



O2-A3 Oxygen Sensor



Figure 1 O2-A3 Schematic Diagram

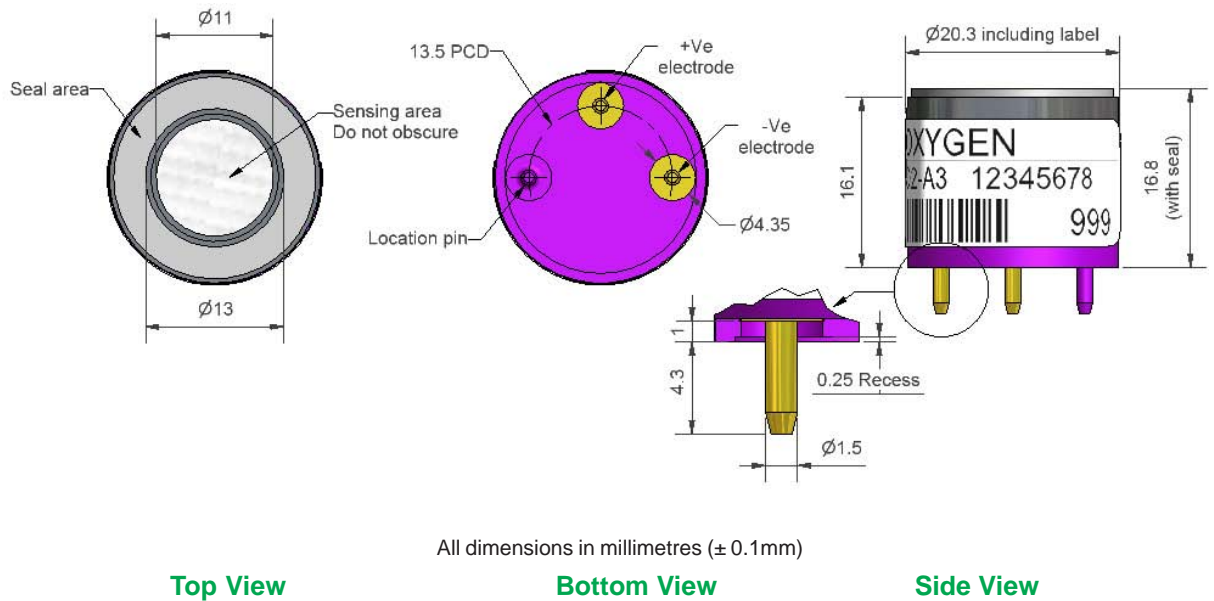


Table 1 O2-A3 Specification

PERFORMANCE	Output	μA @ 22°C, 20.9% O ₂	65 to 82
	Response time	t ₉₀ (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.



O2-A3 Performance Data

Technical Specification

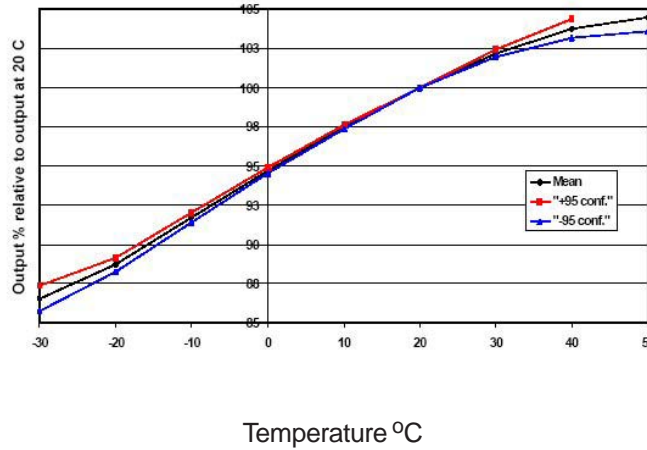


Figure 2 Temperature Performance

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.

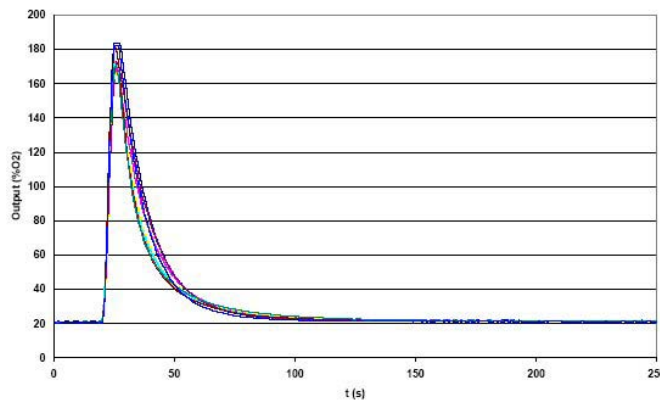


Figure 3 Pressure Step Performance

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).

Pressure Step Performance

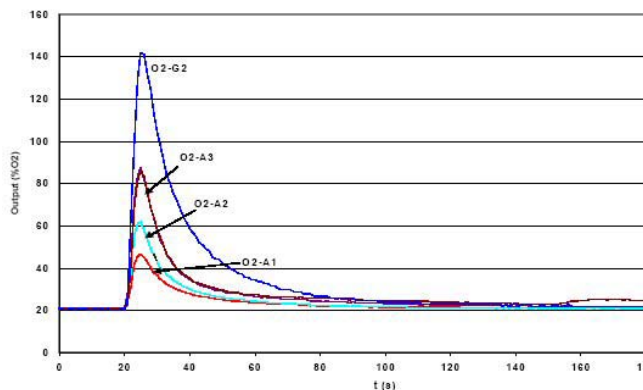


Figure 4 Long Term Stability

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.

Long Term Stability

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".