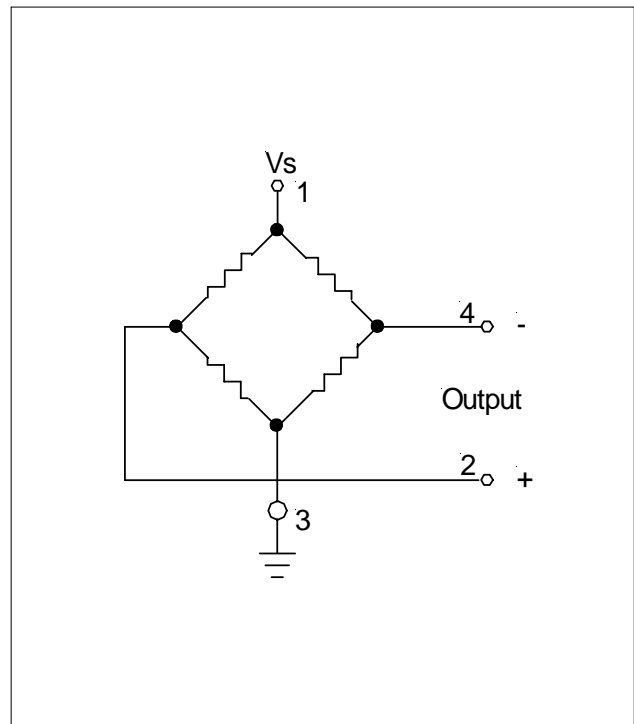
Scale: 1 cm  
1 inch

### SPECIFICATIONS

#### Maximum ratings

|  |               |
|--|---------------|
| Supply voltage                                     | 12 V          |
| Temperature limits                                 |               |
| Storage  | -55 to +100°C |
| Operating  | -40 to +85°C  |
| Lead temperature (10 sec. soldering)               | 300°C         |
| Humidity limits                                    | 0...100 %RH   |
| Vibration (0 to 2000 Hz)<br>(qualification tested) | 20 g sine     |
| Mechanical shock (qualification tested)            | 150 g         |
| Proof pressure <sup>1</sup>                        |               |
| all 50, 100 and 250 mbar devices                   | 1.4 bar       |
| all 1 bar devices                                  | 3 bar         |
| all 2 bar devices                                  | 4 bar         |
| all 5 bar devices                                  | 12 bar        |
| all 10 and 16 bar devices                          | 35 bar        |

### ELECTRICAL CONNECTION



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### PRESSURE SENSOR CHARACTERISTICS

$V_s = 10.0 \pm 0.01 \text{ V}$ ,  $t_{\text{amb}} = 25^\circ\text{C}$  (unless otherwise noted)

| Part number | Operating pressure | Full-scale span <sup>2</sup> |        |        | Sensitivity typ.               |
|-------------|--------------------|------------------------------|--------|--------|--------------------------------|
|             |                    | Min.                         | Typ.   | Max.   |                                |
| 24PC0050xxA | 0 - 50 mbar        | 21 mV                        | 33 mV  | 44 mV  | 660 $\mu\text{V}/\text{mbar}$  |
| 24PC0100xxA | 0 - 100 mbar       | 44 mV                        | 66 mV  | 88 mV  | 660 $\mu\text{V}/\text{mbar}$  |
| 24PC0250xxA | 0 - 250 mbar       | 61 mV                        | 83 mV  | 105 mV | 333 $\mu\text{V}/\text{mbar}$  |
| 24PC01K0xxA | 0 - 1 bar          | 159 mV                       | 218 mV | 276 mV | 220 $\mu\text{V}/\text{mbar}$  |
| 24PC02K0xxA | 0 - 2 bar          | 232 mV                       | 320 mV | 410 mV | 160 $\mu\text{V}/\text{mbar}$  |
| 24PC05K0xxA | 0 - 5 bar          | 113 mV                       | 163 mV | 215 mV | 32.6 $\mu\text{V}/\text{mbar}$ |
| 24PC10K0xxA | 0 - 10 bar         | 84 mV                        | 123 mV | 163 mV | 12.3 $\mu\text{V}/\text{mbar}$ |
| 24PC16K0xxA | 0 - 16 bar         | 134 mV                       | 197 mV | 260 mV | 12.3 $\mu\text{V}/\text{mbar}$ |

### COMMON PERFORMANCE CHARACTERISTICS

$V_s = 10.0 \pm 0.01 \text{ V}$ ,  $t_{\text{amb}} = 25^\circ\text{C}$  (unless otherwise noted)

| Characteristics                                      | Min.   | Typ.  | Max. | Unit   |
|--|--------|-------|------|--------|
| Zero pressure offset                                 | -30    |       | +30  | mV     |
| Temperature effects (0 - 50°C) <sup>4</sup>          | Offset | ±2.0  |      |        |
|  | Span   | -2000 |      | ppm/°C |
| Temperature effects on bridge impedance <sup>4</sup> |        | +2200 |      |        |
| Linearity (P2 > P1, BSL) <sup>3</sup>                |        | ±0.25 | ±1.0 | % span |
| Repeatability and hysteresis <sup>5</sup>            |        | ±0.15 |      |        |
| Long term stability <sup>7</sup>                     |        | ±0.5  |      |        |
| Input impedance                                      | 4.0    | 5.0   | 6.0  | kΩ     |
| Output impedance                                     | 4.0    | 5.0   | 6.0  |        |
| Response time <sup>6</sup>                           |        |       | 1.0  | ms     |

#### Specification notes:

1. The maximum specified pressure which may be applied to the sensor without causing a permanent change in the output characteristics.
2. Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
3. Linearity (BSL), the deviation of measured output at constant temperature (25°C) from "Best Straight Line" determined by three points, offset pressure, full-scale pressure and half full-scale pressure.

$$\left[ V_{\frac{1}{2} \text{ full scale}} - \left\{ \frac{V_{\text{full scale}} - V_{\text{offset}}}{(\text{full scale pressure})} \times \left( \frac{1}{2} \text{ full scale pressure} \right) + V_{\text{offset}} \right\} \right] : 2 (V_{\text{full scale}}) \times 100 \%$$

where: V = measured value for each device

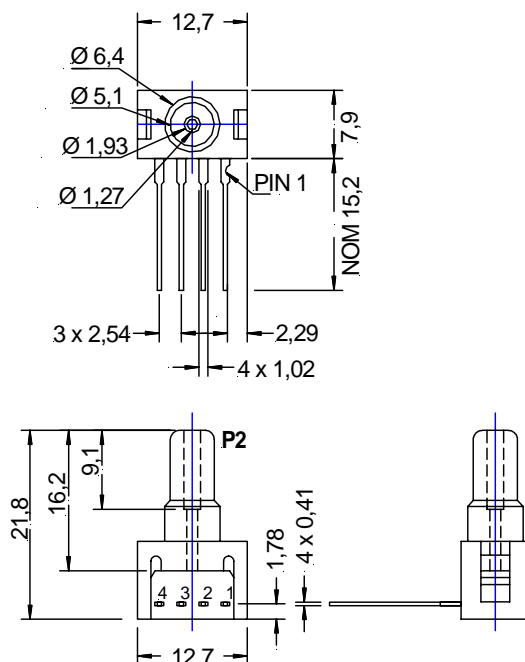
4. Error band of the offset voltage, span or bridge impedance in the specified temperature range, relative to the 25°C reading.
5. Repeatability, the deviation in output readings for successive application of any given input pressure (all other conditions remaining constant). Hysteresis, the error defined by the deviation in output signal obtained when a specific pressure point is approached first with increasing pressure, then with decreasing pressure or vice versa (all other conditions remaining constant).
6. Response time for 0 to full-scale pressure step change, readings taken at 10 % and 90 % of full-scale pressure.
7. Long term stability of offset and span over a period over one year.
8. The sensors might be used on both ports, for media compatible with the components, specified under "Service" (page 1).
9. **Other sealing materials are available on request.** Minimum order quantities might be required.
10. **Other pressure port styles, like barbed ones, luers, modular, M5, needle style or flow through connection, are available on request.** For these specials see the data sheet "24/26PC specials". Minimum order quantities might be required, call Sensorteknics for assistance.

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### OUTLINE DRAWINGS<sup>10</sup>

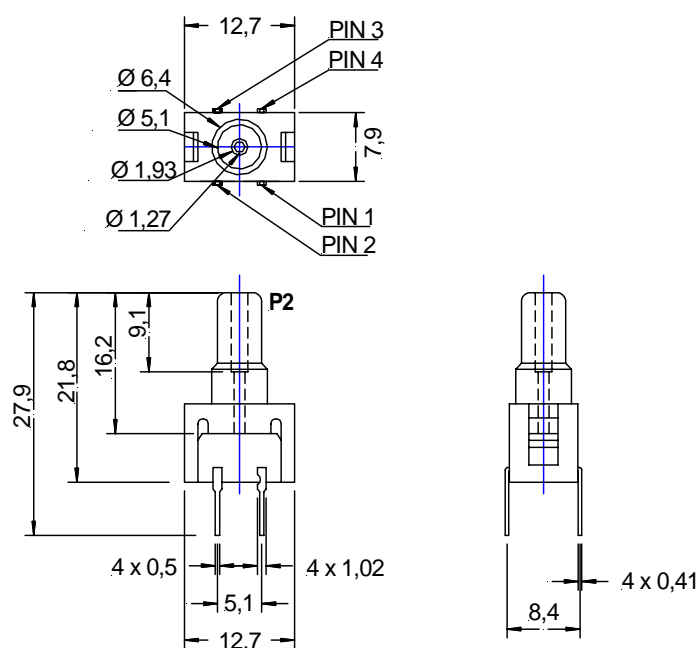
#### 24PCxxxxG6A (single inline pinning, 1 x 4), *gage pressure devices*



mass: 2 g

dimensions in mm

#### 24PCxxxxG2A (dual inline pinning, 2 x 2), *gage pressure devices*



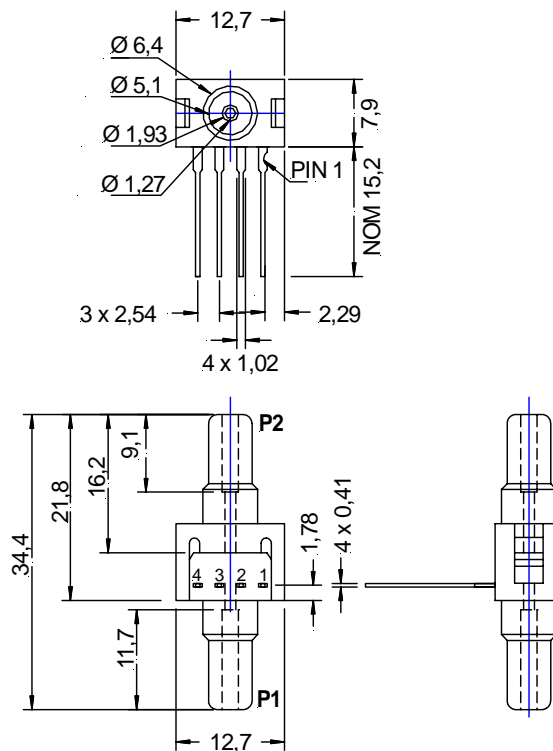
mass: 2 g

dimensions in mm

## Unamplified, uncompensated pressure sensors

## OUTLINE DRAWINGS<sup>10</sup>

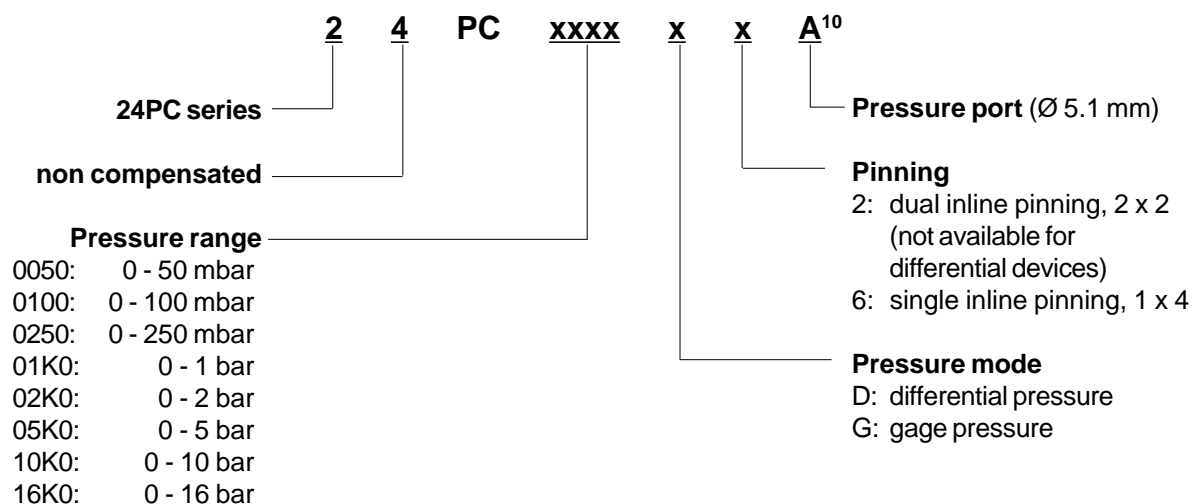
### 24PCxxxxD6A (single inline pinning, 1 x 4), differential pressure devices



mass: 2 g

dimensions in mm

## ORDERING INFORMATION



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