



EMISSION MONITORING SYSTEMS

We *care* about the environment

PROFESSIONAL AND MOBILE MONITORING OF PROCESS GASES



Infrared-Multigas-Analyzer



MGA 5

Monitoring of

- Process gases
- Combustion emissions
- Heat efficiency at large boilers

High-quality combustion analysis

O₂ CO₂ CO CH₄ C₃H₈ NO NO₂ SO₂ H₂

MGA 5

Portable NDIR-MULTIGAS ANALYZER for process gas and emission monitoring for burner combustion control.

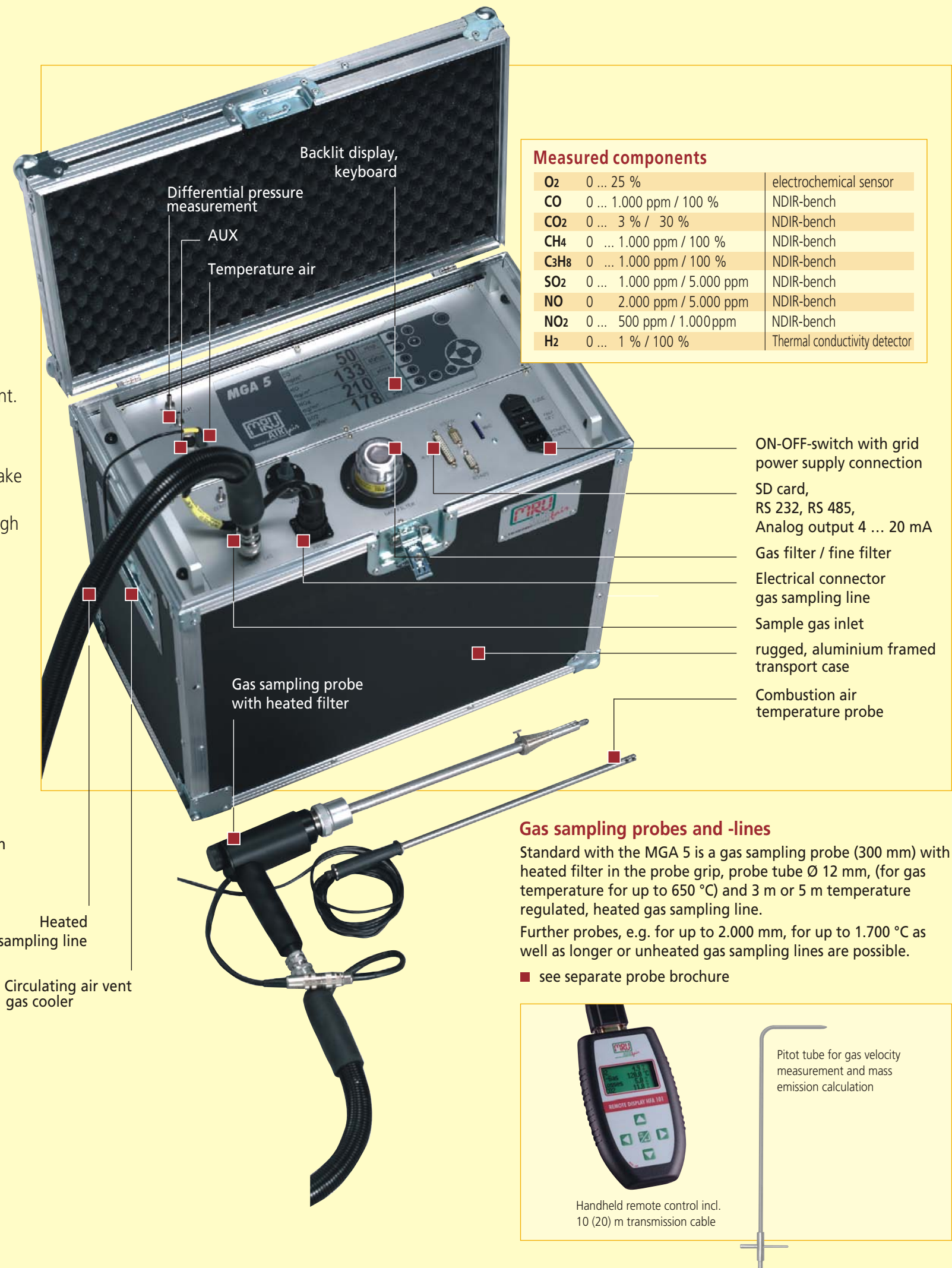
The **MGA 5** contains a complete measuring system on NDIR basis, designed for the mobile, flexible use. The analyzer is most suitable for high concentration gas measurement. Efficient and economic use increase the acceptance of the MGA 5 analyzer.

Mobile and continuous infrared measurement of different gases make this unit ideal for a wide range of applications. Continuous process gas, emission- and combustion monitoring is now available on a high level, mobile basis.

Compact design, light weight and customized configuration of measured flue gas components are just a few of the multiple customers benefits.

Important features and performance characteristics

- Double stage gas cooler with automatic condensate draining pump
- Heated gas sampling line (3 or 5 m) with 300 ... 2.000 mm sampling tube
- Automatic internal test and control of soft- and hardware functions
- Large, high-contrast and backlit graphical display with zoom function
- Large fuel type list including self choose fuels with user definable parameters
- RS 232 interface and internal data memory for approx. 8.500 measurements
- RS 485 interface for external MRU smart sensor (transmitter) connection
- Automatic interval measurement
- Data-visualization and evaluation software for PC (32bit Data Logger)
- Solenoid valve for automatic zeroing and for calibration
- Universal analog input (4 ... 20 mA or 0 ... 10 V) or additional NiCrNi thermocouple input
- 8 channel analog output 4 ... 20 mA with user configurable output
- Internal battery, for protection against short grid power supply failure (less then 1 minute)



Measured components

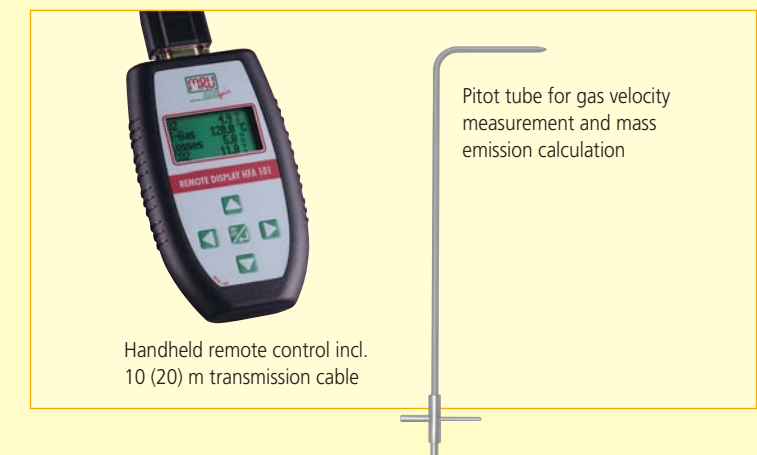
O ₂	0 ... 25 %	electrochemical sensor
CO	0 ... 1.000 ppm / 100 %	NDIR-bench
CO ₂	0 ... 3 % / 30 %	NDIR-bench
CH ₄	0 ... 1.000 ppm / 100 %	NDIR-bench
C ₃ H ₈	0 ... 1.000 ppm / 100 %	NDIR-bench
SO ₂	0 ... 1.000 ppm / 5.000 ppm	NDIR-bench
NO	0 ... 2.000 ppm / 5.000 ppm	NDIR-bench
NO ₂	0 ... 500 ppm / 1.000 ppm	NDIR-bench
H ₂	0 ... 1 % / 100 %	Thermal conductivity detector

Gas sampling probes and -lines

Standard with the MGA 5 is a gas sampling probe (300 mm) with heated filter in the probe grip, probe tube Ø 12 mm, (for gas temperature for up to 650 °C) and 3 m or 5 m temperature regulated, heated gas sampling line.

Further probes, e.g. for up to 2.000 mm, for up to 1.700 °C as well as longer or unheated gas sampling lines are possible.

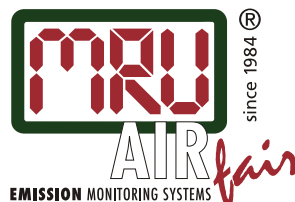
- see separate probe brochure



Technical specifications

Measured components	<i>measuring range</i>	<i>accuracy</i>	<i>measuring cell</i>
Oxygen O ₂	0... 25 %	±0,2 Vol.-% abs.	electrochemical
3-gas infrared bench	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Carbon monoxide CO	0... 1.000 ppm	0... 100 %	3 % of full scale
Carbon dioxide CO ₂	0... 3 %	0... 100 %	3 % of full scale
Hydrocarbons (as Methane CH ₄ or Propane C ₃ H ₈)	0... 1.000 ppm	0... 100 %	3 % of full scale
2-gas infrared bench	<i>min. measuring range</i>	<i>max. measuring range</i>	<i>linearity error</i>
Nitric monoxide NO	0... 2.000 ppm	0... 5.000 ppm	3 % of full scale
Nitric dioxide NO ₂	0... 500 ppm	0... 1.000 ppm	3 % of full scale
Hydrogen H ₂ (Thermal conductivity detector)	0... 1 %	0... 100 %	2 % of full scale
Flue gas temperature TF	<i>measuring range</i>	<i>accuracy</i>	
	0... 650 °C with stainless steel probe tube	±2 °C <200 °C, 1 % of full scale >200 °C	
	0... 1.100 °C with Inconel steel probe tube	±2 °C <200 °C, 1 % of full scale >200 °C	
	0... 1.700 °C with ceramic probe tube	±2 °C <200 °C, 1 % of full scale >200 °C	
Combustion air temperature TL	<i>measuring range</i>	<i>accuracy</i>	
	0... 100 °C	±1 °C	
Differential pressure measurement	<i>measuring range</i>	<i>accuracy</i>	
	±100 hPa	±0,02 hPa or 1 % of full scale	
Flue gas flow velocity measurement	<i>measuring range</i>	<i>accuracy</i>	
	1 m/s ... 100 m/s	±1 m/s or 1 % of full scale	
Calculated values	mg/m ³ , ppm and mg/m ³ referenced to xx % O ₂ , mg/s with Pitot tube		
General specification			
Operating temperature	+5 ... +45 °C, max. 90 % rh, non condensing		
Storage temperature	-20 ... +50 °C		
Power supply	110 ... 240 Vac / 50... 60 Hz / 250 W		
Internal fuse	6,3 / 10 A (depending upon the heated gas sampling line length)		
Warm-up time	1h minimum		
Response time T90	approx. 20 seconds of the analyzer sample gas inlet port		
Display	full graphic LCD display with backlight		
Data transfer	RS 232 digital, 8 channel analog output 4 ... 20 mA (not potential free)		
Sample gas conditioning	integrated gas cooler with automatic condensate pump, dew point = +5 °C		
Sample gas filtering	filtering particle size <2µ		
Sample gas monitoring	flow measurement and supervision		
Calibration	By software, calibration gases for every gas required, instrument air or clean ambient air for auto-zero		
Ambient conditions	no use in hazardous, aggressive, corrosive or very high dust ambience		
Protection class	IP 21		
Dimensions	(W x H x D) 500 x 250 x 295 mm, rugged, aluminium framed transport case		
Weight	approx. 19 kg		
Measured value stability	The aforementioned data are valid on condition that ambient conditions (e.g. sample flow, air temperature and pressure) are constant.		
Further features	<ul style="list-style-type: none"> - Measurement of the flue gas temperature with thermocouple in the probe - Heated gas sampling line (up to 5 m) with temperature regulation - Flow measurement with Pitot tube and emission calculation [mg/s] - Data recording of an external signal generator 4... 20 mA at AUX connector 		

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.

W623056BK-10-019-HWH