

# COMBIMASS<sup>®</sup>

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## Technical Data

### COMBIMASS<sup>®</sup> GA-m



## PORTABLE GAS ANALYZER COMBIMASS® GA-m

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For decades now, Binder has been supplying leading plant manufacturers with innovative systems for industrial gas flow measurement. In the last few years, the demand for reliable, precise and cost-effective measuring systems for biogas, sewage gas and landfill gas has increased significantly. Since the composition of these gases changes over time, the linking of flow measurement and gas analysis brings great advantages:

- Providing the most precise quantity measurement, even in changing conditions
- Cost advantages by avoiding redundant components
- Attractive additional functions by linking the data from both systems.

The new series of extremely robust, low maintenance and efficient portable measuring instruments COMBIMASS® GA-m series represents a milestone in the development of mobile gas analysers. All common requirements are optimally fulfilled in the analysis of fermentation gas, sewer gas and dump gas from landfills.

Due to its easy to service structure, and with modules plug-in, the systems can be extended and upgraded to the latest version at any time. The powerful internal gas pump also makes measurements in gases with negative pressure possible. The gas cells can be supplied with different measuring ranges.

The data can be stored, measuring sampling point-referred and can be read out to the PC. The internal data logger is very efficient. Servicing contracts with supply of spare devices ensure availability throughout the whole year.

For reliable and cost-effective operation, modern gas engines in biogas, sewage gas and landfill gas plants need a minimum gas quality. Such quality is usually monitored and recorded as required by the engine manufacturer and the plant's insurance. The monitoring of engine's efficiency provides early warning of potential damages and helps to minimize it. Optimized performance control can be done by taking current gas consumption and gas generation into account.

Binder offers the perfect solution for these tasks: a precise portable thermal dispersion mass flow meter combined with the portable biogas analyzer. Deviations of measured values due to changing gas composition, humidity, pressure and temperature are compensated automatically. Data will be shown on the display, can be stored and transferred to the PC.

## SMART FEATURES

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- up to 7 gas analysis channels in a portable instrument (3x NDIR / 4x EC)
- powerful internal sampling pump
- user replaceable sample micro-filter
- optical infra-red analyser with temperature compensation
- up to 4 electro-chemical sensors plug-in expandable, integrated cross-sensitivity compensation
- storage of data (with reference to the sampling point), read out data via USB
- integrated maintenance diagnosis system
- with ATEX-certificate II 3G Ex ic IIB T4

## APPLICATIONS VERSATILITY

- Gases that contain methane from anaerobic digestion plants (agricultural, manure etc., liquid as well as solid waste fermentation), mechanical biological waste treatment plants
- Sewage gas from digester at wastewater treatment plants
- Landfill gas

## TECHNICAL DATA BIOGAS ANALYZER GA-m

Size of the instrument	190 mm x 180 mm x 58 mm
Weight	Up to 1.7 kg
Material enclosure	Aluminium
Display	4.3" TFT (touch resistive industrial, 50,000 operational hours)
Ambient temperature	-10 to + 45°C
Gas quality	+5 to + 40°C, 10-95% rel. Humidity (non condens.)
Gas pressure	200 to 1,250 mbar
Protection class	Up to IP66
Capacity gas pump	400 ml/min
Infrared CH <sub>4</sub> analysis <sup>1)</sup>	0 - 100%
Infrared CO <sub>2</sub> analysis <sup>1)</sup>	0 - 100%
Infrared CO analysis <sup>1)</sup>	0 - 100%
Electrochemical O <sub>2</sub> analysis <sup>1)</sup>	0 - 30%
Electrochemical H <sub>2</sub> S analysis <sup>1)</sup>	0 - 50 ppm ... 10,000 ppm
Electrochemical H <sub>2</sub> analysis <sup>1)</sup>	0 – 1,000 ppm ... 40,000 ppm
Electrochemical CO analysis <sup>1)</sup>	0 - 200 ppm ... 2,000 ppm
Electrochemical NH <sub>3</sub> analysis <sup>1,2)</sup>	0 - 100 ppm ... 2,000 ppm
Typical measuring time	10 – 90 seconds, depends on the sensor
Recalibration	with testgas 1-2x per year even by the operator (depends on frequency of use and required accuracy)
Operation time of the battery	8 hours typical / loading cycle
Loading time battery	3 to 4 hours
Data logging	data storage with reference to the sampling point, names can be defined easily, 25 sampling point ID's, 600 set of data max.
Communication / data transfer	data can be read out via USB (option only) with a software, convert to an EXCEL-sheet

<sup>1)</sup> Customized operation ranges can be supplied

<sup>2)</sup> H<sub>2</sub>S-concentration is limited to 200 ppm to protect NH<sub>3</sub>-cell

## TYPICAL ACCURACIES GA-m

Gas	Operation Range	Typical Accuracy <sup>1)</sup>	Typical T <sub>90</sub> -Time/ Typical Measuring Time
Methane (CH <sub>4</sub> )	0 to 100 Vol.-%	0 - 70%: +/- 0.5 Vol.-% 70 - 100%: +/- 1.5 Vol.-%	50 s 120 s
Carbon dioxide (CO <sub>2</sub> )	0 to 100 Vol.-%	0 - 60%: +/- 0.5 Vol.-% 60 - 100%: +/- 1.5 Vol.-%	40 s 120 s
Oxygen (O <sub>2</sub> )	0 to 30 Vol.-%	0 - 30%: +/-1.0 Vol.-%	40 s 120 s
H <sub>2</sub> S	0 to 50 ppm 0 to 200 ppm 0 to 500 ppm 0 to 2,000 ppm 0 to 5,000 ppm 0 to 10,000 ppm	0 – 50 ppm: +/- 1.5% FS 0 – 200 ppm ... 5.000 ppm: +/- 2.0% FS 10.000 ppm: +/- 3.0% FS	60 s 120 s
H <sub>2</sub>	0 to 1,000 ppm 0 to 5,000 ppm 0 to 10,000 ppm 0 to 40,000 ppm	+/-2.5 % FS	30 s 90 s
NH <sub>3</sub>	0 to 100 ppm 0 to 500 ppm 0 to 1,000 ppm	+/- 10.0% FS	90 s 180 s
CO	0 to 200 ppm 0 to 2,000 ppm	+/- 2.0% FS	30 s 90 s

<sup>1)</sup> at delivery respectively after recalibration

**Standard Accessories:** battery charger, sample pipe with filter, manual, calibration certificate

**Options:** device stand, device folding clamp, padded protective bag with front window for operation and side opening (photos), durable transport case with spare filter and foam insert (photos), car charger, software for data transmission to the PC (EXCEL)





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