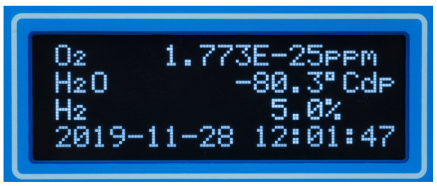
2100-FGA Forming Gas Analyser

The Rapidox 2100-FGA Forming Gas Analyser is a special variant of an existing zirconia oxygen analyser which allows fast and accurate oxygen analysis over the full oxygen range to extremely low levels commonly found in hydrogen forming gas.



The sensor measurement range is extended down to 10E-^{30}ppm O_2 to cover the ultra-low oxygen partial pressures in forming gas mixtures. The sensor is designed for high temperature operation which can be extended up to 1000°C when using one of the available insertion sample tubes.

The Rapidox provides continuous on-line oxygen analysis, with a typical response time of less than 4 seconds for a 90% response to a step change in gas compositions. In addition to this the analyser performs complex thermodynamic equations to calculate the H_2O dewpoint of the forming gas. These calculations have been verified by a resident thermodynamics expert at Cambridge University. The operator simply dials in the hydrogen content of the forming gas and the analyser does the rest. The dewpoint is then displayed simultaneously on-screen in either °Cdp or ppmV.

The temperature is determined either from the sensor head (up to 660°C) or above this, the temperature is recorded using the type K thermocouple which is fitted as standard.

The analyser is packed with features including programmable alarm circuits, programmable analogue outputs, easy calibration (user selectable gases), RS232 & Modbus communications and complete communications / data-logging software. Additional sensors may be attached via the auxiliary socket which will read most standard 4-20mA transmitters. Currently the Rapidox 2100-FGA can be configured to read pressure or vacuum. A vast array of special fittings, filters and manifolds are available for both oxygen and auxiliary sensors, to make this a completely versatile instrument that can be installed almost anywhere. Depending on the application, the sensors can be located up to 25 meters from the analyser using optional sensor extension cables.

The instrument can be panel mounted (19") or supplied within a wall mountable, IP65 weatherproof housing. The oxygen sensor can then be positioned remotely, in either a separate cabinet or as a standalone sensor. A printer option is also available. All Rapidox analysers come with full Windows software that allows for remote configuration and monitoring of readings, as well as a full data-logging package that includes live-time graphing of each sensor channel.

For customers requiring seamless integration into their oven or process, the Rapidox 2100-FGA can be supplied as an OEM solution. Please contact Cambridge Sensotec for further information.

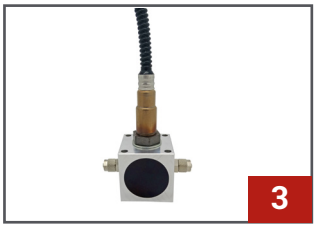
- Designed for forming gas applications
- Ultra O_2 measurement down to 10E-^{30}ppm
- Thermodynamic H_2O dewpoint
- Alarm relay circuits
- OLED display (20 x 4 characters)
- Verified at Cambridge University

- Easy to calibrate
- Pure hydrogen mode
- Type K thermocouple (0-1250°C)
- 0-5V and 4-20mA
- Modbus RTU language protocol
- Pin code protection

Applications

- Metal Heat Treatment
- Manufacturing
- Research & Development
- Forming Gas

Accessories



1. Calibration Kit
2. Multiplex Sampling System
3. Oxygen Sensor
4. Wall Mount Cabinet
5. Auxiliary Pressure
6. Vacuum CF50 & ISOKF25

Sensor Specification

O2 Sensor Range & Accuracy	10E-^{30}ppm to 30% (special extended range) ±1% of the actual oxygen concentration or 0.5ppm whichever is greater
O2 Sensor Response & Life Expectancy	Approximately 4 sec for a 90% response > 17,500 hours operation
Oxygen Sensor Cable	2m high temperature sheathed cable as standard. Fully shielded with a quick release plug. Extension cables available up to 25m total length
Max Gas Temperature	650°C (up to 1000°C is posisble with the use of special insertion probes)
Sample Gas Flow Rate	0.1 to 4 Litres per min (1 Litre per min recommended) Static gas and vacuum conditions also allowed
Max Working Pressure & Min Working Pressure	10 bar, 200 bar burst pressure, Vacuum tight down to below 10E-4 Torr (0.0013 mbar gauge)
H2O Reading	H_2O Dewpoint is calculated using thermodynamics
Optional Pressure Sensor	-1 to 0 bar vacuum, 0-5 and 0-10 bar gauge pressure as standard. Supplied on 2m cable. High precision versions available
Thermocouple (included)	Type K, range 0-1250°C, ±1°C

Analyser Specification

Supply Voltage	90-260VAC, 50/60Hz
Power Consumption	30W (max)
Analyser Dimensions	250mm X 263mm X 150mm (without optional handle kit fitted) Panel Mount: 300mm wide X 4U high
Weight	3.5kg (Including sensor)
Display	20 x 4 character OLED
Warm-up Time	60 seconds at 20°C
Normal Operating Conditions	5°C to 35°C, 900–1100 mbar absolute, 10-90% RH
Voltage Outputs	0–5V (user-configurable) into minimum 5kΩ
Current Outputs	4–20mA current loop (user-configurable) into maximum 500Ω
Digital Outputs	RS232 (RS485 option available): data streamed on demand / Modbus RTU / Ethernet
Alarms High and Low	Relay circuits. Fully user programmable
Sample Connections	4mm ID / 6mm OD nipple type connected to metal manifold. Rectus or Swagelok options. Front or rear positioning
Calibration	Up to five user-selectable gas compositions (air is default)
Fuse	T2A H250V 5 x 20mm glass

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