Technical Data

Rapidox 6100 QU4D

Multi-Gas Pumpback Analyser

SF_6 | C4-FN | C5-FK | Clean Air

Features

- **Portable and user-friendly**
- **Multi-switchgear compatibility**
- **Handles up to 4 types of insulating gases SF_6, C4-FN, C5-FK and Clean Air**
- **Measures up to 8 gases per channel**
- **Customisable options**
- **Battery operated**
- **Integrated thermal printer**
- **IP66 Peli case for protection**
- **Rapid Analysis and data logging**
- **7" Colour LCD touch-screen interface**
- **Multi-language**

The new **Rapidox 6100 QU4D** is a fully-automatic zero-emissions multi-gas analyser for measuring gas compartments containing SF_6 | C4-FN | C5-FK | Clean Air, all combined in a single portable instrument. The modular design allows the customer to purchase only the gas types they require with the potential to upgrade the instrument in the future. The Rapidox will measure the gas purity, water-content and contamination gases in each gas type in all current high voltage switchgear, circuit breakers and transformers as well as gas bottles. It is a fully portable lithium battery powered instrument.

Exceptional accuracy and stability are provided when measuring the purity of the compartment gas, through specially selected sensors. The modular configuration allows for up to eight compatible gases to be analysed simultaneously in each gas type, using one analyser. The Rapidox is fully compatible with mixtures of SF_6 & CF_4, C4-FN & CO_2/O_2, C5-FK & CO_2 and Clean Air mixtures of N_2 and O_2, together with toxic contamination gases such as SO_2, HF, H_2S & CO (in SF_6), CO (in C4-FN & C5-FK) and NO_2 (in Clean Air). The unit also measures the water content of the gas in dewpoint or ppm to ensure dryness is acceptable.

The **Rapidox 6100 QU4D** is housed neatly into a tough Peli transport case and supplied with sample hoses, DN8 and DN20 coupling accessories. Once powered and connected, the operator can select which gas type to work with and the Rapidox configures the measurement screen correctly. If the user is changing gas type, the unit will run a purge cycle to clean the existing gas from the analyser and into an external recovery bag. During the measurement, the Rapidox automatically removes a small quantity of pressurised gas from the electrical equipment or gas cylinder, controlled with an automatic pressure sensing function. A vacuum purge cycle and internal gas storage system ensures that no air can contaminate the gas sample and that no test gas is able to escape during the testing period.

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All measured gases are analysed and data logged simultaneously with only a few minutes required to achieve a stable reading. A powerful 10 bar compressor then returns the gas to the electrical equipment at high pressure. Results are displayed on screen and printed using the inbuilt thermal printer if required. The unit has multiple safety features built in to ensure the cycle is completed correctly without gas loss or cross contamination.

The analyser is pre-programmed with all current IEC and CIGRE test configurations, with the ability to create customised test parameters.

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

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Electrical Insulating Gases

SF_6 is an extremely stable, non-flammable and highly electronegative gas with excellent dielectric properties. It is commonly used in medium and high-voltage electrical equipment as an electrical insulator, arc-quenching and cooling medium. It remains the dominant insulating gas in the electricity industry. However, SF_6 is classified as a major greenhouse gas with a very high Global Warming Potential (GWP) and must be kept within a closed circuit to avoid any deliberate release into the atmosphere.

New SF_6 replacement gases such as C4-FN (known as g^3 or Novec 4710) and C5-FK (known as Air Plus or Novec 5110) are being used more commonly for low to medium voltage applications. Whilst these gases have much improved GWPs they remain harmful to the atmosphere and must be equally controlled.

Other gas types such as Clean Air (also known as DryAir) are used on low to medium voltage applications because they have no GWP or it is very small. However these gases are not always suitable to use in high voltage transmission.

For the power transmission and distribution network, gas insulation technology using SF_6 and its alternatives remains essential. To protect personnel, equipment and the environment regular gas analysis should be adopted within the maintenance schedule. The early identification of any decomposition products and moisture within these gases will help avoid unnecessary shutdowns, outages and failures, in addition to reducing maintenance expenditures.

Robust Peli case with integrated trolley and carry handles

Integrated thermal printer

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Sensor Specification

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SF_6 - Sulphur Hexafluoride	Range: 0-100%. Accuracy: ±0.5% Calibration: Recommended every 12-24 months Life Span: >5 years Sensor Type: Infrared (IR) or Density
H_2O - Dew Point	Range: -60 to +20°Cdp. (10 - 24,000ppmV) Reading is corrected to either RT or 20°C Accuracy: ±2°Cdp of reading Calibration: Recommended every 12 months by Sensor Exchange Life Span: 2-3 years Sensor Type: Polymer
SO_2 - Sulphur Dioxide	Range: 0-100ppm, 0-150ppm, 0-500ppm OR 0-2000ppm Accuracy: ±2% full-scale Calibration: Recommended every 12-24 months Life Span: Up to 4 years Sensor Type: Electrochemical
HF - Hydrogen Fluoride	Range: 0-10ppm OR 0-20ppm. Accuracy: ±2% full-scale Calibration: Recommended every 12-24 months Life Span: Up to 4 years Sensor Type: Electrochemical
CF_4 - Tetrafluoromethane[1]	Range: - 0-80%. Accuracy: ±1% of reading Calibration: N/A
H_2S - Hydrogen Sulphide[2]	Range: 0-100ppm Accuracy: ±2% full-scale Calibration: Recommended every 12-24 months Life Span: Up to 4 years Sensor Type: Electrochemical
CO - Carbon Monoxide[2]	Range: 0-500ppm, 0-1,000ppm, 0-2,000ppm, 0-5,000ppm Accuracy: ±2% full-scale Calibration: Recommended every 12-24 months Life Span: Up to 5 years Sensor Type: Electrochemical
Air / O_2 / N_2	Range: 0-100% as air, 0-30% as O_2 Accuracy: ±1% Full-scale Calibration: Recommended every 12-24 months Life Span: Up to 5 years Sensor Type: Electrochemical
CO_2 - Carbon Dioxide	Range: 0-100%. Accuracy: ±0.5% Calibration: Recommended every 12-24 months Life Span: >5 years Sensor Type: Infrared (IR)
C4-FN & C5-FK	Range: 0-20% Accuracy: ±0.5% Calibration: Recommended every 12-24 months Life Span: >5 years
NO_2 - Nitrogen Dioxide	Range: 0-20ppm OR 0-200ppm Accuracy: ±2% full-scale Calibration: Recommended every 12-24 months Life Span: Up to 4 years Sensor Type: Electrochemical

[1] For analysers containing a CF_4 sensor, the measurement of Air is also a requirement.
[2] H_2S & CO are available as a single combi sensor option.

All sensor replacements are to be carried out by Cambridge Sensotec or an approved service partner.

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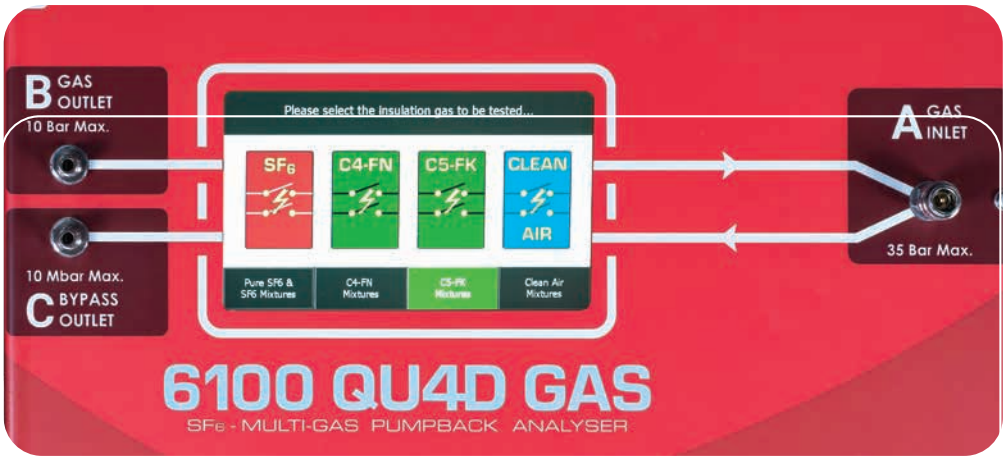
Specifications

	Rapidox 6100 QU4D
Ambient Operating Conditions	-10°C to +40°C, 10-90% RH, 600-1100mbara
Warm-up Time	Min 3-4 minutes at 20°C (Recommended 15 mins to achieve full accuracy)
Charging Voltage	90-260 VAC, 50/60Hz
Battery Life	Up to 8 hours. 4-6 hour charge
Sample Connections	Rectus style fitting compatible with famous brands
Data Outputs	Excel compatible data via USB memory stick
Data Storage	4GB internal data storage allowing for approximately 1 year of continuous monitoring
Compressor	Up to 10 Bar with up to 15 cycles per battery charge at 20°C
Measurement Time	2 -8 minutes (Min 6 minutes required for H_20)
Pressure Range	0.3-35 Bar
Gas Flow Rate	0.5L.min^{-1}
Max Inlet Pressure	35 Bar gauge (10 Bar for Pumpback operation)
Display	7" (178mm) Colour LCD touch screen interface with soft menu keys
Printer	Integrated thermal printer allows output of results on demand
Analyser Dimensions	270mm(H) x 560mm(W) x 450mm(D)
Weight	21kg (Total instrument and case)
Warranty	2 years



Due to continuous product development necessary changes to specifications may be made without prior notice. Issue no: D62-202-1

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