



# SWG 100 CEM

STATIONARY ANALYZER


for Continuous Emission Monitoring

O<sub>2</sub> | CO | NO | NO<sub>2</sub> | SO<sub>2</sub> | CO<sub>2</sub> | CH<sub>4</sub>



Main Measurement Data		SWG 100 CEM	
CH <sub>4</sub>	60.54	ESC	Power
CO <sub>2</sub>	38.83	Navigation Pad	OK
NO <sub>2</sub>	198		
CO	0.3		
Ret. cal. val.	19.7	F1 F2 F3	Info
Gross cal. val.	21.9		
Flow rate	1000		
Flow rate	1000		

**SWG 100**  
*CEM*



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*AIR fair*  
EMISSION MONITORING SYSTEMS

# SWG 100 CEM

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

## STANDARD

- Basic analyzer for wall or rack mounting, IP54 protection, aluminum cabinet with anti-corrosive red structural lacquer and fan ventilation
- Thermoelectric gas cooler (Peltier) with constant dew point and condensate monitoring and alarm
- 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

Thermoelectric gas cooler Peltier type with condensate monitoring and alarm

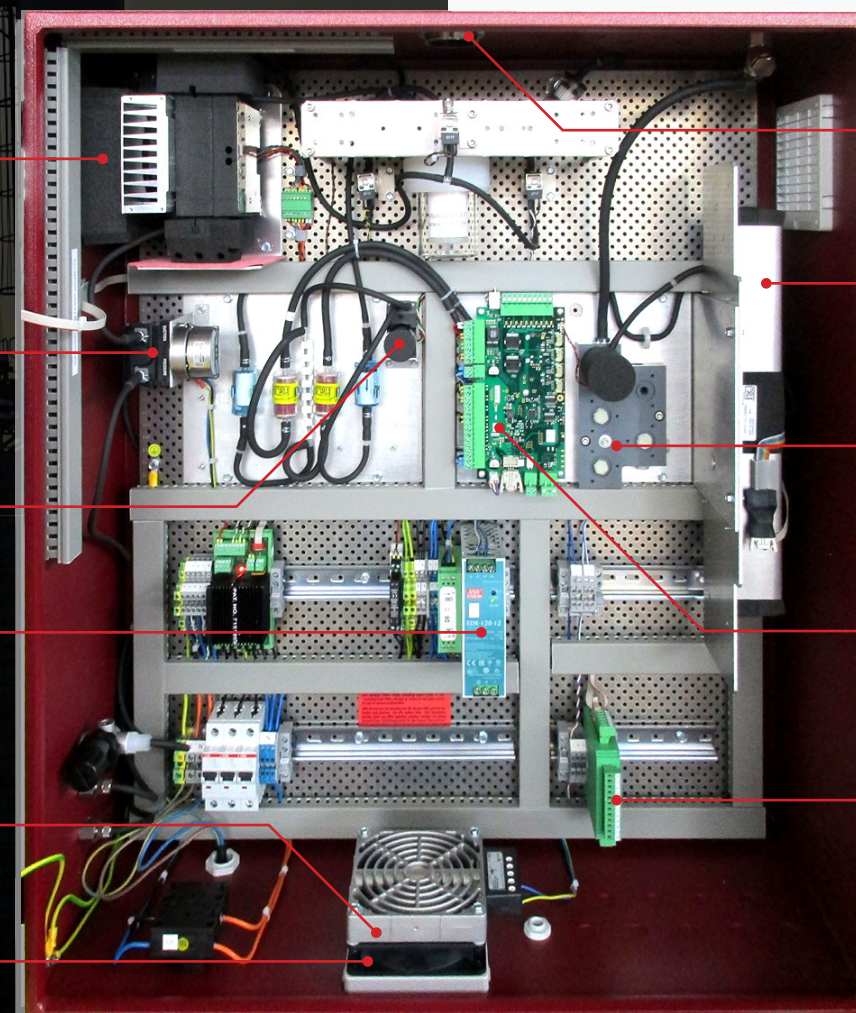
Condensate draining pump

Regulated gas sampling pump

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

Cabinet heater 200W freeze protection

Continuous monitored ventilation fan with alarm



Sample gas inlet with heated or unheated gas sampling line

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

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

Main pcb

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

## Instrument main features are:

- ▶ very compact industrial design, for up to 6 gas simultaneous measurement
- ▶ using 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

## OPTIONAL

- 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
- 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

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## TECHNICAL SPECIFICATIONS

Measurement components		Measuring range	Accuracy	Measuring method
O <sub>2</sub>	Oxygen	0 ... 25 %	0.2 % abs.	electrochemical
CO	Carbon monoxide	0 ... 10,000 ppm	±10 ppm or 3 % reading	NDIR (for CEMS application)
NO	Nitric oxide	0 ... 4,000 ppm	± 5 ppm or 3 % reading	NDIR (for CEMS application)
NO <sub>2</sub>	Nitrogen dioxide	0 ... 1,000ppm	± 5 ppm or 3 % reading	electrochemical/calculated NOX
SO <sub>2</sub>	Sulfur dioxide	0 ... 4,000ppm	±10 ppm or 3 % reading	NDIR (for CEMS application)
CO <sub>2</sub>	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	<ul style="list-style-type: none"> <li>• True NOx : NO + NO2</li> <li>• Calc. NOx = 1.05*NO (if NO2 is not measured)</li> <li>• All emissions relevant mg/Nm<sup>3</sup>; user selectable O2 referencing</li> <li>• Combustion efficiency (fuel type depending), heat loss, dewpoint</li> </ul>
HMI human machine interface	<ul style="list-style-type: none"> <li>• 3.5" TFT color and backlit display</li> <li>• Keyboard and password protected operation</li> <li>• 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</li> <li>• SD-card for data and event logging</li> <li>• RS485 digital interface (Modbus RTU)</li> <li>• DIN-rail RS485 / ProfiBus converter</li> </ul>
Sample preparation	<ul style="list-style-type: none"> <li>• 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</li> <li>• Thermoelectric gas cooler (Peltier type) with constant 41°F (+5 °C) dewpoint</li> <li>• Teflon particulate filter, internal Viton hosing</li> <li>• Controlled and regulated gas sampling pump</li> <li>• Constant gas sample flow of 50 l/h</li> <li>• Sample inlet pressure: -80 inH<sub>2</sub>O to 80 inH<sub>2</sub>O (-200 mbar to +200 mbar)</li> <li>• Sample venting: atmospheric pressure</li> </ul>
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	41°F...113°F standard, 41°F...131°F with Vortex cooler, 14°F...113°F with cabinet heater +5°C...+45°C standard, +5°C...+55°C with Vortex 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	<ul style="list-style-type: none"> <li>• Continuous, monitored fan ventilation</li> <li>• Cabinet heater 200 W</li> <li>• Cabinet Vortex cooler (requires 0,5m<sup>3</sup>/min clean and dry compressed air)</li> </ul>
Power supply	Universal 90 - 240 Vac / 47 - 63 Hz / 90 W (300 W with cabinet heater)

Data subject to change without notice



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