

10X Sensor

Oxygen (O₂) Gas Sensor
Part Number: 2023B1000

Document Purpose

The purpose of this document is to present the performance specification of the 1 Series 10X oxygen gas sensor.

This document should be used in conjunction with the 10X Characterization Note, the Operating Principles (OX09) and the Product Safety Datasheet (PSDS 5).

To the best of City Technology's knowledge, the data provided in this document is more suitable when the sensor is used 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 10X Characterization 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 (OX09).



KEY FEATURES & BENEFITS



Enables smaller
instruments



Designed to meet
global performance
standards



Enhanced performance
over an extended
environmental range



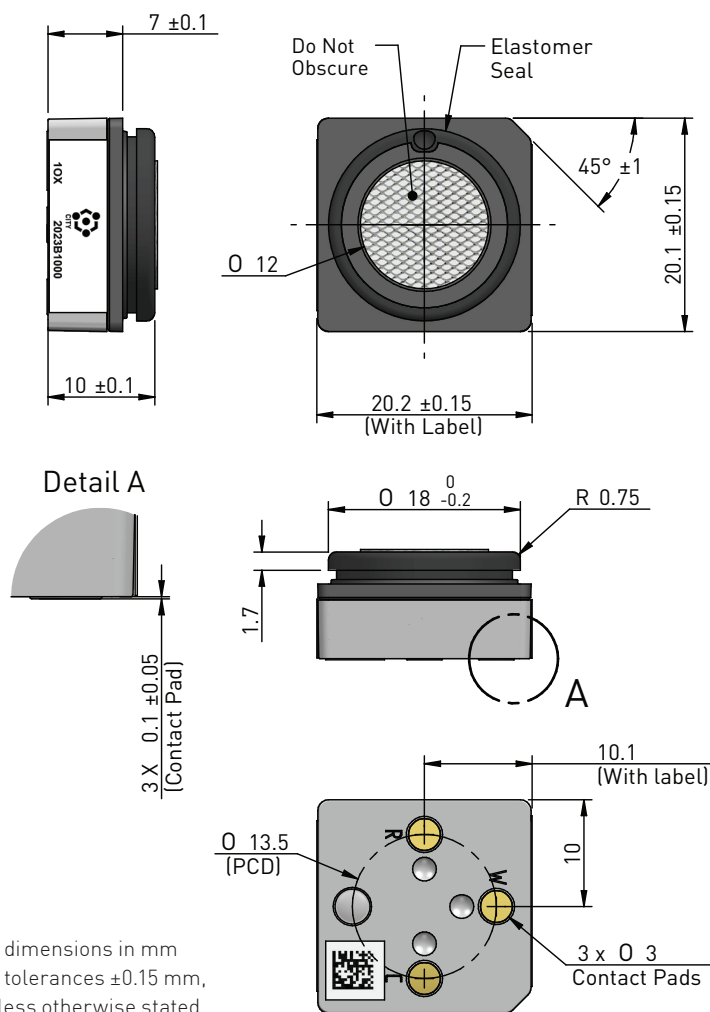
5-year life and
warranty

RoHS 

RoHS compliant

TECHNICAL SPECIFICATIONS	
Measurement	
Technology	Electrochemical
Measurement Range	0-25% vol. O ₂
Maximum Overload	30% vol. O ₂
Onboard Filter	None
Output Signal*	80 - 130 mA in Air
T50 Response Time*	< 10 seconds (@ 20°C) < 15 seconds (@ -40°C to +60°C)
T90 Response Time*	Typically < 15 seconds
R90 Recovery Time*	< 45 seconds (@ -20°C to +60°C)
R95 Recovery Time*	< 60 seconds
Zero Current (Offset) (after 3 minutes N ₂)	< 0.6% vol. O ₂ equivalent Typically < 0.3% vol. O ₂ equivalent
Warm-up Time	Refer to Characterization Note
Repeatability*	< ±5% of measured value
Linearity	$S = K \log_e 1/(1 - C)$
Electrical	
Recommended Load Resistor	5 - 10 Ω
Bias Voltage	-600 ± 10 mV
Power Requirement at 20.9% O ₂	0.5 mW
Mechanical	
Weight	< 5 g
Outer Plastic Body Material	Noryl N110
Sealing Gasket Material	TPU
Contact Material	Gold plated niobium
Orientation Sensitivity	< 0.2% vol. O ₂ equivalent
Environmental	
Operating Temperature Range	-40°C to +60°C
Recommended Storage Temp	0°C to +20°C in sealed container
Thermal Transient (Temp Plunge +22°C to -20°C)	< 23.5% vol. O ₂
Operating Humidity Range	5% rH to 95% rH non-condensing (Refer to Characterization Note)
Operating Pressure Range	600 to 1200 mbar
Pressure Coefficient*	< 0.02% signal/mbar
Pressure Transient (60 cm H ₂ O step change)	< 150% signal change
Lifetime	
Storage Life	6 months in original packaging
Long Term Output Drift*	< 10% signal loss per annum
Expected Operating Life	5 years in air

Product Dimensions



* Specifications are more ideal when the sensor is used 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.

Poisoning

Gas sensors 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 sensor as the solvent may cause crazing of 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.

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