**Methanol Sensor**

**SPECIFICATION**

- **3x3 mm Standard Power AAS13**
  - Heater Resistance at 21°C
    - Typical Value 10.6 ± 1Ω
  - Heater Resistance at 410 ± 30°C
    - Typical Value 14 ± 3Ω
  - Baseline Sensor Resistance in clean air at 21°C 50%RH
    - Typical Value 75 ± 5 kΩ
  - Sensor Resistance in 250ppm Ethylene
    - Typical Value 300KΩ
  - Sensor Resistance in 500ppm Ethylene
    - Typical Value 380KΩ
  - Sensor Resistance in 1000ppm Ethylene
    - Typical Value 450KΩ
  - A simple protective cap is fitted as standard to the sensor. A certified flame proof enclosure is available on request.
  - Typical sensor measurement voltage
    - Typical Value 0.1V continuous
  - Ambient Operating temperature range
    - Typical Value -20°C to +60°C
  - Typical Power rating
    - Typical Value 600mW
  - Lifetime
    - Long lifetime - based on 30,000 thermal cycles: 23°C - 400°C and accelerated thermal ageing at 480°C for 1 year. See MIL-STD-883D
    - Typical Value > 8.4 Years.

**KEY FEATURES**

- Fast response •
- Improved Range & Repeatability •
- (Low Cross Sensitivity) •
- High resistance to poisoning •
- Temperature stabilization inherent in design of heater driver •
- Long lifetime - in excess of 8 years •

Capteur’s ‘AA’ Series Methanol sensor is designed for detecting volatile organic compounds in a diverse range of applications. The sensor stabilizes in less than 1 minute and zero drift thereafter is less than 1%/year. The humidity response is small, and the sensors can operate in both high and low gas concentrations. Power consumption is typically about 600 mW.

The sensor has a cross sensitivity to other oxidizable molecules such as solvents and organic vapours.

Physically small the sensors are constructed by depositing a thick film layer of gas sensitive material onto an alumina substrate, which incorporate a thick film heater.

The sensors are available in either low cost alarm grade for high volume applications and premium performance continuous monitor grades for high accuracy measurements.

The sensors are supplied pre-characterised, the standard range being 0-10000 ppm for methanol. Other calibrations ranges and gases are available on request.

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Base and Cap made from glass filled PPS (Polyphenyl Sulphide)

- 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 15mm
- D Base and cap height 16mm
- E Outboard pin length 7.6mm

For alternative housing options please refer to Capteur’s Sensor Selector.
Figure 1 Typical Response Curve

Please note: the response time (T90) of the sensor is faster than shown on the response curve. 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.

This board can be purchased directly from Capteur, pre-matched with the appropriate settings for its associated sensor, for evaluation purposes.

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.

Capteur can supply a general interface board which contains both the heater control circuit and provides an output voltage proportional to the sensors resistance change.