Analysis instrument
For determining the quality of SF₆ gas
Model GA11

Applications
Analysis of the gas quality of SF₆ gas filled equipment

Special features
- Provides measured values for humidity, purity and decomposition products
- Low transport weight of 25 kg
- Three methods for emission-free treatment of the measurement gas:
  - Direct pumping back into the tested compartment
  - Pumping into an external gas cylinder
  - Collecting in an external gas bag
- Battery power for min. 5 measurements or mains supply
- Not compromised by transport restrictions

Description
The SF₆ gas analysis instrument model GA11 is an innovative and inexpensive instrument for determining the SF₆ gas quality. Model GA11 can measure the concentration of up to seven parameters.

Design
A clearly arranged menu structure and a 7" colour touch-screen allow for intuitive operation. Sensors for purity and humidity measurement are already built-in in the standard version. Optionally, model GA11 can be extended with a SO₂ sensor for determining the SF₆ gas decomposition products. In addition, four other sensor slots are available for retrofitting other sensors, e.g. for hydrogen fluoride measurement.

The measured SF₆ gas can either be pumped back into the compartment of the switchgear or an external gas cylinder or it can be directly collected in a gas bag. In each case, emission into the atmosphere is avoided.

The described treatment of the measuring gas can also be carried out in the battery mode if mains voltage is not available.

Measurement
To evaluate the collected data, it is recommended to provide meaningful names for measuring points. With the GA11 it is possible to import a list of measuring points edited via PC quickly and easily.

Field use
The analysis instrument is protected by an impact-resistant and waterproof plastic case against harsh environmental conditions. The hard-top case, which is designed for field use, is waterproof and has reels for facilitating transport and a telescopic carrying handle.
User interface

Operation
The user interface is intuitive and can be operated via the touchscreen.
English, German, Spanish, Japanese, Chinese and Korean are the available languages for selection.

After connecting the compartment or the gas cylinder, the measurement can be started.

Displaying the measurement results
The measurement results on the concentration of purity, decomposition products and humidity of SF₆ gas are displayed after the end of the measurement.

These results are automatically compared to the set guidelines for contaminated or re-usable SF₆ gas (according to CIGRE B3.02.01, IEC or according to user defined specifications). According to this, an OK or a not OK symbol is displayed.

Saving and export of the values
Up to five hundred measurement results can be stored within the instrument and can be transferred via the USB interface.

The enclosed software "SF₆-Q-Analyser measurement viewer" is free of charge and can output the measurement results as a PDF report or in CSV format.
The CSV format is suitable for importing the data using Microsoft® Excel® or other table calculation programs or database programs.
Specifications

Connections
Inlet/pump back: Quick coupling with self-closing valve
Outlet for gas cylinder: Self-closing valve DN8
Outlet for gas recovery bag: Quick coupling, self-closing valve

Permissible pressure ranges
Inlet/pump back: 1.3 ... 35 bar abs. / 1.3 ... 10 bar abs.
Outlet for gas cylinder: 1.3 ... 10 bar abs.
Outlet for gas recovery bag: < 1.015 bar abs.

TFT touchscreen
Display size: 7"
Resolution: 800 x 480
Colours: 262,144

Voltage supply
Battery power: Lithium-Ion battery, battery is charged during mains supply mode
Mains supply: AC 90 ... 264 V (50 ... 60 Hz)

Permissible temperature ranges
Operation: -10 ... +50 °C
Storage: -20 ... +60 °C

Flow of measuring gas
20 litres/hour

Dimensions
W x H x D: 538 x 406 x 297 mm

Weight
approx. 25 kg
Humidity sensor
Measuring principle: Polymer-based capacitive humidity sensor
Measuring range: -60 ... +20 °C dew point
Accuracy: ±2 °C dew point at -40 ... +20 °C dew point
±4 °C dew point at < -40 °C dew point
Resolution: 1 °C
Units: °Ctd / °Ftd / ppmw / ppmv / °Ctdpr / °Ftdpr
(Dew point at gas compartment pressure, relative to ambient pressure and temperature compensated at 20 °C)
Calibration interval: 2 years

SF₆ percentage sensor
Measuring principle: Sound velocity
Measuring range: 0 ... 100 %
Accuracy: ±0.5 % based on SF₆/N₂ mixtures (calibration for SF₆/CF₄ mixtures on request)
Resolution: 0.1 %

SO₂ sensor (option)
Measuring principle: Electrochemical SO₂ sensor
Measuring range: In combination with HF sensor, only 0 ... 10 or 0 ... 20 ppmv make sense.
- 0 ... 10 ppmv
- 0 ... 20 ppmv
- 0 ... 100 ppmv
- 0 ... 500 ppmv
Accuracy:
- ±0.5 ppmv (with measuring range 0 ... 10 ppmv)
- ±1 ppmv (with measuring range 0 ... 20 ppmv)
- ±3 ppmv (with measuring range 0 ... 100 ppmv)
- ±5 ppmv (with measuring range 0 ... 500 ppmv)
Resolution: 0.1 ppmv
Permissible humidity: ≤ 90 % r. h. (non-condensing)
Max. zero offset: 0.1 ppmv
Long-term stability: < 1 % signal degradation/month (linear)
< 0.5 % at 0 ... 500 ppmv
Service life: 2 years starting from installation

HF sensor (option)
Measuring principle: Electrochemical hydrogen fluoride sensor
Measuring range: 0 ... 10 ppmv
Accuracy: ±1 ppmv
Resolution: 0.1 ppmv
Permissible humidity: ≤ 90 % r. h. (non-condensing)
Max. zero offset: 0.1 ppmv
Long-term stability: < 1 % signal degradation/month (linear)
Service life: 2 years starting from installation
**H₂S sensor (option)**
Measuring principle: Electrochemical H₂S sensor
Measuring range: 0 ... 100 ppm
Accuracy: ±5 ppm
Resolution: 0.1 ppm
Permissible humidity: ≤ 90 % r. h. (non-condensing)
Max. zero offset: 0.1 ppm
Long-term stability: < 1 % signal degradation/month (linear)
Service life: 2 years starting from installation

**CO sensor (option)**
Measuring principle: Electrochemical CO sensor
Measuring range: 0 ... 500 ppm
Accuracy: ±9 ppm
Resolution: 0.1 ppm
Permissible humidity: ≤ 90 % r. h. (non-condensing)
Max. zero offset: 0.1 ppm
Long-term stability: < 1 % signal degradation/month (linear)
Service life: 2 years starting from installation

**Accessories**

<table>
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<th>Description</th>
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<tbody>
<tr>
<td>Gas recovery bag, model GA45</td>
<td>14013015</td>
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</table>

- Low weight and easily transportable
- Cost-effective version to prevent SF₆ gas emissions
- Compatible with all WIKA gas analysis instruments
- With overpressure valve as burst protection
- Resistant to decomposition products
- Storage capacity 110 litres

For further specifications see data sheet SP 62.08

**Ordering information**
Model / SO₂ sensor / HF sensor / H₂S sensor / CO sensor / Accessories

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