



# EMISSION MONITORING SYSTEMS

We *care* about the environment

## INNOVATIVE GAS ANALYSIS TECHNOLOGY



Customized compact analysis systems



### SWG 300-1

EMISSIONS MONITORING  
PROCESS GAS OPTIMIZATION

PRECISE POWERFUL  
EFFICIENT

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

# SWG 300-1

## Complete, compact analysis system

Emission monitoring  
Process gas optimisation

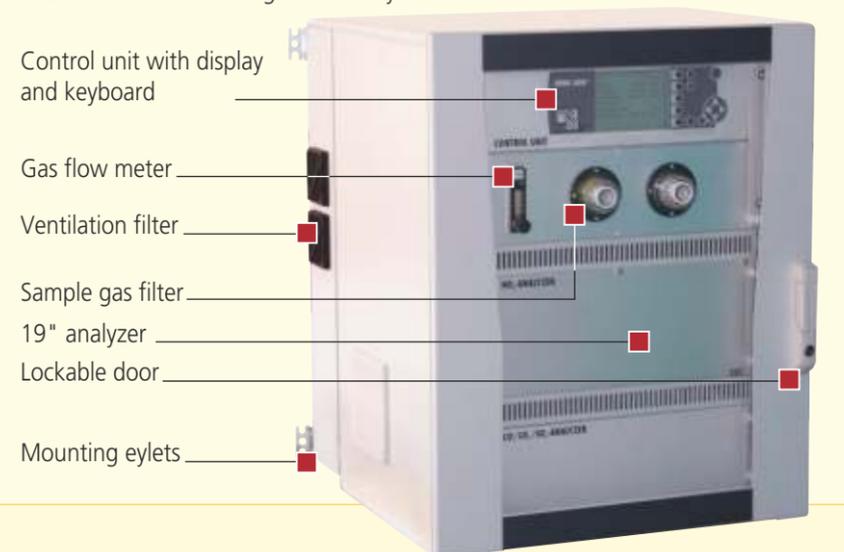


The multi-component gas analyzer **SWG 300-1** is based on extractive, cold-dry method and uses NDIR modules, which measure continuously, selectively and highly exactly within the ppm range.

NO<sub>2</sub> is catalytically converted into NO for true NO<sub>x</sub> measurements.

Oxygen analysis is based on zirconium cell, paramagnetic cell or „long-life“ electrochemical cell.

**SWG 300-1** for mounting in the analysis room



### Standard hardware

Standardised 19" racks are mounted in a steel metal enclosure with mounting eyelets for wall mounting. The enclosure is equipped with lockable, transparent door, a main control unit with backlit graphic LCD and keyboard.

The complete flue gas conditioning system is processor-controlled and continuously monitored. It uses an electric gas cooler with automatic condensate draining pump; sample gas filtration with sample flow monitoring and alarm; auto-zero calibration, RS 485 for data communication and 8 channel analog outputs 4... 20 mA.



### SWG 300-1 analyzer... easy to service!

The SWG 300-1 is easy to swing-open. All important parts are readily accessible and easily serviced.

### Individual applications

- Ex-zone2 (special model)
- Up to simultaneous 7 gas components
- Up to 5 automatic sampling point switching
- Weather proof enclosure IP 65
- Complete / partial air conditioning
- Automatic calibration with test gases
- Sample gas conditioning, also directly after the sampling point
- Easy to service and maintain
- Customized solutions on request

### Measuring components

O <sub>2</sub>	0 ... 25 %	* paramagnetic sensor * Zirconium oxide ZrO <sub>2</sub> * electrochemical (long-life sensor)
CO	0 ... 1.000 ppm / 30.000 ppm	NDIR-multi-gas bench
CO <sub>2</sub>	0 ... 3 % / 30 %	NDIR-multi-gas bench
CH <sub>4</sub>	0 ... 200 ppm / 1.000 ppm	NDIR-multi-gas bench
SO <sub>2</sub>	0 ... 200 ppm / 1.000 ppm	NDIR-multi-gas bench
NO	0 ... 2.500 ppm / 5.000 ppm	NDIR-multi-gas bench
NO <sub>2</sub>	0 ... 500 ppm / 1.000 ppm	catalytic converter

\* oxygen measuring principle

Example: Gas sampling probe for low dust flue gas



Stainless steel probe up to 900 °C with flange DN 65 PN 6 with sintered metal filter 3 μ

### Gas sampling probes and -lines

MRU offers industrial probes for high and low dust content, for gas temperatures up to 650 °C (stainless steel), up to 1.100 °C (Inconel steel) and up to 1.700 °C (ceramic). Probes with and without heated filter element and probe tubes in several lengths.

- see separate probe brochure



Application: **Boiler monitoring, 3 sampling point switching**  
Measured flue gas components: NO<sub>x</sub> · CO · CO<sub>2</sub> · O<sub>2</sub>



Application: **Petro-Chemie**  
Measured flue gas components: CH<sub>4</sub> · SO<sub>2</sub> · NO<sub>x</sub> · CO · CO<sub>2</sub> · O<sub>2</sub>



Application: **Incineration**  
Measured flue gas components: SO<sub>2</sub> · NO<sub>x</sub> · CO · CO<sub>2</sub> · O<sub>2</sub>

## Technical specifications

Measured components	measuring range	accuracy	measuring cell
Oxygen O <sub>2</sub>	0... 25 %	0,2 Vol.-% ± abs.	paramagnetic
Oxygen O <sub>2</sub>	0... 25 %	0,2 Vol.-% ± abs.	zirconium
Oxygen O <sub>2</sub>	0... 21 %	0,2 Vol.-% ± abs.	electrochemical
Nitric dioxide NO <sub>2</sub>	catalytic conversion in NO min. 90% conversion efficiency (option)		
<b>1-gas infrared bench</b>	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Carbon monoxide CO	0... 100 ppm	0... 500 ppm	2 % of full scale
Nitric monoxide NO	0... 200 ppm	0... 2.000 ppm	2 % of full scale
Sulfur dioxide SO <sub>2</sub>	0... 100 ppm	0... 1.000 ppm	2 % of full scale
<b>2-gas infrared bench</b>	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Nitric monoxide NO	0... 2.500 ppm	0... 5.000 ppm	3 % of full scale
Nitric dioxide NO <sub>2</sub>	0... 500 ppm	0... 1.000 ppm	3 % of full scale
<b>3-gas infrared bench</b>	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Carbon monoxide CO	0... 1.000 ppm	0... 30.000 ppm	3 % of full scale
Carbon dioxide CO <sub>2</sub>	0... 3 %	0... 30 %	3 % of full scale
Sulfur dioxide SO <sub>2</sub>	0... 1.000 ppm	0... 5.000 ppm	3 % of full scale
<b>4-gas infrared bench</b>	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Carbon monoxide CO	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Carbon dioxide CO <sub>2</sub>	0... 4 %	0... 20 %	2 % of full scale
Nitric monoxide NO	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Sulfur dioxide SO <sub>2</sub>	0... 200 ppm	0... 1.000 ppm	2 % of full scale
or Methane CH <sub>4</sub> (instead of SO <sub>2</sub> )	0... 200 ppm	0... 1.000 ppm	2 % of full scale
<b>Calculated values</b>	mg/Nm <sup>3</sup> , reference to O <sub>2</sub> , NOx als mg/m <sup>3</sup> NO <sub>2</sub>		
<b>Repeatability</b>	1 % of smallest measuring range		
<b>Response time T90</b>	approx. 30 seconds of the analyzer sample gas inlet port		
<b>Detection limit</b>	1% of current measuring range		
<b>Zero drift</b>	with AUTOZERO: neglectable		
<b>Span drift</b>	without AUTOCAL(option): <2% of measuring range / 2 weeks		
<b>Temperature influence</b>	max 2% of measuring range per 10°K		
<b>Measured value stability</b>	The aforementioned data are valid provided that ambient conditions (e.g. sample flow, air temperature and pressure) are constant.		
<b>General specification</b>			
<b>Warm-up time</b>	1h minimum		
<b>Sample gas conditioning</b>	integrated gas cooler with dew point = +3 °C		
<b>Sample gas filtration</b>	filtering particle size < 1µ		
<b>Sample gas monitoring</b>	flow regulation and supervision, 30 ... 50 l/h		
<b>Calibration</b>	By software, calibration gases for every gas required, instrument air or clean ambient air for auto-zero		
<b>Operating temperature</b>	+5 °C ... +40 °C, max. 90 % rh, not condensing		
<b>Storage temperature</b>	-20 °C ... +50 °C		
<b>Ambient conditions</b>	not for use in aggressive, corrosive or very high dust atmosphere hazardous area use only with special equipment (on request).		
<b>Display</b>	full graphic, backlit LCD display		
<b>Resolution</b>	depends on range selection, ppm or %		
<b>Data transfer</b>	8 channel analog output 4 ... 20 mA, RS 485 digital (modbus RTU)		
<b>Alarm relays</b>	3x potential free NO contacts		
<b>Power supply</b>	110 ... 230 Vac / 50 ... 60 Hz / 500 ... 750 W, with heated hose control (option) add 100 W/ meter		
<b>Internal main fuse</b>	10 ... 32 A 10 ... 32 A (dependent upon length of the heated gas sampling line)		
<b>Protection class</b>	IP 52 (IP 65 for outdoor mounting cabinet)		
<b>Weight</b>	approx. 40 ... 120 kg, depending on system configuration and construction		
<b>Dimensions</b>	(H x W x D) 1.012 x 600 x 575 mm = steel enclosure for indoor mounting (H x W x D) 1.300 x 800 x 600 mm = fiber glass enclosure für outdoor mounting		

Dealer:



EMISSION MONITORING SYSTEMS

MRU · Measuring instruments for flue gases and environmental protection GmbH  
Fuchshalde 8 · 74172 Neckarsulm-Obereisesheim  
Phone +49 71 32-99620 · Fax +49 71 32-996220  
info@mru.de · www.mru.eu



Data subject to change without notice.

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