O3-A4 Ozone Sensor
4-Electrode

**PERFORMANCE**

- **Sensitivity** nA/ppm at 100ppb O\(_3\) -200 to -400
- **Response time** \(t_{90}\) (s) from zero to 100ppb < 15
- **Zero current** nA in zero air at 20°C 10 to 30
- **Noise** ±2 standard deviations (ppb equivalent) 5
- **Range** ppm O\(_3\) limit of performance warranty 5
- **Linearity** ppb error at full scale, linear at zero and 1ppm O\(_3\) 200 to 500
- **Overgas limit** maximum ppm for stable response to gas pulse 10

* Tested with Alphasense AFE low noise circuit

**LIFETIME**

- **Zero drift** ppb equivalent change/year in lab air 0 to 50
- **Sensitivity drift** % change/year in lab air, monthly test -20 to -35
- **Operating life** months until 50% original signal (12 month warranted) > 18

**ENVIRONMENTAL**

- **Sensitivity @ -20°C** (% output @ -20°C/output @ 20°C) @ 500ppb O\(_3\) 70 to 120
- **Sensitivity @ 50°C** (% output @ 50°C/output @ 20°C) @ 500ppb O\(_3\) < 30
- **Zero @ -20°C** nA change from 20°C -10 to -30
- **Zero @ 50°C** nA change from 20°C 170 to 360

**CROSS SENSITIVITY**

- **H\(_2\)S** sensitivity % measured gas @ 5ppm H\(_2\)S < -70
- **NO\(_2\)** sensitivity % measured gas @ 5ppm NO\(_2\) 70 to 120
- **Cl\(_2\)** sensitivity % measured gas @ 5ppm Cl\(_2\) < 30
- **NO\(_x\)** sensitivity % measured gas @ 5ppm NO < -5
- **SO\(_2\)** sensitivity % measured gas @ 5ppm SO\(_2\) (initial transient) < -4
- **CO** sensitivity % measured gas @ 5ppm CO < 0.1
- **H\(_2\)** sensitivity % measured gas @ 100ppm H\(_2\) < 2
- **C\(_2\)H\(_4\)** sensitivity % measured gas @ 100ppm C\(_2\)H\(_4\) < 0.1
- **NH\(_3\)** sensitivity % measured gas @ 20ppm NH\(_3\) < 1
- **CO** sensitivity % measured gas @ 5% CO < 0.1

**KEY SPECIFICATIONS**

- **Temperature range** °C -20 to +50
- **Pressure range** kPa 80 to 120
- **Humidity range** % rh non-condensing 15 to 85
- **Flow rate** minimum sccm during calibration 500 (0.5L/m)
- **Bias voltage** V 0
- **Storage period** months @ 3 to 20°C (stored in sealed pot) 6
- **Load resistor** Ω (AFE circuit is recommended) 33 to 100
- **Weight** g < 6

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For further information on the performance of this sensor, on other sensors in the range or any other subject, please contact Alphasense Ltd. For Application Notes visit "www.alphasense.com".

NOTE: all sensors are tested at ambient environmental conditions, with 47 ohm load resistor, unless otherwise stated. As applications of use are outside our control, the information provided is given without legal responsibility. Customers should test under their own conditions, to ensure that the sensors are suitable for their own requirements.

At the end of the product’s life, do not dispose of any electronic sensor, component or instrument in the domestic waste, but contact the instrument manufacturer, Alphasense or its distributor for disposal instructions.

Figure 2 shows the temperature dependence of sensitivity at 100ppb O₃. This data is taken from a typical batch of sensors.

Figure 3 shows the variation in zero output of the working electrode caused by changes in temperature, expressed as nA. This data is taken from a typical batch of sensors. Contact Alphasense for further information on zero current correction.

Figure 4 shows response to 200ppb O₃. Use of Alphasense AFE circuit reduces noise to 5ppb, with the opportunity of digital smoothing to reduce noise even further.