# Product Datasheet

CAT 16 Combustible Gas Sensor

## Document Purpose

The purpose of this document is to present the performance specification of the CAT 16 combustible gas sensor.

This document should be used in conjunction with Operating Instructions (7pelops).

The data provided in this document are valid at 20°C, 50% RH and 1013 mBar for 3 months from the date of sensor manufacture. Output signal can drift below the lower limit over time. For guidance on sensor performance outside of these limits and on the safe use of the sensor, please refer to the Operating Instructions.

# Product Data Sheet

## Performance Characteristics

### MEASUREMENT

| | |
|---|---|
| **Operating Principle** | Constant Current |
| **Gases Detected** | Most combustible gases and vapours |
| **Measurement Range** | 0-100% LEL |
| **Maximum Methane Concentration** | 5% v/v |
| **Sensitivity*** | >12 mV/%methane |
| **T90 Response Time*** | <10 seconds (methane) |
| **Poison Resistance** | |
| Hexamethyl-Disiloxane | Very high |
| Hydrogen Sulfide | Very High |
| **Linearity** | ± 10% LEL up to 100%LEL |

### ELECTRICAL

| | |
|---|---|
| **Operating Voltage** | 2.7 ± 0.02 VDC |
| **Detector Operating Current** | 200 mA |
| **Maximum Power Consumption** | 580 mW |

### MECHANICAL

| | |
|---|---|
| **Can Type** | Restricted |
| **Casing Material** | Nickel Silver |
| **Pin Material** | Ferrous alloy with plating of gold over nickel |
| **Orientation Sensitivity** | None |

### ENVIRONMENTAL

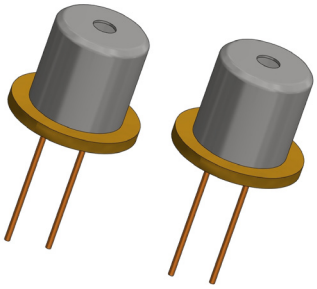
| | |
|---|---|
| **Operating Temperature Range** | -40°C to +50°C |
| **Operating Pressure Range** | 1 atm ± 10% |
| **Operating Humidity Range** | 0 - 90% RH non-condensing |

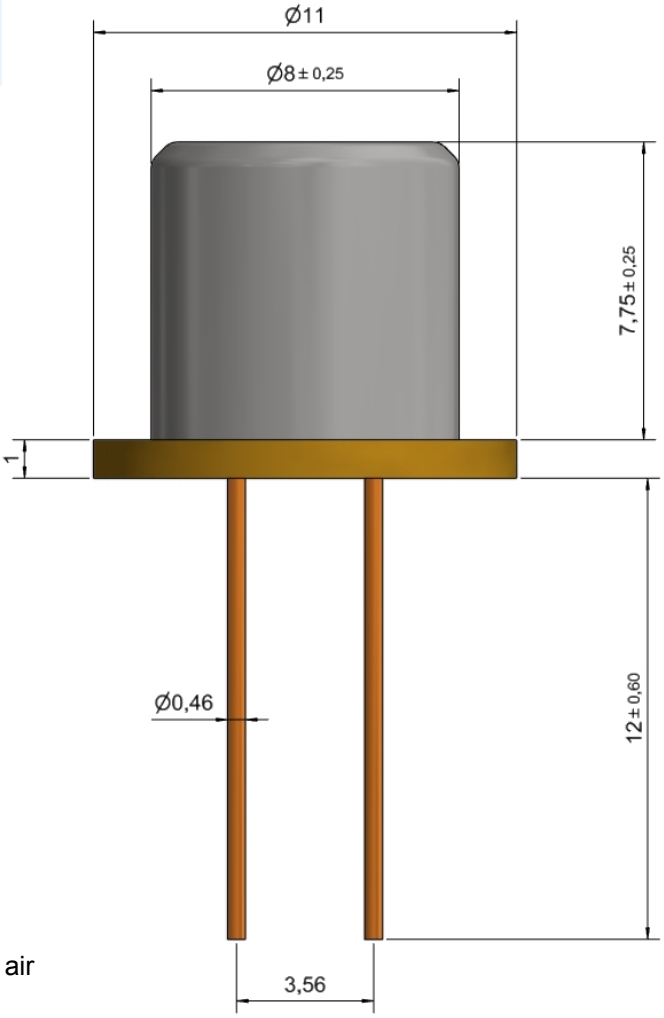
### LIFETIME

| | |
|---|---|
| **Expected Operating Life** | Greater than 5 years |
| **Long Term Span Drift*** | < ±3% LEL methane per year |
| **Long Term Zero Drift*** | < ±3% LEL methane per year |
| **Storage Conditions** | 0 - 20°C, 45 - 75%RH in clean air |
| **Storage Life** | 6 months in sealed container |
| **Warranty Period** | 12 months from date of despatch |

**NOTE :** Product includes both active and compensating beads

## Product Dimensions



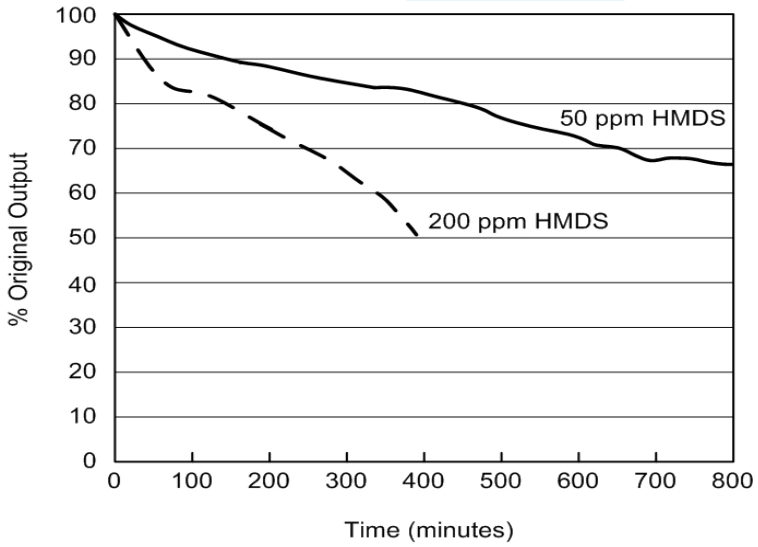



All dimensions in mm
All tolerances ±0.15 mm unless otherwise stated

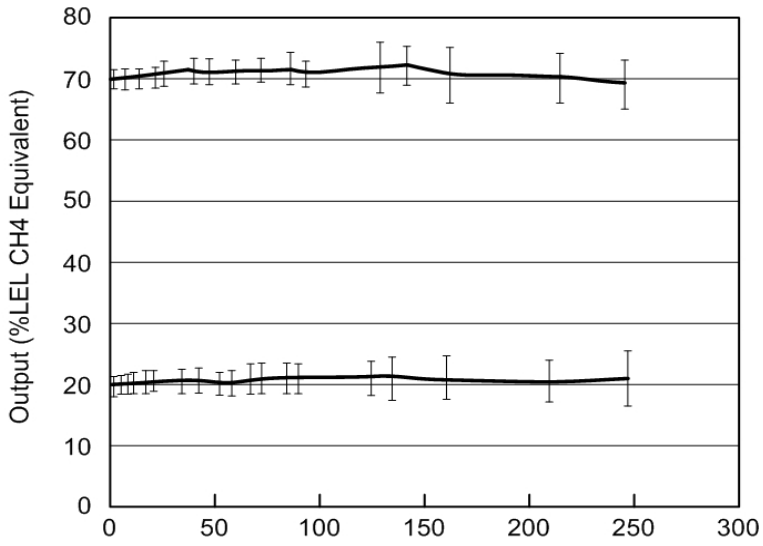
*** Specifications are valid at 20°C, 50% RH, 1013 mBar and flow rate of 300 ml/minute, using City Technology recommended circuitry. Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.**

# Product Data Sheet

## CAT 16 Poison Resistance
## (2.5% v/v $CH_4$, 50 ppm & 200 ppm HMDS)




## CAT 16 Lifetime




**Note: Poison resistance and lifetime data is supplied for guidance only and does not constitute a specification.**

## Relative Sensitivities

**IMPORTANT NOTE**

**The relative response data shown below does not form part of the product specification and is supplied for guidance only. For the most accurate measurements, an instrument should be calibrated using the gas under investigation.**

The table below shows the variation in response of the CiTipeL on exposure to a range of gases and vapours at the same %LEL concentration. The figures are experimentally derived and expressed relative to the methane signal (=100). Testing was performed using 2.5%vol. $CH_4$ (50%LEL CH4 based on LEL values from the now obsolete EN50054).

Relative response data are shown in the table below, based on the LEL values stated in EN 50054 (now obsolete) and EN60079-20-1:2010.

| Gas / Vapour | Relative Sensitivity | Gas / Vapour | Relative Sensitivity |
|---|---|---|---|
| Methane | 100 | Ethanol | 54 |
| Hydrogen | 121 | Propan-2-ol | 40 |
| Ethane | 70 | Acetone | 42 |
| Propane | 61 | Butan-2-one (MEK) | 40 |
| Butane | 49 | MBK | 30 |
| Pentane | 42 | Cyclohexane | 37 |
| Hexane | 39 | Di ethyl ether | 39 |
| Heptane | 35 | Ethyl Acetate | 37 |
| Octane | 32 | Toluene | 35 |
| Ethylene | 70 | Xylene | 26 |
| Methanol | 72 | Acetylene | 39 |

**SAFETY NOTE**

This sensor is designed to be used in safety critical applications. To ensure that the sensor and/or instrument in which it is used, are operating properly, it is a requirement that the function of the device is confirmed by exposure to target gas (bump check) before each use of the sensor and/or instrument. Failure to carry out such tests may jeopardise the safety of people and property.