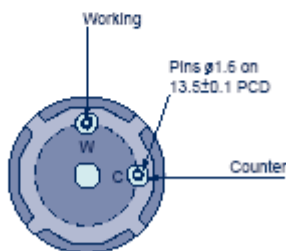
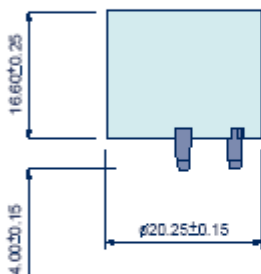
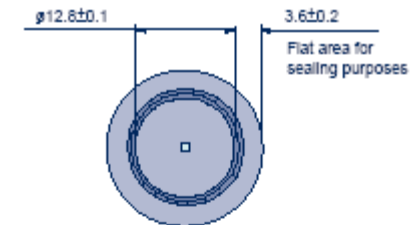


# ECO-Sure (2e) SENSOR

The ECO-Sure® (2e) is a high quality, cost effective 2-electrode electromechanical cell designed for the detection of Carbon Monoxide CO in a range of applications but particularly for domestic Carbon Monoxide detection and industrial fire detection applications. The ECO-Sure (2e) is a recognised component under UL2075.

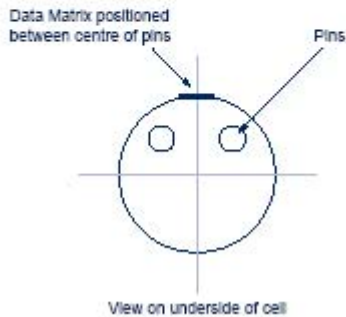


## SPECIFICATION

<b>Operating Principle:</b>	2-electrode electrochemical
<b>Gas Detected:</b>	Carbon Monoxide
<b>Measurement Range:</b>	0 – 500 ppm
<b>Maximum Overload:</b>	1,000 ppm
<b>Expected Operating Life*:</b>	> 6 years in normal use from date of manufacture
<b>Output Signal:</b>	$0.045 \pm 0.015 \mu\text{A}$ per ppm
<b>Temperature Range*:</b>	Continuous: $-10^{\circ}\text{C}$ to $+50^{\circ}\text{C}$ Intermittent: $-20^{\circ}\text{C}$ to $+50^{\circ}\text{C}$
<b>Pressure Range*:</b>	1 atm $\pm$ 10%
<b>Humidity Range* (non-condensing):</b>	Continuous: 15 - 90% Intermittent: 0 - 99%
<b>Response Time (<math>T^5_{90}</math>):</b>	<50 seconds over complete temperature range
<b>Baseline Offset (clean air):</b>	<-2 to 4 ppm equivalent
<b>Zero Shift* (<math>-10^{\circ}\text{C}</math> to <math>+50^{\circ}\text{C}</math>):</b>	< $\pm$ 10 ppm
<b>Long Term Output Drift:</b>	<5% per annum
<b>Repeatability:</b>	< $\pm$ 5%
<b>Linearity:</b>	< $\pm$ 5%
<b>Recommended Load Resistor:</b>	5 $\Omega$
<b>Bias Voltage:</b>	Not required



# ECO-Sure (2e) SENSOR



## Intrinsic Safety Data

<b>Maximum at 1,000ppm:</b>	0.1mA
<b>Maximum o/c Voltage:</b>	1.3V
<b>Maximum s/c Current:</b>	<1.0A

## Physical Specification

<b>Weight:</b>	5g (approx)
<b>Orientation:</b>	Any
<b>Housing Material:</b>	Noryl 110
<b>Storage Life:</b>	6 months in sealed container
<b>Storage Conditions:</b>	+10°C to +30°C
<b>Warranty Period:</b>	Up to 60 months
<b>Part Number:</b>	2112B3000

All measurements were taken at 20°C and 505 rH at 1 atmosphere pressure unless otherwise indicated. The performance data detailed in this document refer to new sensors. With the exception of items marked \* the following parameters have been verified under the UL component recognition programme.

## Customer Specification

<b>Symbology:</b>	2D Data Matrix (ECC 200)
<b>Dot size:</b>	0.428mm

<b>Format:</b>	12x12 dot array
<b>Dot colour:</b>	White dot on black substrate

**Data contained in Data Matrix code:** 10 digit encrypted number with Julian date code and sensitivity in nA/ppm

**Data contained in number printed below Data Matrix code :** 3 digit number with encrypted sensitivity in nA/ppm

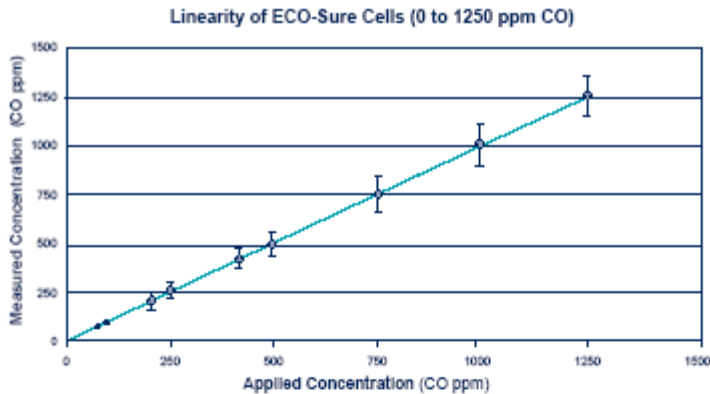
**Tolerance on sensitivity data:** Typically  $\pm 5\%$ , Better than  $\pm 10\%$

**Scanning recommendations:** In order to achieve a reliable read rate, the installation of a fixed scanning device is recommended. Typically a Matrix 2000 fixed scanner from [www.datalogic.com](http://www.datalogic.com). The scanner should be set to dot matrix. A white ring light should be positioned above the cell to be scanned in preference to the scanners in-built light source. A hand held scanner can be used but a reduction in read rate may be experienced. A keyboard may be used to key in the 3 digit encrypted nA/ppm number displayed underneath the Data Matrix.

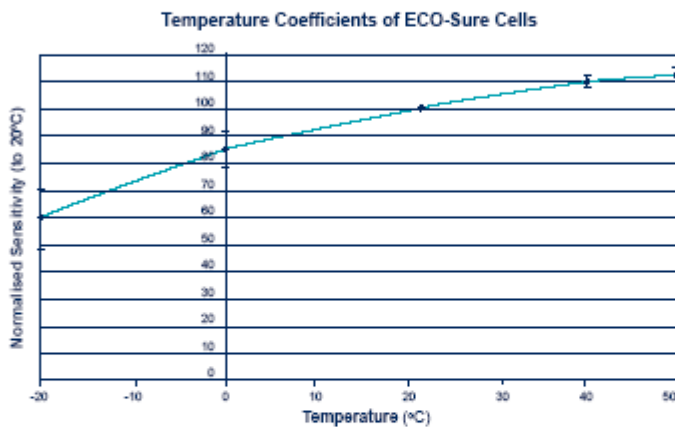
**Encryption and software licence:** Data contained in the Data Matrix code and 3 digit number is encrypted. Encryption software and user licence are required to convert the data.



# ECO-Sure (2e) SENSOR



Note: Temperature coefficients and cross sensitivity are not verified under the UL component recognition programme



Cross Sensitivity Table			
Gas	Concentration Used (ppm)	Exposure Time (mins)	Reading (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

\*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 interference, break through will occur if gas is applied for a longer time period.



# ECO-Sure (2e) SENSOR

## Accessories

- ECO-Sure CO sensor with 4-20mA transmitter.  
Part no: 2112B1005. Standard measuring range: 0-300ppm.  
Optional measuring range: 0-500ppm.
- Installation kit, part no: 2112B1022.
- Test gas cap, part no: 2112B1010.
- Gas measuring system. Sensor, transmitter and installation kit provided as a complete unit in aluminium housing, part no: 2112B1013.



**Figure 1.**  
**ECO-Sure CO sensor**  
**+ 4-20mA transmitter**  
Part no. 2112B1005



**Figure 2. Gas Measuring System**

Sensor with 4-20mA transmitter and installation kit, provided as a complete unit, fitted into aluminium housing.

Part no. 2112B1013

Standard measuring range: 0-300ppm

Optional measuring range: 0-500ppm



**Figure 3. Test gas cap**  
Part no. 2112B1010

The data contained in this document is believed to be accurate and reliable. The data given is for guidance only. Euro-Gas Management Services Ltd accepts no liability for any consequential losses, injury or damage resulting from the use of this datasheet or the information contained in it. Customers should test the sensors under their own conditions to ensure that the sensors are suitable for their own requirements and in accordance with the plans and circumstances of the specific project and any standards/regulations pertaining to the country in which the sensors will be utilised. This datasheet is not intended to form the basis of a contract and in the interest of product improvement, Euro-Gas reserves the right to alter design features and specifications without notice.

08/10

