

Product Data Sheet

Product Datasheet MNOLO Nitric Oxide Sensor

Document Purpose

The purpose of this document is to present the performance specification of the MNOLO Nitric Oxide gas sensor.

This document should be used in conjunction with the Operating Principles (OP16).

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 (OP16).

Product Data Sheet

Key Features & Benefits:

- A robust ppb NO sensor suitable for breath analysis
- Allows measurement with simpler sample preparation
- Industry standard 7-Series package

Technical Specifications

MEASUREMENT

Operating Principle	4-electrode electrochemical
Measurement Range	0-300 ppb NO
Maximum Overload	500 ppb NO
Filter	To remove acid gases
Sensitivity	0.7 - 1.7 nA/ppb (see note) 7 - 17 mV/ppb when used with recommended circuitry
Zero Offset	0-100 ppb NO equivalent
Baseline	± 3000 mV
Start-up Time from Open Circuit	<24 hours to fully stabilise
Repeatability	(See Operating Principles)
Linearity	NO response is linear but may be influenced by the humidity zero offset

ELECTRICAL

Bias Voltage	+350 mV
Resolution	±5% of linear region (above zero offset level) when using recommended circuitry

MECHANICAL

Housing Material	20% glass filled polypropylene
Colour	White
Weight	16g (approx.)
Orientation	Any

ENVIRONMENTAL

Typical Applications	Breath Analysis
Operating Temperature Range:	
Continuous	10°C to 30°C
Intermittent	0°C to 35°C
Operating Pressure Range	1 atm ± 10%
Operating Humidity Range:	
Continuous	25% to 75% RH non-condensing
Intermittent	0% to 100% RH non-condensing

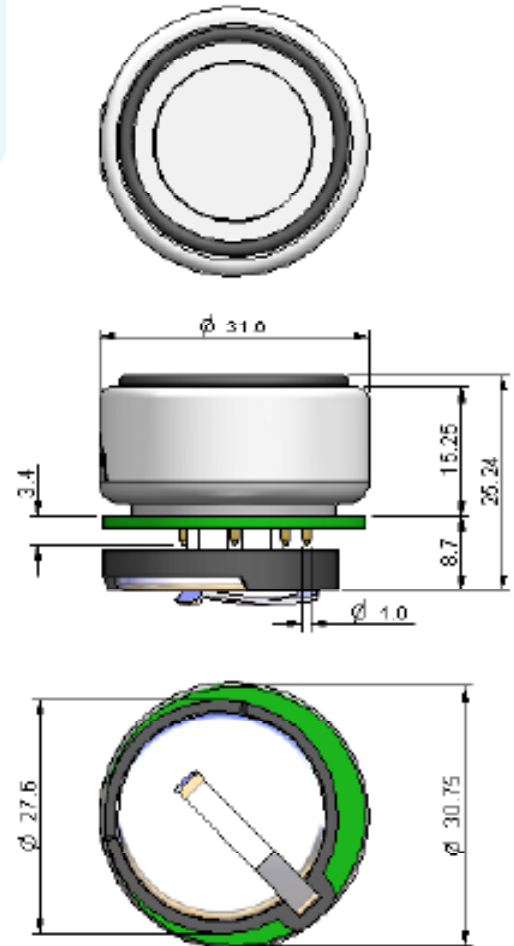
INTRINSIC SAFETY DATA

Maximum at 1000 ppb	0.1 mA
Maximum o/c Voltage	1.3 V
Maximum s/c Current	<1.0 A

LIFETIME

Long Term Output Drift (at constant temp, pressure & RH)	May depend on usage. Contact City Technology for further details
Recommended Storage Temp	10°C to +30°C
Expected Operating Life	>2 years from date of manufacture
Storage Life	6 months in sealed container

Product Dimensions



All dimensions in mm
All tolerances ±0.15 mm unless otherwise stated

IMPORTANT NOTE: All measurements were taken at 20°C and 50% ambient RH, 20% sampling RH at ambient pressure with a sampling time of 15 seconds unless otherwise stated. The sensors were monitored on a City Technology proprietary low noise potentiostatic circuit, a copy of which is available on request. The performance data detailed in this document refers to new sensors.

For sensor performance data under other conditions, refer to the Operating Principles.

Performance characteristics outline the performance of sensors supplied within the first 3 months. Output signal can drift below the lower limit over time.

Product Data Sheet

Poisoning

CiTiceLs electrochemical sensors are designed for operation in a wide range of environments and harsh conditions. However it's 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 sensor 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	Reading (ppb equivalent)
Nitrogen, N ₂	100%	-0.05
Carbon Dioxide, CO ₂	1.12%	17.3
Carbon Monoxide, CO	45 ppm	17.6

Test criteria : Baseline gas 50% RH NO filtered air
Cross sensitive gas 0% RH

Cross sensitivity data was calculated reference to the standard regime (baseline 50%RH filtered cylinder air, 50 & 100 ppb NO @ 20% RH). Due to the effect of RH on the MNO-LO sensor, cross sensitivities have been determined using 0%RH test gas.

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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