Product Datasheet

3MNFF Nitric Oxide Sensor with mV Output

Document Purpose

The purpose of this document is to present the performance specification of the 3MNFF Nitric Oxide gas sensor with mV output.

This document should be used in conjunction with the Operating Principles (OP14) and the Product Safety Datasheet (PSDS 18).

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 OP14.

3MNFF CiTiceL®

Nitric Oxide (NO) Gas Sensor with mV Output
Part Number: MFF60-014

Product Data Sheet

Key Features & Benefits:

- **Robust 3-Series packaging**
- **Factory calibrated mV output**

Technical Specifications

MEASUREMENT

Sensor Type Used	3NF/F
Maximum Range	5000 ppm NO
Sensitivity*	1 mV/ppm ± 5%
Filter	To remove SO_2
Baseline Offset (Clean Air)	±1 mV
Response Time (T_{90})*	<10 Seconds at 20°C
Resolution	1 ppm
Zero Shift (-20°C to +40°C)	<30 ppm equivalent
Repeatability	2% of signal
Linearity	Linear

ELECTRICAL

Power Supply Required	7 to 18 VDC single-ended or ±3.5 to ±9 VDC dual
Power Consumption	250 µA @ 9 VDC
Calibration	Via built-in span and zero potentiometers (Refer to OP14)

MECHANICAL

Weight	38 g (with connector)
Body Material	20% glass filled polypropylene
Position Sensitivty	None

ENVIRONMENTAL

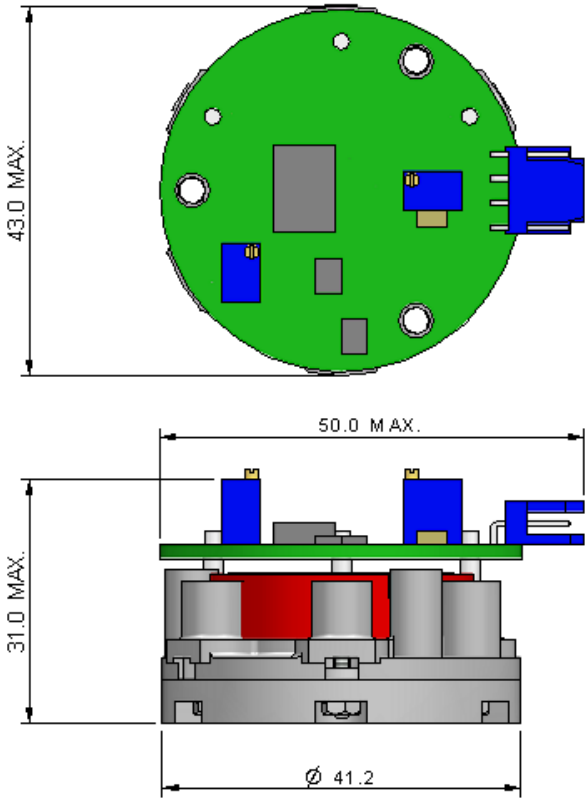
Operating Temperature Range	-20°C to +40°C*
Recommended Storage Temp	0°C to 20°C
Temperature Compensation	None
Operating Pressure Range	Atmospheric ± 10%
Pressure Coefficient	0.01% signal/mBar
Operating Humidity Range	15 to 90% RH non-condensing

LIFETIME

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

* While not being used to measure NO, the 3MNF/F can withstand temperatures up to 50°C

Product Dimensions



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

*** 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	3MNF/F (%)
Nitric Oxide, NO	100
Carbon Monoxide, CO	0
Hydrogen Sulfide, H_2S	0
Sulfur Dioxide, SO_2	0
Nitrogen Dioxide, NO_2	<10
Hydrogen, H_2	0
Hydrogen Chloride, HCl	<5
Ethylene, C_2H_4	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.