

Product Data Sheet

Product Datasheet

4CF+ Carbon Monoxide CiTiceL[®]

Document Purpose

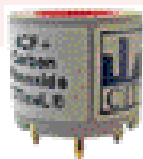
The purpose of this document is to present the performance specification of the 4CF+ CiTiceL.

This document should be used in conjunction with Operating Principles (OP08) and the Product Safety Datasheet (PSDS 12).

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 sensor performance outside of these limits, please refer to the Operating Principles.

For guidance on the safe use of the sensor, please refer to the Operating Principles.

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Key Features & Benefits:

- Industry leading reliability
- Improved performance variability

Technical Specifications

MEASUREMENT

Operating Principle	3-electrode electrochemical
Measurement Range	0-500 ppm CO
Maximum Overload	2000 ppm CO
Filter	To remove acid gases and hydrocarbons
Sensitivity*	$0.07 \pm 0.015 \mu\text{A/ppm}$
Response Time (T_{90})*	< 20 Seconds
Baseline Offset (clean air)*	< ± 2 ppm equivalent
Zero Shift (-40°C to +50°C)	< ± 12 ppm equivalent
Repeatability	< $\pm 3\%$
Linearity	Within $\pm 5\%$

ELECTRICAL

Recommended Load Resistor	5Ω
Bias Voltage	Not required

MECHANICAL

Housing Material	Noryl N110
Weight	5 g (nominal)
Orientation	Any

ENVIRONMENTAL

Typical Applications	Portable life safety
Operating Temperature Range:	
Continuous	-20°C to +40°C
Intermittent	-40°C to +55°C
Operating Pressure Range	1 atm $\pm$ 10%
Operating Humidity Range	15% to 90% RH non-condensing

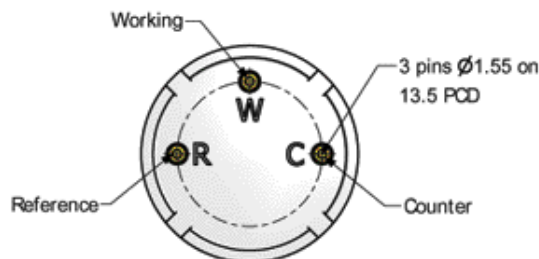
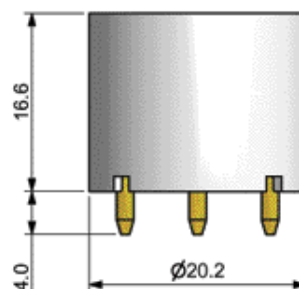
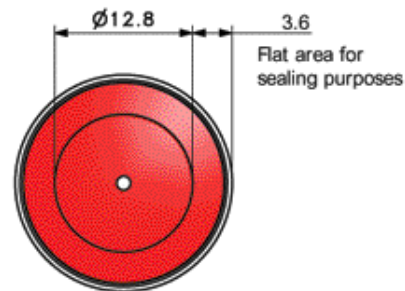
INTRINSIC SAFETY DATA

Maximum at 2000 ppm	0.2 mA
Maximum o/c Voltage	1.3 V
Maximum s/c Current	<1.0 A

LIFETIME

Long Term Output Drift	< 5% per annum
Recommended Storage Temp	10°C to +30°C
Expected Operating Life	2 years in air
Storage Life	6 months in original packaging

Product Dimensions



All dimensions in mm

All tolerances $\pm 0.15\text{mm}$ unless otherwise stated

IMPORTANT NOTE:

Connection should be made via PCB sockets only. Soldering to the pins will seriously damage your sensor and invalidate the warranty.

All performance data is based on conditions at 20°C, 50%RH and 1013mBar, using City Technology recommended circuitry. For sensor performance data under other conditions, please contact City Technology.

* 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)	Reading (ppm CO)
Carbon Monoxide	50	50
Hydrogen Sulfide	20	<5
Sulphur Dioxide	20	<5
Nitrogen Dioxide	20	$-5 \leq X \leq 0$
Nitric Oxide	50	<25
Chlorine	0.5	0
Hydrogen	200	~25
Ethylene	100	100
Carbon Dioxide	5000	0
Ammonia	50	0
Methanol	200	0

Note: The figures in this table are typical values and should not be used as a basis for cross calibration. Cross sensitivities may not be linear and should not be scaled. All data based on a 5 minute gassing. For some cross interferences break through will occur if gas is applied for a longer time period.

WARNING: By the nature of the technology used, any electrochemical or catalytic bead sensor can potentially fail to meet specification without warning. Although City Technology makes every effort to ensure the reliability of our products of this type, where life safety is a performance requirement of the product, and we recommend that all sensors and instruments using these sensors are checked for response to gas before use

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.