



# EMISSION MONITORING SYSTEMS

We *care* about the environment

## INNOVATIVE GAS-ANALYSIS-TECHNOLOGY



Customized analysis systems  
in compact design



### SWG 300-1

EMISSIONS MONITORING  
PROCESS GAS OPTIMIZATION

PRECISE · POWERFUL  
EFFICIENT

- O2
- CO
- CO2
- NO
- NO2
- NOx
- SO2
- CH4

# SWG 300-1

## Complete analysis system in compact design

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 exact within the ppm range.

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

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

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

Control unit with display and keyboard

Gas flow meter

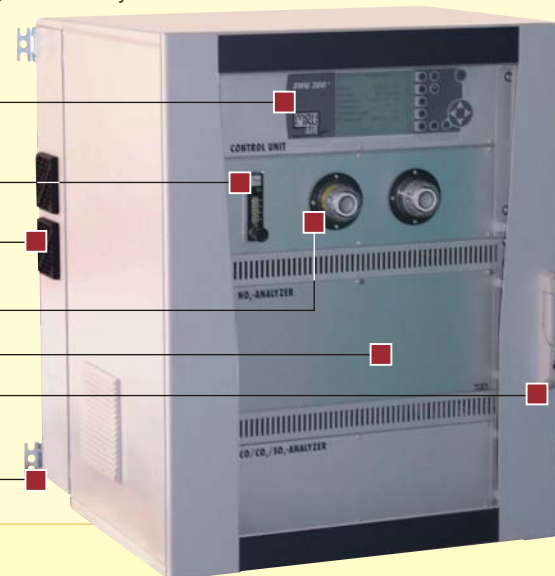
Ventilation filter

Sample gas filter

19" analyzer

Lockable door

Fixing eylets



### Standard hardware

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

The complete flue gas conditioning by means of electrical gas cooler with automatic condensate draining pump, with sample gas filtration with sample flow monitoring and alarm, with auto-zero calibration are processor-controlled and continuously monitored, as well as 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 easily accessible and therfor ideal to service.



### Individual applications

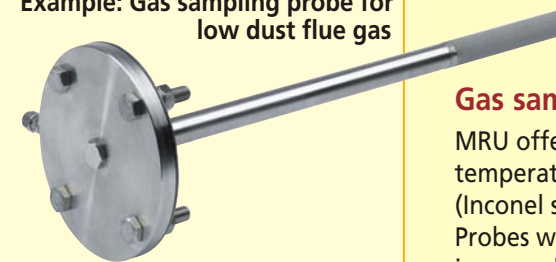
- Ex-zone2 (special model)
- Up to simultaneous 7 gas components
- Up to 5 automatic sampling point switching
- Weather proof enclosure IP 65
- Complete / partial air conditioning
- Automatic calibration with test gases
- Sample gas conditioning, also directly after the sampling point
- Easy to service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

### Measuring components

O <sub>2</sub>	0 ... 25 %	* paramagnetic sensor * Circonium oxoide 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 for up to 650 °C (stainless steel), for up to 1.100 °C (Inconel steel) and for 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 specification

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> , NO <sub>x</sub> 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 AUTOZERO(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 on condition 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>	no use in aggressive, corrosive or very high dust ambience 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**

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Data subject to change without notice.

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