

Rapidox 2100-FGA

Rapidox gas analysis range



Oxygen down to 10E-30 ppm and H₂O dewpoint by thermodynamic calculation

RAPIDOX 2100-FGA

Forming gas analyser

amperis

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Continuous oxygen analysis at the ultra-low levels found in hydrogen forming gas.

Product overview



OLED display: O₂, dewpoint and H₂ content on one screen

An extended range for forming gas

This special variant of the zirconia oxygen analyser extends the measurement range down to 10E-30 ppm O₂, covering the ultra-low oxygen partial pressures of forming gas mixtures. The sensor operates at high temperature, up to 1000 °C with the available insertion sample tubes.

Dewpoint without extra sensors

Analysis is continuous and on-line, with a typical response under 4 s for a 90 % step change. The analyser also resolves thermodynamic equations to calculate the H₂O dewpoint of the forming gas: the operator enters the hydrogen content and the result is shown in °Cdp or ppmV. Temperature is read at the sensor head up to 660 °C, and by the standard type K thermocouple above that.

Main features

- Programmable alarm relays and analogue outputs.
- RS232 and Modbus RTU communications with data-logging software.
- Auxiliary socket for standard 4-20 mA transmitters (pressure or vacuum).
- Pre-calibrated hot-swap sensor, replaceable on site without a PC.
- 20 × 4 character OLED display; pin-code protection.
- Sensors up to 25 m away with optional extension cables.



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Configuration, applications and accessories

Installable almost anywhere

The instrument can be panel mounted (19-inch) or supplied in a wall-mountable IP65 weatherproof housing, with the oxygen sensor positioned remotely in a cabinet or standalone. A wide array of fittings, filters and manifolds is available for the oxygen and auxiliary sensors, and a printer option provides permanent records. It complies with EMC Directive 2004/108/EC and carries UL/ETL certification UL-61010-1.

Applications

- Hydrogen forming gas in metal heat treatment.
- Annealing, sintering and brazing atmospheres.
- Manufacturing under protective atmospheres.
- Research and development.

Accessories

- Calibration kit and calibration service.
- Multiplex sampling system and sample pump.
- Wall-mount cabinet, auxiliary pressure sensor and vacuum fittings (CF50, ISO KF25).
- Stainless probe, filters and thermal printer.



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RAPIDOX 2100-FGA – TECHNICAL SPECIFICATIONS

O₂ range and accuracy	10E-30 ppm to 30 % (extended); ±1 % of reading or 0.5 ppm, whichever is greater
Response and sensor life	≈4 s for a 90 % response; over 17 500 h of operation
Oxygen sensor cable	2 m high-temperature sheathed, shielded, quick-release; extensions up to 25 m
Maximum gas temperature	650 °C (up to 1000 °C with special insertion probes)
Sample gas flow	0.1-4 l/min (1 l/min recommended); static gas and vacuum also allowed
Working pressure	Up to 10 bar (200 bar burst); vacuum-tight below 10E-4 Torr
H₂O reading	Dewpoint calculated by thermodynamics, in °Cdp or ppmV
Thermocouple (included)	Type K, 0-1250 °C, ±1 °C
Optional pressure sensor	-1 to 0 bar vacuum; 0-5 and 0-10 bar gauge, on 2 m cable
Supply voltage	90-260 V AC, 50/60 Hz; max. consumption 30 W
Display	20 × 4 character OLED
Warm-up time	60 s at 20 °C
Operating conditions	5 °C to 35 °C; 900-1100 mbar absolute
Voltage and current outputs	0-5 V (min. 5 kΩ); 4-20 mA loop (max. 500 Ω), user-configurable
Digital outputs	RS232 (RS485 optional), data on demand; Modbus RTU/Ethernet
Alarms	High and low, fully programmable relay circuits
Sample connections	4 mm ID / 6 mm OD nipple to metal manifold; Rectus or Swagelok; front or rear
Calibration	Up to five user-selectable gas compositions (air as default)
Dimensions and weight	250 × 263 × 150 mm (panel mount 300 mm × 4U); 3.5 kg with sensor
Compliance	EMC Directive 2004/108/EC; UL/ETL certificate UL-61010-1



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