

# Product Data Sheet (Draft)

## Product Datasheet

### AQ3ND Nitrogen Dioxide Sensor Module

#### Document Purpose

The purpose of this document is to present the performance specification of AQ3ND Nitrogen Dioxide gas sensor with mV output.

This document should be used in conjunction with Operating Principles (OP22) 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 (OP22).

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## Key Features & Benefits

- Robust 3-Series packaging
- 4th electrode for compensation of environmental changes

## Technical Specifications

### MEASUREMENT

<b>Sensor Type Used</b>	AQ3ND
<b>Measurement Range</b>	0-1 ppm NO <sub>2</sub>
<b>Maximum Overload</b>	5 ppm
<b>Filter</b>	To remove O <sub>3</sub>
<b>Sensitivity*</b>	1.029 ±0.294 mV/ppb
<b>Response Time (T<sub>90</sub>)*</b>	< 120 seconds
<b>Baseline Offset (clean air)*</b>	< ±15 mV
<b>Maximum Zero Shift (+20°C to +40°C)</b>	0.1 ppm equiv.
<b>Resolution</b>	10 ppb
<b>Repeatability</b>	<3% of signal
<b>Linearity</b>	Linear

### ELECTRICAL

<b>Power Supply Required</b>	5 VDC
<b>Power Consumption</b>	350 µA @ 5VDC

### MECHANICAL

<b>Weight</b>	28 g nominal
<b>Body Material</b>	Polycarbonate
<b>Position Sensitivity</b>	None

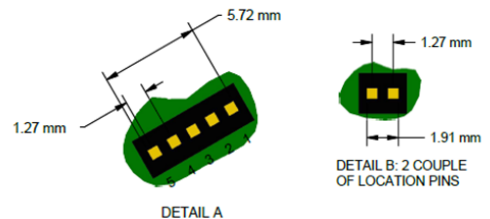
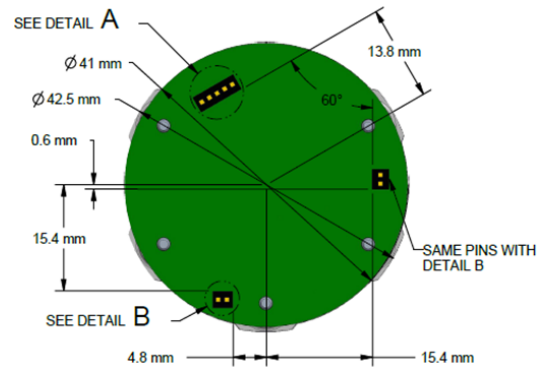
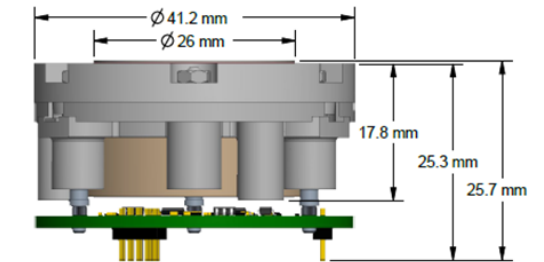
### ENVIRONMENTAL

<b>Typical Applications</b>	Ambient Environmental Monitoring
<b>Operating Temperature Range</b>	-30°C to +50°C
<b>Recommended Storage Temp</b>	0°C to 20°C
<b>Operating Pressure Range</b>	Atmospheric ± 10%
<b>Operating Humidity Range</b>	15 - 90% RH non-condensing

### LIFETIME

<b>Long Term Sensitivity Drift</b>	< 10% signal loss/year
<b>Expected Operating Life</b>	Two years in air
<b>Storage Life</b>	6 months in CTL container

## Product Dimensions



### Pin Definition

1	Vin(4.8~5.5V)
2	GND
3	Aux Output
4	GND
5	Sensing Output

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.

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## Poisoning

EnviroceLs 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 EnviroceL as the solvent may cause crazing of the plastic.

## Cross Sensitivity Table

Whilst EnviroceLs 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	Gas Concentration	Cross Interference
Sulfur Dioxide, SO <sub>2</sub>	5 ppm	-2%<x\$<0
Carbon Monoxide, CO	5 ppm	-2%<x\$<0
Ozone, O <sub>3</sub>	400ppb	none
Hydrogen Sulfide, H <sub>2</sub> S	5 ppm	-10%<x\$<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.

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