



PHOTOACOUSTIC GAS ANALYZER

GASERA ONE CF4

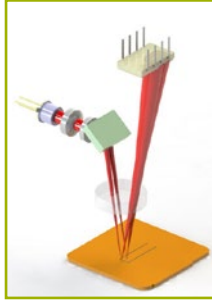
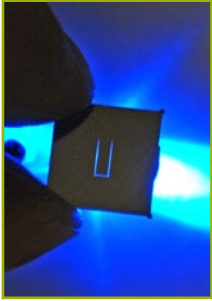


Real-time monitoring of airborne molecular contamination

GASERA
ONE
CF4

Measurement need

Cleanrooms must be controlled for contamination levels. Accurate, reliable and low maintenance control of cleanroom airborne contamination enables significant yield improvements.



Ultra-sensitive patented optical cantilever microphone

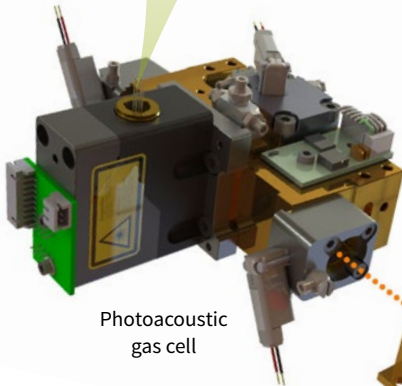
Reliable monitoring

High sensitivity of the GASERA ONE CF4 enables fast response time for detecting contamination of the production environment. Furthermore, the direct absorption measurement provides extremely good long-term stability due to its zero-background nature. The GASERA ONE CF4 can be integrated into a cabinet along with other instrumentation such as particle monitors.



Technology

GASERA ONE CF4 analyzer is based on combining ultra sensitive cantilever enhanced photoacoustic detection technology with Quantum Cascade Laser source operating at a Mid-IR fundamental spectral absorption line of CF4. This combination provides enough sensitivity to reliably detect the smallest spills of CF4 without any delay. It also gives an exceptionally high level of stability with a re-calibration period ranging from several months up to several years, and thus it offers a low total cost of ownership.



Photoacoustic gas cell

QCL

Benefits

- Accurate, reliable and low maintenance control of cleanroom contamination
- Fast response time to catch rapid spikes
- Standalone system with built-in gas exchange unit
- Requires no consumables or wet chemistry
- Short optical path that provides industry-leading dynamic range with single-point calibration
- Drift-free operation due to direct absorption measurement
- Long re-calibration period (up to years)
- Highly selective against aldehydes and other VOCs

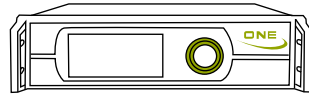
Features

- Selective trace level monitoring of CF4
- Below 0.1 ppb limit of detection (LoD)
- Response time user configurable from 10 seconds to few minutes
- Wide dynamic range and stable operation
- No consumables
- Low sample volume (few ml)
- Built-in gas exchange system
- Long re-calibration interval
- User configurable monitoring tasks
- Intuitive user interface
- Built-in display presents results both numerically and graphically
- Remote operation via local network

Enclosure options

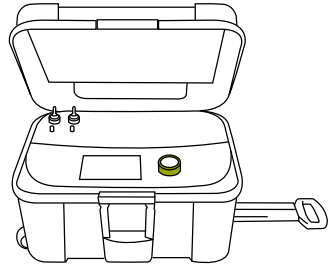
Single gas analysis

The GASERA ONE CF4 provides the user with a simple and intuitive interface with a high-resolution display and a single rotating dial.



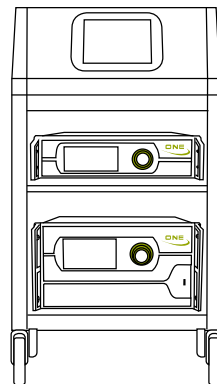
Portable operation

Optional portable enclosure allows leak detection in areas where problems are envisioned.



Mobile integrated solution

Several GASERA ONE CF4 units can be integrated in the same monitoring system and the mobile platform can be moved quickly to different critical monitoring points.



GASERA

ONE
CF4

Technology

- Principle of operation: photoacoustic infrared spectroscopy
- Patented ultra-sensitive optical microphone based on MEMS cantilever sensor coupled with a laser interferometer to measure microscopic movement of the cantilever
- Light source configuration: Distributed Feedback Quantum Cascade Laser
- Gas cell stabilized up to 50°C temperature

General

- 19" 3U (unit) housing for both table top and rack mount operation
- Dimensions: 48,4 cm W x 13,9 cm H x 44 cm D (19.1 in W x 5.5 in H x 17.3 in D)
- Weight: approx 13 kg
- Built-in computer with a 7" WSVGA display
- Data storage capacity sufficient for at least 1 year of continuous monitoring with the shortest sampling interval
- Total internal gas volume 30 ml
- Electrical connections:
Input voltage: 90...264 Vac, 47...63 Hz
Input power: 75 W max.
- Interface: Ethernet, USB and optionally RS485, RS323, current message, voltage message, MODBUS and AK-protocol
- GASERA ONE CF4 can be remotely operated via smartphone, tablet, laptop or another GASERA ONE. (coming soon)

Standards

- Complies with the Low Voltage Directive 2014/35/EU, EMC Directive 2004/108/EC and ROHS 2 directive 2011/65/EU

Environment

- Operational conditions:
Temperature range: 0°C...+49°C
Humidity: non-condensing
Pressure range: 750 mbar...1050 mbar
Dust/water resistance: IP20 (IEC 529)
- Storage conditions:
Temperature range: -20 °C – +60 °C
- Sample gas conditions:
Temperature: 0 – +49 °C
Humidity: non-condensing, maximum relative humidity 80% for temperatures up to 35°C, decreasing linearly to 35% relative humidity at 49°C
Pressure: 750 mbar...1050 mbar
Gas flow: approx 1 liters/minute
Particulates < 1 µm

Measurement specifications

- Response time: dependent on user configurable channel integration time (C.I.T.) and gas exchange routine. From approx. 10 seconds to few minutes depending on averaging time and sampling details.
- Detection limit: below 0.1 ppb
- Dynamic range: over 5 orders of magnitude (i.e. 100 000 times the detection limit)
- Repeatability: less than 1 % of measured value in operational conditions at the calibration concentration
- Accuracy: Better than 5% at the calibration concentration. Limited by the calibration gas accuracy.
- Temperature stability: ambient temperature change within the operational temperature range will not cause drift
- Pressure stability: Sample gas pressure change within the pressure range will not cause drift

Gasera Ltd. reserves the right to change specifications without notice.