



CH₄ | CO₂ | H₂S | O₂ | H₂

SWG100 BIO-EX

The zone 2-analyzer.



Stationary Biogas measuring system for continuous measurements in Ex-zone 2



SWG100 BIO-EX

The ATEX-certified analyzer

The MRU biogas analyzer of series SWG100 BIO-EX is designed for use in the hazardous zone 2 environment of different sites where biogas is produced. The analyzer can be installed in outdoor or indoor locations. It can sample dry or wet biogas, pressurized or low pressure gas and can be used from single point sampling up to max. 6 sampling points.

These are the special advantages:

- Industry compatible rugged design with stainless steel IP 65 cabinet with ATEX certification according to II 3G Ex nA nC IIC T3 Gc
- Efficient sample gas conditioning with gas cooler and condensate draining pump
- Sampling from –100 mbar to +200 mbar
- H₂S very high measurement using a special dilution system
- Direct and continuous/discontinuous measurement, with pressure and temperature compensation and event data logging
- Up to 6 sites monitoring (time sharing technique) with only one analyzer
- Ready to run delivery, minimum installation work



The device in detail

An overview of the special features



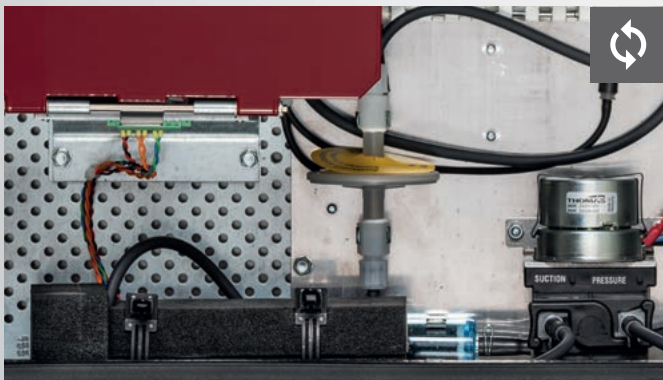
Multiple sampling point monitoring

up to 6 sites with one unit, incl. auto cal inlet



Cabinet heating (option)

Temperature regulated, for use in safe environment



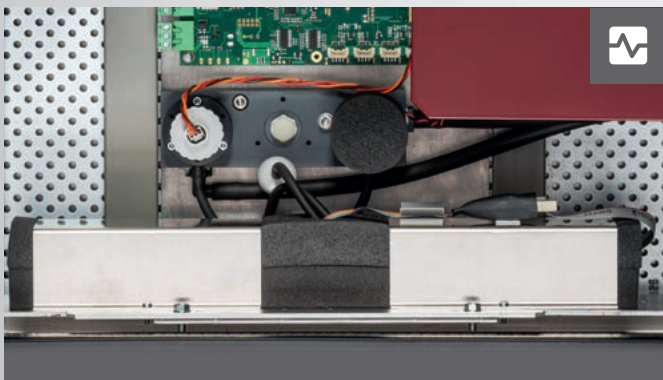
Sample gas cooler

with automatic condensate pump and bottle



Electrochemical gas sensors

for analysis of O₂ and H₂S



NDIR-bench

for analysis of CH₄/CO₂, 0 ... 100%, for biogas-, biomethane- and offgas measurements



I/O-module

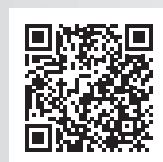
with 4-channel, 4 ... 20 mA analogue output and 2 alarm relays (NO contacts)

SWG 100 BIO-EX

Technical specifications

Measured components	Method	Range	Resolution	Accuracy
Methane CH₄	NDIR	0 ... 100%	0,01 Vol.-%	±0,3 Vol.-% or 3 % of reading** or 0,1 % of reading after calibration**
Methane CH₄	NDIR	0 ... 30.000 ppm	1 ppm	±5 ppm or 2 % of reading** or 0,1 % of reading after calibration**
Carbon dioxide CO₂	NDIR	0 ... 100%	0,01 Vol.-%	±0,3 Vol.-% or 3 % of reading** or 0,1 % of reading after calibration**
Carbon dioxide CO₂	NDIR	0 ... 5.000/30.000 ppm	1 ppm	±2/±50 ppm or 2 % of reading** or 0,1 % reading after calibration**
Oxygen O₂	EC	0 ... 25 %	0,01 Vol.-%	±0,2 % absolute
Hydrogen sulfide H₂S low	EC	0 ... 50/250 ppm*	1 ppm	±2 ppm or 5 % of reading** (0 ... 50 ppm)
Hydrogen sulfide H₂S high	EC	0 ... 5.000/10.000 ppm*	1 ppm	±5 ppm or 5 % of reading** (0 ... 5.000 ppm)
Option dilution	Each H ₂ S-sensor mentioned above, with a dilution factor of 1:50 applied			
Hydrogen H₂	EC	0 ... 1.000/2.000 ppm*	1 ppm	± 10 ppm or 5 % of reading** (<1.000 ppm)
Hydrogen H₂	EC	0 ... 1.00/2.00 %*	0,01 %	±0,2 Vol.-% or 5 % of reading**
Calculated values		Range	Resolution	
Nitrogen background N₂		0 ... 100%	0,1 %	
Gross calorific value		0 ... 40 MJ/m ³ / 0 ... 56 MJ/kg	0,1 MJ/m ³ or MJ/kg	
Net calorific value		0 ... 36 MJ/m ³ / 0 ... 50 MJ/kg	0,1 MJ/m ³ or MJ/kg	
Human machine interfaces	3,5" TFT color display dirt resisting key pad, password protected calibration 4 x analogue output 4 ... 20 mA, galvanically isolated, max. load 500R 2 alarm relays, fail- safe NO contacts 24 Vdc / 5 A RS485 digital interface (Modbus RTU) RS485 to USB-, Ethernet-, Profibus/Profinet-converter (options)			
System safety components	stainless steel adapter 1/8" I - 1/8" O, with flow restrictor orifice and solenoid valve LEL (CH ₄) monitoring inside cabinet (option)			
Gas conditioning	Stainless steel gas fittings with 1/8" ID threads gas cooler and automatic condensate pump Teflon particle filter Monitored and regulated gas sampling pump 40 ... 60 l/h Gas inlet pressure: -100 mbar up to + 200 mbar Sample gas outlet: atmospherical pressure			
Cabinet dimensions	600 x 700 x 210 mm (HxWxD) suitable for wall mounting			
Weight / protection class	40 kg / IP65 NEMA 4X			
Installation site	inside or outside (rain- and sun protection to be provided by customer)			
Environmental temperature	+5° C ... +45° C or -10° C ... +45° C with cabinet heating (option)			
Cabinet (stainless steel)	Anti-freeze protection 200 W (option)			
Power supply	Universal 90 ... 240 Vac / 47 ... 63 Hz / 120 W (420 W with optional cabinet heater)			

* max. range for short term measurements only | **the higher value applies | N-9513GB-BIO-EX-K0-0M-0423
Technical data subject to change without notice | EC = Electrochemical sensor, NDIR = Non dispersive infrared spectroscopy



SWG 100 BIOGAS



SWG 100 BIOcompact



OPTIMA Biogas
hand held analyzer

MRU – Competence in gas analysis. Since 1984.

**MRU · Messgeraete fuer Rauchgase
und Umweltschutz GmbH**

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