

Rapidox 3100E

Portable Electrochemical Oxygen Analyser



Description

The Rapidox 3100E oxygen analyser allows accurate oxygen analysis over the range 0 to 100% O₂ in steps of 0.1%. The analyser provides continuous on-line oxygen analysis, with a typical response time of 20 seconds for a 90% response to a step change in gas compositions.

At the heart of the Rapidox 3100E is a Yuasa electrochemical oxygen sensor, which has a five year life expectancy and can be used in a wide range of gases such as nitrogen, argon, helium, carbon dioxide. The sensor is not affected by the presence of hydrocarbons and is resistant to attack from acid gases.

The analyser contains a powerful Nitto motor-driven diaphragm vacuum pump which draws a gas sample at a rate that can be set by the user. The flow of gas

can be adjusted using the flow gauge/needle valve on the front panel of the analyser. Typical flow rate is 1 litre per minute. Alternatively the pump can be independently switched off and the analyser can be operated under flowing gas conditions. An internal pressure sensor compensates for small changes in gas pressure to maintain the accuracy of readings.

The analyser is packed with features including fully programmable alarm circuits (voltage-free contacts), programmable analogue outputs (0-5V and 4-20mA), easy calibration (user selectable gases), RS232 (optionally RS485) communications and a full set of communications/data-logging software that is MS Excel compatible.

Optional swing handle, Peli-style carry case, printer and gas filters are available.

Features

- Bench mounted gas sampling electrochemical oxygen gas analyser.
- Continuous gas sampling via powerful yet quiet internally located motor-driven pump.
- Flow rate controlled by needle valve / flow gauge on front panel.
- Fast measurement response (typically 20 seconds for a 90% response).
- Wide measurement range available (0 to 100% O₂).
- Accuracy ± 1% of the full scale.
- Easy to calibrate by the user using ANY TWO (air is usually chosen for convenience).
- Low maintenance, sensor life expectancy typically 3-5 years.
- Large back-lit LCD display showing % oxygen, temperature and pressure.
- RS232 / RS485, 0-5V and 4-20mA current loop outputs (fully user-programmable).
- Windows data logging software with MS-Excel compatible graphing included.
- Fully programmable alarms with outputs and visual /audible warning.
- Optional printer, carry handle & transport case available.
- Works on any worldwide voltage.

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Applications

- Laboratory scale furnace experiments where the control and monitoring of residual oxygen is critical
- Air separation plants
- Industrial processes using low oxygen environments. e.g. wave soldering under nitrogen, vacuum welding
- Medical Monitoring
- Control of critical oxygen atmospheres where high partial pressures are required
- Glove Boxes
- Food production
- Testing the purity of oxygen gas cylinders
- Gases containing hydrogen, helium or CH₄
- Gases containing VOCs, solvents and fuels

Technical Data: Analyser

Voltage	90-260Vac, 50/60Hz
Analyser dimensions	350mm x 263mm x 150mm
Weight	7 kg
Display	16 x 2 character (9mm) back lit LCD
Warm up time	3-4 minutes at 20°C
Operating temperature	5°C to 35°C
Voltage outputs	0-5V linear, user-programmable
Current outputs	4-20mA linear, user-programmable
Digital outputs	RS232 (RS485 option available): data streamed on demand
Calibration	Requires 1 or 2 user selectable gas mixtures
Sample pump	24Vdc motor-driven diaphragm pump

Technical Data: Sensor & Pump

Maximum free air displacement	7 litres per minute (0-28 cfm)
Noise level	45db (max) at 1 meter
Maximum inlet temperature	50°C
Life expectancy O ₂	3-5 years
Range of measurement O ₂	0-100%
Response time O ₂ (gas flow rate 1ltr.min ⁻¹)	Approximately 20 secs for a 90% step change
Accuracy O ₂	±1% of full scale
Sample connections	6mm ID / 4mm OD nipple type

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