

# AlphaSense O2-A2 Oxygen Sensor

This oxygen sensor is designed to provide students or scientists with proven electrochemical technology. OEMs will appreciate the low power, dependable technology for use in high volume applications.

## FEATURES

- Low power
- Low cost
- Serial interface
- Replaceable electrochemical cell

## AVAILABLE MODELS

**CM-32911 Development Kit** – Our easiest to use version, it is ready to plug into your PC via USB. Use our free GasLab<sup>®</sup> software to read and data log oxygen, barometric pressure, temperature, and % relative humidity.

**CM-32910** – This PCB offers the same functionality as the development kit, but is designed to be integrated into your product.

**AP-0001** – Raw sensor only



ELECTRICAL SPECIFICATIONS	
Supply Voltage	3.3 to 5.5 VDC
Peak Supply Current	10ma
Average Power	< 3mW (1 second streaming 1 min logging)
UART Tx	3V 9600 Baud N 8 1
UART Rx Voltage	3V – 5V
Operating Temp	-30C – 60C
Humidity	0 – 99% RH (non-condensing)
Barometric Pressure	50 – 115 kpa

CONNECTOR PINOUT*	
GND	SELECT
3.3 – 5.5 Volt DC	GND
Rx	GND
Tx	RS485 B
Analog Out	RS485 A

MECHANICAL SPECIFICATIONS	
Dimensions	25mm x 40mm x 29mm
Dimensions (w/sensor)	25mm x 40mm x 13mm
Weight	16g sensor, 5.8g board
Connector	10 pin Header

ABSOLUTE MAXIMUM RATINGS (EC3 Controller Only)	
Supply Voltage	6 Volts DC
Rx Input	5.5 V
Operating Temp	-30°C – 60°C
Humidity	0 – 99% RH (non-condensing)
Pressure	500 kpa

COMMON PERFORMANCE SPECIFICATIONS	
Temperature Accuracy at 20-40°C	±0.3°C
Temperature Accuracy 0 – 50°C	±2%
Relative Humidity Accuracy 20% – 80%	±2% RH
Sensor Voltage Resolution	16 bits

SIGNAL DEFINITIONS	
GND	Power Supply and RS485 return.
+SUPPLY	+3.2 – 5.5 Volts DC
Rx	CMOS Level Input to Controller
Tx	CMOS Level (0-3V) Output from controller.
AOUT	Analog Output from controller (when enabled). Voltage is proportional to gas concentration.
SELECT	Open selects the CMOS Tx/Rx Interface. Connect to GND to select the RS485 Interface.
RS485 B	RS485 B Signal. High in Marking State
RS485 A	RS485 A Signal. Low in Marking State.

# OXYGEN SENSOR PERFORMANCE DATA

## Figure 2 Output Temperature Dependence

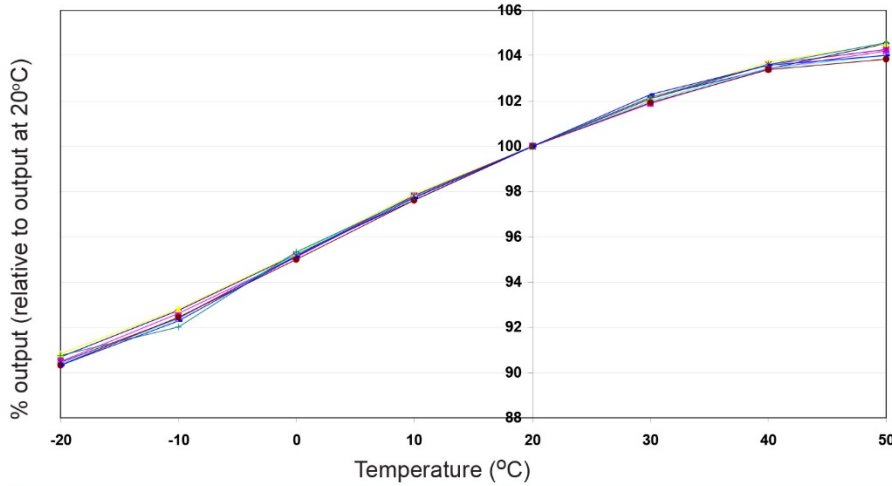
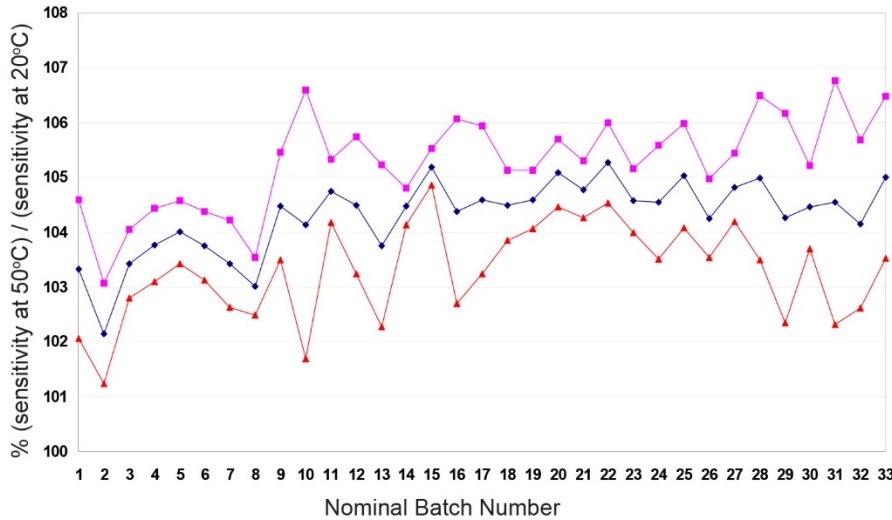


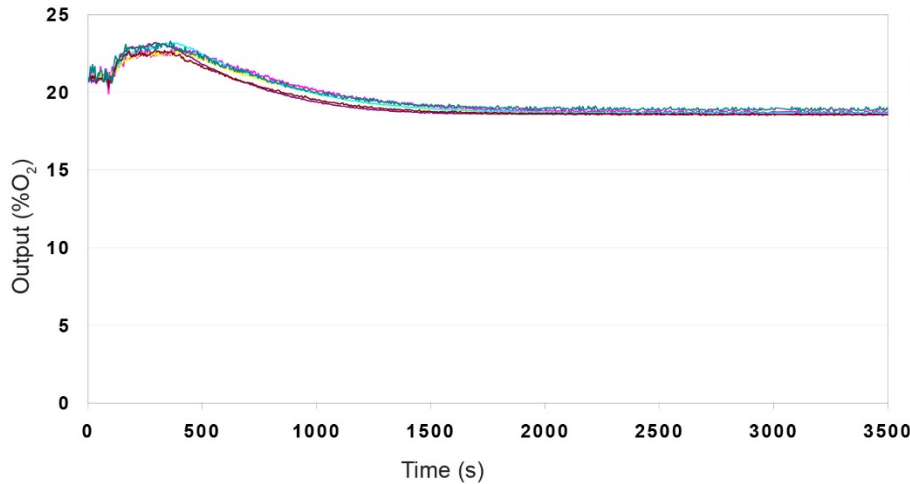
Figure 2 shows the variation in sensitivity caused by changes in temperature. Temperature dependence is very repeatable.

## Figure 3 Sensitivity at 50°C



This plot of the mean and  $\pm 95\%$  confidence intervals for 34 batches shows superior repeatability of the sensitivity dependence from batch to batch, giving confidence when setting temperature compensation in your gas detector.

## Figure 4 Thermal Transient Performance



Sensors were thermally shocked from 20°C to -30°C. Consistent manufacture and good design ensure that there are no thermal spikes which can cause an alarm.