

GHG-CONTROL MEASURE RATHER THAN CALCULATE GREENHOUSE GASES

THE WORLD'S ONLY IN-SITU SOLUTION FOR
CO₂ AND CO OR N₂O EMISSIONS

CEMS solutions

SICK
Sensor Intelligence.

Measure rather than calculate: Save costs with GHG-Control

GHG-Control is the direct route to lower costs. For companies that are required to report greenhouse gases. And for companies that have to pay more for every extra ton of CO₂ they emit each year. The high-accurate measurements of this complete system provide exact information without the expensive determination of the calculation basis!

Full control for companies subject to disclosure requirements

The GHG Control (GHG = Greenhouse Gas) CEMS solution is the only in-situ solution that allows companies to monitor their greenhouse gas emissions at any time. GHG Control records CO₂ and CO or N₂O gas concentrations and their volume flow and correctly determines the total quantity in real time. This means that companies that are required to declare their greenhouse gas emissions always have an overview of their current CO₂ and CO or N₂O emissions.

Substantially reduced calculation expense

GHG-Control doesn't involve the expensive recording of the calculation basis, the sampling and measurement of substance flows, and the intermittent lab analyses, especially in the event of changing fuel qualities or fuel carbon content. This allows companies that are subject to verifications to save a lot of time and money, and the data is always immediately available. GHG-Control is the only alternative to the expensive calculation process.



Perfect for companies subject to CO₂ disclosure requirements

Throughout the world, companies are working on technical concepts, and governments are implementing statutory regulations to reduce the emission of greenhouse gases. The only way to control these measures and gauge their success is by precisely recording emission quantities.

Causes of climate change

Greenhouse gases are the primary cause of global warming, subsequent climate change, and the associated global destruction of habitats. Greenhouse gases come primarily from industrial sources, such as fossil fuel systems and chemical processes. But natural causes such as volcanic activity and agriculture are also contributors.

Concepts in reducing emissions

- Reporting – based on the measurement or calculation of greenhouse gas emissions
- Taxation of greenhouse gas quantities
- Emissions trading – Purchase of pollution rights (CO₂ certificates) that leads to a reduction of the emission quantities through savings from trade



Reliable basis for precise information

The accurate values provided by GHG-Control form the ideal basis for safe monitoring and precise reporting. In particular, accurate values are growing in financial importance with regard to emissions trading. Taxes on greenhouse gas emissions will continue to rise in the coming years – even the purchase of certificates is becoming more and more expensive. For all tax models, precisely recording the emissions is decisive for the optimal utilization of the emission quantities allowed.

Measure rather than calculate

Even where the calculation methods are permitted, there are good reasons supporting the accurate, cost-efficient measurement provided by SICK's GHG-Control:

- Direct measurement of changing fuels and mixed fuels
- Measured values are accurately and, above all, constantly updated
- Measurement results tend to show lower values as safety margins are not required
- The costs of determining substance flows and fuel qualities are no longer an issue

Pay only for what you generate

In many cases, the actual emissions measured with GHG-Control fall below the results determined with calculation methods. This difference corresponds to the safety margins used in these methods. And this amount is constantly increasing, as the costs per ton of CO₂ will continue to rise regularly in the future. Depending on the plant situation, GHG-Control can potentially save considerable costs in certificates and taxes.

GHG-Control: A complete solution for determining greenhouse gas emissions

The GHG-Control complete system provides highly accurate results together with low operating costs, and data is immediately and constantly available. The values are automatically recorded correctly, even if there are changes to the fuel composition and the plant operation.

The GHG-Control: the complete system

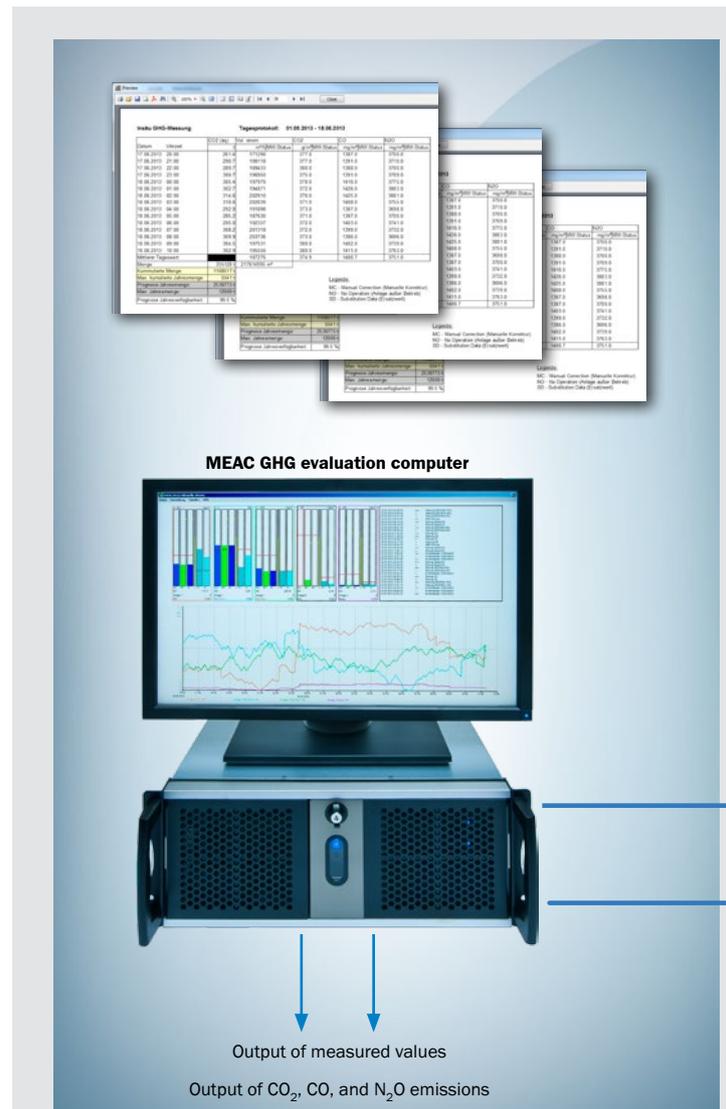
GHG-Control from SICK accurately measures CO₂ and CO or N₂O concentrations with the GM35 gas analyzer based on the proven in-situ technology. Even quick or temporary process fluctuations are recorded immediately and measured accurately. The volume flow measurement system FLOWSIC100 measures the pollutant concentrations/total concentrations based on high-precision ultrasonic measurement

High accuracy and low operating costs

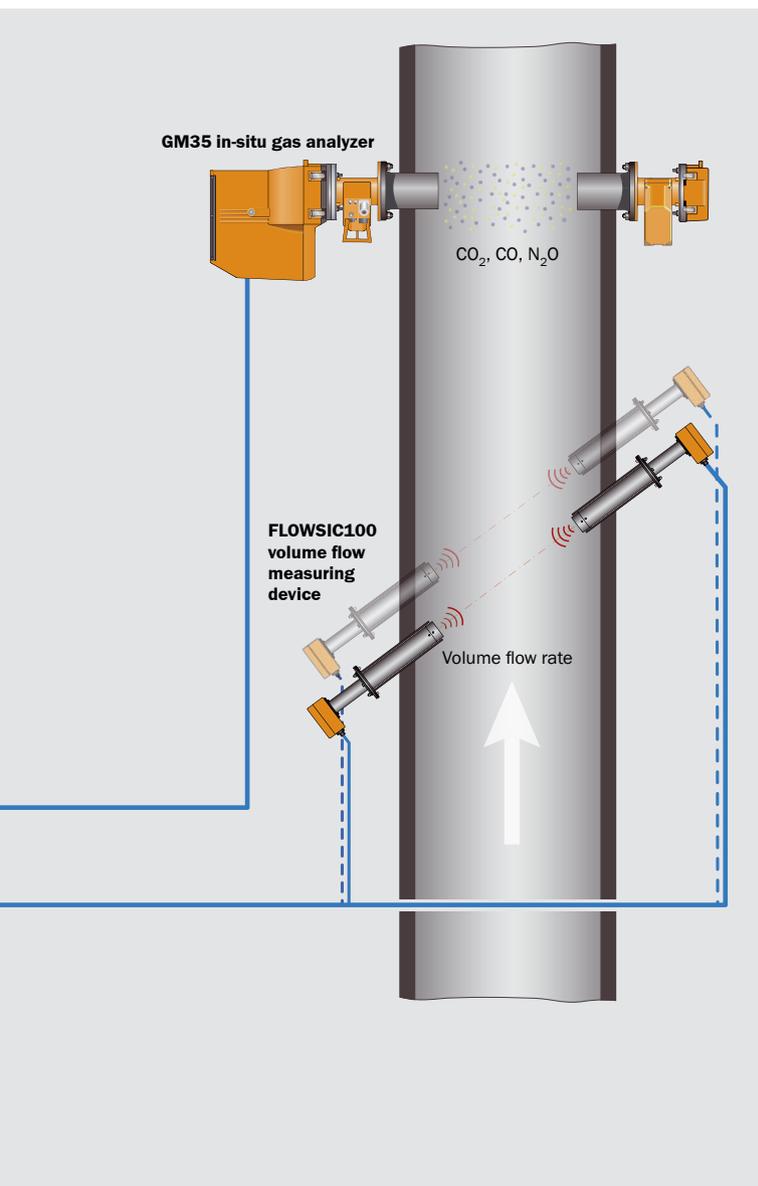
- Measurement uncertainty $\leq 2.5\%$
- Direct in-situ measurement for immediate measurement results
- Measurement under real process conditions in exhaust gas without converting from the dry to humid condition.
- No additional conversion uncertainties
- This minimizes the influencing variables and their impact on measurement accuracy
- Extremely low-maintenance operation

Display of greenhouse gas emissions

GHG-Control calculates the accurately measured concentrations of the greenhouse gases CO₂ and CO or N₂O with the precise volume flow values for the total quantity of the greenhouse gas emissions. Direct measurement enables the optimal control and utilization of emissions quantities at all times. The data acquisitions system provides the current measured values and emission quantities at any time



In-situ measurement using the GHG-Control consists of the GM35 gas analyzer and the volume flow meter FLOWSIC100 combined with the innovative data acquisition system for calculating and displaying the measured values.



Quick and accurate analysis of greenhouse gases

The GM35 in-situ gas analyzer is used in the "Cross-Duct" device version. The transmitter/receiver unit and the reflector are fitted opposite each other on the gas duct. The light beam passes through the entire duct diameter twice to increase measurement accuracy. As an option with a measuring probe for attachment on only one side is also available.

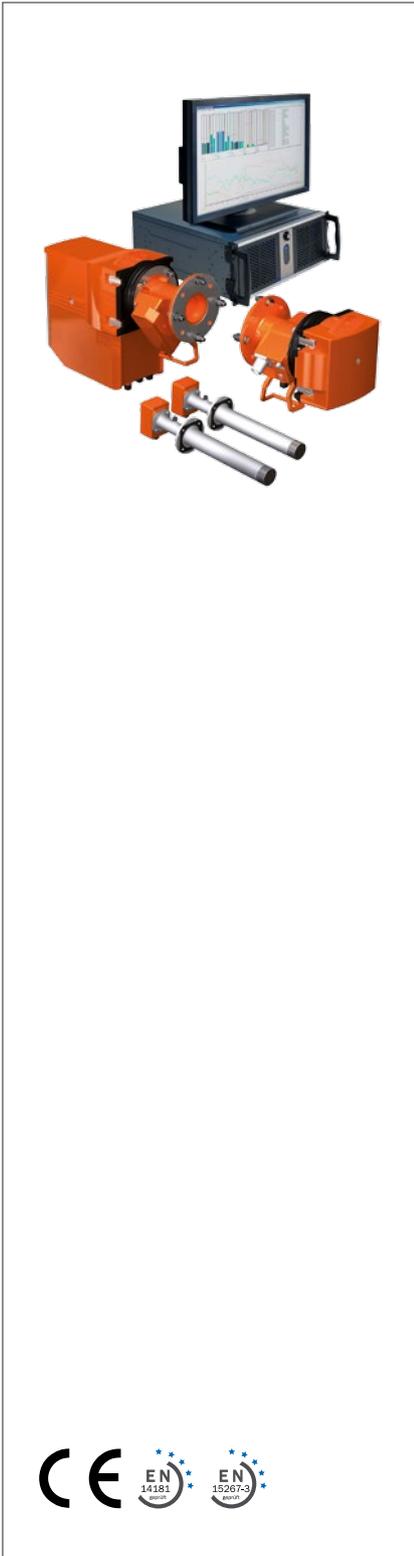
- Measures CO₂ and CO or N₂O
- Optional detection of H₂O concentration
- No gas sampling or conditioning required
- Integrated self-test and control functions
- Optional: Check with test gases when installed via a gas-testing measuring probe is possible

Accurate volume flow measurement

The volume flow measurement may be configured as either a single- or multi-path measurement. An ultrasonic transducer pair is provided for each measurement path.

- High durability thanks to robust ultrasonic titanium converters
- Minimum expense due to device version without purge air or with internal/external purge air
- Representative measurement results based on the integral measurements from the total duct diameter
- Reliable operation due to automated function monitoring with zero and reference point test
- Optional: Dual- or multi-path measurement for accurate recording of the gas quantities

THE WORLD'S ONLY IN-SITU SOLUTION FOR CO₂ AND CO OR N₂O EMISSIONS



Product description

Continuous, reliable, and real-time measurement of the current CO₂ and CO or N₂O emissions: GHG-Control from SICK is the only in-situ solution that provides companies with an overview of the amount greenhouse gases emitted at any time. GHG-Control records CO₂ and CO or N₂O concentrations and their volume flow and determines the total quantity within the required uncertainty. GHG-Control does not involve the expensive process of recording the calculation basis, sampling and measurement of

substance flows, and intermittent lab analyses, especially in the event of changing fuel qualities or fuel carbon content. The output of greenhouse gas emissions takes place directly at the data acquisition system. By dispensing with the expensive calculation method of the CO₂ and CO or N₂O emissions, the safety margins for the calculation methods are no longer required, and only the actual emitted emissions are reported and paid for.

At a glance

- In-situ solution for measuring CO₂ and CO or N₂O emissions
- Direct measurement with mixed fuels
- Measurement without converting from dry to humid conditions
- Transfer of the greenhouse gas emissions directly to the control unit

Your benefits

- Cost savings thanks to reduced effort recording greenhouse gases
- Lower costs for determining substance flows and fuel qualities
- Safety margins for the calculation method are no longer an issue
- Low operating costs due to minimal maintenance requirements
- Only greenhouse gas emissions that are actually emitted are reported and paid for
- Consulting, project management, and implementation from a single source
- On-line determination of moisture content (H₂O concentration)
- On-line monitoring for optimizing plant operation

Fields of application

- Simple data collection for companies that are required to report greenhouse gases
- Accurate calculation of greenhouse gas loads within the framework of an emission trading or pollution tax system

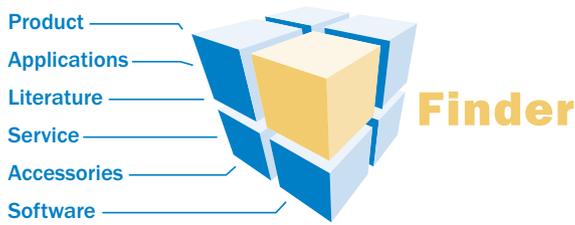


→ www.mysick.com/en/GHG-Control

For more information, just enter the link and get direct access to technical data, CAD design models, operating instructions, software, application examples, and much more.

WWW.MYSICK.COM – SEARCH ONLINE AND ORDER

Search online quickly and safely - with the SICK "Finders"



Product Finder: We can help you to quickly target the product that best matches your application.

Applications Finder: Select the application description on the basis of the challenge posed, industrial sector, or product group.

Literature Finder: Go directly to the operating instructions, technical information, and other literature on all aspects of SICK products.

Efficiency – with the E-Commerce-Tools from SICK



Partner Portal
www.mysick.com

Find out prices and availability

Determine the price and possible delivery date of your desired product simply and quickly at any time.

Request or view a quote

You can have a quote generated online here. Every quote is confirmed to you via e-mail.

Order online

You can go through the ordering process in just a few steps.

FOR SAFETY AND PRODUCTIVITY: SICK LIFETIME SERVICES

SICK LifeTime Services is a comprehensive set of high-quality services provided to support the entire life cycle of products and applications from system design all the way to upgrades. These services increase the safety of people, boost the productivity of machines and serve as the basis for our customers' sustainable business success.



Consulting & Design

Globally available experts for cost-effective solutions



Product & System Support

Fast and reliable, by telephone or on location



Verification & Optimization

Checks and recommendations for increased availability



Upgrade & Retrofits

Uncovers new potential for machines and systems



Training & Education

Employee qualification for increased competitiveness

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for factory, logistics, and process automation. With more than 6,000 employees and over 40 subsidiaries worldwide, we are always close our customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services round out our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

Worldwide presence:

Australia, Belgium/Luxembourg, Brasil, Česká Republika, Canada, China, Danmark, Deutschland, España, France, Great Britain, India, Israel, Italia, Japan, México, Nederland, Norge, Österreich, Polska, România, Russia, Schweiz, Singapore, Slovenija, South Africa, South Korea, Suomi, Sverige, Taiwan, Türkiye, United Arab Emirates, USA.

Please find detailed addresses and additional representatives and agencies in all major industrial nations at: www.sick.com