

## O2/M-100

### Oxygen Gas Sensor in Mini Housing



#### MEASUREMENT

Operation Principle	3-Electrode Electrochemical
Nominal Range	0 – 30 %
Maximum Overload	100 %
Inboard Filter	–
Output Signal	90 ± 24 µA/%
Resolution (Electronics dependent)	< 0.05 %
T90 Response Time	< 8 sec
Typical Baseline Range (in pure nitrogen)	0.1 %-equivalent
Maximum Zero Shift (+20°C to +40°C)	N.D.
Repeatability	< 2 % of signal
Output Linearity	Linear
Gain	–

#### ELECTRICAL

Rec. Load Resistor	10 Ohm
Bias (V_Sens-V_Ref)	-600 mV
Conformity to RoHS directive	RoHS Compliance

#### ENVIRONMENTAL

Relative Humidity Range	15 % to 90 % R.H. non-condensing
Temperature Range	-40 °C to 50 °C
Pressure Range	Atmospheric ± 20%
Pressure Coefficient	N.D.
Humidity Effect	none

#### LIFETIME

Expected Operation Life	3 years in air
Expected Long Term Output Drift in air	< ±4% signal / 3 years
Filter Life	–
Storage Life	6 months in container
Rec. Storage Temperature	5 °C – 20 °C
Warranty Period	12 months from date of dispatch

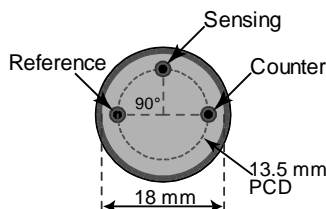
Performance data conditions: 20 °C, 50% RH, 1013 mbar

#### IMPORTANT NOTE

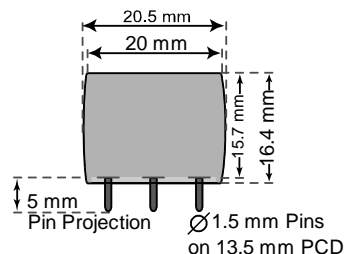
- 1) The output signal follows the relationship:  $S = K \ln(1/(1-C))$
- 2) Lifetime is not limited by the consumption of internal components
- 3) Further information: See MEM2 Appl. Note Oxygen Sensor

#### Miniature-Size Outline Dimensions

##### BOTTOM VIEW



##### SIDE VIEW



± 0.10 mm

#### MECHANICAL

Weight	5.5 g
Position Sensitivity	None

#### APPLICATIONS

Oxygen Monitoring in Diffusion Mode  
Continuous Air Quality Monitoring  
Safety and Environmental Control

#### CROSS-SENSITIVITY DATA

The table below does not claim to be complete. Interfering gases should not be used for calibration.

Interfering Gas	Conc. ppm	Reading %
H <sub>2</sub> S	500	-0.02
SO <sub>2</sub>	200	-0.01

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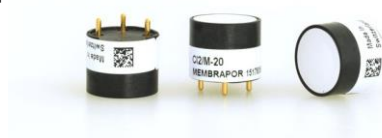
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### TEMPERATURE DEPENDENCE

The output of an electrochemical sensor varies with temperature. The graphs below show the variation in output with temperature for this type of sensor. The results are shown in the graphs as a mean for a batch of sensors. The sensitivity dependence is expressed as a percentage of the signal at 20 °C. The shift in baseline is shown in ppm referenced to 20 °C and a relative humidity of 50%.

Please note:

It is highly recommended to acquire the temperature dependence curves with the whole instrument. The sampling system, the humidity, the electronics, the interaction between the electronics and the sensor, all have a significant impact on the temperature dependence of the final measurement reading.

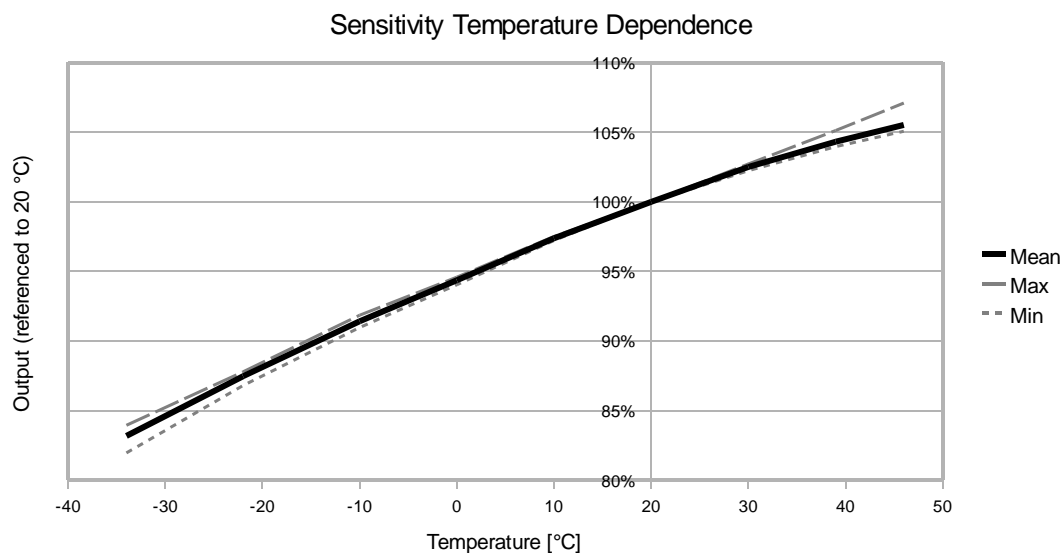


Figure 1: Sensitivity dependence expressed as a percentage of the signal at 20 °C. The result is shown along with confidence intervals corresponding to  $\pm 3$  times the standard deviation.

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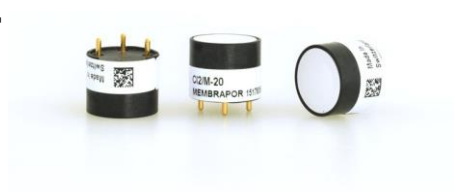
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### LINEARITY AND RESOLUTION

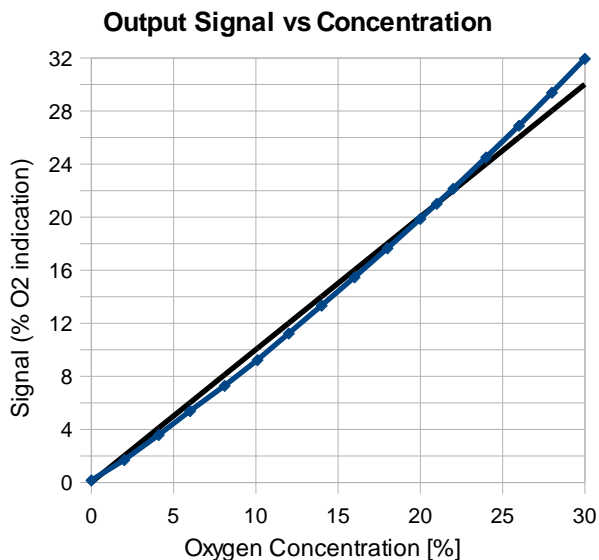


Figure 2: Linearity of O<sub>2</sub>-Sensor

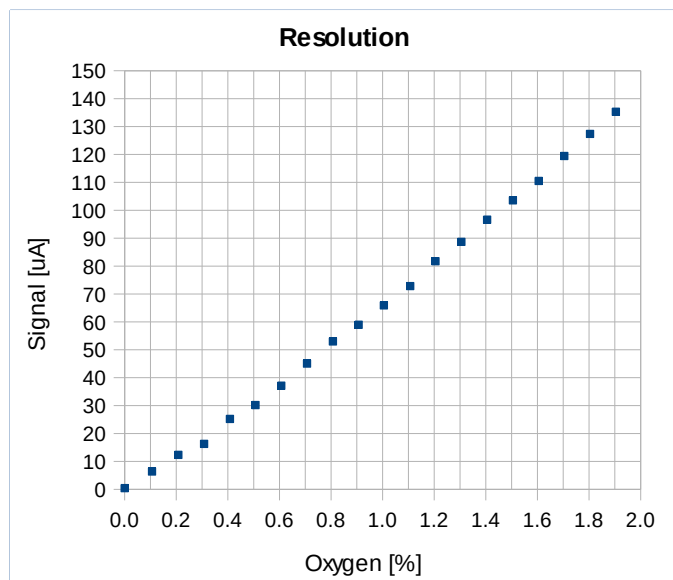


Figure 3: Resolution of O<sub>2</sub>-Sensor

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