

Product Data Sheet

Product Datasheet

3M Carbon Monoxide Sensor

Document Purpose

The purpose of this document is to present the performance specification of the 3M Carbon Monoxide 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.

Doc. Ref.: 3m.indd ECN I 4769 Issue 3

20th March 2017

Page 1 of 3





3M CiTiceL® Carbon Monoxide (CO) Gas Sensor

SENSING

R 27.7

NOMINAL

COUNTER

3.0

PIN PROJECTION

Product Dimensions

Product Data Sheet

Key Features & Benefits:

- Robust, 3-Series packaging
- Range of accessories available

REFERENCE

42.3

Ø3.0mm MOUNTING HOLES

EQUISPACED ON 34.4 PCD

ON 34.2 PCD

Technical Specifications

MEASUREMENT

Operating Principle | 3-electrode electrochemical Measurement Range 0-40,000 ppm CO Maximum Overload | 100,000 ppm CO

Filter | None

Sensitivity* Resolution

 $0.007 \pm 0.002 \,\mu\text{A/ppm}$

10 ppm CO

Response Time (T₉₀)* Baseline Offset (clean air)*

<30 seconds -20 to +30 ppm equivalent

Zero Shift (+20°C to +40°C)

<200 ppm equivalent

Repeatability 1% of signal **Linearity** Linear

ELECTRICAL

Recommended Load Resistor 10 O

Bias Voltage | Not Required

MECHANICAL

Weight | 22 g

Housing Material 20% Glass Filled Polypropylene

Orientation | Any

AVAILABLE OPTIONS

Sensor	Description	Part Number	
ЗМ	With side tag and PCB pin connections	AB008-J30	
3M(S)	With side tag connection	AB008-030	
3M(G)	With gold-plated PCB pin connection	AB008-330	

All dimensions in mm

All tolerances ±0.15 mm unless otherwise stated

ENVIRONMENTAL

Typical Applications | Fixed Life Safety Operating Temperature Range | -20°C to +50°C Recommended Storage Temp | 0°C to 20°C Operating Pressure Range | Atmospheric ± 10% Operating Humidity Range | 15 - 90% RH non-condensing

LIFETIME

Long Term Sensitivity Drift* | <2% signal loss/month **Expected Operating Life** Three years in air Storage Life 6 months in CTL container

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

* 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.

Doc. Ref.: 3m.indd ECN I 4769 Issue 3

20th March 2017

Page 2 of 3







3M CiTiceL®

Product Data Sheet

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

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	3M (ppm CO)
Hydrogen Sulfide, H ₂ S	1000	≈ 3500
Sulfur Dioxide, SO ₂	1000	650
Hydrogen, H ₂	1000	<1000
Nitric Oxide, NO	1000	≈ 250

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.

Doc. Ref.: 3m.indd ECN I 4769 Issue 3

20th March 2017

Page 3 of 3

