

# Product Data Sheet

## Product Datasheet

4OxLL Longlife Oxygen CiTiceL<sup>®</sup>  
(for emissions applications)

### Document Purpose

The purpose of this document is to present the performance specification of the 4OxLL longlife oxygen sensor.

This document should be used in conjunction with the 4OxLL / 5OxLL (Emissions) Characterisation Note, the 4OxLL / 5OxLL Operating Principles (OP19) 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. For guidance on sensor performance outside of these limits, please refer to the 4OxLL / 5OxLL (Emissions) Characterisation Note.

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 OP19.

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### Key Features and Benefits

- Long Life
- Improved field reliability
- Superior environmental performance
- Enhanced response time in extreme conditions

### Technical Specifications

#### MEASUREMENT

<b>Technology</b>	Electrochemical
<b>Measurement Range</b>	0-25% vol. O <sub>2</sub>
<b>Maximum Overload</b>	30% vol. O <sub>2</sub>
<b>Output Signal*</b>	80 - 130 μA in Air
<b>T90 Response Time*</b>	<15 Seconds
<b>T97 Response Time*</b>	<35 Seconds
<b>Zero Current (Offset)*</b> (after 3 minutes N <sub>2</sub> )	<0.3% vol. O <sub>2</sub>
<b>Warm-Up Time</b>	Refer to Characterisation Note
<b>Linearity</b>	$S = K \log_e 1 / (1-C)$

#### ELECTRICAL

<b>Bias Voltage</b>	-600 ± 10 mV
<b>Power Rating at 20.9%O<sub>2</sub></b>	0.5 mW

#### MECHANICAL

<b>Casing Material</b>	ABS / NORYL
<b>Weight</b>	14 ± 0.2 g
<b>Orientation Sensitivity</b>	<0.2%vol. O <sub>2</sub> equivalent

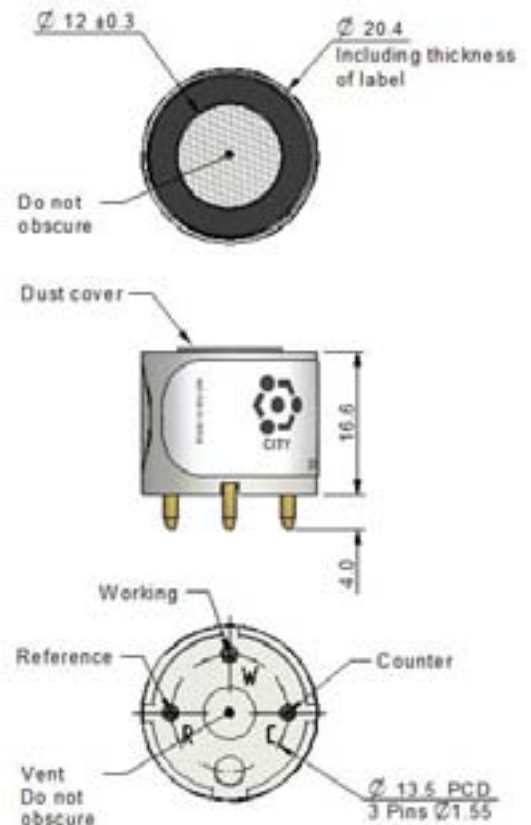
#### ENVIRONMENTAL

<b>Operating Temperature Range</b>	-40°C to 60°C
<b>Recommended Storage Temp</b>	0°C to 20°C in original packaging
<b>Thermal Transient*</b> (Temp. plunge +22°C to -20°C)	<23.5% vol. O <sub>2</sub>
<b>Operating Humidity Range</b>	15%rH to 90%rH non-condensing
<b>Operating Pressure Range</b>	Atmospheric ± 20%
<b>Pressure Coefficient*</b>	<0.02% signal/mbar
<b>Pressure Transient*</b> (60 cm H <sub>2</sub> O step change)	<150% signal change

#### LIFETIME

<b>Long Term Output Drift*</b>	<5% signal loss over operating life
<b>Expected Operating Life</b>	7 years in air

### Product Dimensions



All tolerances ±0.15 mm unless otherwise stated.  
DO NOT solder to pins.

### IMPORTANT NOTE

When installing the sensor into instrumentation, the sensor vent hole should not be blocked. The instrument should also be adequately vented.

If the sensor vent hole is blocked or if the instrument is not adequately vented, sensor performance will be compromised.

For further details, refer to Operating Principles OP19.

\* 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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### **Typical Applications**

General purpose, portable or fixed life safety and emissions.

### **Poisons**

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 will attack the plastic.

### **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 Limited 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 Limited, we cannot give any warranty as to the relevance of these particulars to an application. It is the clients' responsibility to carry out the necessary tests to determine the usefulness of the products and to ensure their safety of operation in a particular application.