

# INQOX MediceL<sup>®</sup> Sensor

INQOX Oxygen Sensor

Part Number: AA844-210

## Document Purpose

The purpose of this document is to present the performance specification of the INQOX oxygen sensor.

This document should be used in conjunction with the Operating Principles (OP04) and the Product Safety Datasheet (PSDS 4).

The data provided in this document are valid at 20°C, 50% RH and 1013 mBar, unless otherwise stated, 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 OP04.

## KEY FEATURES & BENEFITS

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Not intended for use in the presence of anesthesia gases



Linear output from 0 % to 100 % O<sub>2</sub>



13-month warranty

**RoHS** 

RoHS compliant

TECHNICAL SPECIFICATIONS	
<b>MEASUREMENT</b>	
<b>Operating Principle</b>	Partial pressure electrochemical
<b>Output*</b>	7 mV to 14 mV in 210 mBar O <sub>2</sub>
<b>Measurement Range</b>	0 mBar to 1500 mBar O <sub>2</sub>
<b>Response Time (T<sub>90</sub>)*</b>	<5 s
<b>Baseline Offset*</b>	<100 μV
<b>Linearity</b>	Linear 0% to 100% O <sub>2</sub> <small>(See Note1)</small>
<b>ELECTRICAL</b>	
<b>On-Board Temperature Compensation</b>	<3% signal change (over range 20°C to 40°C)
<b>External Load Resistor</b>	100 kΩ max.
<b>Connector</b>	3-pin Molex header (MOLEX 22-29-2031)
<b>Recommended Mating Part</b>	Molex housing (MOLEX 22-01-2035) and Molex Crimp Terminals (MOLEX 08-45-0110)
<b>MECHANICAL</b>	
<b>Housing Material</b>	White ABS
<b>Weight</b>	40 g (nominal)
<b>Orientation</b>	Any
<b>ENVIRONMENTAL</b>	
<b>Typical Applications</b>	Neonatal incubators
<b>Operating Temperature Range</b>	-20°C to +50°C
<b>Operating Pressure Range</b>	0.5 Bar to 2.0 Bar
<b>Differential Pressure Range</b>	0 mBar to 500 mBar max.
<b>Operating Humidity Range</b>	0% to 99% RH non-condensing
<b>LIFETIME</b>	
<b>Long-Term Output Drift in 100% O<sub>2</sub></b>	< 5% signal loss/year
<b>Recommended Storage Temperature</b>	-10°C to 40°C (short excursions to 50°C allowed)
<b>Expected Operating Life:</b> @ 20°C @ 40°C	0.94 x 10 <sup>6</sup> % O <sub>2</sub> hours 0.60 x 10 <sup>6</sup> % O <sub>2</sub> hours
<b>Packaging</b>	Sealed blister
<b>Standard Warranty</b>	13 months from date of despatch <small>(This amounts to a variation of condition 6 of our standard terms and conditions)</small>

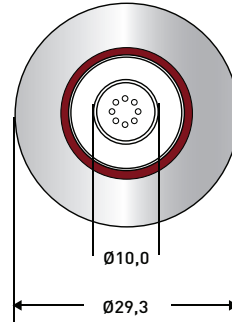
Note 1: The regression coefficient of the best fit line should be better than 0.9995 when measured through four data points from testing with 100% N<sub>2</sub>, 21% O<sub>2</sub>, 60% O<sub>2</sub> and 100% O<sub>2</sub>.

\* Specifications are valid at 20°C, 50% RH and 1013 mBar unless otherwise stated, 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.

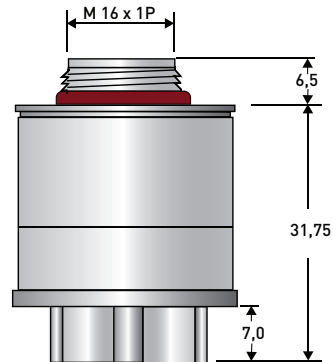
## Product Dimensions

All tolerances ±0.15 mm unless otherwise stated

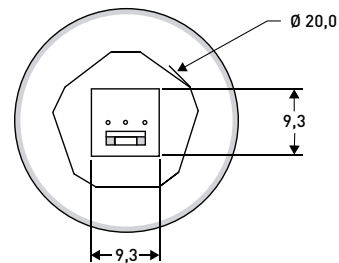
### TOP



### SIDE



### BOTTOM



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

All performance data is based on measurements made with cylinder gases using a flow rate of 100 ml/min. Conditions at 20°C, 50% RH and 1013 mBar, using City Technology recommended circuitry. For sensor performance data under other conditions, contact City Technology.

## **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.

## **Intended Use**

These sensors are designed to be used to monitor the partial pressure of oxygen in neonatal incubators, non-anaesthesia critical care, CPAP, and general oxygen monitors.

## **Stabilisation Time**

Allow at least 15 minutes to stabilise in the instrument before calibration or refer to manufacturer's instructions.

## **Cleaning and Sterilisation**

In case of contamination, the sensor may be cleaned with distilled water and allowed to dry naturally. The sensor is not suitable for sterilisation by steam or exposure to chemicals such as ethylene oxide or hydrogen peroxide.

## **Calibration Interval**

These sensors are designed to have minimal drift over their useful lifetime. For maximum accuracy however, they should be calibrated in 100% Oxygen before use.

## **If the Sensor is Dropped**

If a sensor is dropped, then it should be placed in quarantine for 24 hours and a follow-up check made by a 2-point calibration.

## **Mechanical Installation**

When installing the sensor, it must only be screwed in hand-tight and a gas tight seal ensured. Spanners and similar mechanical aids may not be used, as excessive force may damage the sensor thread.

## **RFI/EMI Susceptibility**

MediceLs contain metal and may be susceptible to RFI or EMI. They are not suitable for use in MRI environments. For further information, please contact City Technology.

## Cross Sensitivity

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.**

Test Gas	% O <sub>2</sub> Error
50% He / 50% O <sub>2</sub>	< 1%
5% CO <sub>2</sub> / 28.5% O <sub>2</sub> / 66.5% N <sub>2</sub> O	< 1%

## Certifications



Manufacturer: EnviteC-Wismar GmbH, Alter Holzhafen 18, 23966 Wismar, Germany

### 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.