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).

A3EF CiTiceL®

Carbon Monoxide (CO) Gas Sensor
Part Number: AB005-C09

Product Data Sheet

Key Features & Benefits

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

Technical Specifications

MEASUREMENT

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

ELECTRICAL

Recommended Load Resistor	10 Ω
Bias Voltage	0 or +250 mV

MECHANICAL

Weight	25 g
Housing Material	Polycarbonate
Orientation	Any

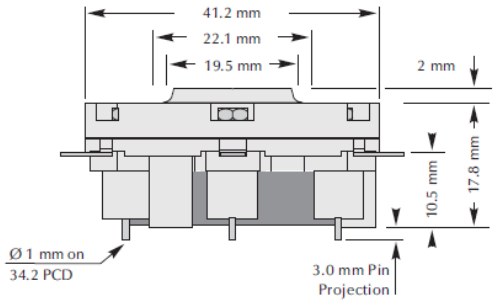
ENVIRONMENTAL

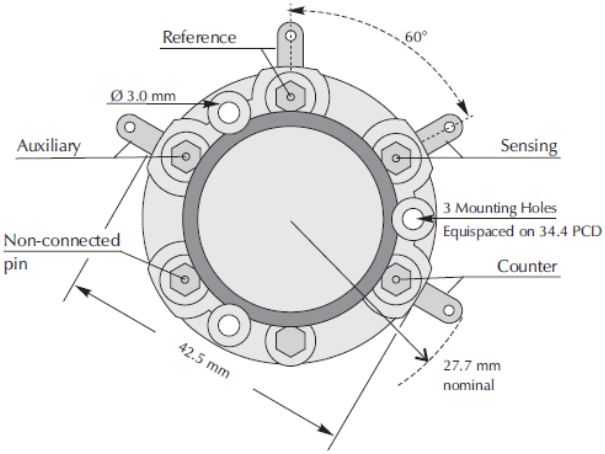
Typical Applications	Ambient Environmental Monitoring
Operating Temperature Range	-20°C to +50°C
Recommended Storage Temp	0°C to 20°C
Operating Pressure Range	Atmospheric ± 10%
Pressure Coefficient	0.02% signal/mBar
Operating Humidity Range	15 - 90% RH non-condensing

LIFETIME

Long Term Sensitivity Drift	< 2% signal loss/month
Expected Operating Life	Two years in air
Storage Life	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.**

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_2H_4	35
Hydrogen Sulfide H_2S	0
Sulfur Dioxide, SO_2	0
Nitric Oxide, NO	0
Hydrogen, H_2	<1
Hydrogen Chloride, HCl	0
Nitrogen Dioxide NO_2	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.