Carbon Monoxide Sensor
for use within residential CO Detectors

KEY FEATURES

- Specificity to Carbon Monoxide
- Superior Range & Repeatability
- Superior long term interference rejection
  (Low Cross Sensitivity)
- Greater reduced RH% error
- Minimal set up time, < 1 hour
- Long lifetime - greatly in excess of 5 years

Capteur's Carbon Monoxide sensors are designed to exceed all recommended standards for CO detectors, such as UL 2034 and BS 7860. The sensors are largely insensitive to fluctuations in relative humidity and can operate in reducing conditions such as biogas.

Physically small, the sensors are constructed by depositing a thick film layer of gas sensitive material onto an alumina substrate, which incorporates a platinum heater. To give the gas response, the sensing chip is constantly heated to approximately 400°C. At the operating temperature the sensor will exhibit a defined change of resistance, in the presence of the target gas.

Cost effective high volume alarm grade sensors are available, together with continuous monitor grade sensors, suitable for high accuracy work. Standard continuous monitor characterisation is three gas points of 70, 150 and 400ppm.

Base and Cap made from high impact polycarbonate (coloured blue).

A Pin format is based on standard 8-pin DIL package with four pins in the outer pin positions (0.762 mm or 0.3 ins pitch).

B Base and cap diameter 16mm

C Pin diameter 1mm (0.5mm option)

D Base and cap height 22.4mm

E Outboard pin length 5.1mm

An adhesive tab is fitted to the top of the sensor. This is to protect the device from damage during transit; therefore this tab must be removed prior to operation.
The baseline and gas response of the sensor are a function of the operating temperature of the device. To ensure stability of the device it is essential to maintain the operating temperature of the sensor to within a fraction of a degree. This is achieved by use of the heater driver circuit shown opposite.

**Figure 2 Heater Control**

The sensor heater forms part of a Wheatstone bridge. The current through the heater is controlled so as to maintain the sensor heater at constant resistance. The supply voltage needs to be stable and about 1V (typically > 5V or 6V) above that required by the heater to achieve the correct sensor temperature.

**Sensor Measurement**

The sensor operates as a gas sensitive resistor. Voltage applied to the sensor to measure its resistance should be such that the current through the sensor does not exceed 5mA.

For evaluation purposes, Capteur can provide heater driver boards, pre-matched with the appropriate settings for its associated sensor. This option does not process the sensors output.

Alternatively, Capteur can supply a Sensor Utilisation Module which contains both the heater control circuit and provides an output voltage linear to the target gas concentration.