EMISSION MONITORING SYSTEMS

We *care* about the environment

PROFESSIONAL AND MOBILE MONITORING OF PROCESS GASES

Infrared-Multigas-Analyzer

MRU since 1984 ®
AIR fair
EMISSION MONITORING SYSTEMS

MGA 5

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

High-quality combustion analysis

O_2 CO_2 CO CH_4 C_3H_8 NO NO_2 SO_2 H_2

MGA 5

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

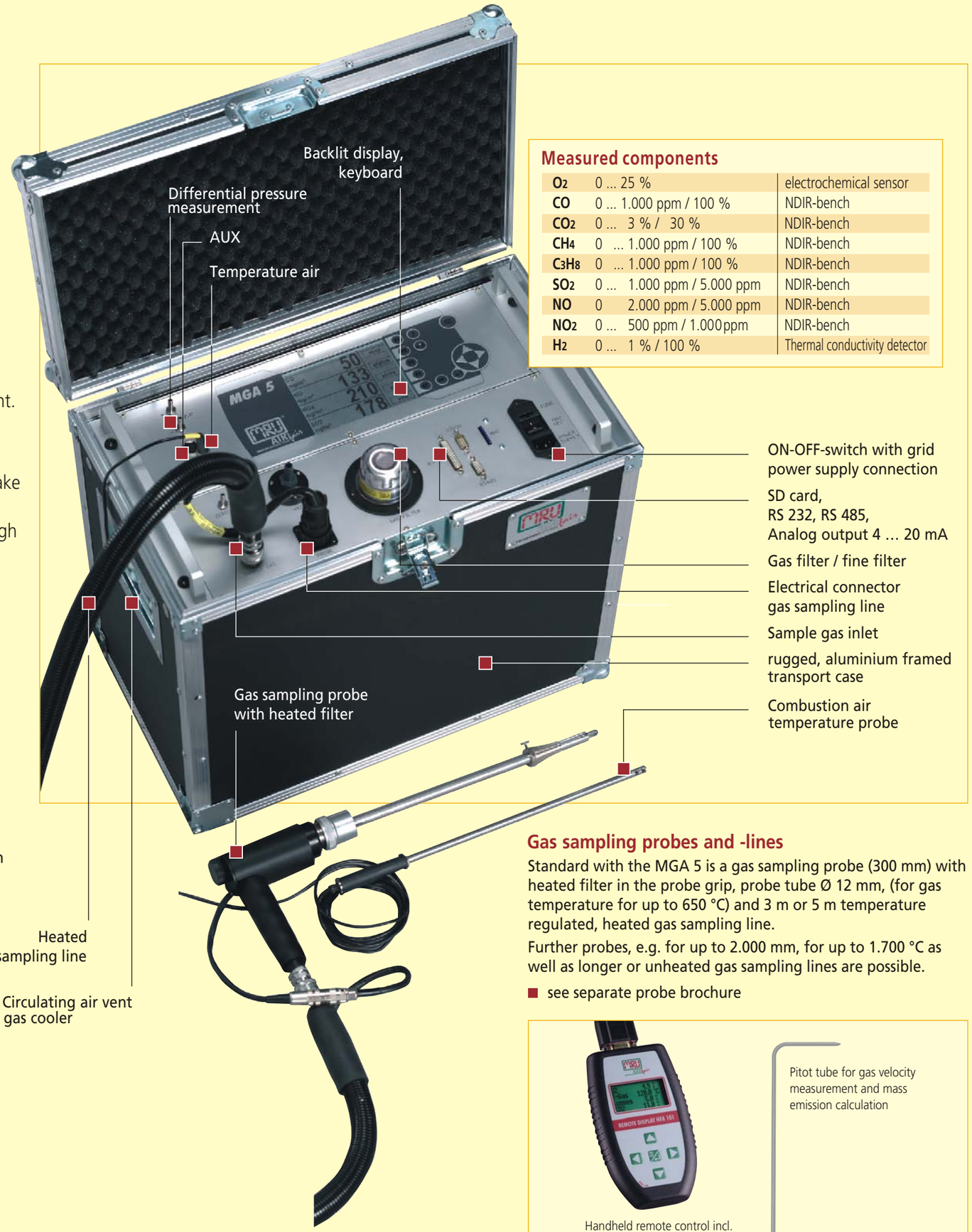
The **MGA 5** contains a complete measuring system on NDIR basis, designed for the mobile, flexible use.
The analyzer is most suitable for high concentration gas measurment. Efficient and economic use increase the acceptance of the MGA 5 analyzer.

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 availiable 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_3H_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

Handheld remote control incl. 10 (20) m transmission cable

Pitot tube for gas velocity measurement and mass emission calculation

Technical specifications

Measured components	*measuring range*	*accuracy*	*measuring cell*
Oxygen O_2		±0,2 Vol.-% abs.	electrochemical
3-gas infrared bench	*min. measuring range*	*max. measuring range*	*linearity error*
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_3H_8)	0… 1.000 ppm	0… 100 %	3 % of full scale
2-gas infrared bench	*min. measuring range*	*max. measuring range*	*linearity error*
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	*measuring range*		*accuracy*
	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	*measuring range*		*accuracy*
	0… 100 °C		±1 °C
Differential pressure measurement	*measuring range*		*accuracy*
	±100 hPa		±0,02 hPa or 1 % of full scale
Flue gas flow velocity measurement	*measuring range*		*accuracy*
	1 m/s ... 100 m/s		±1 m/s or 1 % of full scale
Calculated values	mg/m³, ppm and mg/m³ 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 backlit		
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, aggresive, corrosive or very high dust ambiance		
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	– 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		

Data subject to change without notice.

Dealer:

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