

## Product Data Sheet

### Product Datasheet 4CL Chlorine Sensor

#### Document Purpose

The purpose of this document is to present the performance specification of the 4CL Chlorine gas sensor.

This document should be used in conjunction with the Operating Principles (OP08) and the Product Safety Datasheet (PSDS 5).

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 the safe use of the sensor, please refer to the Operating Principles (OP08).

## Product Data Sheet

- Key Features & Benefits:**
- Industry leading reliability
  - Improved performance variability

### Technical Specifications

#### MEASUREMENT

|                                        |                             |
|----------------------------------------|-----------------------------|
| <b>Operating Principle</b>             | 3-electrode electrochemical |
| <b>Measurement Range</b>               | 0-10 ppm Cl <sub>2</sub>    |
| <b>Maximum Overload</b>                | 100 ppm Cl <sub>2</sub>     |
| <b>Resolution</b>                      | 0.1 ppm                     |
| (Electronics dependent)                |                             |
| <b>Filter</b>                          | None                        |
| <b>Sensitivity*</b>                    | 0.60 ± 0.15 µA/ppm          |
| <b>Response Time (T<sub>90</sub>)*</b> | < 60 seconds                |
| <b>Baseline Offset (clean air)*</b>    | -0.2 to +0.2 ppm equivalent |
| <b>Zero Shift (+20°C to +40°C)</b>     | < 0.2 ppm equivalent        |
| <b>Repeatability</b>                   | 2% of signal                |
| <b>Linearity</b>                       | Linear                      |

#### ELECTRICAL

|                                  |              |
|----------------------------------|--------------|
| <b>Recommended Load Resistor</b> | 33 Ω         |
| <b>Bias Voltage</b>              | Not required |

#### MECHANICAL

|                         |              |
|-------------------------|--------------|
| <b>Housing Material</b> | ABS          |
| <b>Weight</b>           | 5g (approx.) |
| <b>Orientation</b>      | Any          |

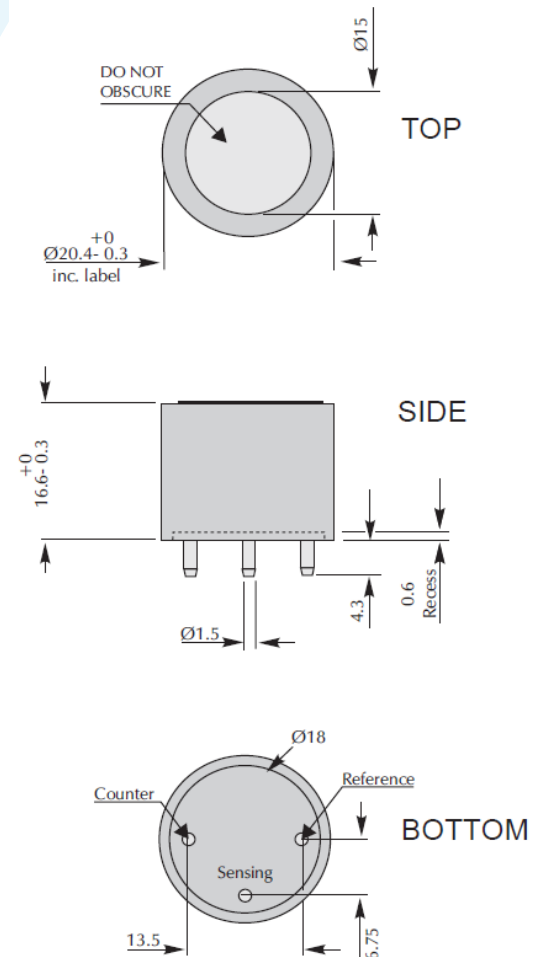
#### ENVIRONMENTAL

|                                    |                              |
|------------------------------------|------------------------------|
| <b>Operating Temperature Range</b> | -20°C to +50°C               |
| <b>Operating Pressure Range</b>    | 1 atm ± 10%                  |
| <b>Operating Humidity Range</b>    | 15% to 90% RH non-condensing |

#### LIFETIME

|                                 |                              |
|---------------------------------|------------------------------|
| <b>Long Term Output Drift</b>   | < 2% signal drift / month    |
| <b>Recommended Storage Temp</b> | 0 to 20°C                    |
| <b>Expected Operating Life</b>  | 2 years in air               |
| <b>Storage Life</b>             | 6 months in sealed container |

### Product Dimensions



All dimensions in mm

All tolerances ±0.15 mm unless otherwise stated

**IMPORTANT NOTE:** Connection should be made via PCB sockets only. Soldering to the pins will seriously damage your sensor.

\* Specifications are valid at 20°C, 50% RH and 1013 mBar, 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.

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## Poisoning

CiTiceLs are designed for operation in a wide range of environments and harsh conditions. However, it is important that exposure to high concentrations of solvent vapours is avoided, both during storage, fitting into instruments, and operation.

When using sensors with printed circuit boards (PCBs), degreasing agents should be used before the sensor is fitted. Do not glue directly on or near the CiTiceL as the solvent may cause crazing of the plastic.

## Cross Sensitivity Table

Whilst CiTiceLs are designed to be highly specific to the gas they are intended to measure, they will still respond to some degree to various other gases. The table below is not exclusive and other gases not included in the table may still cause a sensor to react.

**IMPORTANT NOTE : The cross sensitivity data shown below does not form part of the product specification and is supplied for guidance only. Values quoted are based on tests conducted on a small number of sensors and any batch may show significant variation. For the most accurate measurements, an instrument should be calibrated using the gas under investigation.**

| Gas                                | Concentration Used (ppm) | 4CL (ppm CL <sub>2</sub> ) |
|------------------------------------|--------------------------|----------------------------|
| Carbon Monoxide, CO                | 300                      | 0                          |
| Hydrogen Sulfide, H <sub>2</sub> S | 15                       | -7.5 < x\$ < 0             |
| Sulfur Dioxide, SO <sub>2</sub>    | 5                        | 0                          |
| Nitric Oxide, NO                   | 35                       | 0                          |

### **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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