



# RMG CORRELATIVE GAS QUALITY ANALYSER RGQ 5

The RMG gas analyser RGQ 5 uses the correlation method to measure important quantities of gases which are required for control purposes. A short response time and a low inlet pressure make the device universally applicable.

# RGQ 5 Specifications

## Introduction

The RGQ 5 is a low investment gas analyser designed for the continuous measurement of combustible gases. Every second, the device displays the measured values for superior calorific value (Hs), inferior calorific value (Hi), upper and lower Wobbe index (Ws and Wi), density ( $\rho$ ), real gas factor (Z), stoichiometric air-fuel ratio (s-AFR), methane number (MN) and the volume fractions of CO<sub>2</sub> and H<sub>2</sub>.

Gas flows at a low flow rate (30 ml/min) through 1/4" NPT connections into the RGQ 5. A 4-20 mA analog signal and a Modbus RTU interface are available as output signals.



The RGQ 5 uses patented gas viscometer technology in combination with other micro-electromagnetic sensors (MEMS). The analyser was specially developed for biomethane injection, hydrogen admixture, combustion control, gas network monitoring and other stationary applications. The sensor units are designed in 5 different variations. These have been developed for different accuracies and gas compositions.

### RGQ 511 Extended

Standard version with viscosity and thermal conductivity sensor

### RGQ 522 Renewable

Additionally with CO<sub>2</sub>

### RGQ 513 Hydrogen

Additionally with H<sub>2</sub> detection

### RGQ 524 Ultragreen

Additionally with CO<sub>2</sub> and H<sub>2</sub> detection (on request)

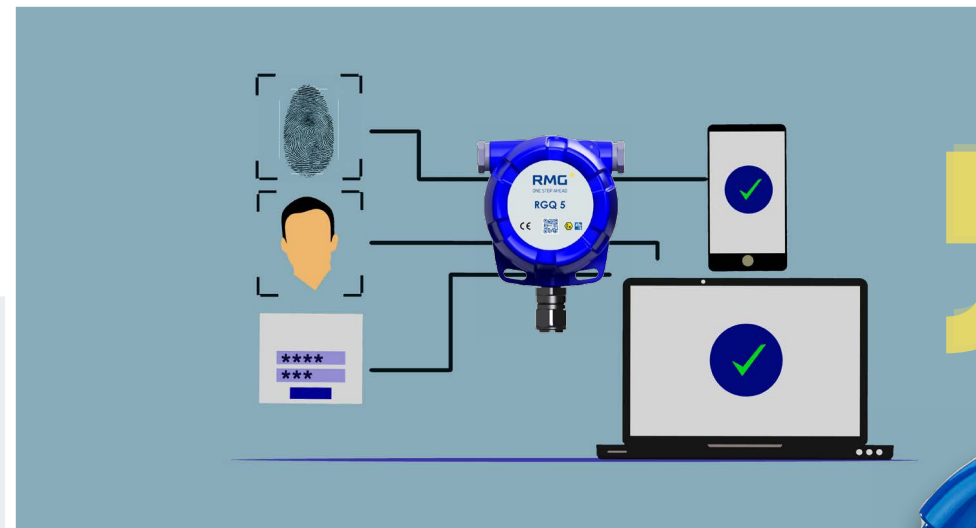
### RGQ 527 OIML

Additionally with CO<sub>2</sub> and H<sub>2</sub> detection (on request)

## Construction variants

As basic version the pure measuring unit is available. In the extended version, the measuring unit is mounted on a metal plate for wall mounting together with an inlet filter, pressure reducer and adjustable bypass. Optionally, this plate can be mounted together with a heater in a plastic housing with viewing window.

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## Features

### Measured values:

- Wobbe Index (Ws & Wi)
- Superior and inferior calorific value (Hs & Hi)
- H<sub>2</sub> and CO<sub>2</sub> Mol-% (optional)
- Density, relative density & compressibility
- Air/fuel ratio
- Methane number MN

### Accuracy:

- Measurement uncertainty  $\leq 1\%$  ( $< 0.5\%$  for RGQ 527 OIML) of measured value

### Maintenance-free and reliable:

- No moving parts
- No chemical reactions

### Fast and consistent measurement:

- Viscosity data every 4.5 seconds
- Thermal conductivity and CO<sub>2</sub> reading every second

### Additional features:

- No carrier gas required
- Certified, explosion-proof housing for gas group IIC, i.e. also for hydrogen
- Built-in gas flow reducer
- Interfaces: 4-20 mA, Modbus RTU
- Power supply: 24 VDC
- Plug and play installation & operation
- Easy replacement of the sensor unit
- CE, ATEX & IECEx certificate (optional)



# Fields of application

## Efficient process control with state-of-the-art technology

### Biogas and methane feed-in plants

The process control system is connected directly to the plant control system via Modbus. The values are archived in the controller and can be accessed via the DSfG bus. Both current and archived values are conveniently visible on the controller display, enabling easy monitoring and analysis. This ensures continuous control and optimisation of the process sequences.

The RGQ 5 is mounted on a backplate that easily attaches to the EMC500 frame. This allows existing wiring and power supplies to remain in use. This saves time and resources during installation and significantly reduces overhead. The integrated pressure control ensures precise control of process sequences and contributes to system efficiency and reliability.

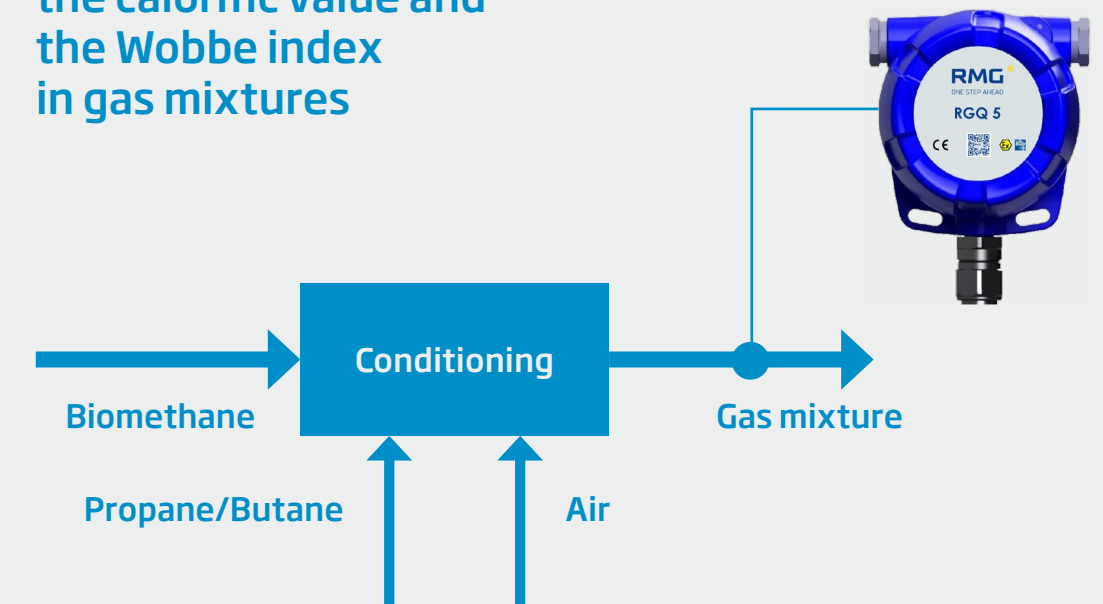
To control the process sequences, the connection can be made either via a mA current loop or directly to the plant control system via Modbus RTU. This offers flexibility for integration into existing systems and enables seamless adaptation to different requirements. Alternatively, the values can be archived in the RGQ controller. The RGQ controller acts as a Modbus client for retrieval of the RGQ. The data can be retrieved from the RGQ controller via Modbus (live data) and/or DSfG bus (archives).

The system also supports the generation of PGC substitute values according to DVGW G 685-5, providing additional safety and reliability in process control. This ensures that processes remain stable and efficient even under variable conditions.

### Market advantages of the RGQ 5:

- No calibration or carrier gases required
- 1-second measurement cycle
- Very low sample gas consumption
- Lower price than competing products
- OIML Class A approved
- No combustion of the sample gas required
- Low operating pressure of the device (50-150 mbar)
- Multiple physical parameters (including a patented method) for correlation

## Control of the conditioning of the calorific value and the Wobbe index in gas mixtures



The calorific value and the Wobbe index of the gas mixture are determined using the RGQ 5.

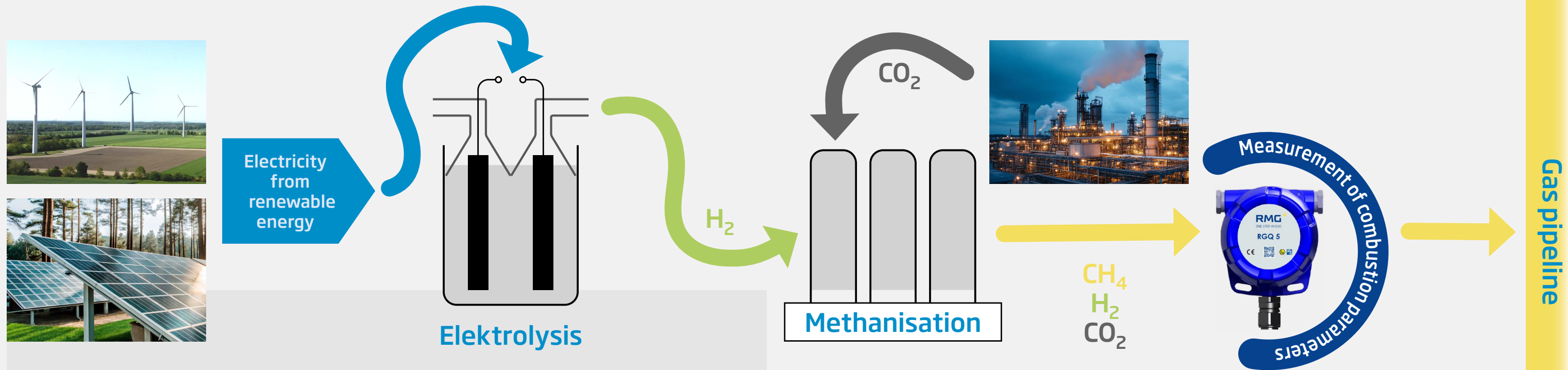
The device records a new reading every second, ensuring continuous monitoring of the gas mixture. Viscosity is measured every 4.5 seconds, while the TCD value is updated

every second. The amount of propane/butane or air added is controlled to condition the calorific value and the Wobbe index in the gas mixture.

Possible fluctuations in the composition of propane, butane or biomethane are taken into account.



# Gas quality measurement in your methanation plan with the RGQ 5



## Precision with maximum efficiency

In modern methanation plants, the precise determination of gas quality is crucial for the efficiency and safety of the process. The RGQ 5 sets new standards in the precise measurement and monitoring of gas mixtures. Regular and accurate measurements enable optimal control and adjustment of the gas mixture, leading to greater efficiency and stability of the methanation process.

Trust in the precision and reliability of the RGQ 5 from RMG Messtechnik. Operate your methanation plant at the highest level.



# The RGQ Controller

The RGQ-C serves as a control and measurement device for the RGQ 5 system. It records, stores, and transmits the measured values from the RGQ 5 to determine the energy content of natural gas and biogas. The controller manages the analysis and produces the results. All operating parameters are stored in the device.

- ✓ High precision
- ✓ Versatile application
- ✓ User-friendliness
- ✓ Archiving of measurement data



## For further information

To learn more about RMG's advanced gas solutions, please contact your RMG account manager or visit [www.rmg.de](http://www.rmg.de)



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