

Devices for determination of the SF₆ gas quality

For verification of several parameters in one operation

3-038-R...

SF₆ Multi-Analyser without return system

3-038R-R...

SF₆ Multi-Analyser with return system

This multi-functional device allows the determination of up to six quality parameters with only one measurement:

- SF₆ concentration (%)
- Moisture concentration
- SO₂ concentration (ppm_v)
- OPTION: HF concentration, H₂S concentration, CO concentration (in ppm_v each)

The SF₆ Multi Analyser is a user and maintenance-friendly device which guarantees high measuring accuracy.

First of all, the gas is checked for decompositions products. If critical SO₂ values are determined the measurement can be interrupted. In case of contaminated SF₆ the complete measuring gas can be recovered from the internal vessel. Thus, any contamination of the other sensors is avoided and the functionality of the device is ensured.



If the sensors have to be calibrated they can easily be exchanged by the operator on site. The device is immediately ready for use without loss of time based on the "Plug & Play" principle.

- No emissions of measuring gas
- Modular interchangeability of the sensors
- Easy handling and menu navigation via 5.7" colour touch screen
- Results of up to 100 measurements can be stored with name, date and time
- Data transmission to USB stick
- Adjustable user languages: DE, GB, FR, ES, IT, PT, CZ, PL, CN
- Trolley for comfortable transportation (3-038R-R... version)

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3-038(R)-R...

SF₆ Multi-Analyser

Precise and correct results for subsequent measurements can be guaranteed by purging the measuring hoses prior to each measurement.

Another big advantage of the Multi Analyser is its high precision. SF₆ humidity is measured at operating pressure. Thus very precise results are obtained during a short measuring time even in the critical dew point range (< -40 °C). The dew point is calculated at ambient temperature.

The device is very maintenance friendly. The residual lifetime of the SO₂ / HF / H₂S / CO electrochemical sensors is indicated automatically. A very practical and useful device.

Note:

Devices with gas return system: The measuring gas is collected and stored in an internal vessel by means of the compressor. After measurement the stored measuring gas is pumped back automatically from the internal vessel in the gas compartment.

No SF₆ gas is released into the atmosphere!

Technical data:

Dimensions with gas return system: L 500 mm, W 625 mm, H 297 mm
Dimensions without gas return system: L 500 mm, W 625 mm, H 218 mm
Weight with gas return system: 33 kg
Weight without gas return system: 20 kg
Input pressure: p _e 0.3 - 9 bar
Operating temperature: -10 °C to +50 °C
Ambient moisture: up to 90 % relative moisture, non condensing during operation
Operating voltage: 100 - 240 V / 50 - 60 Hz / 10 A
Mains fuse: 2 x 3.15 A/T (time delay)
Number of measured values to be stored: max. 100
Interface: USB
Measuring time: variably calculated by the system, max. 15 minutes
Limit value vol.-%: adjustable from 0.0 to 99.9 vol.-%
Limit value dew point: adjustable from -60 °C to +20 °C
Limit value SO ₂ : adjustable from 0.0 to 499.9 ppm _v
Indication of moisture concentration in dew point °C or °F, referred to atmospheric or input pressure, reversible to indication in ppm _v , ppm _M
Input pressure indication in bar p _a or p _e , psi, kPa, MPa

Standard equipment:

Transport case (trolley version only available for devices with gas return system) 6 m long connecting hose with DILO couplings DN8 and DN20 power plug with 2 m long connecting cable
USB stick with data file for evaluation and reading out of measured data
CD-ROM
1 operating manual (multilingual) on CD-ROM

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SF₆ Multi-Analyser

Sensor data:

	Vol. %	Moisture	SO ₂	Option: HF	Option: H ₂ S	Option: CO
Measuring principle	Velocity of sound	Electronic moisture measurement (capacitive)	Electrochemical reaction			
Measuring range	0 - 100 vol.-%	-60 to +20 °C	0 - 20 ppm _v 0 - 100 ppm _v 0 - 500 ppm _v	0 - 10 ppm _v	0 - 100 ppm _v	0 - 500 ppm _v
Measuring accuracy	±0.5 vol.-%	±2 °C (at > -40 °C) ±3 °C (at < -40 °C)	< ±2 % of measuring range	< ±10 % of measuring range	< ±2 % of measuring range	< ±2 % of measuring range
Measuring gas pressure	atm. pressure	gas compartment pressure	atm. pressure	atm. pressure	atm. pressure	atm. pressure
Flow rate	0.3 - 0.5 l/h	16 - 17 l/h	1 - 3 l/h	1 - 3 l/h	1 - 3 l/h	1 - 3 l/h
Reaction time	< 2 min	< 5 min	< 20 s	< 5 min	< 20 s	< 20 s
Recommended calibration interval	every two years	every two years	every two years (lifetime)	every two years (lifetime)	every two years (lifetime)	every two years (lifetime)
Long term sensitivity drift			< 2 % per month	< 5 % per month	< 2 % per month	< 2 % per month
Overload protection	automatic	automatic	automatic	automatic	automatic	automatic

Ordering designations of the SF₆ Multi-Analyser:

Device without gas return system

3-038- R...

Device with gas return system

3-038R-R...

Single measuring device for percentage measurement 0 - 100 vol. -%	R101
Single measuring device for moisture measurement -60 °C to +20 °C dew point temperature	R102
Two-in-one measuring device for percentage and moisture measurement	R201
Three-in-one measuring device for measurement of percentage, moisture and SO ₂ with 0 - 20 ppm _v	R301
Three-in-one measuring device for measurement of percentage, moisture and SO ₂ with 0 - 100 ppm _v	R302
Three-in-one measuring device for measurement of percentage, moisture and SO ₂ with 0 - 500 ppm _v	R303
Four-in-one measuring device for measurement of percentage, moisture, SO ₂ with 0 - 20 ppm _v and HF with 0 - 10 ppm _v	R401
Four-in-one measuring device for measurement of percentage, moisture, SO ₂ with 0 - 100 ppm _v and HF with 0 - 10 ppm _v	R402
Four-in-one measuring device for measurement of percentage, moisture, SO ₂ with 0 - 500 ppm _v and HF with 0 - 10 ppm _v	R403
Six-in-one measuring device for measurement of percentage, moisture, SO ₂ with 0 - 100 ppm _v , HF with 0 - 10 ppm _v , H ₂ S with 0 - 100 ppm _v and CO with 0 - 500 ppm _v	R602

Options (please inquire separately):

All devices with percentage measuring system are additionally available for SF₆ concentrations in SF₆/CF₄ gas mixtures (measuring accuracy: ±2.0 vol. -%). Thus it is possible to switch over between the SF₆/N₂ and SF₆/CF₄ measurement.

Optional accessories at an extra charge:

Pressure reducer for SF ₆ reference gas bottle with W 21.8 x 1/14" connection	3-974-R003
External compressor for increase of pressure for application of the SF ₆ -Multi-Analyser in medium voltage switchgear with a pressure of < 0.3 bar p _e	3-826-R003
Discharge gas collecting bag	B151R95
Adapter kit for measuring devices	Z340R10
6 m long connecting hose with self-closing couplings (as extension hose)	3-531-R060
Additional operating manual on CD-ROM	6-0004-R213

Packing:

Packing for 3-038	3-775-R009-C
Packing for 3-038R	3-775-R024-C