

Rapidox 3100N Dual Gas Bench Mounted O₂ & N₂O Analyser



Description

The Rapidox 3100N dual gas O₂ / N₂O analyser allows fast and accurate oxygen analysis over the full oxygen range (10⁻²⁰ppm to 100% O₂) and 0-1000ppm N₂O concentrations. The analyser provides continuous on-line analysis, with a typical response time less than 5 seconds for a 90% response to a step change oxygen gas compositions and 30 seconds for a 90% change in N₂O concentration.

The analyser contains a powerful Nitto motor-driven vacuum pump which draws a gas sample at a rate that can be set by the user using the flow gauge/needle valve on the front panel. Typical flow rate is 1 litre per minute. Alternatively the pump can be independently switched off and operated under flowing gas conditions.

The oxygen sensor head is located inside the analyser and comprises a zirconia ceramic tube that needs to be heated to 650°C before it will conduct oxygen ions. An internal pressure sensor compensates for small changes in gas pressure to keep the readings stable. The N₂O sensor is based on infra-red technology with full pressure and temperature correction. The module is exceptionally stable and requires virtually no maintenance or calibration.

The analyser is packed with features including fully programmable alarm circuits, programmable analogue outputs, easy calibration (user selectable gases), RS232 / RS485 communications, independent type K thermocouple and a full set of communications / data-logging software. Full data logging of O₂ & N₂O together with temperature and pressure is possible using the MS-Excel compatible logging software.

Features

- Bench mounted gas sampling oxygen & N₂O 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 5 seconds for a 90% change in oxygen).
- Measurement range available 10⁻²⁰ppm-100% O₂ & 0-1000ppm N₂O.
- Accuracy ± 1% of the actual measured oxygen and +/- 2% full scale accuracy for N₂O measurements.
- Nernst mode of operation for ultra low oxygen concentrations.
- Independent type K thermocouple fitted as standard. Range 0-1250°C.
- Both sensors easy to calibrate by the user using ANY TWO or THREE gases.
- Oxygen sensor life expectancy typically 17,500 hours. Ten years for N₂O.
- Large back-lit LCD display showing % oxygen (selectable notation), % N₂O, temperature & pressure.
- Unique oxygen sensor cleaning facility which can be operated at any time during use.
- RS232, RS485, 0-5V or 4-20mA current loop outputs (both fully programmable).
- Windows data logging software with MS-Excel compatible graphing included.
- Fully programmable alarms with outputs and visual / audible warning.
- Optional printer, swing handle and bespoke Peli-case available.
- Runs off any worldwide voltage

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Applications

- Air quality monitoring
- Hospital gas circuits
- Anaesthesia gases
- Breathing zone gases in hospitals
- Verification of quality of piped N₂O and O₂ gases in hospitals
- Measuring N₂O TWA exposure

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
Thermocouple	Type K 0-1250°C accuracy ± 1%

Technical Data: Sensor & Pump

Maximum free air Displacement	7 litres per minute (user adjustable)
Noise level	44db (max) at 1 meter
Maximum inlet temperature	50°C
Life expectancy O ₂	> 17,500 hours
O ₂ sensor range	10 ⁻²⁰ ppm to 100% O ₂
Response time O ₂ (gas flow rate 1ltr.min ⁻¹)	Approximately 5 secs for a 90% step change
Accuracy O ₂	±1% of the actual oxygen concentration
O ₂ sensor stability	±2% of reading per month
N ₂ O sensor range of measurement	0-1000ppm
N ₂ O sensor accuracy	± 2% of Full Scale
Response time (gas flow rate 1ltr.min ⁻¹)	Approximately 30 seconds for a 90% step change in CO ₂
Sample connections	6mm ID / 4mm OD nipple type

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