



# RQO Series

## Temp. compensated and calibrated pressure sensors

### FEATURES

- 0...50 mbar to 0...1 bar and 0...1 to 0...15 psi gage or differential
- High impedance bridge
- Surface mount miniature package
- Usable for wet/wet applications<sup>8</sup>
- Sensortech PRO services

### MEDIA COMPATIBILITY

All media compatible with

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

- port 2:
- polyphthalamide
  - fluor-silicone
  - silicon

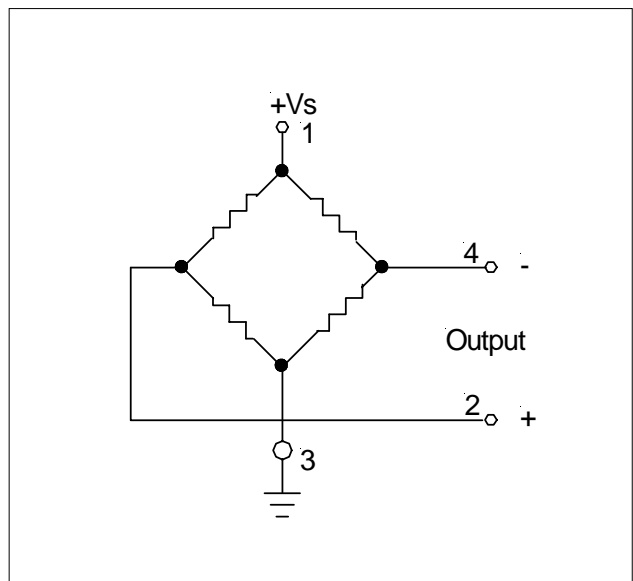


### SPECIFICATIONS

#### Maximum ratings

|   |                       |
|---|-----------------------|
| Supply voltage                          | 16 V                  |
| Temperature limits                      |                       |
| Storage                                 | -55 to +100°C         |
| Operating                               | -40 to +85°C          |
| Lead temperature (10 sec. soldering)    | 260°C                 |
| Humidity limits                         | 0...100 %RH           |
| Vibration                               |                       |
| (MIL-STD-202, Meth. 213)                | 150 g half sine 11 ms |
| Mechanical shock (qualification tested) | 150 g                 |

### ELECTRICAL CONNECTION





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### PRESSURE SENSOR CHARACTERISTICS ( $V_s = 10.0 \pm 0.01 \text{ V}$ , $t_{\text{amb}} = 25 \text{ }^\circ\text{C}$ )

| Part number | Operating pressure | Proof pressure <sup>1</sup> | Full-scale span (P2 > P1) <sup>2</sup> |         |         |
|-------------|--------------------|-----------------------------|--|---------|---------|
|             |                    |                             | Min.                                   | Typ.    | Max.    |
| RQOM050D    | 0...50 mbar        | 1.4 bar                     | 10.6 mV                                | 12.1 mV | 13.6 mV |
| RQOM100D    | 0...100 mbar       | 1.4 bar                     | 21 mV                                  | 24 mV   | 27 mV   |
| RQOM250D    | 0...250 mbar       | 1.4 bar                     | 34 mV                                  | 36 mV   | 38.5 mV |
| RQOB001D    | 0...1 bar          | 3 bar                       | 93 mV                                  | 97 mV   | 101 mV  |
| RQOP001D    | 0...1 psi          | 20 psi                      | 14.7 mV                                | 16.7 mV | 18.7 mV |
| RQOP005D    | 0...5 psi          | 20 psi                      | 47 mV                                  | 50 mV   | 53 mV   |
| RQOP015D    | 0...15 psi         | 60 psi                      | 96 mV                                  | 100 mV  | 104 mV  |

### PERFORMANCE CHARACTERISTICS ( $V_s = 10.0 \pm 0.01 \text{ V}$ , $t_{\text{amb}} = 25 \text{ }^\circ\text{C}$ )

| Characteristics                                |                            | Min.                             | Typ. | Max.  | Unit   |
|--|----------------------------|----------------------------------|------|-------|--------|
| Zero pressure offset                           |                            | -0.75                            |      | +0.75 | mV     |
| Temperature effects<br>(0 - 50°C) <sup>4</sup> | Offset                     |                                  |      | ±1.0  |        |
|  | Span                       | all devices up to 100 mbar/1 psi |      | ±1.5  | ±4.5   |
|  |                            | all 250 mbar/5 psi devices       |      | ±1.0  | ±1.7   |
|  |                            | all other devices                |      | ±0.75 | ±1.5   |
| Non-linearity (BSL) <sup>3</sup>               | 50 mbar device             |                                  | ±0.4 | ±1.6  | % span |
|  | all 100 mbar/1 psi devices |                                  | ±0.5 | ±1.75 |        |
|  | 250 mbar device            |                                  | ±0.3 | ±1.0  |        |
|  | all other devices          |                                  | ±0.5 | ±1.0  |        |
| Repeatability and hysteresis <sup>5</sup>      |                            |                                  | ±0.2 |       |        |
| Long term stability <sup>7</sup>               |                            |                                  | ±0.5 |       |        |
| Input impedance                                |                            | 5.5                              | 7.5  | 11.5  | kΩ     |
| Output impedance                               |                            | 1.5                              | 2.5  | 3.0   |        |
| Response time <sup>6</sup>                     |                            |                                  |      | 1.0   | ms     |

#### Specification notes:

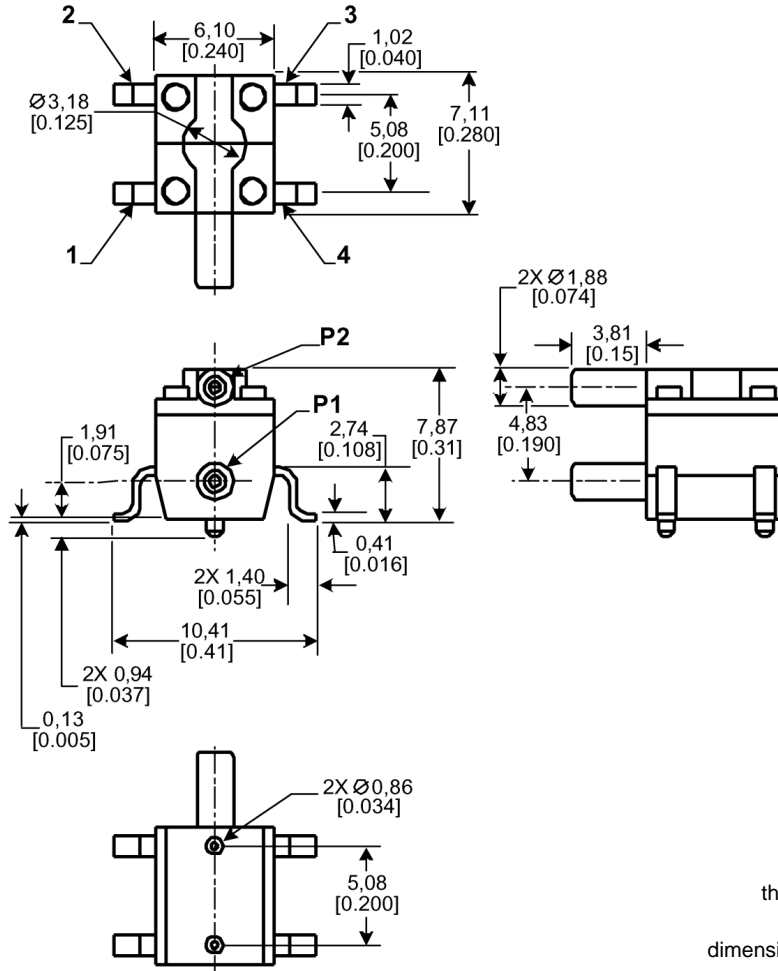
1. The maximum specified pressure which may be applied to the sensor without causing a permanent change in the output characteristics.
2. Span is the algebraic difference between the output voltage at full-scale pressure and the output at zero pressure. Span is ratiometric to the supply voltage.
3. Non-linearity refers to the **Best Straight Line** fit, measured for offset pressure, full scale pressure and 1/2 full scale pressure.
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 "Media Compatibility".



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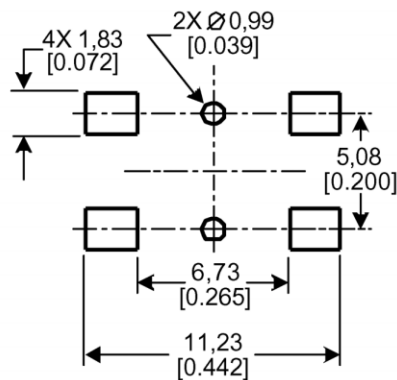
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### OUTLINE DRAWING



mass: 0.5 g

### SUGGESTED LAND PATTERN



dimensions in mm (inches)



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### ORDERING INFORMATION - AVAILABLE LISTINGS

**Note:** Preferred listings are highlighted in grey

| Pressure range | Gage/differential pressure |
|----------------|----------------------------|
| 50 mbar        | RQOM050D                   |
| 100 mbar       | RQOM100D                   |
| 250 mbar       | RQOM250D                   |
| 1 bar          | RQOB001D                   |
| 1 psi          | RQOP001D                   |
| 5 psi          | RQOP005D                   |
| 15 psi         | RQOP015D                   |

#### Sensortech PRO services:

- Extended guarantee period of 2 years
- Improved performance characteristics
- Custom product modifications and adaptations even for small quantities
- Advanced logistics models for supply inventory and short delivery times
- Technical support through application engineers on the phone or at your site
- Fastest possible technical response for design and QA engineers
- ... plus other services on request

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