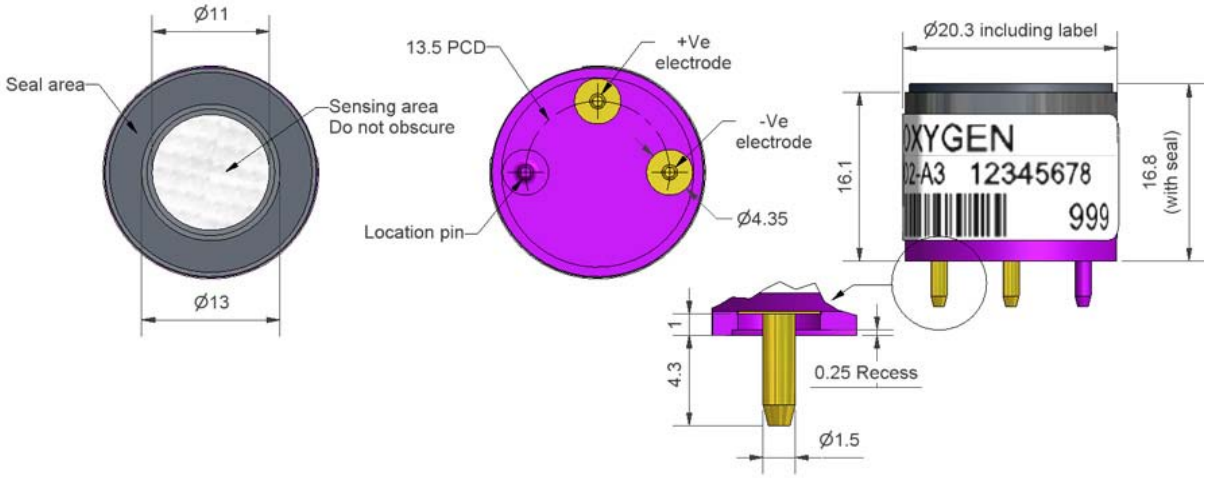
O2-A3 Oxygen Sensor

Technical Specification

Figure 1 O2-A3 Schematic Diagram



All dimensions in millimetres (± 0.1mm)

Top View **Bottom View** **Side View**

Table 1 O2-A3 Specification

PERFORMANCE	Output	µA @ 22°C, 20.9% O_2	65 to 82
	Response time	t90 (s) from 20.9% to 0% O_2 (47Ω load resistor)	< 15
	Zero current	µA @ 99.999% N_2, 22°C	< 3
	Pressure sensitivity	(% change of output)/(% change of pressure) @ 20kPa	< 0.1
LIFETIME	Output drift	% change in output @ 3 months	< 2
	Operating life	months until 85% original output in 20.9% O_2	> 36
ENVIRONMENTAL	Humidity sensitivity	% O_2 change: 0% to 95% rh @ 40°C	< 0.7
	CO_2 sensitivity	% change in output / % CO_2 @ 5% CO_2	+ 0.1
	Output at -20°C	% output/output at 20°C in 20.9% O_2	87 to 93
	Output at +50°C	% output/output at 20°C in 20.9% O_2	103 to 107
KEY SPECIFICATIONS	Temperature range	°C	-30 to 55
	Pressure range	kPa	80 to 120
	Humidity range	% rh continuous (0 to 99% rh short term)	5 to 95
	Storage period	months @ 3 to 20°C (store in sealed container)	6
	Load resistor	Ω (recommended)	47 to 100
	Weight	g	<16.5

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.

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O2-A3 Performance Data

Technical Specification

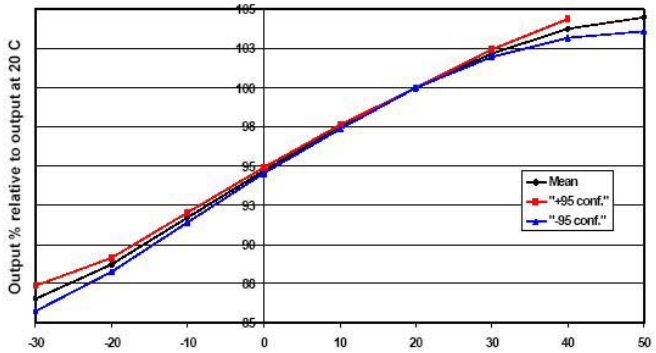
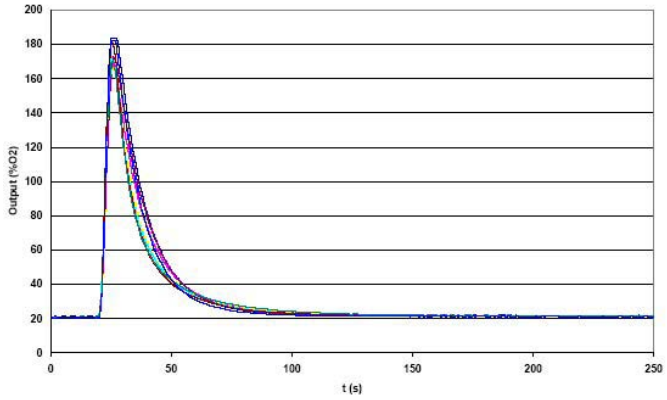


Figure 2 Temperature Performance

Figure 2 shows the variation of output caused by changes in temperature in 20.9% oxygen.

All capillary oxygen sensors show a change in signal with temperature, and the very repeatable 95% confidence intervals for the O2-A3 are shown.

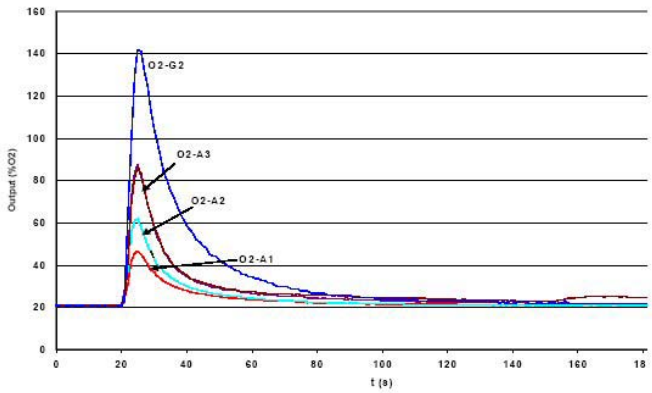


Pressure Step Performance

Figure 3 Pressure Step Performance

Figure 3 shows how a 25 kPa pressure step change causes a signal transient that decays reproducibly. Negative pressure changes cause a negative transient.

The small shift in final output is less than 10% of the pressure change, so 10kPa pressure step shifts output by less than 1% (<0.2% oxygen).



Long Term Stability

Figure 4 Long Term Stability

Figure 4: shows how the Family of Alphasense oxygen sensors respond to a 10kPa pressure step.

Sensors with lower outputs and longer lifetime show greater output transients, but are predictable and repeatable.

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".