



## Microx-OL

### Oxygen Analyser



The MICROX-OL is a wall mounted instrument designed to measure the oxygen concentration in inert gas supplied under positive pressure.

This analyser utilises zirconia or electrochemical technology to give a reliable solution for the measurement of % and ppm oxygen ranges. The zirconia sensor life is typically 3 to 5 years when used within stated specifications.

## Applications

- » Gas generation (oxygen / nitrogen)
- » Industrial gas applications
- » Medical gas applications
- » Pharmaceutical industries
- » Additive manufacturing

## Features

- » Zirconia or electrochemical sensor technology options
- » Measurement range: 0 to 1000ppm / 0 to 25% / 0 to 96% O<sub>2</sub>
- » Simple to install and easy to operate
- » Compact slimline design
- » Integral visual alarm beacon
- » Internal pressure and flow regulation
- » Configurable alarm relays
- » 4-20mA output with RS232 communication
- » LCD + 4 button HMI
- » 6mm or 1/4" compression fittings

### Proven sensor technology

With a choice of either zirconia or electrochemical sensor technology the Microx-OL offers reliability, accuracy and flexibility. Both technologies have a broad measurement capability allowing the user to measure from selected ranges from 1ppm to 96% oxygen.

### Zirconia sensor

The Ntron zirconia oxygen sensor is a non-depleting zirconia solid electrolyte sensor. A small capillary on the sensor controls the diffusion of oxygen into the sensor. When heated to over 400°C oxygen is electronically reduced causing current flow through the zirconia electrolyte. Zirconium-oxide allows the movement of oxygen ions through the substrate from a high to a low concentration. The measurement of oxygen is determined by the current flowing through the electrodes. The zirconia sensor has an unlimited shelf life without the loss of calibration and has an expected life in excess of 5 years. The zirconia sensor is not position sensitive and has low cross sensitivity to other gases and does not dry out.

### Low maintenance and cost of ownership

Due to the highly stable nature of the sensor, a calibration interval of once per year is required, allowing for significant cost savings. The construction of our zirconia oxygen sensor means that only 100 mL/min of sample gas is required, providing application flexibility and further potential cost savings.

### Fast response time

Zirconia oxygen sensors respond very quickly to oxygen concentrations in both directions with a T90 of less than 10 seconds within a set range.

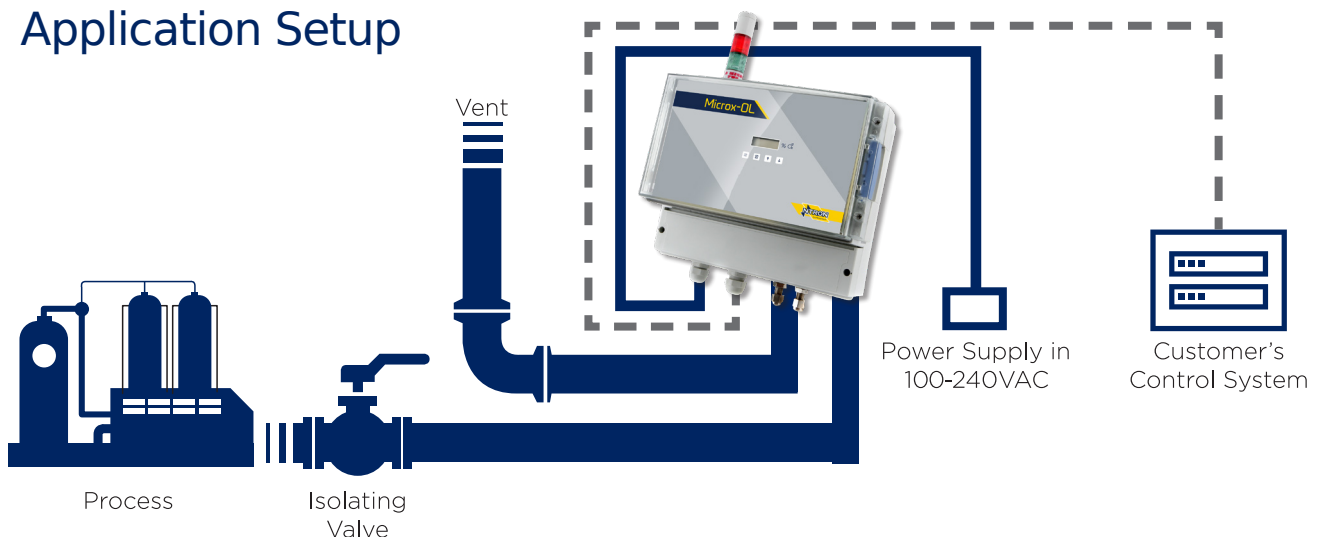
### Electrochemical sensor

The key elements of the electrochemical sensors are a membrane, cathode, anode, electrolyte and measurement circuit. The sensing membrane (covering the cathode) is made of PTFE and is mounted over a metal perforated electrode. The space between the membrane and the electrode is filled either with an aqueous alkaline or an acid electrolyte. In normal operation, all portions of the anode and cathode are immersed in the electrolyte. As oxygen diffuses through the membrane into the electrolyte it causes a reaction between the cathode and anode generating an EMF. This current is proportional to the amount of oxygen present in the sample gas. In the absence of oxygen there is no output from the electrochemical sensor, meaning only one calibration is required.

### Sensor construction

The main body of the sensor is fabricated from high density PVDF. The supporting ring at the face of the sensor is constructed of stainless steel. This results in an oxygen sensor that is chemically resistant to most sampling atmospheres and can be used with trace solvents and hydrocarbons present in the sample gas, unlike zirconia (due to the high temperature of the sensor).

## Application Setup



Performance		
Transmitter Model	Microx-OL	
Measurement technology	Zirconia (ZR)	Electrochemical (EC)
Measurement range	0 to 1000ppm / 0 to 25% / 0 to 96% O <sub>2</sub>	0 to 25%
Output resolution ( for %)	0.01%	
Output resolution (for ppm)	1ppm	
Accuracy	+/-2% of reading (or 2ppm O <sub>2</sub> ) @ calibrated temperature and pressure	
Response time (T90)	<10 seconds @ 25°C (within selected range)	
LDL (Sensitivity)	0.01% (when measuring %) / 1ppm (when measuring ppm)	
Temperature range	-20°C to +50°C	0°C to +45°C
Pressure range	0-21 Bar (300 PsiG) Inlet pressure	
Linearity	+/- 2% of measured value	
Life expectation	3-5 years	1 year
Humidity	0-95% RH non-condensing	
Shelf life	N/A	Up to 6 months
Electrical Input / Output		
Power supply	85-240 VAC 50/60Hz.	
Power consumption	Max Load 160mA	
Signal output	4-20mA	
Digital communications	RS232 bi-directional Modbus protocol.	
Digital output options	2 off relay, dry contact 5 Amp rated (1 relay outputs assigned to control light tower indicator)	
Display format	% O <sub>2</sub> / ppm O <sub>2</sub>	
Visual indicators	LCD, audio and visual alarm indication	
Mechanical Specifications		
Dimensions	219mm (h) x 280mm (w) x 156mm (d)	
Weight	2.5KG	
Wetted materials	Stainless steel, Aluminium, PTFE, Viton	
Sample gas	21 BARG (300 psig)	
Internal regulation	Sample pressure & flow set at 5PSIG / 0.3BARG; 0.55SCFH / 250 ml/m	
Sample connection	6mm / 1/4" compression fitting	
Mounting	Wall mount	
Ingress protection	IP65	
Housing material	ABS	
Certification		
Complies with EMC Directive 2004 / 108 / EC. UL/ETL Certification Number: UL-61010-1		

## Related Products



**SENZTX**  
Oxygen  
Transmitter



**SF82**  
Dew Point  
Transmitter



**Minox i**  
ATEX Rated  
O<sub>2</sub> Transmitter



**Gasenz**  
Ambient O<sub>2</sub>  
Monitor



**Microx**  
Oxygen  
Analyser

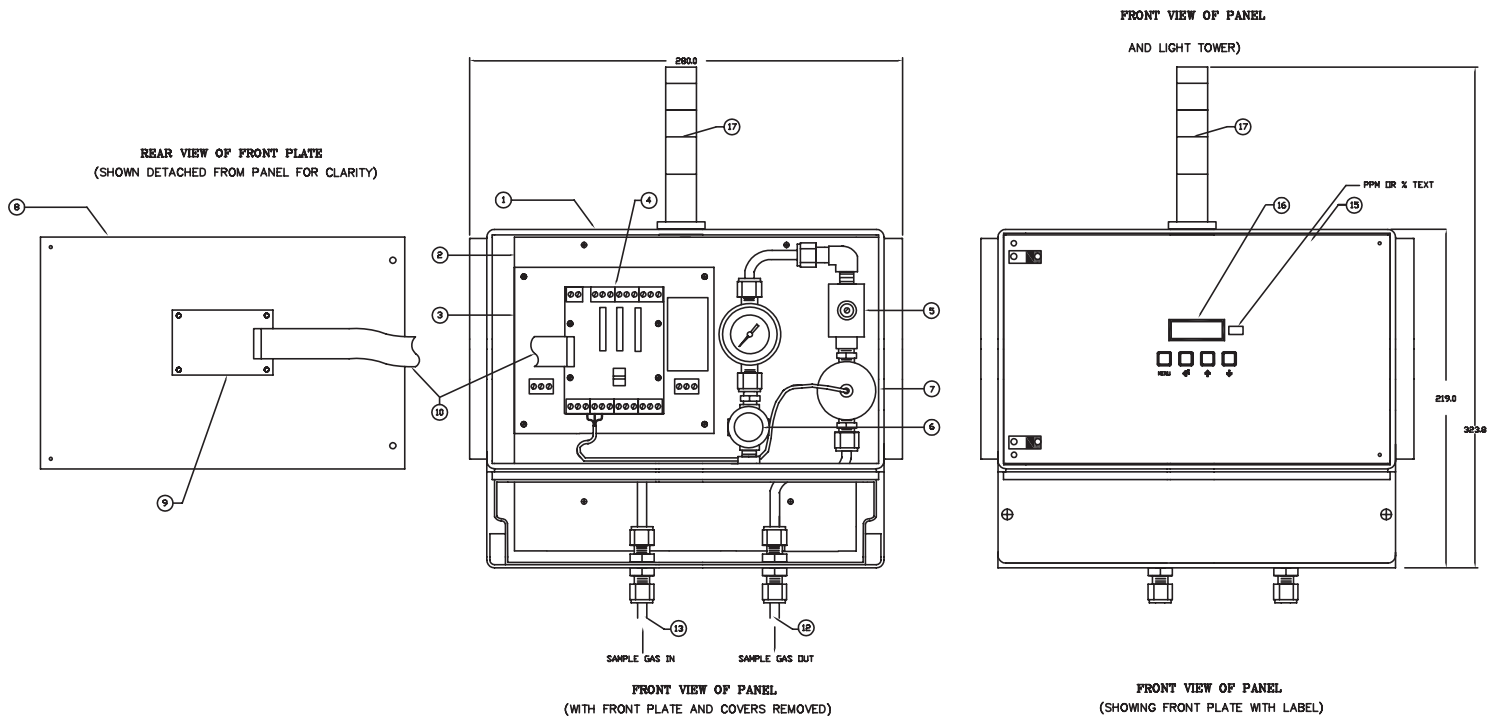


**Yellow Box**  
Portable O<sub>2</sub>  
Analyser



**GazTrak**  
Portable oxygen &  
moisture measurement

### Technical Drawings



# Microx-OL

## Oxygen Analyser

### Ordering information

Sensor Model	Extended Description (Parts Unique to the selected model of Microx-OL)	Metric	Imperial
OC-34	0-1000PPM Electromical O2 sensor OC-34, Rittal Mild Steel Enclosure c/w sample gas flow meter and calibration valve	model: 113	model: 113
		06-422	05-815
OC-34	0-1000PPM Electrochmical O2 sensor OC-34, ABS IP65 Enclosure Process Connection T Piece (6mm)	model: 107	model: 107
		01-461	06-423
OC-38	0-1000PPM Zirconia O2 sensor OC-38, Rittal Mild Steel Enclosure c/w sample gas flow meter and calibration valve 1/8" NPT Female Flow Through	model:111	model:111
		05-811	06-114
ZR-OL-1000	0-1000PPM Zirconia O2 sensor OC-38, ABS IP65 Enclosure 1/8" NPT Female Flow Through	model: 102	model: 102
		02-712	06-421
Sensor Model	Extended Description (Parts Unique to the selected model of Microx-OL)	Metric	Imperial
OC-30	0-25% Electrochemical O2 sensor OC-30, Rittal Mild Steel Enclosure c/w sample gas flow meter and calibration valve, Process Connection T Piece (6mm)	model:112	model:112
		06-417	05-814
OC-30	0-25% Electrochemical O2 sensor OC-30, ABS IP65 Enclosure Process Connection T Piece (6mm)	model: 100	model: 100
		01-491	06-418
OC-39	0-25% Zirconia O2 sensor OC-39, Rittal Mild Steel Enclosure c/w sample gas flow meter and calibration valve 1/8" NPT Female Flow Through	model: 110	model: 110
		06-419	05-800
ZR-OL-25%	0-25% Zirconia O2 sensor OC-39, ABS IP65 Enclosure 1/8" NPT Female Flow Through	model: 101	model: 101
		02-378	06-420
Sensor Model	Extended Description (Parts Unique to the selected model of Microx-OL)	Metric	Imperial
OC-40	0-96% Zirconia O2 sensor OC-40, Rittal Mild Steel Enclosure c/w sample gas flow meter and calibration valve 1/8" NPT Female Flow Through	model: 114	model: 114
		06-424	06-425
ZR-OL-96%	0-96% Zirconia O2 sensor OC-40, ABS IP65 Enclosure 1/8" NPT Female Flow Through	model: 103	model: 103
		02-784	06-426