

# INCA and CWD for efficient operation of Biogas plants

The changing gas markets open new opportunities for Biogas plant operators and increase the importance of gas measuring equipment. CWD and INCA are powerful and cost-efficient analyzers for this application.



COMPETENCE  
IN GAS  
MONITORING



## COMPETENCE IN GAS MONITORING

### Biogas is part of a worldwide trend

Biogas plants are often not, or not yet, perceived for what they really stand – an important factor in the worldwide effort to achieve a secure and increasingly renewable energy supply. In Germany, for instance, around 8000 biogas plants (2015) represent an electrical capacity of almost 4000 MW, which corresponds to the capacity of several nuclear power plants! The biogas market and the importance of biogas plants are further increased by regulation directives (such as Directive 2003/55/EC in the European Union), which expressly provide to Biogas operators the right of free access to existing natural gas networks. Consequently, suppliers of biogas must take into account relevant quality and safety requirements for feed-in of their products.

### Demanding process technology required

Behind the often simple appearance, a biogas plant comprises a sophisticated process technology that produces high-quality combustion gases from “green” materials of different kind and sources. A multi-stage, time-consuming conversion process (in detail: hydrolysis and fermentation to biogas and following upgrading to biomethane) runs largely automatically, given the right process conditions: temperature and pressure, raw material feed, gas composition, fraction of contaminants and inhibitors, and much more. “Everything has to be right” – that is the responsibility of the measuring and control system of the plant, which keeps the whole process under control and signals automatically if anything gets wrong. This enables prompt counter measures and protects the operator from high financial losses, where applicable.



## Importance of measuring technology

Operators of biogas plants often have different views of the importance of measuring technology. Some take the use of modern measuring technology as self-evident as it contributes to safety, quality, and economic operation of a production process. Others view measuring technology as complicated and expensive and unnecessary in many cases. The truth is that correctly engineered and operated measuring technology works reliably, assures process and product quality, prevents bad batches, and is, above all, affordable, as shown by the devices of UNION Instruments, for example.

## UNION Instruments is a gas monitoring expert

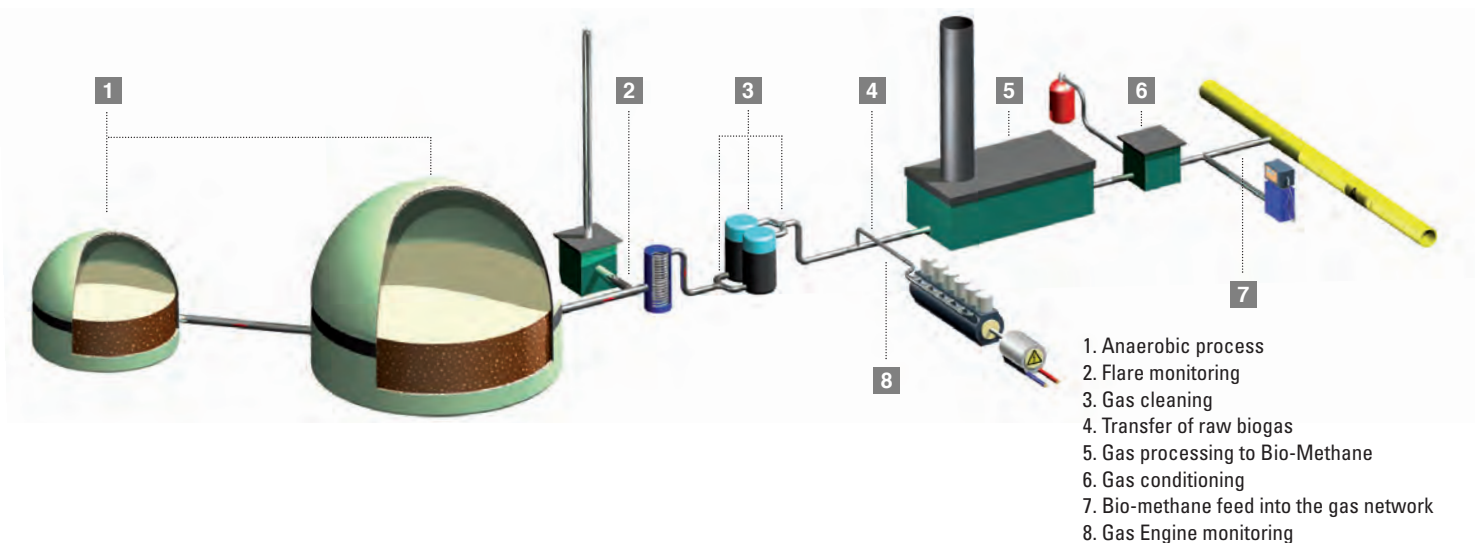
The over 90 years old German instrumentation company has concentrated from the outset on development and production of measuring instrumentation for the gas market starting with special emphasis on the gas market in the steel and glass industries and, around 15 years ago, expanding on the biogas market. Both the **CWD** (continuously measuring combustion calorimeter to determine the energy content of a gas) and **INCA** (extremely flexible gas analyzers to determine the composition of a gas) distinguish by a robust design - suitable for use in harsh environments -, high measuring performance and comparatively low investment costs. CWD and INCA are suited to deliver information from different parts of a biogas plant, see figure below. Technological highlights include the continuous direct measurement of the Wobbe-Index, a patented measuring technology for reliably measuring even high H<sub>2</sub>S concentration, and the miniaturization of gas detectors with calibration parameters stored directly on the detector unit.

Wobbe-type  
calorimeter CWD

Energy content  
of biogas



Leading in combustion  
gas analysis





## UNION Instruments. Competence in gas monitoring

UNION Instruments GmbH is a Germany based manufacturer of devices and systems in gas measurement technology with a global approach. The company specialises in determining the energy content (calorimetry) and composition (analysis) of gases for industrial purposes covering a broad range of applications. The modular design of the devices makes them especially suited for custom solutions.

UNION Instruments offers our customers flexibly configurable standalone devices as well as complete solutions (systems) designed for individual needs including planning and engineering.

The characteristic feature of such a complete solution is the combination of different measuring methods to form a complete system. This tailor-made offer includes all measures from counselling, planning, engineering and installation to commissioning on site. This includes as well the correct documentation according to ISO and/or CSA/UL.

### Our service performance



#### Support

The UNION-hotline helps to solve all inquiries and urgent issues fast and easy. Device specific concerns can be solved worldwide within minutes by direct communication via TEAMVIEWER.



#### Training

UNION offers individual in-house training or on-site seminars for installation, use and maintenance of our devices even at the customer's premises. Training is individually adapted to the client's requirements.



#### Repair service

A global service for inspection, maintenance and repair of our devices and systems is provided directly by UNION and via its distributors.



#### Original spare parts

Original spare parts for the majority of UNION's products are on stock directly at site and ready for dispatch within a few hours.

