

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

NO_x

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.

NO₂ is catalytically converted into NO determining true NO_x.

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

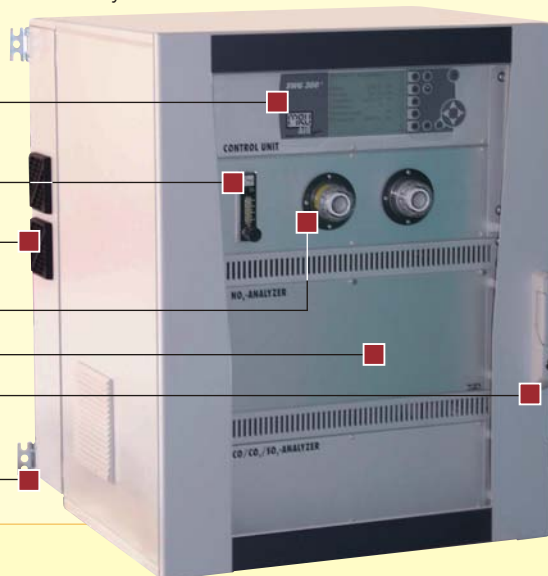
Ventilation filter

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

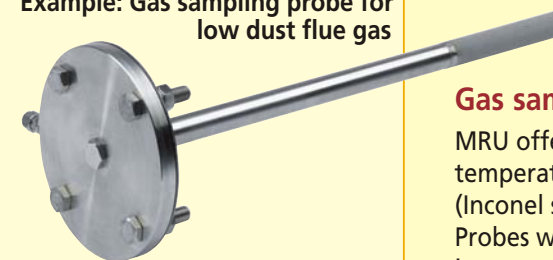
- Ex-zone2 (special model)
- Up to simultaneous 7 gas components
- Up to 5 automatic sampling point switching
- Weather proof enclosure IP 65
- Complete / partial air conditioning
- Automatic calibration with test gases
- Sample gas conditioning, also directly after the sampling point
- Easy to service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

Measuring components

O ₂	0 ... 25 %	* paramagnetic sensor * Circonium oxoide ZrO ₂ * electrochemical (long-life sensor)
CO	0 ... 1.000 ppm / 30.000 ppm	NDIR-multi-gas bench
CO ₂	0 ... 3 % / 30 %	NDIR-multi-gas bench
CH ₄	0 ... 200 ppm / 1.000 ppm	NDIR-multi-gas bench
SO ₂	0 ... 200 ppm / 1.000 ppm	NDIR-multi-gas bench
NO	0 ... 2.500 ppm / 5.000 ppm	NDIR-multi-gas bench
NO ₂	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:
SO₂ · NO_x · CO · CO₂ · O₂



Application:
Petro-Chemie
Measured flue gas components:
SO₂ · NO_x · CO · CO₂ · O₂



Application:
Incineration
Measured flue gas components:
SO₂ · NO_x · CO · CO₂ · O₂

Technical specification

Messkomponenten	measuring range	accuracy	measuring cell
Oxygen O2	0... 25 %	0,2 Vol.-% ± abs.	paramagnetic
Oxygen O2	0... 25 %	0,2 Vol.-% ± abs.	zirconium
Oxygen O2	0... 21 %	0,2 Vol.-% ± abs.	electrochemical
Nitric dioxide NO2	catalytic conversion in NO min. 90% conversion efficiency (option)		
1-gas infrared bench	min. measuring range	max. measuring range	linearity error
Carbon monoxide CO	0... 100 ppm	0... 500 ppm	2 % of full scale
Nitric monoxide NO	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Sulfur dioxide SO2	0... 100 ppm	0... 500 ppm	2 % of full scale
2-gas infrared bench	min. measuring range	max. measuring range	linearity error
Nitric monoxide NO	0... 2.500 ppm	0... 5.000 ppm	3 % of full scale
Nitric dioxide NO2	0... 500 ppm	0... 1.000 ppm	3 % of full scale
3-gas infrared bench	min. measuring range	max. measuring range	linearity error
Carbon monoxide CO	0... 1.000 ppm	0... 30.000 ppm	3 % of full scale
Carbon dioxide CO2	0... 3 %	0 ... 30 %	3 % of full scale
Sulfur dioxide SO2	0... 1.000 ppm	0... 5.000 ppm	3 % of full scale
4-gas infrared bench	min. measuring range	max. measuring range	linearity error
Carbon monoxide CO	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Carbon dioxide CO2	0... 4 %	0... 20 %	2 % of full scale
Nitric monoxide NO	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Sulfur dioxide SO2	0... 200 ppm	0... 1.000 ppm	2 % of full scale
or Methane CH4 (instead of SO2)	0... 200 ppm	0... 1.000 ppm	2 % of full scale
Calculated values	mg/Nm³, reference to O2, NOx als mg/m³NO2		
Repatibility	1 % of smallest measuring range		
Response time T90	approx. 30 seconds of the analyzer sample gas inlet port		
Detection limit	1% of current measuring range		
Zero drift	with AUTOZERO: neglectable		
Span drift	without AUTOCAL(option): <2% of measuring range / 2 weeks		
Temperature influence	max 2% of measuring range per 10°K		
Measured value stability	The aforementioned data are valid on condition that ambient conditions (e.g. sample flow, air temperature and pressure) are constant.		
General specification			
Warm-up time	1h minimum		
Sample gas conditioning	integrated gas cooler with dew point = +3 °C		
Sample gas filtration	filtering particle size < 1µ		
Sample gas monitoring	flow regulation and supervision, 30 ... 50 l/h		
Calibration	By software, calibration gases for every gas required, instrument air or clean ambient air for auto-zero		
Operating temperature	+5 °C ... +40 °C, max. 90 % rh, not condensing		
Storage temperature	-20 °C ... +50 °C		
Ambient conditions	no use in aggressive, corrosive or very high dust ambience hazardous area use only with special equipment (on request).		
Display	full graphic, backlit LCD display		
Resolution	depends on range selection, ppm or %		
Data transfer	8 channel analog output 4 ... 20 mA, RS 485 digital (modbus RTU)		
Alarm relays	3x potential free NO contacts		
Power supply	110 ... 230 Vac / 50 ... 60 Hz / 500 ... 750 W, with heated hose control (option) add 100 W/ meter		
Internal main fuse	10 ... 32 A 10 ... 32 A (dependent upon length of the heated gas sampling line)		
Protection class	IP 52 (IP 65 for outdoor mounting cabinet)		
Weight	approx. 40 ... 120 kg, depending on system configuration and construction		
Dimensions	(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:



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.