SWG-100 CEM

STATIONARY ANALYZER for Continuous Emission Monitoring

MRU AIR fair since 1984 ®
EMISSION MONITORING SYSTEMS

Low cost emission monitoring and combustion analysis system for industrial applications using extractive method

O_2 CO_2 CO NO NO_2 NO_x SO_2

SWG - 100 CEM

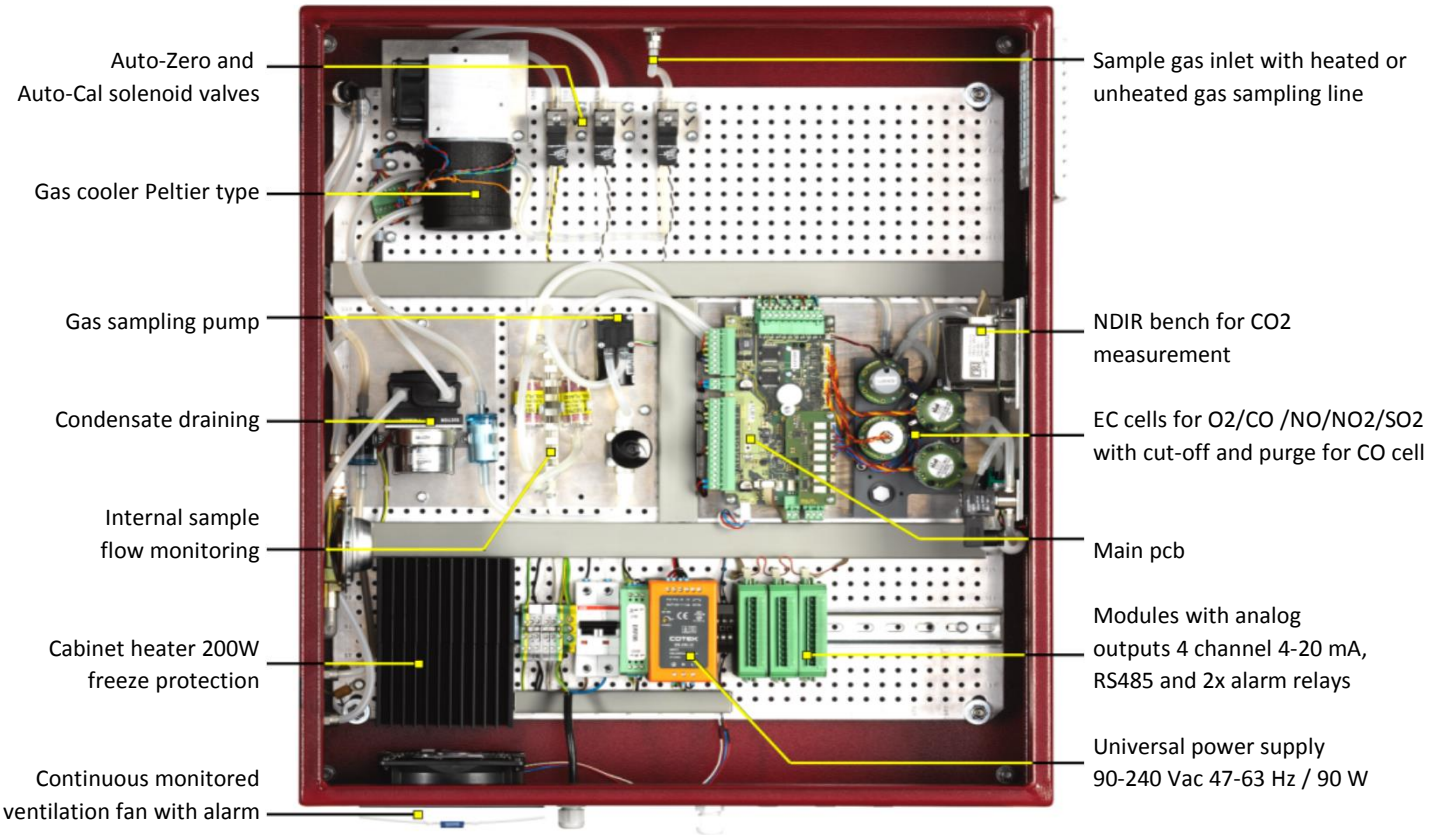
The complete, ready to use emissions analyzer SWG 100 CEM is the low cost solution

to be used with a wide variety of industrial emissions monitoring applications:

- **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**
- **bio methane and methane boilers**
- **ethanol and palm oil plants and more**

SWG 100 - CEM - Instrument main features are:

>> field replaceable, plug & play pre-calibrated sensors
>> very compact industrial design, for up to 6 gas simultaneous measurement
>> use low cost but reliable electrochemical cells for O2, CO, NO, NO2, SO2 and infrared module (NDIR) for CO2 measurement
>> 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



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The MRU continuous emission monitoring analyzer SWG 100 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.

SWG 100 - 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	●	
O2 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		●
NO2 measurement with EC cell		●
SO2 measurement with EC cell		●
CO2 measurement using infrared (NDIR) module		●
Thermoelectric gas cooler (Peltier) with constant dew point and automatic condensate draining pump		●
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 line Teflon, heated with temperature regulation

Thermoelectric gas cooler Peltier type

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TECHNICAL SPECIFICATIONS

DATA SUBJECT TO CHANGE WITHOUT NOTICE

Measurement components		Measuring range	Accuracy	Measuring method
O2	**Oxygen**	0 ... 25 %	0,2 % abs.	electrochemical
CO	**Carbon monoxide**	0 ... 10,000 ppm	±10 ppm or 3 % reading	electrochemical
NO	**Nitric oxide**	0 ... 4,000 ppm	± 5 ppm or 3 % reading	electrochemical
NO2	**Nitrogen dioxide**	0 ... 1,000ppm	± 5 ppm or 3 % reading	electrochemical
SO2	**Sulfur dioxide**	0 ... 4,000ppm	±10 ppm or 3 % reading	electrochemical
CO2	**Carbon dioxide**	0 ... 40 %	±0,3 % or 3 % reading	NDIR

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/Nm3; user selectable O2 referencing Combustion efficiency (fuel type depending), heat loss, dewpoint
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 27.55" x 23.61" x 8.26" (700 x 600 x 210 mm) (H x W x D) for wall or rack mounting
Weight / Protection	55lbs (25kg) / IP54
Ambient temperature	+5°C...+45°C standard, +5°C...+55°C with Vortec cooler, -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 200 W Cabinet Vortec cooler (requires 0,5m3/min clean and dry compressed air)
Power supply	Universal 90 - 240 Vac / 47 - 63 Hz / 90 W (300 W with cabinet heater)

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