MRU AIR fair since 1984 ®
EMISSION MONITORING SYSTEMS

NO_x | NO | NO_2 | CO | CO_2 | SO_2 | N_2O | CH_4 | HC as C_3H_8 | O_2

SWG 300 IND

Stationary
Flue Gas Emission Analyzer.

Continuous Emission Monitoring System

SWG 300 IND

Reliable Monitoring around the clock

With the SWG 300 IND we offer you a reliable Emission-Monitoring System, even for dirty acid mist applications

Suitable for various industrial branches:
coal power stations, municipal and other waste incinerator, cement outlet stacks, glass smelting industry, solid fuels and heavy oil combustion sites, bagasse and biomass steam boilers

The **SWG 300 IND** provides up to 8 infrared measurements at the same time

Gasmeasurements (NDIR)	Range min./max.	Resolution	Repeatability
Nitric monoxide (NO)	0 ... 200/4.000 ppm	0,1 ppm	2 ppmo r 1 % of reading
Nitric dioxide (NO_2)	0 ... 150/500 ppm	0,1 ppm	1 ppm or 1 % of reading
Sulphur dioxide (SO_2)	0 ... 200/4.000 ppm	0,1 ppm	2 ppm or 1 % of reading
Carbon dioxide (CO_2)	0 ... 40 %	0,01 Vol%	0,2 % or 1 % of reading
Carbon monoxide (CO)	0 ... 175/10.000 ppm	0,1 ppm	2 ppm or 1 % of reading
Nitrous oxide (N_2O)	0 ... 100/500 ppm	0,1 ppm	2 ppm or 1 % of reading
Methane (CH_4)	0 ... 500/10.000 ppm	0,1 ppm	10 ppm or 1 % of reading
Propane (C_3H_8)	0 ... 200/5.000 ppm	0,1 ppm	2 ppm or 1 % of reading

We offer you these special advantages:

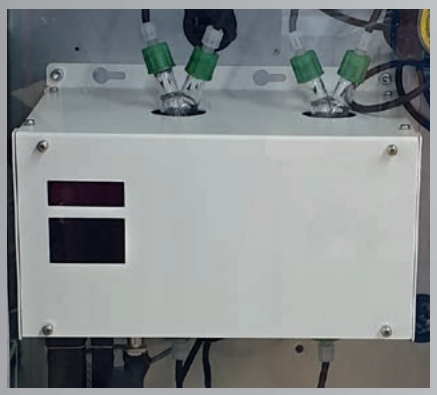
- Use of optimized NDIR technology with improved accuracy and without zero offset
- O_2 measurement with a long-life electrochemical or a paramagnetic sensor
- true NO_x and SO_2 measurements through use of heated gas sampling probe and gas sampling line
- Heated and temperature regulated acid mist catch & drain system for raw flue gas measurements with high acid aerosols
- complete heavy duty sample conditioning system for extractive cold and dry system
- Ready to log, display and transfer data from dust monitoring unit DM 401and flow rate measuring unit DF 252.

The device in detail

An overview of the special features

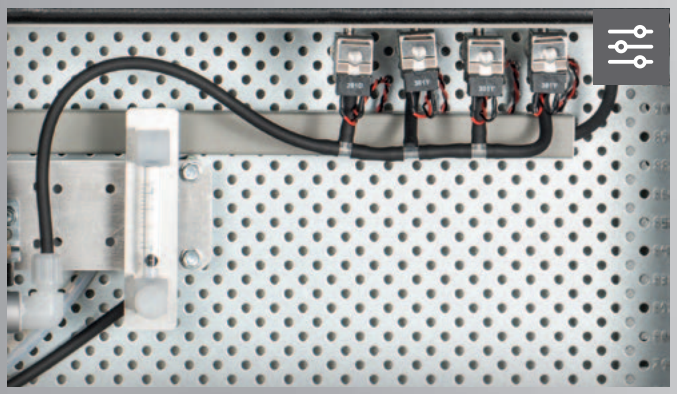
Human machine interface and measuring technique

- 19"-cabinet with 3,5" TFT color display, incl. key pad and standard RS 485 interface (Modbus RTU)
- Choice of 6-gas- or 8-gas-NDIR-measuring modules
- Paramagnetic O_2-sensor
- Elektrochemical O_2-sensor, long-life
- Direct and continuos measurement with pressure- and temperature compensation



Heat exchanger and acid mist drainage

- Robust gas cooler with 2 glas-heat exchangers and constant 4 °C dewpoint at sample gas outlet
- Separate, digital display of both heat exchangers
- Heated, temperature regulated acid mist drainage
- With automatic acid condensate drainage for the acid-mist-separator



Automatic Calibration

- Connections for up to 6 calibration gas bottles
- Automatic selection of calibration gases by means of solenoid valves
- The interval for the automatic calibration can be programmed by the customer

Gas conditioning

- efficient sample gas filtration using PTFE sintered particulate filter
- internal sample flow monitoring and alarm indication on display
- filtration of acid gases to protect the internal sample gas flow sensor
- Easy filter replacement by customer
- Activated carbon filter for automatic zeroing with ambient air

The device in detail

An overview of the special features

Filter cage and ceramic filter

Gas sampling probe HD

- For flue gas with flying ash dust, with back-purgeable ceramic filter, +160 °C heated
- Other probes, depending on composition of gases to be analysed (Lowdust-, Highdust and compact probe with heated sampling line)

Filter cage and quartz wool

Gas sampling probe HD-GW

- for flue gas with soot, oily, acid mist heated +160 °C with quartz wool filter
- Heated (and unheated) gas sampling lines up to 50 m length for up to 2 sampling points

Pumps

- strong sample gas pump with regulated sample flow of only 50 l/h
- condensate draining pump
- Regulated 10 % H_3PO_4 dosage for auto-cal or low SO_2/NO_2 measurements

Data communication

- 2 pcs. I/O modules with 4-chanel-analog output 4 ... 20 mA and 2 Relais (NO-contacts) and 4-chanel-analog input 4 ... 20 mA
- Profibus, Ethernet, USB, SD-card
- PC-software „MRU4Win“: visualising measuring data, administrating, exporting and printing

SWG 300 IND

The standard main features:

- IP54 steel cabinet 600 x 1.012 x 575mm (W x H x D), with grey powder coating laquer, for wall mounting
- with lockable acrylic front door and fan ventilation through the cabinet for use in clean ambient air
- dual heat exchanger MuC Peltier gas cooler with double automatic condensate draining pumps
- efficient sample gas filtration using PTFE sintered particulate filter
- condensate monitoring and alarm on display and gas sampling stop in case of alarm
- prepared for 10 % H_3PO_4 dosage in case of auto-cal or low SO_2/NO_2 measurements
- strong sample gas pump with sample gas flow monitoring and alarm
- filtration of acid gases to protect the internal sample gas flow sensor
- solenoid valve for auto-zero with clean ambient air
- solenoid valve for calibration gas, with aluminum fine pressure regulator at cal. gas inlet port
- main control unit 19" – 4U with human machine interface, prepared for measurement modules
- human machine interface with color TFT display, keyboard and standard RS485 interface (Modbus RTU)
- intuitive software guided menu, with diagnosis software and real-time data transfer
- power supply to analyser with 230 Vac / 47–63 Hz /200 W (add electric power for probe and heated sampling line)
- clean indoor mounting place, preferably air conditioned, cabinet has fan ventilation
- outdoor mounting in clean, +5°C to 45°C ambient, with mandatory sun & rain protection (user scope)

SWG 300 IND

Technical Specifications

Gas measurements (NDIR)	Range min./max.	Resolution	Repeatability*	8h-drift*	Linearity
Nitric monoxide (NO)	0 ... 200/4.000 ppm	0,1 ppm	2 ppm or 1 % of reading.	2 ppm or 1 % of reading	1 % range
Nitric dioxide (NO_2)	0 ... 150/1.000 ppm	0,1 ppm	1 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range
Sulphur dioxide (SO_2)	0 ... 150/4.000 ppm	0,1 ppm	2 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range
Carbon dioxide (CO_2)	0 ... 40 %	0,01 Vol%	0,2 % or 1 % of reading	0,2 % or 1 % of reading	1 % range
Carbon monoxide (CO)	0 ... 175/10.000 ppm	0,1 ppm	2 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range
Nitrous oxide (N_2O)	0 ... 100/500 ppm	0,1 ppm	2 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range
Methane (CH_4)	0 ... 500/10.000 ppm	0,1 ppm	10 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range
Propane (C_3H_8)	0 ... 200/5.000 ppm	0,1 ppm	2 ppm or 1 % of reading	2 ppm or 1 % of reading	1 % range

Gas measurements (EC/PM)	Method1	Range min./max.	Resolution	Accuracy*
Oxygen (O_2) (long life)	EC (Long-life)	0 ... 25 %	0,01 %	± 0,25 %
Oxygen (O_2)	PM	0 ... 25 %	0,01 %	± 0,1 %
Hydrogen sulphide (H_2S)	EC	0 ... 2.000/5.000 ppm	1 ppm	± 5 ppm or 5 % of reading
Hydrogen (H_2)	EC	0 ... 1.000/2.000 ppm	1 ppm	± 5 ppm or 5 % of reading
Water (H_2O)	EC	0 … 40 Vol%	0,01 Vol%	± 10 Vol% @ O_2 > 2 % ± 5 Vol% @ O_2 > 4 %

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/m³, user-selectable O_2 reference
Operation/interfaces	■ Backlit 3.5" TFT color display ■ keyboard, password-protected operation ■ 8 analog outputs 4 ... 20 mA, galvanically isolated, max. load: 500 R ■ 4 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 ■ 10 % H_3PO_4 dosage at low NO_x and low SO_2 ■ Heated acid separator with acid condensate pump ■ Heated gas sampling line, PTFE DN 4/6 mm, up to 50 m length ■ Thermoelectrical gas cooler, with dual heat exchanger and constant +4 °C dewpoint ■ Teflon-particle filter, internal Viton-tubing ■ Monitored and regulated gas sampling pump ■ Constant gas flow of 50 l/h ■ Gas inlet pressure: –200 ... +50 mbar (hPa) ■ Sample gas outlet: atmospheric pressure
Housing	Steel cabinet, continuously monitored cabinet ventilation with alarm, optional Antifreeze heater 500 W
Operating conditions	+5 ... +45 °C or –10 ... +45 °C with cabinet heating
Power supply	Universal: 90 ... 240 Vac, 47 ... 63 Hz, 200 W (700 W with heating)
Protection class	IP54
Dimensions (W x H x D)	1012 x 600 x 500 mm, suitable for wall mounting
Weight	75 kg

MRU – Competence in gas analysis. Since 1984.

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