

Biogas quality control, analysis and monitoring unit from waste methane production

Context and challenges

Currently, the demand for energy is ever increasing, whether it is electricity, fossil fuel or even gas. As a result, it is becoming increasingly difficult to discover new resources without having a lasting impact on the preservation of our ecosystems. To best meet these needs, manufacturers have doubled their efforts to offer green energy production alternatives, such as household and organic waste recovery sites intended for the production of biogas.

This gas production is not without risk to the environment or the personnel working on site. It is subject to many quality criteria and must be continuously monitored and quantified by appropriate quality control measures.

Chromatotec® solution

Chromatotec® has developed a stand-alone solution equipped with a GC TCD, allowing the analysis of CH₄, H₂S, CO₂ and O₂ in simple, complex and relatively wet matrices. This system quantifies all of these compounds in 10 minutes in a wide measurement range of a few ppm to several percent. The same device analyzes one to 48 channels automatically thanks to a multiplexing system controlled by our Vistachrom software.

This union of technology is available in the several formats listed here:

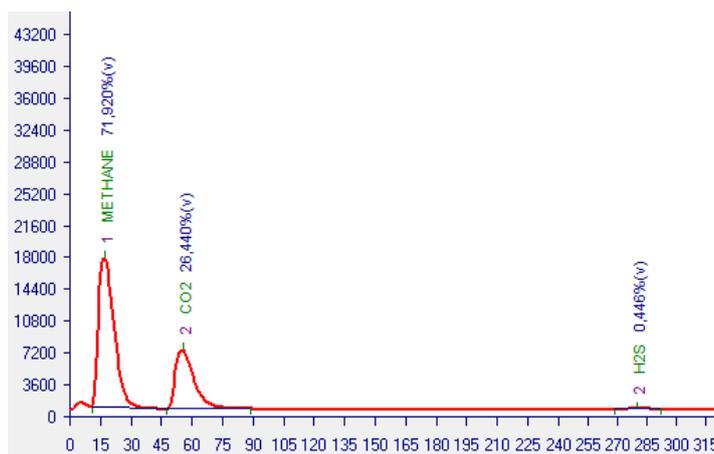
- In a rack that can be integrated into a bay or can also be deployed in the field during analysis campaigns.
- In an IP54 to IP66 wall box incorporating a sampling pump, front touch screen and a benchmark hydrogen generator that produces the instrument's carrier gas, making this solution 100% autonomous.
- In an ATEX certified box: With some sampling instruments located in elevated-risk areas, these solutions are ATEX Exp- and Exd-certified. These certified shelters prevent any risk inherent in the analyzer operation or in the installation location atmosphere. This guarantees protection for both users and hardware, while offering the same analytical performance as our classic version.



Rack version



ATEX Exp version



Example of ChromENERGY Chromatogram

Ease of use

- Waterproof solution up to IP66 : protects against splashing water and volatile atmospheres
- No auxiliary gas required for operation thanks to the integrated hydrogen generator
- Reliable and robust TCD detector
- Sample analysis at atmospheric pressure or under pressure

Data acquisition and processing

Data is automatically collected by the software and the Vistachrom interface. Concentrations, retention times and analyzer status can be transferred by Modbus protocol or 4-20mA analog output directly to a supervision room. With the integrated color LCD touchscreen, editing, viewing and transferring chromatograms is made simple and accessible on site. A calculation module manages the results to perform a daily average of the concentrations, retention times, selected compounds, etc.

Summary

- Stand-alone solution
- Available in several versions: rack, wall box, ATEX Exp and Exd
- Speciation of compounds via chromatography
- Linearity results for each compound
- Robust instrument with only low maintenance required
- State-of-the-art PC and software solutions (Modbus, calculation modules, embedded Windows software)
- Automatic calibration using an external cylinder
- Analysis in ppm or % concentration
- Analysis of several (1 to 48) channels automatically with a single device