# 300PZ CiTipeL®

Combustible Gas Sensor
Part Number : PM792--000

## Key Features & Benefits:

- **Compact, open can design**
- **High poison resistance**

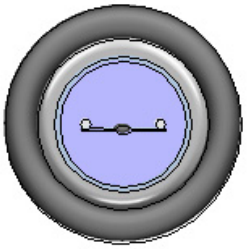
## Performance Characteristics

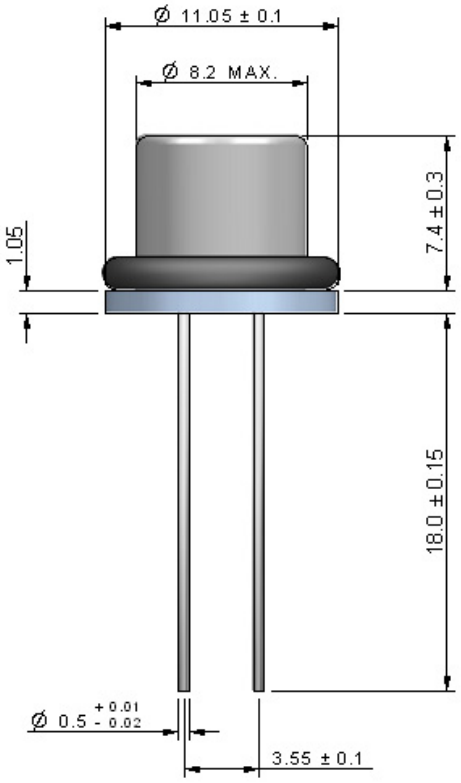
| | |
|---|---|
| **MEASUREMENT** | |
| **Operating Principle** | Catalytic Oxidation |
| **Gases Detected** | Most combustible gases and vapours |
| **Range** | 0-100% LEL |
| **Sensitivity** | 11 to 15 mV/%methane |
| **T90 Response Time** | <15 seconds |
| **Poison Resistance** | Highly Resistant |
| **Linearity** | Linear up to 5% methane |
| **ELECTRICAL** | |
| **Operating Voltage** | 2.0 ± 0.1 VDC |
| **Detector Operating Current** | 280 mA in recommended circuit |
| **Resolution** | Electronics dependant |
| **MECHANICAL** | |
| **Casing Material** | Stainless steel 316 |
| **Pin Material** | KOVAR alloy |
| **Orientation Sensitivity** | None |
| **ENVIRONMENTAL** | |
| **Operating Temperature Range** | -20ºC to +55ºC |
| **Operating Pressure Range** | 1 atm ± 10% |
| **Operating Humidity Range** | 0-100% RH non-condensing |
| **LIFETIME** | |
| **Long Term Span Drift*** | <1% signal/month |
| **Long Term Zero Drift*** | <1% $LEL_{methane}$/month |
| **Recommended Storage Temp** | 0ºC to 20ºC |
| **Shelf life** | 6 months in sealed container |
| **Expected Operating Life** | 2 years in clean air |
| **Warranty** | 12 months from date of despatch |

* Measured over a 6 month period

N.B. Flow rate of 300 ml/min. Conditions at 20°C, 50% RH, and 1013 mbar unless otherwise noted.

## Performance Characteristics






All tolerances ± 0.15 mm



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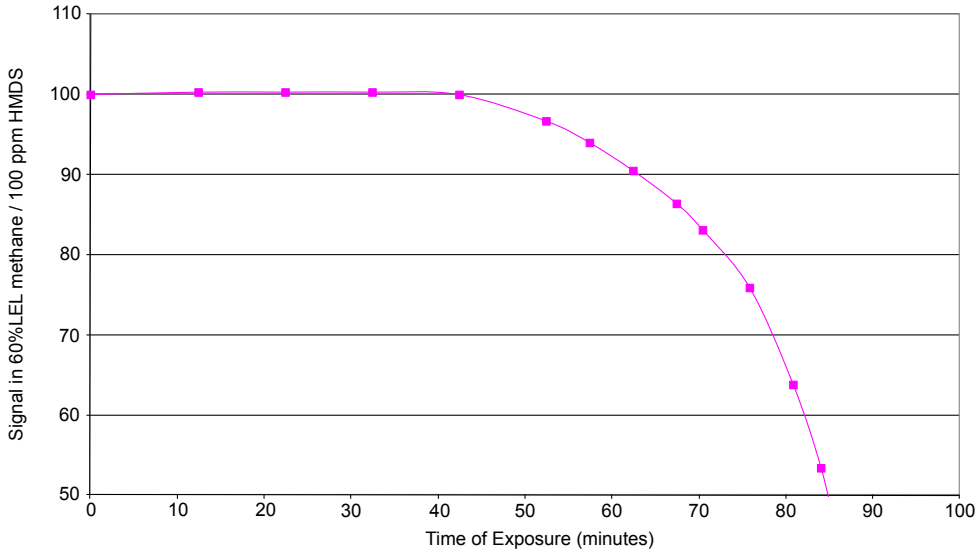
## Poison Resistance

The graphs below show the effects of typical silicone and sulfur containing compounds on a 300PZ CiTipeL®. Hexamethyl-disiloxane (HMDS) is chosen as an example of a particularly virulent poison, the effects of which are irreversible. Hydrogen sulfide ($H_2S$) is also a commonly encountered poison.

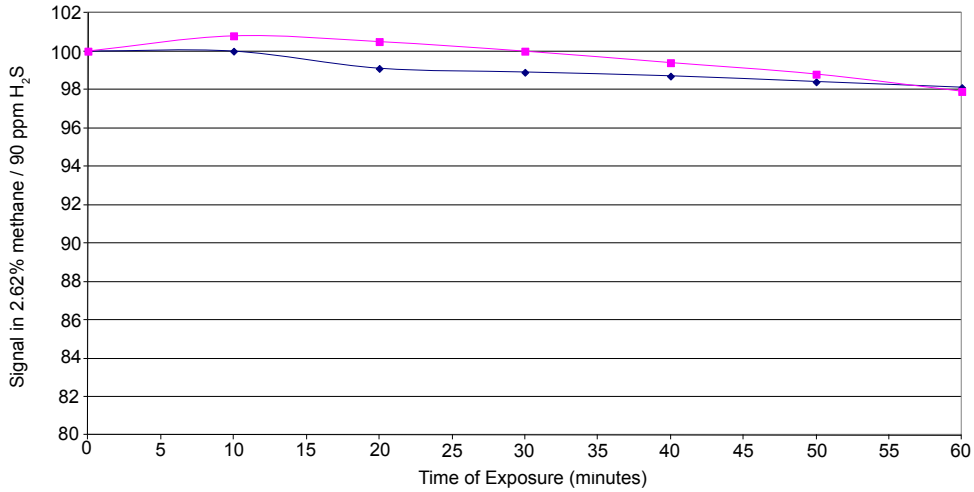
The graphs show the results of accelerated tests on unprotected sensors - in practice it is extremely unlikely continuous levels of even a few ppm of HMDS would be encountered. Similarly, 100 ppm $H_2S$ is approximately seven times the Short Term Exposure Limit in the UK.

The 300PZ will operate for significantly longer in an environment containing silicone oil vapours than a traditional standard sensor. The effect of 100 ppm $H_2S$ is also very small, and upon removal of $H_2S$ the sensor will return to its original sensitivity. In practice, this means the 300PZ can operate for months or years in an environment where a traditional sensor may need replacing after a matter of days or weeks.

**Accelerated Life Tests**
300PZ - HMDS Poison Resistance




**Accelerated Life Tests**
300PZ - $H_2S$ Poison Resistance methane



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## Relative Sensitivity

The table below shows the variation in response of a CDH300 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).

**Note:** The results are intended for guidance only. For the most accurate measurements an instrument should be calibrated using the gas under investigation.

| Combustible Gas/Vapour | Relative Sensitivity | Combustible Gas/Vapour | Relative Sensitivity |
|---|---|---|---|
| Methane | 100 | Acetone | 45 |
| Propane | 70 | Methyl Ethyl Ketone | 40 |
| n - Butane | 65 | Toluene | 20 |
| n - Pentane | 60 | Ethyl Acetate | 35 |
| n - Hexane | 40 | Hydrogen | 100 |
| n - Heptane | 40 | Cyclohexane | 40 |
| n - Octane | 25 | Unleaded Petrol | 35 |
| Methanol | 70 | Ethylene | 90 |
| Ethanol | 50 | 1,3, Butadiene | 70 |
| iso - Propyl Alcohol | 40 | Acetylene | 75 |

*Each sensitivity has been rounded to the nearest 5%

**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 jeopardize the safety of people and property.





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