SYSTECH Illinois

RACE™ Cell Oxygen Analysers

EC903

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

INDUSTRIAL PHYSICS

Protecting
Product Integrity

Unmatched RACE™ cell performance

Systech 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_2 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 repsonse 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

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

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Technical Specification

Sensor Type		Race™
Ranges		0.1ppm - 30%
Accuracy	>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
Response Time		Air to 20ppm within 2min. 0.1ppm to Air in less than 20 seconds
Measuring Cell Type		RACE™ Cell (US & UK) patents

Operating Conditions

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

Power Requirements

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

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

Options

High/Low Alarms	2 Volt-free changeover contacts. Rated 240V 3A
Analogue Outputs	Analogue output channels: scaleable 0-10V, 4-20mA or 0-20mA all isolated. Option for one channel or three.
Autocalibrate	Provision for remote cal start and autocal in progress
Sample Stream Options	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)
EC913 Bench/Panel Mount	7.9	237	410	190
EC923 IP66/NEMA 4X	15.5	380	160	460
EC933 Rack Mount 4U - 19 inch Houses 1 or 2 Analyzers	9.7	484	410	178

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