Analysis instrument
For determining the quality of SF_6 gas
Model GA11

SF_6-Q-Analyser

Applications

Analysis of the gas quality of SF_6 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

Analysis instrument model GA11

Description

The SF_6 gas analysis instrument model GA11 is an innovative and inexpensive instrument for determining the SF_6 gas quality. Model GA11 can measure the concentration of up to seven parameters.

Design
A clearly arranged menu structure and a 7" colour touchscreen 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 SO_2 sensor for determining the SF_6 gas decomposition products. In addition, four other sensor slots are available for retrofitting other sensors, e.g. for hydrogen fluoride measurement.

The measured SF_6 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.

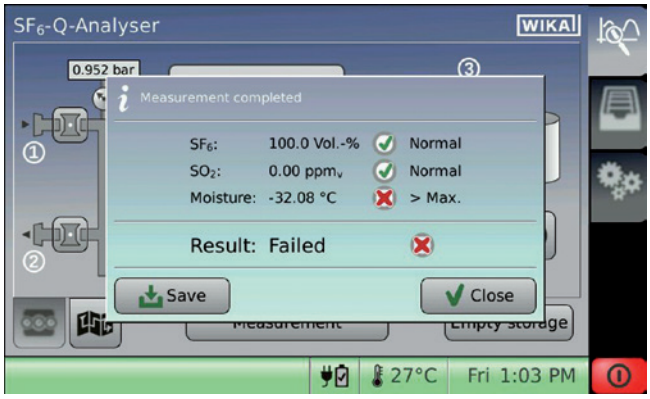
After connecting the compartment or the gas cylinder, the measurement can be started.

Language selection

Displaying the measurement results

The measurement results on the concentration of purity, decomposition products and humidity of SF_6 gas are displayed after the end of the measurement.

These results are automatically compared to the set guide-lines for contaminated or re-usable SF_6 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.

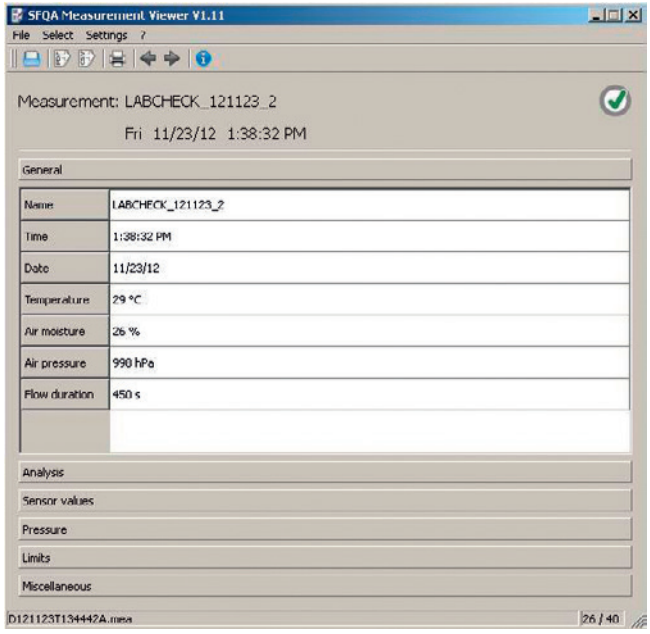


Measured value display

Saving and export of the values

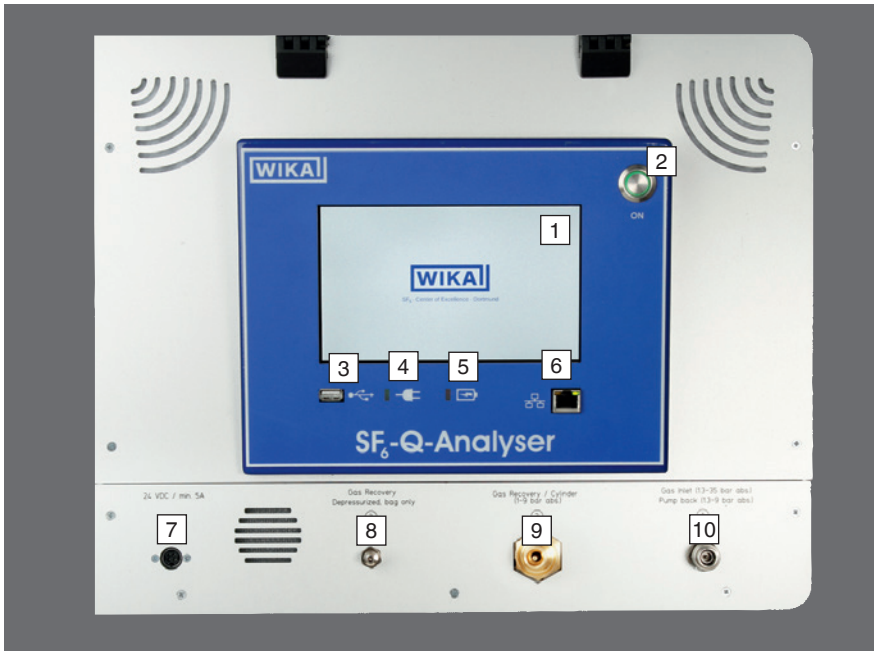
Up to five hundred measurement results can be stored within the instrument and can be transferred via the USB interface.

The enclosed software "SF_6-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.



Database

Instrument construction



1 TFT touchscreen
2 On and Off button
3 USB interface
4 Mains supply indicator
5 Charging indicator
6 Network connection (LAN)
7 Power connection
8 Outlet for gas recovery bag
9 Outlet for gas cylinder
10 Inlet, pump back

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:	$°C_{td}$ / $°F_{td}$ / ppm_w / ppm_v / $°C_{tdpr}$ / $°F_{tdpr}$ (Dew point at gas compartment pressure, relative to ambient pressure and temperature compensated at 20 °C)
Calibration interval:	2 years

SF_6 percentage sensor

Measuring principle:	Sound velocity
Measuring range:	0 ... 100 %
Accuracy:	±0.5 % based on SF_6/N_2 mixtures (calibration for SF_6/CF_4 mixtures on request)
Resolution:	0.1 %

SO_2 sensor (option)

Measuring principle:	Electrochemical SO_2 sensor
Measuring range:	In combination with HF sensor, only 0 … 10 or 0 … 20 ppm_v make sense. ■ 0 ... 10 ppm_v ■ 0 ... 20 ppm_v ■ 0 ... 100 ppm_v ■ 0 ... 500 ppm_v
Accuracy:	■ ±0.5 ppm_v (with measuring range 0 ... 10 ppm_v) ■ ±1 ppm_v (with measuring range 0 ... 20 ppm_v) ■ ±3 ppm_v (with measuring range 0 ... 100 ppm_v) ■ ±5 ppm_v (with measuring range 0 ... 500 ppm_v)
Resolution:	0.1 ppm_v
Permissible humidity:	≤ 90 % r. h. (non-condensing)
Max. zero offset:	0.1 ppm_v
Long-term stability:	< 1 % signal degradation/month (linear) < 0.5 % at 0 ... 500 ppm_v
Service life:	2 years starting from installation

HF sensor (option)

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

H_2S sensor (option)

Measuring principle:	Electrochemical H_2S sensor
Measuring range:	0 ... 100 ppm_v
Accuracy:	±5 ppm_v
Resolution:	0.1 ppm_v
Permissible humidity:	≤ 90 % r. h. (non-condensing)
Max. zero offset:	0.1 ppm_v
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_v
Accuracy:	±9 ppm_v
Resolution:	0.1 ppm_v
Permissible humidity:	≤ 90 % r. h. (non-condensing)
Max. zero offset:	0.1 ppm_v
Long-term stability:	< 1 % signal degradation/month (linear)
Service life:	2 years starting from installation

Accessories

	Description	Order number
	**Gas recovery bag, model GA45** ■ Low weight and easily transportable ■ Cost-effective version to prevent SF_6 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	14013015

Ordering information

Model / SO_2 sensor / HF sensor / H_2S sensor / CO sensor / Accessories

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