MRU INSTRUMENTS

SWG *100* CEM

STATIONARY ANALYZER

for Continuous Emission Monitoring

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

SWG 100 CEM

24/7 Optimal gas analysis

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

With the SWG 100 CEM, simultaneous infrared analysis of up to 3 flue gas components is possible.

Furthermore, it is possible to measure 3 more components simultaneously electrochemically. Alternatively, up to 5 components may be measured simultaneously on an electrochemical basis. The electrochemical sensors are O_2 – CO – NO – NO_2 – SO_2.

Suitable for various industrial sectors:

- **Diesel engines**
- **Methane/natural gas boilers**
- **Landfill gas/biogas CHPs**
- **Bagasse and biomass boilers**
- **and others**

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 details

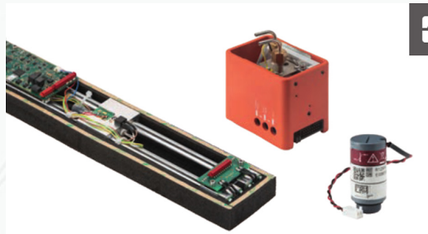
An overview of the special features

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 (low-dust, high-dust 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 O_2-sensor
- Electrochemical O_2-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

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TECHNICAL SPECIFICATIONS

Gas measurement (NDIR)		Measuring range min./max.	Resolution	Repeatability*
CO	Carbon monoxide	0 ... 1,000/100,000 ppm	1 ppm	± 10 ppm or 3 % reading
CO_2	Carbon dioxide	0 ... 50 %	0.01 Vol %	± 0.1% or 3 % reading
SO_2	Sulfur dioxide	0 ... 1,000/10,000 ppm	1 ppm	± 10 ppm or 3 % reading
CH_4	Methane	0 ... 1,000/40,000 ppm	1 ppm	± 10 ppm or 3 % reading
C_3H_8	Propane	0 ... 1,000/20,000 ppm	1 ppm	± 10 ppm or 3 % reading

Gas measurement (EC/PM)		Measuring range min./max.	Resolution	Repeatability*
O_2	Oxygen (long life) EC	0 ... 25 %	0.01 %	± 0.25 % abs.
O_2	Oxygen PM	0 ... 25 %	0.01 %	± 0.1 % abs.
CO	Carbon monoxide EC	0 ... 10,000/20,000 ppm	1 ppm	± 10 ppm or 5 % reading
NO	Nitric oxide EC	0 ... 1,000/5,000 ppm	1 ppm	± 5 % or 5 % reading
NO_2	Nitrogen dioxide EC	0 ... 200/1,000 ppm	1 ppm	± 5 % or 5 % reading
SO_2	Sulfur dioxide 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	NOx: NO + NO_2, calculated ppm or mg/m3, 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 back-purge, 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
Enclosure	Stainless steel cabinet
Dimensions (W x H x D)	24" x 28" x 9" (600 x 700 x 210 mm), suitable for wall mounting
Weight	110 lbs. (50 kg)
Operating conditions	41°F ... 113°F or 14°F ... 113°F (+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

Data subject to change without notice. | 1 EC = electrochemical sensor, PM = paramagnetic sensor, NDIR = non-dispersive infrared spectroscopy | * which ever is larger |

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