

COMBIMASS[®]

Analyzer Station GA-s hybrid air monitoring

for monitoring the supporting air of the double-walled membrane roofs (TRAS 120)



COMBIMASS® GA-s hybrid air monitoring

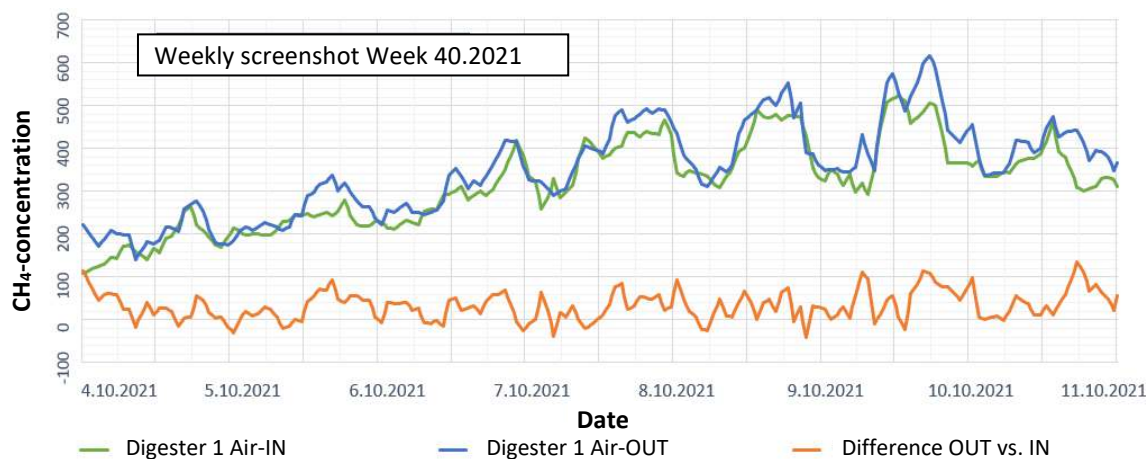
Digester in agricultural biogas plants are often covered with single or double-wall membrane systems. The latter are permanently supported with air to prevent biogas losses and emissions of biogas into the atmosphere. Over the course of years, the membrane foils are subjected to material changes. This can lead to increased emissions or in the worst-case lead to rupturing of the membrane.

German TRAS 120 (Safety Requirements for Biogas Plants) states: "The tightness of membrane systems must be monitored. For this purpose, they shall be operated with an additional outer covering of the gas membrane, which allows continuous monitoring of the gap. Membrane systems that do not meet this requirement shall be replaced by a monitorable double walled system at latest by the end of their service life or after irreparable damage to the membrane". Furthermore, the paper defines a maximum permissible membrane permeation rate.

Therefore, long-term monitoring is considerably important. The service life can be extended by permanently monitoring the membrane roofs. This not only reduces investment costs, but also waste products and the costs for the disposal of the plastic membranes.

The new GA-s hybrid air monitoring system is based on the proven modular concept of the hybrid series. Solely the gas modules are adapted to the requirements of air analysis.

The specific challenge here is the small measuring range of only a few ppm for methane compared to biogas. The standard measuring systems available on the market today for biogas in the Vol.% range are not suitable because they cannot measure the small concentrations with sufficient accuracy. Binder's optical measuring cell was especially developed for this application and tested under real conditions. It can also measure methane concentrations of 50 ppm very precisely. In addition, a differential measurement of outlet air versus inlet air is carried out because often there are already low methane concentrations in the air in the vicinity of the fermenter (see weekly screenshot). This enables an exact representation of the actual permeation without distortion by external influences - a patent application has already been filed for the process.



Gas analysis equipment requires a regular service and maintenance. The maintenance effort is very low and can be carried out by the operator himself within a few minutes.

TECHNICAL DATA ANALYSER STATION GA-s hybrid

- Analyzer cabinet for wall mounting / rack mounting, 24 VDC or 230 VAC
- Indoor / outdoor installation, operation in a safe (externally monitored) area or in EX zone 2
- for 1 double-wall membrane roof, expandable up to 4 roofs
- One NDIR-CH₄ gas module of the hybrid series, measuring range: 0 - 2,000 ppm
- data transmission: 4-20 mA analog signals or standard bus systems
- Transmission of 1 common alarm or single alarms via digital outputs, option: single alarms via bus