

Rapidox SF₆ 6100 Pump Back Gas Analyser

The Rapidox SF₆ 6100 Pump Back is the next-generation SF₆ gas analyser from Cambridge Sensotec designed for monitoring the quality and purity of gas used in high voltage switchgear, circuit breakers and transformers and has been optimised for use in cold, warm and hot climates.

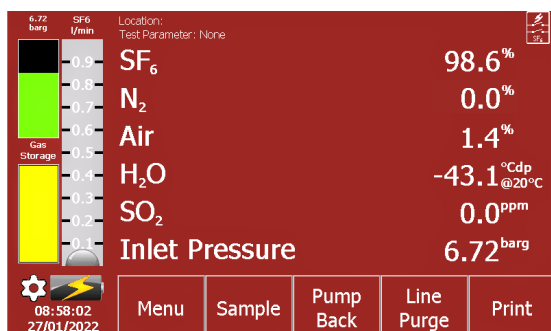


The Rapidox SF₆ 6100 Pump Back is a fully automatic zero-emissions SF₆ gas analyser that provides exceptional accuracy and stability when measuring the purity of SF₆ gas (up to 35 bar inlet capability) and is housed in a tough Peli transport case supplied with DN8 and DN20 tongue and groove self-sealing couplings and connection hose (2m length as standard, other lengths available). It is fully compatible with mixtures of SF₆, CF₄, N₂ and clean air together with toxic contamination gases such as SO₂, HF, H₂S and CO; it also measures the water content of the gas (in dewpoint, µl/l or ppm) and features built-in dewpoint moisture traps to remove excess moisture using a desiccant to ensure dry gas is returned to source - a modular configuration allows for up to eight of these gases to be analysed simultaneously. The analyser accommodates potential sensor drift when used in different parts of the world as it has three SF₆ calibrations; cold climate (-10/9°C), warm climate 10/29°C and hot climate (30/50°C).

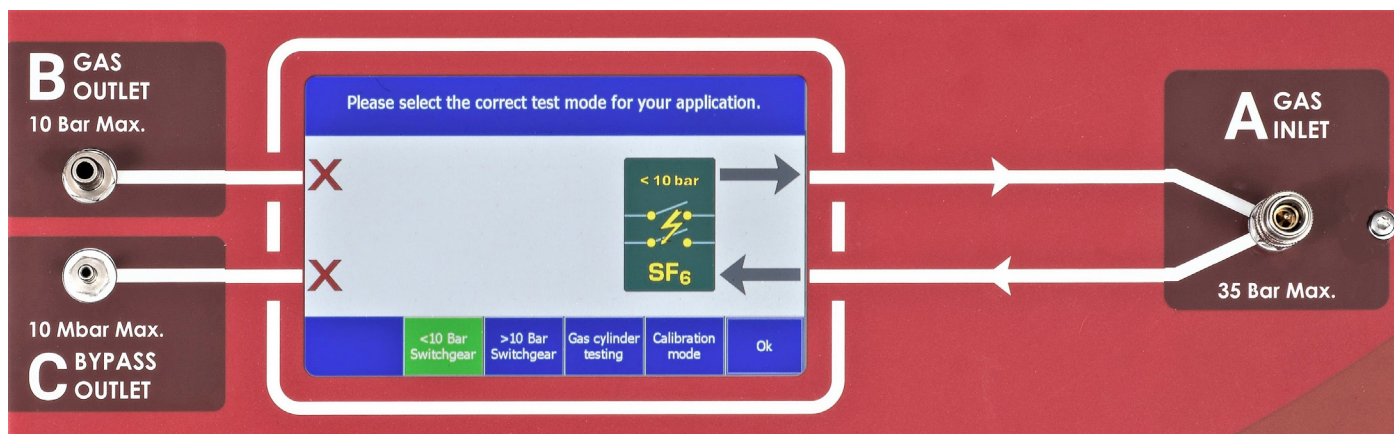
Once powered and connected, the analyser automatically removes a small quantity of gas from the electrical equipment, controlled with an auto gas pressure sensing function; a vacuum purge cycle and internal gas storage system ensures that no air can contaminate the gas sample and that no SF₆ gas is able to escape during the testing period. Ease of use is guaranteed with intuitive wizard on-screen prompting to guide the user through the steps involved; 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 and multiple built-in safety features ensure the cycle is completed correctly without gas loss or cross contamination. Results are then displayed on the 7" touchscreen and can be printed from the Unicode printer in the language of choice.

Pre-calibrated sensors can be installed via simplified user access for local maintenance, so that return-to-base is not necessary for sensor exchange. The electronics and the pump are both powered by one battery, providing the benefits of less weight and greater IATA compliance; the battery provides ~8 hours of operation and requires 2-4 hours to charge up again. The analyser is pre-programmed with all current IEC and CIGRE test configurations, with the ability to create customised test parameters.

Other standard features to enhance functionality include walk away timer, auto-abort function, auto-clean function, fully automatic testing and data logging and gas cylinder testing mode.



Intuitive on-screen wizard prompting to guide the user through the steps of analysis



Specification

Sample Connections	Special tongue and groove self-sealing couplings (compatible with famous brands) with 2m connection hose (4,6,8,10m lengths available - please specify)
Measurement Time	User specified - 2, 4, 6 or 8 minutes
Gas Flow Rate	0.5 l/min
Pressure Range	0.3 - 35 Bar; displayed on screen
Max Inlet Pressure	35 Bar gauge
Compressor	Up to 10 Bar with up to 15 cycles per battery charge
Display	7" (180mm) full-colour LCD touch screen interface with soft menu keys
Languages available	English (default), Italian, Spanish, French, German, Portuguese, Chinese (simple and traditional), Korean, Turkish
Printer	Integrated Unicode printer allows output of results on demand
Data Storage	8 GB internal data storage allowing for approximately 1 year of continuous monitoring
Data Outputs	Excel compatible data via USB memory stick
Ambient Operating Conditions	-10°C to +40°C, 10 - 90% RH, 800 -1100 mbar absolute
Warm-up Time	3-4 minutes at 20°C
Voltage (Charging)	90-260 VAC, 50/60 Hz
Battery Life	Up to 8 hours. 2-4-hour charge
In-vehicle charging	Optional accessory
Analyser Dimensions	270mm(H) x 560mm(W) x 450mm(D)
Weight	20 kg (total instrument and case)

Rapidox SF6 6100 Pump Back

The modular configuration allows for up to eight compatible gases to be analysed simultaneously with one analyser.

SENSOR		ACCURACY		LIFE	SENSOR TYPE
SF₆ Sulphur Hexafluoride	0-100%	±0.5% accuracy		Every 12 months > 5 years	Infrared (IR)
H₂O Dew Point	-60°C to ±20°Cdp @Patm (10 - 24,000ppmV) Reading is corrected to either RT or 20°C	±2°Cdp of reading		Every 12 months by Sensor Exchange 2-3 years	Polymer
SO₂ Sulphur Dioxide	0-100ppm OR 0-500ppm	±2% full-scale		Every 12 months 2-3 years	Electrochemical
HF Hydrogen Fluoride	0-10ppm OR 0-20ppm	±2% full-scale		Every 12 months (Using HCl gas) 2-3 years	Electrochemical
CF₄* Tetrafluoromethane	0-80%	±1% of full reading		N/A N/A	(measured by balance of SF ₆ + Air reading)
H₂S Hydrogen Sulphide	0-100ppm	±2% full-scale		Every 12 months 2-3 years	Electrochemical
CO Carbon Monoxide	0-1,000ppm	±2% full-scale		Every 12 months 2-3 years	Electrochemical
Air / N₂ Nitrogen	0-100%	full-scale based on oxygen component		Every 12 months 2-3 years	Electrochemical O ₂ scaled to read as Air or Nitrogen

* For analysers containing a CF₄ sensor, the measurement of Air is also a requirement.

All sensor replacements to be carried out by Cambridge Sensotec or approved repair agents.

Rapidox 6100 Sensor Matrix

Gas	SF6	O2	Air	CF4	H2O °C dp	SO2	CO	H2S	HF	CO / H2S
Sensor Type	IR	EC	EC	Balance	Polymer	EC	EC	EC	EC	EC
Life (Month)	60	36	36	N/A	36	36	36	36	36	36
Cal (Month)	12	12	12	N/A	12	12	12	12	12	12
0 - 100%										
0 - 80%										
0 - 60%										
0 - 30%										
0 - 5,000ppm										
0 - 2,000ppm										
0 - 1,000ppm										CO
0 - 500ppm										
0 - 200ppm										
0 - 100ppm										H2S
0 - 50ppm										
0 - 20ppm										
0 - 10ppm										
-60°C to +20°C										

Note: Not all sensor combinations are possible due to interference and cross-sensitivity effects. Please contact Cambridge Sensotec for advice;
 Key: IR = Infra-Red Sensor EC = Electrochemical Sensor