

XCell[®] Oxygen (O₂) Sensor



Supplemental Technical Data Sheet

This information contained within this document is a supplement to the MSA transmitter user manual.

Applicable Product(s):

- ULTIMA[®] X5000 Gas Monitor
- General Monitors S5000 Gas Monitor

RANGE	0–25% Vol.
X5000 GAS CODE	16
S5000 GAS CODE	D16
DEFAULT SPAN VALUE	20.8
DEFAULT ALARM 1	19.5
DEFAULT ALARM 2	18.0
SENSOR DESIGN	Non-consuming Electrochemical Sensor
SAFESWAP	Sensor can be changed under power
TRUCAL[®]	Available on CO and H ₂ S sensors
WARRANTY/SHELF LIFE	3 years
SENSOR LIFE²	> 5 years
CALIBRATION	For greatest accuracy and zero stability, allow powered sensor 24 hours to acclimate before performing first calibration.
FREQUENCY	Every 3–6 months
REGULATOR	1 LPM
ZERO GAS	Not required
ACCURACY^{1,4}	< ±1% of measured value
LINEARITY¹	< ±2% of measured value
OPERATING TEMPERATURE RANGE	–40°C to 60°C (–40°F to 140°F)
OPERATING HUMIDITY RANGE	
INTERMITTENT	0% to 100 % relative humidity
CONTINUOUS	10% to 95% r.h. non-condensing
OPERATING PRESSURE RANGE	800–1200 mbar
TEMPERATURE EFFECT	
ZERO	No effect
SENSITIVITY	No effect
HUMIDITY EFFECTS	No effect
PRESSURE EFFECTS	No effect
ZERO DRIFT¹	< 0.2% Vol/year
LONG-TERM DRIFT¹	< 0.2% Vol/year
RESPONSE TIME T₅₀¹	< 6 seconds
RESPONSE TIME T₉₀¹	< 11 seconds
RECOVERY TIME F₉₀¹	< 13 seconds
GAS EXPOSURE LIMITATION³	Not intended for continuous inert monitoring
WARM-UP TIME (X5000, S5000)¹	30 min. <i>May require longer warm up times, see manual. For optimum sensor performance, allow sensor 24 hours to acclimate to conditions before performing first calibration.</i>
ADDITIONAL CONSIDERATIONS	Lead-free design

¹ All performance values are typical as applied to new sensors in ambient laboratory conditions.

² Individual results may vary based on individual sensor environmental exposure conditions.

³ As tested per ISA standards.

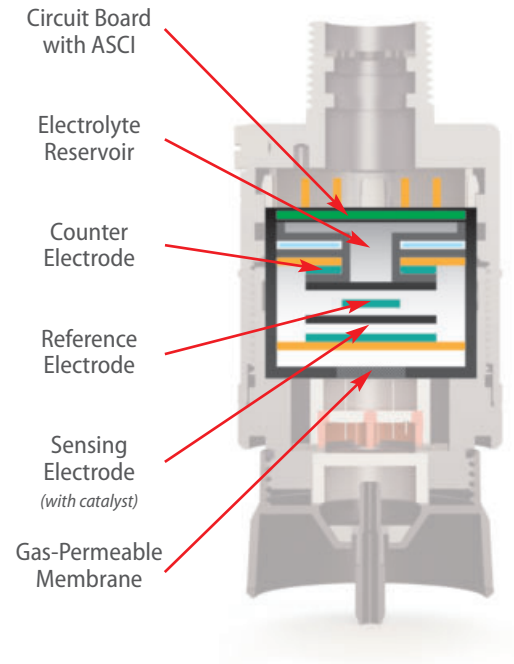
⁴ Does not account for variances in calibration gas accuracy.

Why MSA XCell® O₂ Sensors?

Longer Life!

The electrochemical system in the MSA XCell O₂ Sensor uses a non-consuming chemical reaction. O₂ molecules entering the sensor react with the working electrode creating electron flow and water as a byproduct. At the counter electrode, water is converted back into O₂ molecules. The chemical reaction requires a low voltage, which is controlled by the application-specific integrated circuit (ASIC) in the XCell Sensor. Because nothing is consumed or “used up” as the sensor is functioning, the sensor has a longer lifespan. XCell O₂ Sensors have a typical life of more than four years.

This non-consuming chemical reaction also means that the sensor can have a much longer shelf-life. The chemical reaction in a traditional lead-based O₂ sensor starts the second the sensor is manufactured. At this time, the chemical process whereby the lead is converted to lead oxide begins and the finite sensor life begins. The MSA XCell O₂ sensor is designed to have a very long shelf-life. While the sensor sits un-powered, no chemical reactions with O₂ are taking place and no life is being depleted from the sensor.



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MSA's mission is to see to it that men and women may work in safety and that they, their families and their communities may live in health throughout the world.

MSA: WE KNOW WHAT'S AT STAKE.

Note: This Bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products. Specifications subject to change without notice.

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