Capteur’s ‘CT’ Series Butane sensor is designed for detecting hydrocarbons in a diverse range of applications. The sensor offers both a lower cost of ownership and a longer life, when compared to electrochemical sensors.

The sensor stabilises 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 900 mW.

The sensor has a cross sensitivity to other oxidisable 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 incorporates 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. Other calibrations ranges and gases are available on request.

<table>
<thead>
<tr>
<th>Performance Characteristic</th>
<th>Typical Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating heater resistance</td>
<td>15 ± 2 Ω</td>
</tr>
<tr>
<td>Ambient temperature range</td>
<td>-20 °C - +60 °C</td>
</tr>
<tr>
<td>Operating power</td>
<td>900 mΩ</td>
</tr>
<tr>
<td>Zero resistance in air (50%RH)</td>
<td>26 KΩ</td>
</tr>
<tr>
<td>Zero resistance in air (&lt;2% RH)</td>
<td>24 KΩ</td>
</tr>
<tr>
<td>Typical resistance in 300ppm Butane</td>
<td>44 KΩ</td>
</tr>
<tr>
<td>Typical resistance in 1000ppm Butane</td>
<td>56 KΩ</td>
</tr>
<tr>
<td>Typical resistance in 10000ppm Butane</td>
<td>105 KΩ</td>
</tr>
</tbody>
</table>

See overleaf for sensor response curve, sensor control information and dimensional specification.
### Heater Control

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 following heater driver circuit:

![Heater Driver Circuit Diagram]

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.

### Sensor Measurement

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

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

For further information on any of our products, please refer to Capteur.

### Available Header Options

The sensors are supplied with a measured value for the heater resistance. The potentiometer is then adjusted until the sensor heater resistance is within 0.5% of the specified data.

Standard Header for Butane sensors is option 5.

- Four PPS base with carbon filter
- Five PPS base with flame arrester and carbon filter
- Six PPS base with flame arrester and carbon filter
- Seven PPS base with integral vent
- Eight aluminum certified flameproof housing
- Nine stainless steel certified flameproof housing
- Ten Glass to metal header

Capteur reserve the right to change the design features or any technical details without any prior notice.