Cambridge Sensotec Ltd

Rapidox 2100 Portable Oxygen Gas Analyser

Description

The Rapidox 2100 portable oxygen gas analyser is packed with features normally only available in oxygen analysers costing thousands of pounds. From the display to the outputs, all features are fully user-programmable using the keypad on the front panel. Easy to use and simple to calibrate using your choice of gases, the Rapidox offers exceptional performance and flexibility using a rugged, long-life zirconia oxygen sensor. The Rapidox comes with Windows software for easy data-logging and graphing. Just switch on and start measuring.....

The Rapidox 2100 allows fast and accurate oxygen analysis over the full oxygen range ($10e^{-20}$ppm to 100% O_2). The analyser provides continuous on-line oxygen analysis, with a typical response time less than 4 seconds for a 90% response to a step change in gas compositions. The sensor is especially useful for oxygen measurements in vacuum conditions and a range of vacuum fittings are offered.

Type K thermocouple input is included as standard for independent temperature measurements up to 1250°C

Standard features include fully programmable alarm circuits, programmable analogue outputs (0-5V & 4-20mA), easy calibration (user selectable gases), RS232 / RS485 communications and a full set of communications / data-logging software that is compatible with MS-Excel.

The auxiliary input can be used to connect an optional pressure / vacuum / dewpoint sensor which can be displayed and data-logged simultaneously

Features

- Very fast measurement response (between 1 and 4 seconds for a 90% response).
- Full measurement range available ($10e^{-20}$ ppm to 100% oxygen).
- Accuracy ± 1% of the actual measured oxygen with a precision ±0.5%.
- Independent type K thermocouple fitted as standard. Range 0-1250°C.
- Easy to calibrate by the user using ANY TWO gases.
- Simple installation, low maintenance, sensor life expectancy typically 35,000 h.
- Large back-lit LCD display oxygen (% or ppm notation) and temperature (°C).
- RS232 / RS485, 0-5V or 4-20mA current loop outputs (both user programmable).
- Windows data logging software with MS-Excel compatible graphing.
- Programmable alarms (low and high condition) with outputs and visual warning.
- Unique sensor cleaning facility which can be operated at any time during use.
- Auxiliary sensor input for use with pressure, vacuum or dewpoint sensors

Applications

- Laboratory scale furnace experiments where the control and monitoring of residual oxygen is critical.
- Industrial processes using low oxygen environments (wave soldering, welding,, semiconductors).
- Reducing fuel costs by optimising the combustion process in boilers, chimneys & flues.
- Control of the combustion process in lean-burn applications.
- Control of critical oxygen atmospheres where high partial pressures are required (e.g. Firing of specialist ceramics).
- Vacuum leak detection applications. The Rapidox is very sensitive in vacuum conditions
- Testing the purity of gases such as nitrogen and argon
- Vacuum welding & vacuum sputter coating control

Technical Data: Analyser

Voltage	110 / 220V ac 50/60 Hz
Analyser dimension	205mm X 160mm X 150mm
Weight	5 kg
Display	16 X 2 character (9mm) back lit
Warm up time	3-4 minutes at 20°C
Normal operating temperature	5-35°C
Outputs	0-5V logarithmic (user programmable) 4-20mA logarithmic (user programmable) RS232 / RS485: data streamed every 0.1 second
Calibration	Requires 2 user-selectable gas compositions (air is default plus another)
Thermocouple	Type K fitted to standard compensated plug Range 0-1250°C accuracy ± 1%

Technical Data: Sensor

Cable	2m high temperature silicone sheathed
Max sustained gas temperature	600°C
Temperature of metal housing	150 to 200°C
Life expectancy	> 35000 hours
Range of measurement	$10e^{-20}$ ppm to 100% O_2
Response time (gas flow rate 1ltr.min^{-1})	approximately 1-4 secs for a 90% step
Accuracy	± 1% of the actual oxygen concentration
Precision of measurement	± 0.5% of the reading
Maximum working pressure	200 bar (1)
Minimum working pressure	Vacuum tight down to below 10^{-4} Torr (2)

1) Note that like ALL zirconia oxygen sensors the Rapidox measures oxygen partial pressure and therefore the oxygen concentration will change with gas pressure. E.g. 5% oxygen gas will read 5% O_2 at atmospheric pressure but at 3 bar the reading will be 15% O_2

2) Leak rate of the sensor has been measured at 1.6 x 10^{-7} mbarls^{-1} (helium) through the sensor when hot

Cambridge Sensotec Limited
31 Elizabeth Court
St Ives
CAMBS
PE27 5BQ
England

ISO 9001 REGISTERED FIRM

Tel: +44 (0)1480 385812
Fax: +44 (0)1480 352529
Mob: +44 (0)7866 624236
sales@cambridge-sensotec.co.uk
www.cambridge-sensotec.co.uk