

# Product Data Sheet

## Product Datasheet

A5F Carbon Monoxide CiTiceL<sup>®</sup>

### Document Purpose

The purpose of this document is to present the performance specification of the A5F carbon monoxide sensor.

This document should be used in conjunction with Operating Principles OP20 and the Product Safety Datasheet PSDS 16.

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 Operating Principles OP20.

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### Technical Specifications

#### MEASUREMENT

<b>Operating Principle</b>	4-electrode electrochemical
<b>Nominal Range</b>	0 to 2,000 ppm CO
<b>Maximum Overload</b>	4,000 ppm CO
<b>Filter</b>	To remove acid gases
<b>Filter Capacity</b>	> 100,000 ppm hours (1000 ppm NO @ 200 ml/min)
<b>Auxiliary Electrode</b>	To compensate for maximum 2000 ppm H <sub>2</sub> cross interference
<b>Sensitivity*</b>	75 ± 25 nA/ppm
<b>Response Time (T90)*</b>	< 40 seconds
<b>Typical Net Range Baseline*</b>	-2 to +17 ppm CO equivalent (clean air)
<b>Typical Net Baseline Shift</b>	5 ppm CO equivalent (+20°C to +40°C)
<b>Repeatability</b>	< 1% of signal
<b>Linearity</b>	Linear

#### ELECTRICAL

<b>Resolution</b>	Electronics dependent 1 ppm (based on City Technology recommended circuitry)
<b>Recommended Load Resistor</b>	10 Ω
<b>Bias Voltage</b>	0 mV or 250 mV

#### MECHANICAL

<b>Housing Material</b>	ABS
<b>Weight</b>	13 g (nominal)
<b>Orientation Sensitivity</b>	None

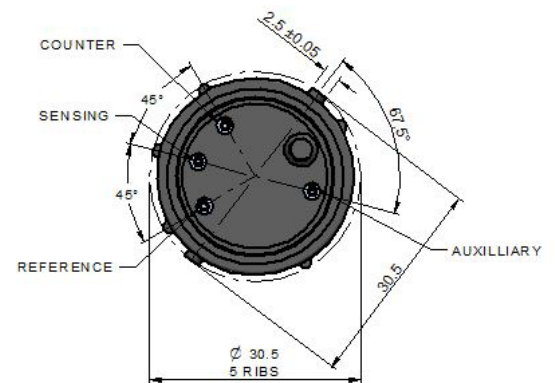
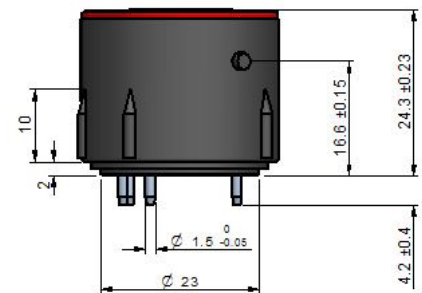
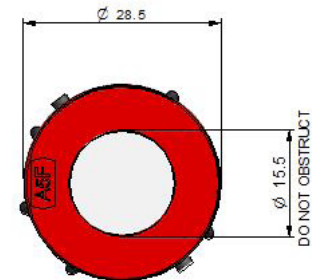
#### ENVIRONMENTAL

<b>Operating Temperature Range</b>	-20°C to +50°C
<b>Storage Temperature</b>	0°C to +20°C
<b>Operating Pressure Range</b>	Atmospheric ± 10%
<b>Pressure Coefficient</b>	0.010% signal / mbar
<b>Relative Humidity Range</b>	15% to 90% non-condensing

#### LIFETIME

<b>Long Term Output Drift</b>	< 2% signal loss per month
<b>Expected Operating Life</b>	3 years in air
<b>Storage Life</b>	6 months in original packaging

### Product Dimensions



All dimensions in mm

All tolerances ±0.15 mm unless otherwise stated

#### IMPORTANT NOTE:

Connection should be made via recommended mating parts only. Soldering to the sensor will result in damage and invalidate the warranty.

All performance data is based on conditions at 20°C, 50% RH and 1013 mBar, using City Technology recommended circuitry and flow rates.

\* 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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## 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	Cross Sensitivity (% with respect to CO)
Hydrogen (H <sub>2</sub> )	< 1 (see note)
Hydrogen Chloride (HCl)	5
Hydrogen Sulfide (H <sub>2</sub> S)	0
Nitric Oxide (NO)	0
Nitrogen Dioxide (NO <sub>2</sub> )	0
Sulfur Dioxide (SO <sub>2</sub> )	0

**Note :** Cross sensitivity to H<sub>2</sub> is <1% after compensation.

## 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.

### **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.

Every effort has been made to ensure the accuracy of this document at the time of printing. In accordance with the company's policy of continued product improvement City Technology Limited reserves the right to make product changes without notice. The products are always subject to a programme of improvement and testing which may result in some changes in the characteristics quoted. As the products may be used by the client in circumstances beyond the knowledge and control of City Technology Limited, we cannot give any warranty as to the relevance of these particulars to an application. It is the clients' responsibility to carry out the necessary tests to determine the usefulness of the products and to ensure their safety of operation in a particular application.