

Rapidox SF₆ Multimeter



Description

SF₆ is a man-made gas used in high-voltage switchgear because of its great arc quenching capabilities. Partial discharges and leaks over time eventually cause the SF₆ to decompose into highly corrosive compounds. It is therefore essential to monitor the condition of the SF₆ to protect the equipment from spark damage and corrosion.

The Rapidox SF₆ Multimeter is a multi-gas analyser for the simultaneous measurement of SF₆ (0-100%), SO₂ (0-100ppm) and dew-point (-65+20°C). The analyser is designed for controlling and monitoring the quality of SF₆ in gas insulated sub-stations and circuit breakers. The analyser not only measures the SF₆ gas content in air or nitrogen over the full range, but also measures the moisture content of the SF₆ which is essential when monitoring the dielectric strength of the gas. The decomposition products of SF₆ can be identified by analysing the SO₂ content of the gas; this forms from the breakdown of SOF₂ and SOF₄ after an electrical discharge. The analyser incorporates an electrochemical SO₂ sensor to measure ppm levels of sulfur dioxide. All three gases can be monitored and data-logged simultaneously and just a few minutes are required to get a stable reading.

Regular checking of SF₆ gas insulated substations allows fault preventative maintenance programs to be implemented, and increases the life cycle of the SF₆.

The analyser has a gas output nozzle allowing all sampled gas to be recovered and recycled, ensuring that no SF₆ gas is released into the atmosphere (in accordance with the Kyoto agreement)

Features

- Continuous gas sampling of SF₆ - SO₂ - Moisture (dp OR ppmv)
- High precision katharometer for SF₆ analysis over the range 0-100%
- Electrochemical SO₂ sensor for trace analysis of contamination gas 0-100ppm
- Ceramic dew-point sensor for moisture analysis -65°C to +20°C dp (or ppmv)
- Sensor accuracy ± 1% of the full scale
- Input pressure 0.5 to 10 bar
- Gas flow rate 0.5 - 1 litre per minute controlled by flow gauge
- Programmable alarms (low and high condition) with outputs and visual warning.
- RS232 / RS485, 0-5V or 4-20mA current loop outputs (both user programmable).
- On-Board Windows data logging software with MS-Excel compatible graphing.

Applications

- Controlling SF₆ quality in switches, bus bars & and circuit breakers in Gas Insulated substations (GIS)
- SF₆ insulated devices in power stations
- Checking for the build up of corrosive decomposition products such as SO₂ present in the SF₆
- Measuring the moisture content of SF₆ gas by using a dew-point analyser
- Applying a condition based maintenance program (CBM) to extend the life cycle of the SF₆
- Detecting the presence of leaks and SF₆ discharge
- Indication of arcing and breakdown through the build up of corrosive by-products

Technical Data: Analyser

Voltage	100-240V ac 50/60 Hz
Analyser dimension	350mm X 263mm X 150mm
Weight	7 kg
Display	16 X 2 character (9mm) back lit
Warm up time	3-4 minutes at 20°C
Normal operating temperature	-20°C to 40°C
Outputs	0-5V linear (user programmable)
	4-20mA linear (user programmable)
	RS232 / RS485: data every 0.1 second

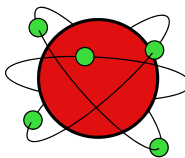
Technical Data: Sensors

SF ₆ Sensor	Katharometer 0-100% scale ± 1% FS accuracy
Moisture Sensor	Ceramic Dew-Point Sensor -65°C to +20°C dp. ± 2°C FS accuracy
SO ₂ Sensor	Electrochemical Cell 0-100ppm ± 2% FS accuracy
Life expectancy	3 to 5 years
Measuring Time	Approx. 5 minutes
Sensor Drift	<2% of span per month

Cambridge Sensotec Limited
Unit 8 Royce Court
Burrell Road
St Ives CAMBS
PE27 3NE
England



Tel: +44 (0)1480 462142
Fax: +44 (0)1480 466032
Mob: +44 (0)7866 624236
sales@cambridge-sensotec.co.uk
www.cambridge-sensotec.co.uk



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Accessories

The Rapidox Multimeter has been designed to be compatible with SF₆ gas recovery systems such as DILO. All sampled gas is captured and returned via the sample outlet port ensuring that no SF₆ is allowed to escape into the atmosphere. Captured gas is stored in a high pressure tank until the user is ready to return the gas to the testing compartment, or fill an external gas cylinder ready for recycling.

Due to customer demand Cambridge Sensotec are pleased to offer a rugged portable carry case for the SF₆ Multimeter. The case is manufactured by Peli - a World leader in quality travel cases used by the military. The case has an extendable handle and wheels for ease of use, and holds the analyser and all accessories including DILO fittings.

Please contact us for more details!



Rapidox Multimeter used in conjunction with a DILO Gas Recovery unit



Rapidox Multimeter storage case

Installed in a transport case, for reclaiming and storing of SF₆ measuring gas. Standard equipment:

1m³/h compressor, pe 50 bar, particle filter, gauges, connecting hose for collecting the used gas from the measuring devices, connecting couplings for:

- gas compartment
- measuring device input
- measuring device output
- external gas bottle

Internal storage vessel included. All couplings are self-closing, electric control with automatic process control, two (230V) sockets for measuring devices. Operating voltage: 100-127V, 220-240V AC, 50/60Hz

Providing the ultimate in storage and handling, the Rapidox carry case is supplied with wheels and rising handle to allow for easy handling. Case external dimensions are 510L x 387W x 171D (mm). Weight is 8kg without the analyser. The case is fitted with a moulded foam insert to allow a single SF₆ Multimeter to be stored with spaces allocated for cables and DILO fittings and hoses. These cases are the best money can buy and are used around the World by the military.

- Easy Open latches & places for padlocks
- O-ring watertight seal
- Easy grip rubberised handles
- Quiet roll wheels with stainless steel bearings

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sales@cambridge-sensotec.co.uk
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