

# SF<sub>6</sub>-Breaker-Analyser Model GA10

WIKA Data Sheet SP 62.01

## Applications

- Analysis of the SF<sub>6</sub>-moisture, purity and SO<sub>2</sub> or SO<sub>2</sub>/HF in SF<sub>6</sub>-filled equipment

## Special Features

- Measure up to 4 compounds with a modular device
- Integrated data acquisition and storage
- Validation of readings (according to CIGRE, IEC, or customer specified standards)
- Fast test results (app. 5 ... 7 min. total)
- High sensitivity and precision
- Field proven design



SF<sub>6</sub>-Breaker-Analyser Model GA10

## Description

The WIKA SF<sub>6</sub>-Breaker-Analyser is an innovative and cost effective way to determine the levels of SF<sub>6</sub>-purity, moisture and decomposition products in SF<sub>6</sub>-filled equipment. Time of measurement and amount of SF<sub>6</sub> needed for inspection is minimized by combining these three functions into a single device. All sensors work parallel to save time and minimize gas consumption.

## Functionality

The base unit contains a computer board for data acquisition and storage along with all necessary hardware to make a physical connection to gas-insulated equipment. A modular system allows a user to purchase the SF<sub>6</sub>-purity, moisture, or SO<sub>2</sub> detection cards separately if desired.

The IEC 60 480 SF<sub>6</sub> Recycling Guide indicates that the measurement of either SO<sub>2</sub>, HF, or SOF<sub>4</sub> is useful to determine SF<sub>6</sub> decomposition products.

With all three cards installed, the operator simply makes a connection to the equipment being tested. The test values displayed are automatically interpreted according to CIGRE B3.02.01, IEC, or a customer specified standard for SF<sub>6</sub> contamination/reuse.

A pass/fail indicator then illuminates on the analyser to judge the overall condition of the gas.

Up to 150 datasets are stored in internal flash memory which can later be downloaded to a PC. The modular card system enables the user to initially purchase only one card and add more sensors later. When a card requires calibration, it can simply be exchanged by user to avoid downtime.

## Additional Features

- Compact, lightweight
- Easy maintenance
- Modular sensor upgrades
- Battery powered
- One knob operation

### Connection

Self-sealing quick connector

### Pressure

0.5-14 bar (gaseous) with automatic flow rate regulation

### Display

Graphic display (240 x 128 Pixel)

### Supply

- Lithium-Ion battery with 8 hour capacity
- Rechargeable 100-265 AC V (50/60Hz)
- Battery voltage displayed

### Temperature

Storage: -10 °C to 60 °C

Operation: 0 °C to 50 °C

### Dimensions

W x H x L: 380 x 185 x 440 mm (14.7 x 7.2 x 17.3 in)

### Weight

Max. 12 kg (26.45 lbs)

## Moisture Sensor

### Measuring Principle

The moisture sensor is based on the absorption of water molecules. Only vapor penetrates the covering electrode by diffusion and agglomerate reversibly to a polymer, which changes the capacity of the sensor.

### Range

+20 °C to -60 °C dew point

### Accuracy

± 2 °C dew point at +20 °C ... -40 °C

± 4 °C dew point at < -40 °C

### Resolution

1 °C

### Flow Rate

20 litres/hour

### Units

°Ctd, ppmv and ppmw

related to ambient pressure and temperature compensated

### Calibration

Every 2 years

## SF<sub>6</sub> Percentage Sensor

### Measuring Principle

Comparison between the different velocities of sound of SF<sub>6</sub> and air. The velocity of sound in the air is about 330 m/s, while it is only about 130 m/s in pure SF<sub>6</sub> atmosphere.

### Range

0-100 Vol. % SF<sub>6</sub>

### Accuracy

± 0.5 % based on SF<sub>6</sub>/N<sub>2</sub> mixtures

### Resolution

0.1 %

### Flow Rate

10 litres/hour

## SO<sub>2</sub> Sensor

### Measuring Principle

An electro-chemical sensor senses the change in electro-chemical potential that occurs when varying concentrations of SO<sub>2</sub> present.

### Ranges

0 ... 10 ppmv  
0 ... 20 ppmv  
0 ... 100 ppmv  
0 ... 500 ppmv

### Accuracy

± 2 % of value

### Resolution

0.1 ppm at 0...10 / 0...20 ppm  
1 ppm at 0...100 / 0...500 ppm

### Flow Rate

10 litres/hour

### Operation

Purge function with ambient air to reset the SO<sub>2</sub> value to 0 after it has been detected.

### Humidity Range

Up to 90 % (non-condensating)

### Maximum Zero Shift

0.1 ppmv

### Long-term Stability

< 2 % signal degradation per month (linear)

### Lifetime

2 years starting from installation

## SO<sub>2</sub> / HF Sensor

### Measuring Principle

An electro-chemical sensor senses the change in electrochemical potential that occurs when varying concentrations of SO<sub>2</sub> / HF present.

### Ranges

0 ... 10 ppm SO<sub>2</sub> / 0 ... 10 ppm HF  
0 ... 20 ppm SO<sub>2</sub> / 0 ... 10 ppm HF

### Accuracy

± 2 % of value

### Resolution

0.1 ppm

### Flow Rate

10 litres/hour

### Operation

Purge function with ambient air to reset the SO<sub>2</sub> value to 0 after it has been detected.

### Humidity Range

Up to 90 % (non-condensating)

### Maximum Zero Shift

0.1 ppmv

### Long-term Stability

< 2 % signal degradation per month (linear)

### Lifetime

1 year starting from installation

Modifications may take place and materials specified may be replaced by others without prior notice.  
Specifications and dimensions given in this leaflet represent the state of engineering at the time of printing.



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