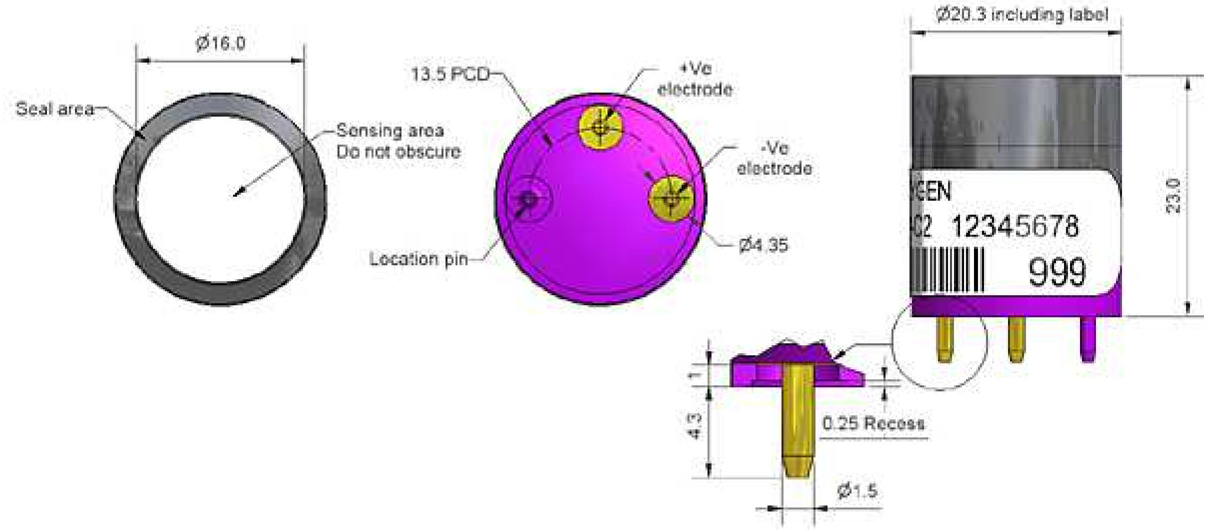
O2-C2 Oxygen Sensor

Technical Specification

Figure 1 O2-C2 Schematic Diagram



All dimensions in millimetres (± 0.15mm)

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

Our (patent pending) O2-C2 includes protection from the rough environment of flue gases, necessary for long sensor lifetime.

PERFORMANCE

Output	µA @ 20.9% O_2	80 to 120
Response time	t_{90} (s) from 20.9% to 0% O_2	< 50
Zero current	µA in N_2	< 2.5
Linearity	% O_2 deviation @ 10% O_2	-0.6

LIFETIME

Output drift	% change in output @ 3 months	< 1
Operating life	months until 85% original output of 20.9% O_2	> 24

ENVIRONMENTAL

Humidity sensitivity	% O_2 change: 0% to 95% rh @ 40°C	< 0.7
CO_2 sensitivity	(% change O_2 reading) / % CO_2 @ 5% CO_2	0.1
Pressure sensitivity	(% change of output)/(% change of pressure) @ 20kPa	< 0.1

KEY SPECIFICATIONS

Temperature range	°C	-30 to 55
Pressure range	kPa	80 to 120
Humidity range	% rh non-condensing (0 to 99% rh short term)	5 to 95
Storage period	months @ 3 to 20°C (store in sealed pot, open circuit)	6
Load resistor	Ω (recommended)	47 to 100
Weight	g	<18

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.

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

Apollosense Ltd

Shenzhen:
Adress：Room 712, Huaneng Building, Shennan Zhong Road, Shenzhen 518031, China
Tel：（86-755）83680810 83680820 83680830 83680860
Fax：（86-755）83680866

Hong Kong:
Adress： Unit 1502, Hollywood Plaza, 610 Nathan Road, Mong Kok, Kln., H.K.
Tel：(852) 2737 0903
Fax：(852) 2737 0938
Email：sales@apollounion.com

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O2-C2 Performance Data

Figure 2 Temperature Dependence in Air

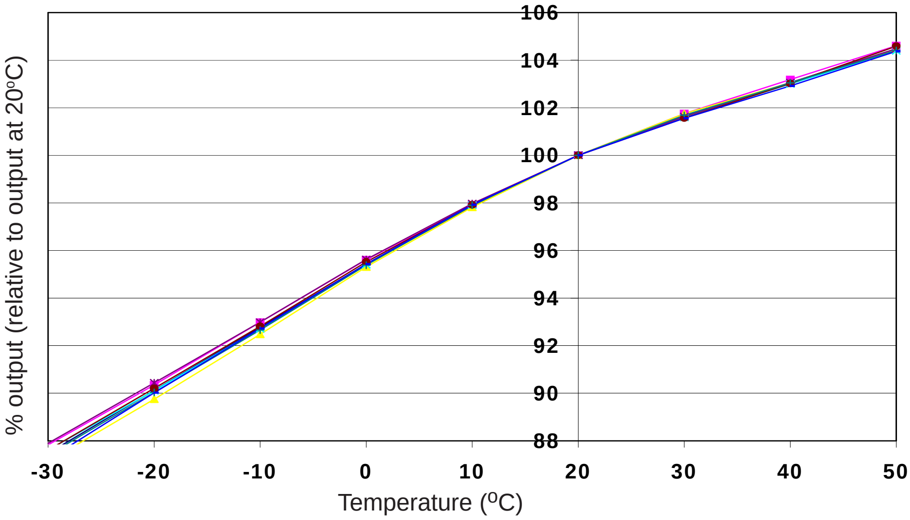
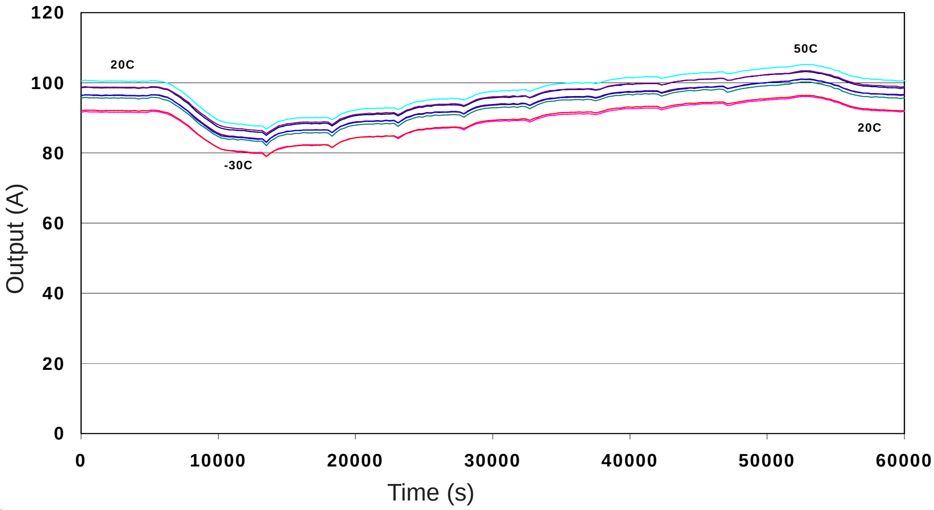


Figure 2 shows the very repeatable variation in sensitivity caused by changes in temperature.

This data is taken from a typical batch of sensors.

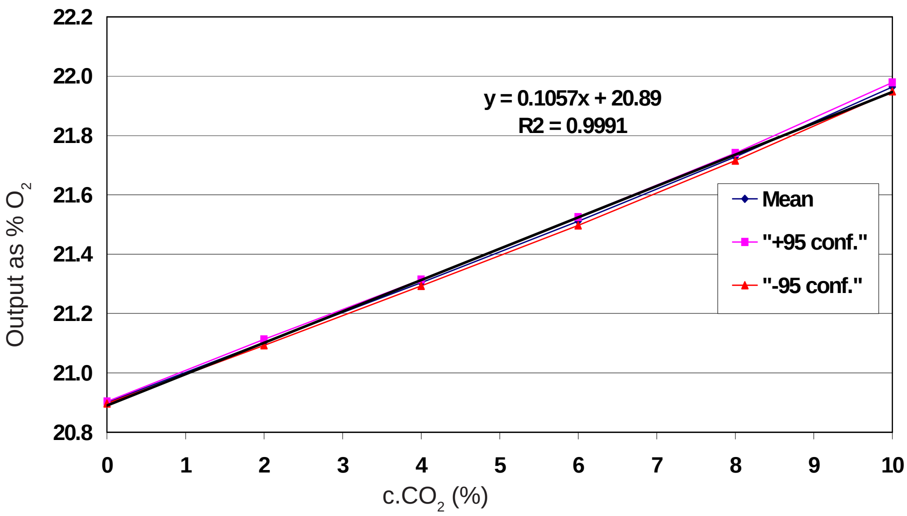
Figure 3 Thermal Transient Performance



This time trace follows eight sensors' progress as they are first cooled to -30°C, then thermally stepped to +50°C before finally returning to 20°C.

As the O2-C2 experiences rapid temperature changes. The lack of thermal transients avoids false alarms, even when cooled from +20°C to -30°C.

Figure 4 Carbon Dioxide Response



Carbon dioxide increases the diffusion rate of oxygen, increasing the apparent oxygen concentration.

When oxygen concentration is held constant, CO_2 increases the oxygen signal by 10.6% of the CO_2 concentration.

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Tel：(852) 2737 0903
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