



NO_x | NO | NO_2 | CO | CO_2 | SO_2 | CH_4 | C_3H_8 | O_2

SWG 100 CEM

Stationary
gas analysis system.



For continuous flue gas
and emission monitoring.



SWG 100 CEM

Optimal gas analysis around the clock

With SWG 100 CEM (Continuous Emission Monitoring) we offer you a cost-effective, reliable system for emission and combustion monitoring. Suitable for various industrial sectors:

Diesel engines, methane/natural gas boilers, landfill gas/biogas CHPs, bagasse and biomass boilers and others. With **SWG 100 CEM**, simultaneous **infrared analysis** of up to 3 flue gas components is possible. Further more it is possible to measure 3 more components **simultaneously** electrochemically. Alternatively up to 5 components may be measured simultaneously on electrochemical basis. The electrochemical sensors are O_2 – CO – NO – NO_2 – SO_2 .

We offer you these special advantages:

- Single heat exchanger and Peltier- gas cooler with automatic condensate-pump
- no dilution of sample gas needed, simultaneous measurement of all gas parameters
- direct and continuous measurement, with pressure- and temperature compensation
- Automatic zero point using clean ambient air
- internal flow monitoring with alarm indication in the display, e.g. In case of clogged probe or internal filter
- Gas sampling from –150 mbar low pressure up to +50 mbar flue gas pressure



The device in detail

An overview of the special features



Cabinet

- Stainless steel cabinet for industrial environment
- 3.5" TFT color display, incl. keypad and standard RS 485 interface (Modbus RTU)
- Indoor installation, preferably air-conditioned
- Outdoor installation with sun and rain protection and low dust site



Gas conditioning

- Different probes, depending on the condition the gases to be analyzed (lowdust, highdust and compact probe with heating hose)
- Heated (and unheated) gas sampling lines up to 75 m length
- Efficient gas filtration by sintered PTFE particle filters
- Int. flow monitoring with alarm indication on the display
- Filtering of the gas to protect the internal flow sensor



Measurement technology

- 3-gas-NDIR-measuring module
- Paramagnetic O₂-sensor
- Elektrochemical O₂-sensor
- Direct and continuous measurement with pressure and temperature compensation



Data communication

- I/O module with 4-channel analog output 4 ... 20 mA and 2 relays (NO contacts) incl. external control via 4 contacts and 4-channel analog input 4 ... 20 mA
- Profibus, Ethernet, USB, SD card
- PC software "MRU4Win": visualize measurement data, manage, export and print

SWG 100 CEM

Technical data

Gas measurement (NDIR)	Measuring range min./max.	Resolution	Repeatability*
Carbon monoxide (CO)	0 ... 1,000/100,000 ppm	1 ppm	± 10 ppm or 3% reading
Carbon dioxide (CO ₂)	0 ... 50%	0.01 Vol%	± 0.1% oder 3% reading
Sulphur dioxide (SO ₂)	0 ... 1,000/10,000 ppm	1 ppm	± 10 ppm or 3% reading
Methane (CH ₄)	0 ... 1,000/40,000 ppm	1 ppm	± 10 ppm or 3% reading
Propane (C ₃ H ₈)	0 ... 1,000/20,000 ppm	1 ppm	± 10 ppm or 3% reading

Gas measurement (EC/PM)	Method	Measuring range min./max.	Resolution	Accuracy*
Oxygen (O ₂) (long life)	EC	0 ... 25%	0.01 %	± 0.25% abs.
Oxygen (O ₂)	PM	0 ... 25%	0.01 %	± 0.1% abs.
Carbon monoxide (CO)	EC	0 ... 10,000/20,000 ppm	1 ppm	± 10 ppm or 5% reading
Nitric monoxide (NO)	EC	0 ... 1,000/5,000 ppm	1 ppm	± 5% or 5% reading
Nitric dioxide (NO ₂)	EC	0 ... 200/1,000 ppm	1 ppm	± 5% or 5% reading
Sulphur dioxide (SO ₂)	EC	0 ... 2,000/5,000 ppm	1 ppm	± 10 ppm or 5% reading

General technical data	
Zero offset	negligible due to automatic zeroing
Span offset	less than 0.2 % of the measuring range per month
Calculated components	NO _x : NO + NO ₂ , calculated ppm or mg/m ³ , user-selectable O ₂ reference combustion calculations (efficiency, heat loss) on special request
Operation/interfaces	■ Backlit 3.5" TFT color display ■ Backlit keyboard, password-protected operation ■ 4 analog outputs 4 ... 20 mA, galvanically isolated, max. load: 500 R ■ 2 alarm relays, potential-free contacts: 24 Vdc, 5 A ■ Data storage and data logger on SD card ■ RS 485 digital interface (Modbus RTU) ■ DIN rail RS 485, to ProfiBus converter or to Ethernet converter
Gas conditioning	■ HD gas sampling probe, heated ceramic filter with backpurge, or gas sampling probe HD-GW, heated glass wool filter, or LD gas sampling probe, unheated with in-situ sintered metal filter, heated or unheated gas sampling line, PTFE DN 4/6 mm ■ Thermoelectric gas cooler (Peltier) with constant +4 °C dew point ■ Teflon particle filter, internal Viton tubing ■ Monitored and regulated gas sampling pump ■ Constant gas flow of 50 l/h ■ Gas inlet pressure: – 150 ... + 50 mbar (hPa) ■ Sample gas outlet: atmospheric pressure
Housing	Stainless steel cabinet
Operating conditions	+5 ... +45 °C or – 10 ... +45 °C with cabinet heating
Power supply	Universal: 100 ... 240 Vac, 47 ... 63 Hz, 120 W (420 W with cabinet heating)
Protection class	IP54
Dimensions (W x H x D)	600x700x210 mm, suitable for wall mounting
Weight	50 kg

MRU – Competence in gas analysis. Since 1984.



MRU · Messgeraete fuer Rauchgase und Umweltschutz GmbH

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