

# Product Data Sheet

## Product Datasheet A3EF Carbon Monoxide Sensor

### Document Purpose

The purpose of this document is to present the performance specification of the A3EF carbon monoxide gas 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 the Operating Principles (OP20).

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### Key Features & Benefits

- 4th electrode for compensation of hydrogen cross interference
- Electrical connection via PCB pins or solder tags

### Technical Specifications

#### MEASUREMENT

<b>Operating Principle</b>	4-electrode electrochemical
<b>Measurement Range</b>	0-2000 ppm CO
<b>Maximum Overload</b>	4000 ppm CO
<b>Filter</b>	To remove acid gases
<b>Sensitivity*</b>	0.075 ± 0.025 $\mu$ A/ppm
<b>Response Time (T<sub>90</sub>)*</b>	< 38 seconds
<b>Baseline Offset (clean air)*</b>	-2 to +17 ppm equivalent
<b>Resolution</b>	1 ppm
When using recommended circuitry	
<b>Repeatability</b>	<1% of signal
<b>Linearity</b>	Linear

#### ELECTRICAL

<b>Recommended Load Resistor</b>	10 $\Omega$
<b>Bias Voltage</b>	0 or +250 mV

#### MECHANICAL

<b>Weight</b>	25 g
<b>Housing Material</b>	Polycarbonate
<b>Orientation</b>	Any

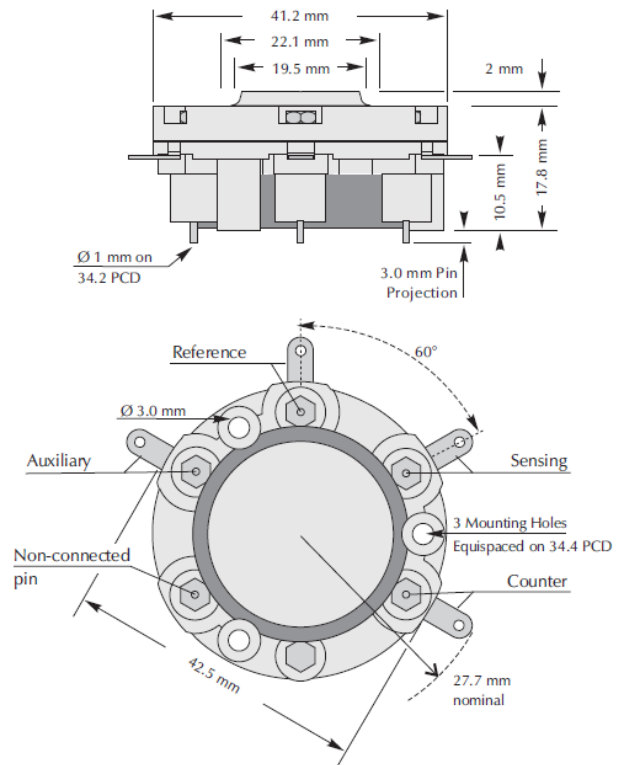
#### ENVIRONMENTAL

<b>Typical Applications</b>	Ambient Environmental Monitoring
<b>Operating Temperature Range</b>	-20°C to +50°C
<b>Recommended Storage Temp</b>	0°C to 20°C
<b>Operating Pressure Range</b>	Atmospheric ± 10%
<b>Pressure Coefficient</b>	0.02% signal/mBar
<b>Operating Humidity Range</b>	15 - 90% RH non-condensing

#### LIFETIME

<b>Long Term Sensitivity Drift</b>	< 2% signal loss/month
<b>Expected Operating Life</b>	Two years in air
<b>Storage Life</b>	6 months in CTL 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	Cross Interference (%)
Ethylene, C <sub>2</sub> H <sub>4</sub>	35
Hydrogen Sulfide H <sub>2</sub> S	0
Sulfur Dioxide, SO <sub>2</sub>	0
Nitric Oxide, NO	0
Hydrogen, H <sub>2</sub>	<1
Hydrogen Chloride, HCl	0
Nitrogen Dioxide NO <sub>2</sub>	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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