

# SWG 100 CEM

## STATIONARY ANALYZER for Continuous Emission Monitoring

Low cost, reliable system for emission monitoring and combustion checking of various industrial sites, using extractive method and tailored to your needs



The complete, ready to use flue gas analyzer **SWG100** CEM is the low cost industrial solution to be used with a wide variety of emission sources:

- small power plants, small gas turbines
- cogeneration heat and power engines (CHP)
- waste incinerators, ovens and kilns
- industrial heaters and dryers
- food industry steam boilers
- biomethane and methane boilers
- ethanol and palm oil plants and more

## Instrument main features are:

- very compact industrial design, for up to 6 gas simultaneous measurement
- use low cost but reliable electrochemical cells for O<sub>2</sub>, CO, NO, NO<sub>2</sub>, SO<sub>2</sub>
- and infrared module (ndir) for CO<sub>2</sub> measurement or 3-gas ndir for CO/CO<sub>2</sub>/CH<sub>4</sub>
- advanced sample gas preparation for fast and reliable measurements
- flexible platform can be used for various combustion applications
- direct and continuous/discontinuous measurement, with pressure and temperature
- compensation of all main flue gas parameters
- external measurements (temperature, pressure, etc) by reading of ext. standard signal
- simple installation, ready to run delivery and easy to maintain

Sample gas inlet with heated or unheated gas sampling line

Auto-Zero and Auto-Cal solenoid valves

Sample flow needle valve

Gas Cooler Peltier type with condensate monitoring and alarm

EC cells for O<sub>2</sub>/CO /NO/NO<sub>2</sub>/SO<sub>2</sub> with cut-off and purge for CO cell

Regulated gas sampling pump

NDIR bench for CO<sub>2</sub> measurement or optional for CO/CO<sub>2</sub>/CH<sub>4</sub>

Condensate draining pump

Internal sample flow monitoring

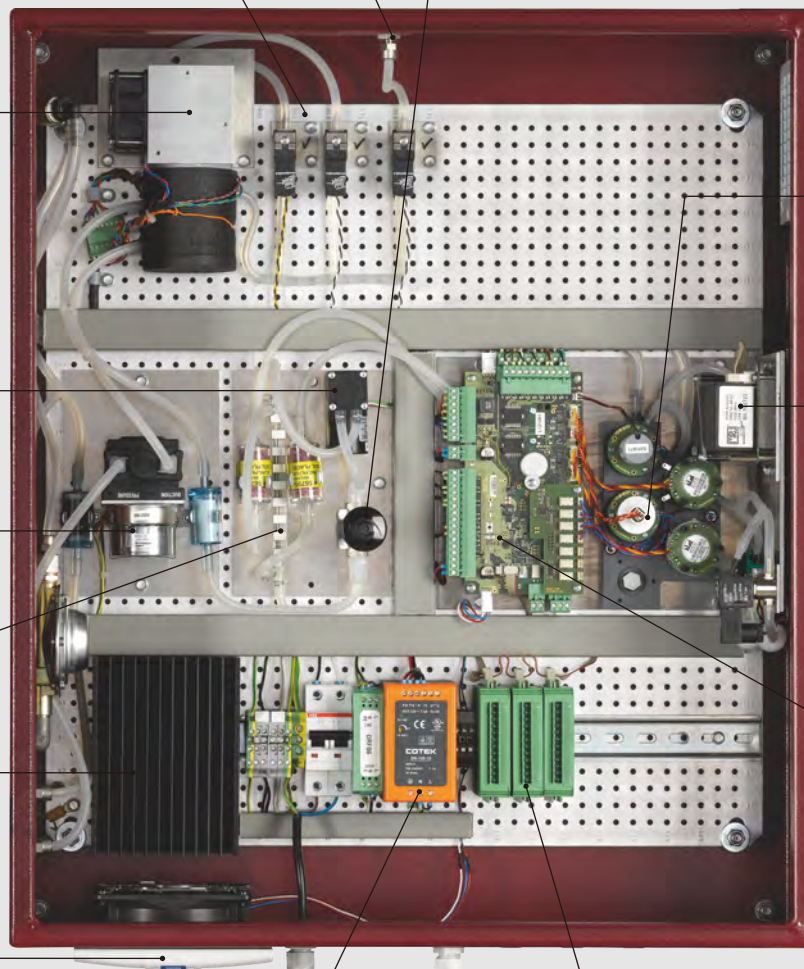
Cabinet heater 200W freeze protection

Main pcb

Continuous monitored ventilation fan with alarm

Universal power supply 90-240 Vac 47-63 Hz / 90 W

Modules with analog outputs 4 channel 4-20 mA, RS485 and 2x alarm relays



MRU continuous emission monitoring analyzer of series **SWG100 CEM**, is designed for use in the harsh industrial environment of different combustion sites, where flue gas emissions must be continuously monitored.

The analyzer can be installed in outdoor or indoor locations, can sample dry or wet flue gas, pressurized or low pressure flue gas, even from a long distance sampling point.

The analyzer system can be configured with different gas sampling probes and sampling lines to optimize the sample gas preparation.

SWG100 CEM	standard	option
Basic analyzer for wall or rack mounting, IP54 protection, aluminum cabinet with anti-corrosive red structural lacquer and fan ventilation	●	
Condensate separator and automatic condensate draining pump	●	
Monitored ambient air ventilation, with alarm display for fan rotation failure	●	
Sample gas pump and internal sample flow monitoring with alarm in case of filter clogging	●	
Solenoid valve for auto-zero with ambient air and for auto-calibration with span gas	●	
1/8" threads for all sample gas, zero gas and calibration gas inlets, fittings for DN6/4mm tube	●	
3,5" TFT color, backlit display and keyboard, password protected operation	●	
RS485 digital data transfer (Modbus RTU)	●	
Universal power supply 90 - 240 Vac / 47-63 Hz / 90 W	●	
O <sub>2</sub> measurement with long-life EC cell		●
CO measurement with protected EC cell using cut-off solenoid valve and air purging pump		●
NO measurement with EC cell		●
NO <sub>2</sub> measurement with EC cell		●
SO <sub>2</sub> measurement with EC cell		●
CO <sub>2</sub> measurement using infrared (NDIR) module or CO/CO <sub>2</sub> /CH <sub>4</sub> with 3-gas infrared (NDIR) module		●
Thermoelectric gas cooler (Peltier) with constant dew point and condensate monitoring and alarm		●
Heated gas sampling probe model HD, with ceramic filter and back-purge, for flying ash type flue gases		●
Heated gas sampling probe model HD-GW, with quartz glass wool filter for acid mist flue gases		●
Unheated gas sampling probe model LD, for clean combustions, using in-situ sintered metal filter		●
Heated gas sampling lines, from 5 to 75 m length, with temperature regulation by analyzer or by internal thermostat, with single or dual PTFE 4/6 mm tube		●
Module with 4 channel analog outputs/inputs 4-20 mA, with 2x "fail safe" alarm relays		●
Converter module of RS485 into Profibus		●
Cabinet heater for freeze protection		●



**Gas sampling probe HD-GW**  
heated, with borosilicate quartz filter element



**Gas sampling probe LD**  
unheated, with in-situ sintered metal filter



**Gas sampling probe HD**  
heated, with ceramic filter and back-purge



**Gas sampling line**  
Teflon, heated with temperature regulation



**Thermoelectric gas cooler**  
Peltier type with condensate monitoring and alarm



Product information:  
see [www.mru.eu](http://www.mru.eu)

or scan adjacent QR-code



# SWG 100 CEM

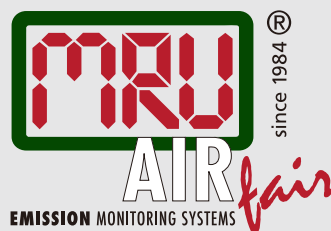
## TECHNICAL SPECIFICATIONS

Measured components	Range	Method	Accuracy
Oxygen O2	0 – 25,00 %	electrochemical	0,2 % abs.
Carbon monoxide CO	0 – 10.000 ppm	electrochemical	±10 ppm or 3 % reading
Nitric monoxide NO	0 – 4.000 ppm	electrochemical	± 5 ppm or 3 % reading
Nitric dioxide NO2	0 – 1.000 ppm	electrochemical	± 5 ppm or 3 % reading
Sulfur dioxide SO2	0 – 4.000 ppm	electrochemical	±10 ppm or 3 % reading
Carbon dioxide CO2	0 – 40,00%	NDIR	±0,3 % or 3 % reading
Carbon monoxide CO	0 - 1.000 to 30.000 ppm*	NDIR	±10 ppm or 2 % reading**
Carbon dioxide CO2	0 - 10 to 20,00 %*	NDIR	±0,5 % or 2 % reading
Methane CH4	0 - 1.000 to 30.000 ppm*	NDIR	±30 ppm or 2 % reading**
Zero drift	Negligible with automatic zeroing		
Drift	Less 0,2 % of range per month		
Calculated component	True NOx : NO + NO2 Calc. NOx = 1,05*NO (if NO2 is not measured) All emissions relevant mg/Nm <sup>3</sup> ; user selectable O2 referencing Combustion calculations (efficiency, heat loss) on special request		
HMI human machine interface	3,5" TFT color and backlit display Keyboard and password protected operation I/O module with 4channel, analog out 4-20 mA, floating, max. load 500 R and 2 alarm relays, potential free contacts 24 Vdc/5 A SD-card for data and event logging RS485 digital interface (Modbus RTU) DIN-rail RS485 / ProfiBus converter		
Sample preparation	Gas sampling probe HD, heated ceramic filter with back-purge, or Gas sampling probe HD-GW, heated quartz wool filter, or Gas sampling probe LD, non-heated with in-situ sintered filter Heated or non-heated DN4/6 mm PTFE sampling line Thermoelectric gas cooler (Peltier type) with const.+5 °C dewpoint Teflon particulate filter, internal Viton hosing Controlled and regulated gas sampling pump Constant gas sample flow of 50 l/h Sample inlet pressure: -200 mbar to + 200 mbar Sample venting: atmospheric pressure		
Cabinet dimensions	Aluminum with anti-corrosive structural painting 700 x 600 x 210 mm ( H x W x D ) for wall or rack mounting		
Weight / Protection	25kg / IP54		
Ambient temperature	+5°C...+45°C standard, -10°C...+45°C with cabinet heater		
Installation site	Indoor or outdoor (rain and sun shade is mandatory user scope of supply)		
Cabinet conditioning	Continuous, monitored fan ventilation, Cabinet heater 200W		
Power supply	Universal 90-240 Vac/47-63 Hz/90 W, 300 W with cabinet heater		

\*\* with hourly reset to zero  
 \* customized measuring range between min. range to max. range.  
 not all measurements from above are simultaneous possible, ask MRU for support  
 Data subject to change without notice  
 W-9513GB-CEM-K5-XX-029

## MRU – sustainable analysing technology for more than 30 years!

MRU-representative:



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