

# MN02 & MN02B MediceLs<sup>®</sup>

Nitric Oxide (NO) Gas Sensor

Part Number: AF7F4-400 (standard)

AF7F7-400 (with Bias Board)

## Document Purpose

The purpose of this document is to present the performance specification of the MN02 and MN02B Nitric Oxide gas sensors.

This document should be used in conjunction with the Product Data Handbook (mtxops.pdf) and the Product Safety Datasheet (PSDS 5 for MN02, PSDS 5B for MN02B).

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 Product Data Handbook (mtxops.pdf).



## KEY FEATURES & BENEFITS

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Capable of continuous measurement



4<sup>th</sup> electrode for additional temperature stability



Often used for inhaled nitric oxide therapy

RoHS 

RoHS compliant

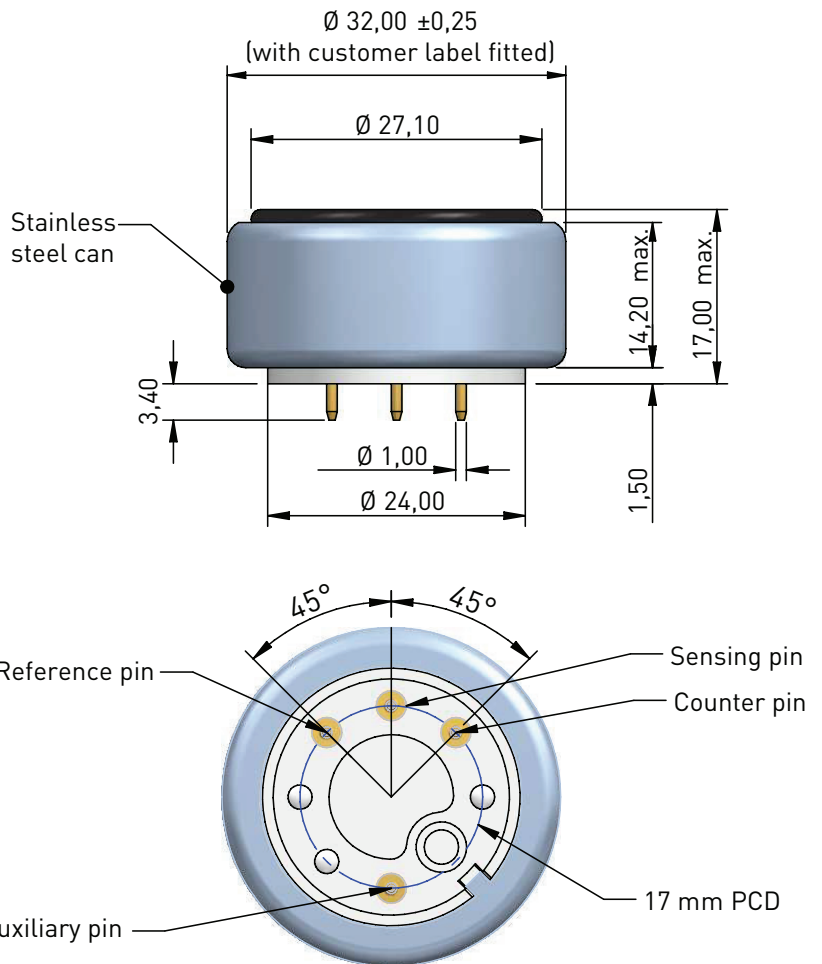
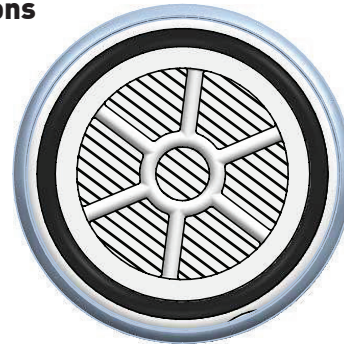
TECHNICAL SPECIFICATIONS	
MEASUREMENT	
Operating Principle	4-electrode electrochemical
Measurement Range	0 ppm to 100 ppm
Maximum Overload	1500 ppm
Output Signal*	0.25 $\mu\text{A}/\text{ppm}$ $\pm 0.05$ $\mu\text{A}/\text{ppm}$
Response Time ( $T_{90}$ )*	<10 seconds
Typical Baseline Offset* (clean air)	-1 ppm to +1 ppm equivalent
Maximum Zero Shift (20°C to 40°C)	2 ppm equivalent
Repeatability	2% of signal
Linearity	Linear
ELECTRICAL	
Recommended Load Resistor	10 $\Omega$
Bias Voltage	300 mV
Recommended Gain	1.1
MECHANICAL	
Housing Material	20% glass filled polypropylene
Weight	16 g (nominal)
Orientation	Any
ENVIRONMENTAL	
Typical Applications	Inhaled Nitric Oxide Therapy
Operating Temperature Range	-20°C to +50°C
Recommended Storage Temperature	0°C to 20°C
Operating Pressure Range	800 mBar to 1200 mBar
Differential Pressure Range	$\pm 100$ mBar
Storage Pressure Range	800 mBar to 1200 mBar
Operating Humidity Range	15% to 90% RH non-condensing
LIFETIME	
Expected Operating Life	1 year
Long-Term Output Drift	Varies with usage levels

\* 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.

## Product Dimensions

Dimensions mm.

All tolerances  $\pm 0.15$  mm unless otherwise stated



**Important Note:** Connection should be made via recommended mating parts only. Soldering to the sensor will damage it and invalidate the warranty.

## Continuous Exposure

After continuous exposure to high concentrations of NO for several days, the sensor may take some time to stabilise in fresh air before further use is advised. During this recovery period, high baseline offsets may be seen. City Technology recommend 24 hours recovery period before reuse following exposures which exceed four days at levels of 80 ppm or above.

## 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	Response
Carbon Monoxide	None
Nitrous Oxide (N <sub>2</sub> O)	None
Nitrous Dioxide (NO <sub>2</sub> )	< 25%
Desflurane	None
Isoflurane	None
Halothane	None

### 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 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, we cannot give any warranty as to the relevance of these particulars to an application. City Technology warrants goods of its manufacture as being free of defective materials and faulty workmanship. City Technology's standard product warranty applies unless agreed to otherwise by City Technology in writing; please refer to your order acknowledgment or consult your local sales office for specific warranty details. If warranted goods are returned to City Technology during the period of coverage, City Technology will repair or replace, at its option, without charge those items it finds defective. The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall City Technology be liable for consequential, special, or indirect damages. Though City Technology provides application assistance personally, or through our literature and website, it is up to the customer to determine the suitability of the product in the application.