

# Product Data Sheet

## Product Datasheet

### 40XV Oxygen CiTiceL<sup>®</sup>

#### Document Purpose

The purpose of this document is to present the performance specification of the 40XV oxygen sensor.

This document should be used in conjunction with the 40XV Characterisation Note, Operating Principles (OP02) and the Product Safety Datasheet (PSDS 4).

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 40XV 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 OP02.

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### Key Features and Benefits

- False alarm immunity
- Enhanced response time in extreme applications
- Reliably meets stated life
- Superior environmental performance

### Technical Specifications

#### MEASUREMENT

<b>Technology</b>	Electrochemical
<b>Measurement Range</b>	1-25% vol. O <sub>2</sub>
<b>Maximum Overload</b>	30% vol. O <sub>2</sub>
<b>Output Signal*</b>	0.10 ± 0.02 mA in Air
<b>Response Time (T90)*</b>	<15 Seconds
<b>Zero Current (Offset)*</b>	<0.6% vol. O <sub>2</sub>
<b>Linearity</b>	Can be considered linear in many cases. See Operating Principles (OP-02) for further details.

#### ELECTRICAL

**Recommended Load Resistor** | 100 Ω

#### MECHANICAL

<b>Casing Material</b>	ABS
<b>Weight</b>	<16 g
<b>Orientation Sensitivity</b>	<0.2% vol. O <sub>2</sub> equivalent

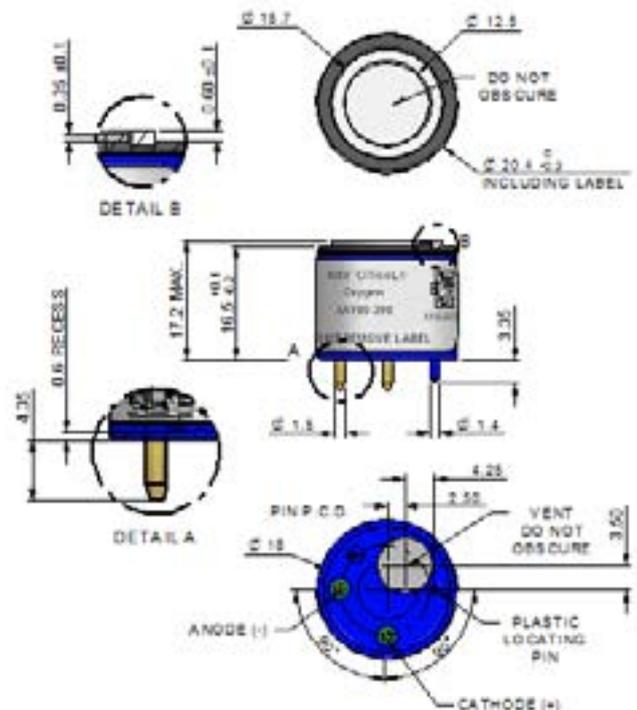
#### ENVIRONMENTAL

<b>Operating Temperature Range</b>	-20°C to +50°C (up to 3 months continuous across RH range)
<b>Recommended Storage Temp</b>	0°C to 20°C
<b>Thermal Transient</b> (Temp. plunge +22°C to -20°C)	<23.5% vol. O <sub>2</sub>
<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)	<200% signal change
<b>Relative Humidity Range</b> Continuous	(at 0°C to 20°C) 5 to 95%RH non-condensing
Short Term	0 to 99%RH non-condensing

#### LIFETIME

<b>Long Term Output Drift*</b>	<2% signal/month Typically <5% over operating life
<b>Expected Operating Life</b>	Minimum 24 months in air
<b>Storage Life</b>	6 months in original packaging 24 months from date of despatch

### Product Dimensions



#### IMPORTANT NOTES

All tolerances ±0.15 mm unless otherwise stated. Do not remove label. Do not solder to pins.

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 OP02.

\* 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.

## **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 may cause crazing of the plastic.

## **Cross Sensitivity Data**

Toxic gases at TLV levels will have no cross-sensitivity effect on Oxygen CiTiceLs. At very high levels (i.e. percent levels), highly oxidising gases (e.g. ozone, chlorine) will interfere to the extent of their oxygen equivalent, but most other commonly occurring gases will have no effect.

## **Acid Gases**

**IMPORTANT NOTE:** Acid gases such as CO<sub>2</sub> and SO<sub>2</sub> will be absorbed by the electrolyte and tend to increase the flux of oxygen to the electrode. This gives an enhanced oxygen signal of approximately 0.3% of signal per 1% CO<sub>2</sub>. Oxygen CiTiceLs are not suitable for continuous operation in concentrations of CO<sub>2</sub> above 25%.



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### **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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