



# Rapidox 5100 Purge Gas Analyser

The Rapidox 5100 hydrogen( $H_2$ ) purge gas monitor is a high specification portable battery powered instrument designed for the analysis of hydrogen cooling gas in turbogenerators and alternators.



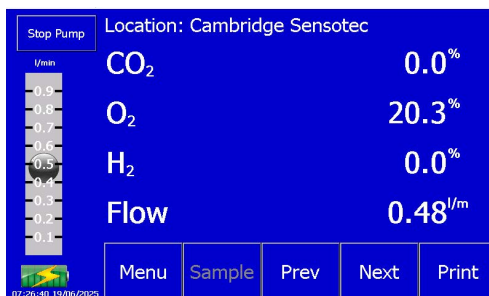
Modern power stations use hydrogen turbogenerators which produce vast amounts of heat that is controlled using hydrogen as a cooling gas. The hydrogen has a low viscosity to reduce friction on the spinning turbine blades as well as having a cooling capacity many times greater than using air.

It is essential that the hydrogen remains pure and uncontaminated with air at all times, both in operation and during maintenance. Any leakage with air could produce a potentially explosive gas mixture. Therefore regular testing of the cooling gas for hydrogen purity as well as air ingress is required.

During maintenance when the hydrogen needs to be removed for access, an intermediary gas is used to remove the chance of any explosive mixtures being generated. First, the light hydrogen is purged using heavy carbon dioxide ( $CO_2$ ) and secondly the  $CO_2$  is purged using fresh air. The re-filling process follows the same sequence in reverse. The Rapidox measures all stages of this purge cycle showing analysis of Air ( $O_2 + N_2$ ) +  $CO_2 + H_2$ .

The gases are simultaneously measured using a range of high precision gas sensors; each sensor is specially designed and calibrated to avoid cross interference effects with background process gas. Safety is ensured by the inclusion of flashback arrestors in the gas measuring circuit.

An optional pump enables two modes of operation. For samples that are taken from a gas source at atmospheric pressure or below, the pump is activated to draw a sample through the analyser. Alternatively, the pump can be deactivated when sampling from a source at a greater atmospheric pressure, allowing the gas to flow naturally through the analyser. Gas flow is regulated manually via a rotary knob on the fascia and displayed electronically on the screen.



## Features

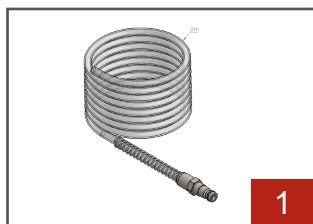
- Bespoke sensor combination
- 7" full-colour touchscreen
- Lithium battery provides 8 hours of operation
- Heavy duty IP66 case
- Password protection
- Continuous data logging downloaded via USB
- Multi-language
- Charges on worldwide mains voltage
- Integrated thermal printer

## Applications

- Power Station turbogenerators
- Hydrogen gas cooled alternators
- Carbon dioxide flushing gas



## Optional Accessories



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1. Male Rectus Fitting for use with gas recovery bag

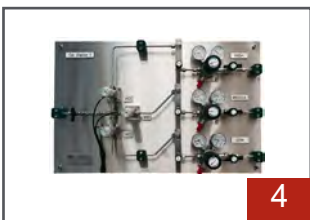
2. Gas Recovery Bag

3. Calibration Gas Kit

4. Calibration Service



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## Specification

CO <sub>2</sub> - Carbon Dioxide	0-100% Infra-red sensor. ±1% full scale accuracy. 0.1% resolution
O <sub>2</sub> - Oxygen	0-30% or 0-100% electrochemical sensor. ±1% full scale accuracy. 0.01% resolution
H <sub>2</sub> - Hydrogen	TCD sensor with background gas correction. ±1% full scale accuracy. 0.1% resolution
Ambient Operating Temperature	0°C to 40°C
Warm-up Time	3-4 minutes at 20°C
Measurement Time	Approximately 2 minutes
Battery Life	In excess of 8 hours (up to 500 cycles). 4-6 hour charge
Voltage (Charging)	90-260VAC, 50/60Hz
Sample Connections	4mm ID / 6mm OD Rectus style, closed coupled fittings
Data Output	Excel compatible data via USB memory stick
Data Storage	4GB internal data storage allowing for approximately 1 year of continuous monitoring
Optional Pump	0-1 litres per minute
Calibration	Zero and span calibration with two user selectable gas compositions
Display	7" (180mm) full-colour LCD with touchscreen operation
Printer	Thermal printer allows output of results on demand
Analyser Dimensions	180mm(H) x 480mm(W) x 360mm(D)
Weight	7kg

Please contact Cambridge Sensotec for further information or to discuss your requirements.