

### Innovation, Quality and Expertise for Gas Detection.

# ECO-Sure (2e)

### **Operating Performance**

Gas DetectedCarbon MonoxideMeasurement Range0-500 ppmMaximum Overload21000 ppmExpected Operating Life>5 years in airOutput Signal $0.045 \pm 0.015\mu$ A per ppmTemperature RangeContinuous: -10°C to +50°CIntermittent: -20°C to +50°CIntermittent: -20°C to +50°CPressure Range1 atm $\pm 10\%$ Humidity Range (non-condensing)Continuous: 15 - 90%Response Time (T <sup>5</sup> 90)<50 secondsBaseline Offset (clean air) $\pm 8.0$ ppm equivalentZero Shift (-10 to +50°C) $\pm 5.0$ ppmLong Term Output Drift<5% per annum	Operating Principle	2-electrode electrochemical	
Maximum Overload21000 ppmExpected Operating Life>5 years in airOutput Signal $0.045 \pm 0.015\mu$ A per ppmTemperature RangeContinuous: -10°C to +50°CIntermittent: -20°C to +50°CPressure Range1 atm $\pm 10\%$ Humidity Range (non-condensing)Continuous: 15 - 90%Response Time (T <sup>5</sup> 90)<50 seconds	Gas Detected	Carbon Monoxide	
Expected Operating Life>5 years in airOutput Signal $0.045 \pm 0.015\mu$ A per ppmTemperature RangeContinuous: $-10^{\circ}$ C to $+50^{\circ}$ CIntermittent: $-20^{\circ}$ C to $+50^{\circ}$ CPressure Range1 atm $\pm 10\%$ Humidity Range (non-condensing)Continuous: $15 - 90\%$ Response Time (T <sup>5</sup> 90)<50 seconds	Measurement Range	0-500 ppm	
Output Signal $0.045 \pm 0.015\mu$ A per ppmTemperature RangeContinuous: $-10^{\circ}$ C to $+50^{\circ}$ CIntermittent: $-20^{\circ}$ C to $+50^{\circ}$ CPressure Range1 atm $\pm 10^{\circ}$ Humidity Range (non-condensing)Continuous: $15 - 90^{\circ}$ Intermittent: $0 - 99^{\circ}$ Response Time (T <sup>5</sup> 90)<50 seconds	Maximum Overload <sup>2</sup>	1000 ppm	
Temperature RangeContinuous: $-10^{\circ}$ C to $+50^{\circ}$ CIntermittent: $-20^{\circ}$ C to $+50^{\circ}$ CPressure Range1 atm $\pm 10\%$ Humidity Range (non-condensing)Continuous: 15 - 90%Intermittent: 0 - 99%Response Time (T <sup>5</sup> 90)<50 seconds	Expected Operating Life	>5 years in air	
Intermittent: $-20^{\circ}$ C to $+50^{\circ}$ CPressure Range1 atm $\pm 10\%$ Humidity Range (non-condensing)Continuous: 15 - 90%Intermittent: 0 - 99%Intermittent: 0 - 99%Response Time (T <sup>5</sup> 90)<50 seconds	Output Signal	0.045 <u>+</u> 0.015μA per ppm	
Pressure Range1 atm ±10%Humidity Range (non-condensing)Continuous: 15 - 90%Intermittent: 0 - 99%Intermittent: 0 - 99%Response Time (T <sup>5</sup> 90)<50 seconds	Temperature Range	Continuous: -10°C to +50°C	
Humidity Range (non-condensing)Continuous: 15 - 90% Intermittent: 0 - 99%Response Time (T <sup>5</sup> 90)<50 seconds		Intermittent: -20°C to +50°C	
Intermittent: 0 - 99%Response Time (T <sup>5</sup> 90)<50 seconds	Pressure Range	1 atm <u>+</u> 10%	
Response Time (T <sup>5</sup> 90)<50 secondsBaseline Offset (clean air)<±8.0ppm equivalent	Humidity Range (non-condensing)	Continuous: 15 - 90%	
Baseline Offset (clean air)<±8.0ppm equivalentZero Shift (-10 to +50°C)<±5.0ppm		Intermittent: 0 - 99%	
Zero Shift (-10 to +50°C)<±5.0ppmLong Term Output Drift<5% per annum	Response Time (T <sup>5</sup> 90)	<50 seconds	
Long Term Output Drift <5% per annum	Baseline Offset (clean air)	< <u>+</u> 8.0ppm equivalent	
	Zero Shift (-10 to +50°C)	< <u>+</u> 5.0ppm	
	Long Term Output Drift	<5% per annum	
Repeatability < <u>+</u> 5%	Repeatability	< <u>+</u> 5%	
Linearity Linear ±<5%	Linearity	Linear <u>+</u> <5%	
Recommended Load Resistor 5Ω	Recommended Load Resistor	5Ω	
Bias Voltage Not required	Bias Voltage	Not required	

## Intrinsic Safety Data

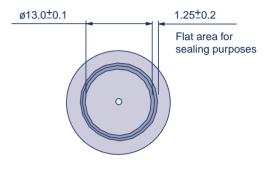
Maximum at 1000ppm	0.1mA
Maximum o/c Voltage	1.3V
Maximum s/c Current	<1.0A

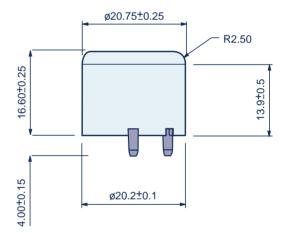
## **Physical Specification**

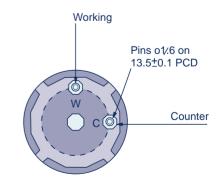
Weight	5g (approx)
Housing Material	Noryl 110
Storage Life	6 months in sealed container
Storage Conditions	+10°C to +30°C
Orientation	Any
Warranty Period	Up to 60 months

### **Ordering Details**

Part Number	2112B3000
Order From	Sixth Sense
	Hatch Pond House, 4 Stinsford Road
	Poole, Dorset, England BH17 0RZ
	T: +44 (0) 1202 645770
	F: +44 (0) 1202 665331
	E: sensors@sixth-sense.com
Code date: 08/00	W www.sixth-sense.com



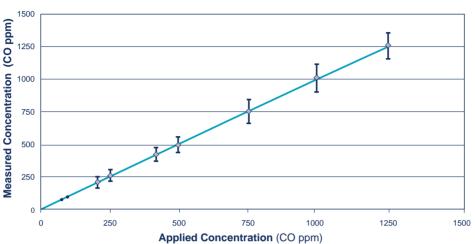




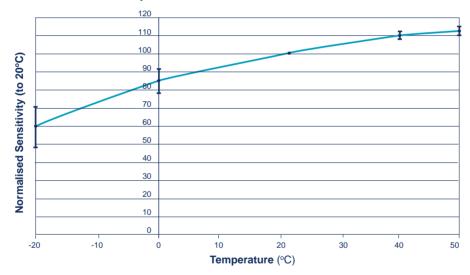


## Additional Information

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#### **Temperature Coefficients of ECO-Sure Cells**



Cross Sensitivity Table				
Gas	Concentration	Exposure Time	Reading	
	Used (ppm)	(mins)	(ppm CO)	
Carbon Monoxide	100	5	100	
Hydrogen Sulphide	25	5	0	
Sulfur Dioxide	50	600	<0.5	
Nitrogen Dioxide	50	900	-1.0	
Nitric Oxide	50	5	8	
Chlorine	2	5	0	
Hydrogen	100	5	20	
Carbon Dioxide	5000	5	0	
Ammonia	100	5	0	
Ethanol	2000	30	5	
Iso-Propanol	200	120	0	
Acetone	1000	5	0	
Acetylene	40	5	80	

In the interest of product improvement, Sixth Sense reserves the right to alter design features and specifications without notice. Unless otherwise stated, all product specifications are quoted at standard temperature and pressure.

\*Note: The figures in this table are typical values and should not be used as a basis for cross calibration. Cross sensitivities may not be linear and should not be scaled. For some cross interferents break through will occur if gas is applied for a longer time period.

#### Linearity of ECO-Sure Cells (0 to 1250 ppm CO)