



# RACE™ Cell Oxygen Analysers

EC903

The EC903 offers rapid ppm trace oxygen measurement with automatic isolation protection from exposure to air.

## Unmatched RACE™ cell performance

Systemtech Illinois has long been recognised as a world leader in trace oxygen analysis.

Utilising our patented design of specially engineered RACE™ cells, the EC903 Oxygen Analysers are designed to monitor trace oxygen within most industrial gases and atmospheres.

These highly advanced instruments provide rapid ppm response times in inert and flammable gases even when going from % to ppm oxygen levels, while offering full protection from exposing the trace ppm sensor to air.

## Cabinetry & Mounting

Three different configurations to match your needs.

- NEMA 4X / IP66 waterproof and weatherproof
- 19in. rack mount
- Panel or bench mount

## Operator Interface /Diagnostics

- User-friendly menu
- Data downloading
- Diagnostic capabilities
- Fault alarms

## Outputs & Alarm Options

For charting, process control, or remote monitoring.

- USB and RS485
- Analogue outputs (one or three channels)
- High / low alarms
- Fault alarms

## Sampling Systems

- Bypass flowmeter
- Pressure regulator
- Sample pump
- Flow alarm



## Contact Details

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## RACE™ Cell Sensor Selection

No need to compromise! Now you can match sensor to application for the best possible reliability and performance.

### Sensor RACE™ Cell

The RACE™ cell is a breakthrough in ppm oxygen electrochemical measuring technology. Our patented design\* prevents the sensor from being saturated by high levels of oxygen. With TURBOPURGE™ levels as low as 20ppm can be reached from ambient air within 2 minutes. This sensor is unaffected by hydrocarbons or volatile atmospheres making it the ideal choice in applications such as wavesolder and reflow ovens.

The RACE™ Sensor is maintenance-free, requires only occasional calibration and has no caustic electrolyte to monitor or replace. The RACE™ Sensor carries a 3 year limited warranty.

### Response Time - RACE™ V Standard Sensor

T90 time after saturation of sensor with Air		
O <sub>2</sub> level	RACE™	Standard
1000 ppm	20 secs	30 secs
100 ppm	45 secs	8 mins
10 ppm	3 mins	2 hours
1 ppm	10 mins	24 hours

This table shows the response time, from air to pure nitrogen, of the standard and RACE™ sensors.

## Trace (part per million) Sensor

The trace ppm sensor is designed for measuring 0.1ppm – 1% oxygen in most industrial gas streams. Can be calibrated to air. This sensor when used in a normal operating range typically lasts 3 – 5 years.

### Percent Sensor

The Systech Illinois percent sensor is capable of accurate measurements from 0 – 100% oxygen.

Unlike most electrochemical sensors, this sensor is not affected by acid gases such as carbon dioxide.

\* UK Patent no. 2324870. USA Patent no. 5929318

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## Features & Benefits

- Automatic ppm sensor protection from exposure to air
- Trace ppm oxygen measurement in inert and flammable gas mixtures
- Wall, panel or bench top enclosure options
- Large, autoranging display
- This instrument has a 36 month warranty which covers any faulty workmanship and normal component failure relating to electronic circuit cards
- Ultra fast response from air to ppm levels
- Designed for nitrogen purge processes
- Long life, maintenance-free, oxygen sensors

## Applications

<b>Gas Quality</b>	Trace Oxygen in Inert Gases Nitrogen Generators
<b>Curing</b>	Nitrogen Purging Curing Ovens UV Printer Systems
<b>Electronics</b>	Reflow / Wave Soldering Solder Powder Production Semiconductor Fabrication Gas Quality
<b>Metals</b>	Heat Treating / Annealing Steel Production Alloys and Powdered Metals Welding
<b>Pharmaceutical</b>	Inert Packaging Nitrogen Blanketing Fermentation
<b>Process</b>	Ceramics Contact Lens Manufacturing Food Packaging Glass Fibre Optics Lamp Manufacturing Glove Boxes

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## Technical Specification

<b>Sensor Type</b>	Race™
<b>Ranges</b>	0.1ppm - 30%
<b>Accuracy</b>	>10ppm ±2% of reading at 20°C ±5% of reading over temperature range  <10ppm ±2% over temperature + 0.4ppm at 20°C ±5% over temperature + 0.6ppm over temperature range
<b>Response Time</b>	Air to 20ppm within 2min. 0.1ppm to Air in less than 20 seconds
<b>Measuring Cell Type</b>	RACE™ Cell (US & UK) patents

### Operating Conditions

<b>Sample Inlet Pressure</b>	0.25 - 2 Barg, 3-30psi
<b>Sample Flow Rate</b>	Approximately 140 cc/min
<b>Sample Temperature</b>	-5 to 50°C
<b>Ambient Temperature</b>	-5 to 50°C, RH 0-99% non-condensing
<b>Sample Connections</b>	1/8" OD compression fittings, as standard
<b>Communications</b>	USB and RS485
<b>Unsuitable Gases</b>	Acid gases, corrosives and solvents in significant concentration

### Power Requirements

<b>Power Supply</b>	90-260VAC, 50/60Hz, 40VA
<b>Display</b>	Type 4-digit high-visibility LED

Conforms to European Directives:  
Electromagnetic Compatibility Directive 2004/108/EC  
Low Voltage Directive 73/23/EEC

### Options

<b>High/Low Alarms</b>	2 Volt-free changeover contacts. Rated 240V 3A
<b>Analogue Outputs</b>	Analogue output channels: scaleable 0-10V, 4-20mA or 0-20mA all isolated. Option for one channel or three.
<b>Autocalibrate</b>	Provision for remote cal start and autocal in progress
<b>Sample Stream Options</b>	Bypass flowmeter, sample pump, flow alarm, stainless steel sample system in place of brass/copper. Sample conditioning advice available.

### Weights & Dimensions

	Weight (kg)	Width (mm)	Depth (mm)	Height (mm)
<b>EC913</b> Bench/Panel Mount	7.9	237	410	190
<b>EC923</b> IP66/NEMA 4X	15.5	380	160	460
<b>EC933</b> Rack Mount 4U - 19 inch Houses 1 or 2 Analyzers	9.7	484	410	178

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