EMISSION MONITORING SYSTEMS

We *care* about the environment

MOBILE, INFRARED EMISSION MONITORING SYSTEM

MRU since 1984 ®
AIR fair
EMISSION MONITORING SYSTEMS

MGA5 plus

Monitoring of
- Flue gas emissions
- Process gases

High accuracy flue gas analysis

O_2 CO_2 CO CH_4 NO NOx SO_2

MGA5 plus

High-quality, mobile

INFRARED MULTIGAS ANALYZER for emission monitoring and combustion analysis

The **MGA5 plus** is designed for accurate measurements of all combustion processes.

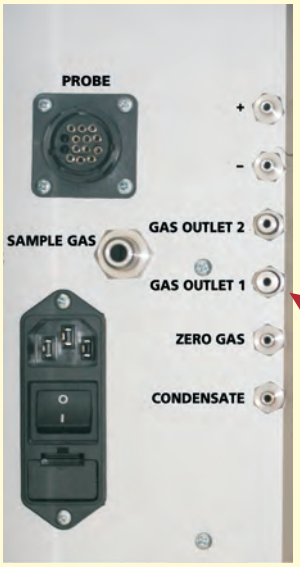
The high quality infrared modules allow the detection of even low gas concentrations. To maximize the portability and flexibility of use, analyzer is packaged in two cases: 1-st for the gas conditioning unit and 2-nd for the analyzer.

Additional useful options are available:

- Flue gas temperature sampling for up to 1.700 °C
- Combustion air temperature measurement
- Differential pressure measurement
- Gas flow velocity measurement using Pitot tube
- Emission and combustion calculations like:
  Excess air, mg/m³ referenced to O_2, NOx as mg/m³NO_2

Important features and performance characteristics

- Double stage gas cooler with automatic condensate draining pump
- Heated gas sampling line with length of 3, 5, 10 or 20 m.
- Automatic internal test and control of soft and hardware functions
- Large, high contrast and backlit graphical display with zoom function
- RS 232 interface and internal data memory for aprox. 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 signal input (4 ... 20 mA or 0 ... 10 V) or additional NiCrNi thermocouple input
- User configurable 8 channel analog output 4 ... 20 mA
- Automatic calibration using integrated calibration gas cells, without use of external calibration gas cylinders



Measured components

O_2	0 ... 25 %	paramagnetic sensor electrochemical sensor
CO	0 ... 200 ppm / 1.000 ppm	NDIR-bench
CO_2	0 ... 4 / 20 %	NDIR-bench
CH_4	0 ... 200 ppm / 1.000 ppm	NDIR-bench
SO_2	0 ... 200 ppm / 1.000 ppm	NDIR-bench
NO	0 ... 200 ppm / 1.000 ppm	NDIR-bench
NO_2	min. 90 % conversion efficiency	catalytic converter

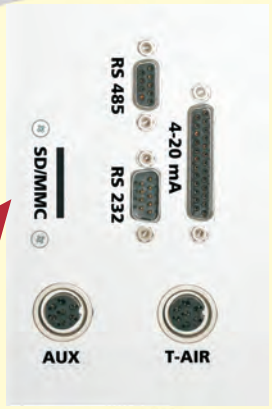
Gas sampling probes and lines

The standard delivery of the MGA5 plus has gas sampling probe with heated filter in the probe grip, probe tube Ø 12 x 300 mm for flue gas temperature for up to 650 °C and 3 m temperature regulated, heated gas sampling line.
Additional probes with tube length up to 2.000 mm, for gas temperatures up to 1.700 °C and 3, 5, 10 or 20 m heated gas sampling lines are available.

- see separate gas sampling probe brochure

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

Multi-gas infrared analyzer



Heated sampling line

Heated quartz wool filter

Sample gas conditioning unit

Technical specifications

Measured components	*measuring range*	*accuracy*	*resolution*
Oxygen O_2, EC or paramagnetic	0… 25 Vol.-%	±0,2 Vol.-% abs.	0,01 %
NDIR-multi-gas 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 CO_2	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_2 or Methane CH_4	0 … 200 ppm	0 ... 1.000 ppm	2 % of full scale
Catalytic converter NO_2 to NO	min. 90 % conversion efficiency		
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 … 300° C		±1℃
Diff. pressure measurement (option)	±100 hPa		±0,02 hPa or 1 % of full scale
Flue gas flow velocity measurement	3 ... 100 m/s		±1 m/s
Calculated values	ppm reference to xx % O_2 mg/m^3 mg/m^3 reference to xx % O_2 mg/s with Pitot tube		
General specifications			
Operating temperature	+5 … +45 °C, max. 90% rh, non condensing		
Storage temperature	-20 … +50 °C		
Power supply	110 ... 240 Vac / 250 W		
Main fuse	6,3 / 10 A		
Warm-up time	1h minimum		
Response time T90	approx. 20 seconds from analyzer sample gas inlet port		
Display	full graphic, backlit LCD display		
Data transfer / output signals	digital data transfer, RS 232 digital, 8 channel analog output 4 … 20 mA		
Sample gas conditioning	integrated gas cooler with automatic condensate pump and constant dew point = +5 °C		
Sample gas filtering	filtering particle size <2 µ		
Sample gas monitoring	internal sample gas flow measurement and supervision		
Calibration	By software, calibration gases for every gas required, instrument air or clean ambient air for auto-zero		
Protection class	IP 40		
Dimensions (gas conditioning)	(W x H x D) 560 x 490x 290 mm		
Weight (gas conditioning)	approx. 16 kg		
Dimensions (NDIR-analyzer)	(W x H x D) 560 x 500x 260 mm		
Weight (NDIR-analyzer)	approx. 22 kg		
Additional features	– Measurement of flue gas temperature using thermocouple – Heated and temperature regulated gas sampling line (3, 5, 10 or 20 m length) – Flow measurement using Pitot tube and mass emission calculation [mg/s] – Data recording of an external transmitter 4… 20 mA attached to AUX connector – NO_2 / NO converter for true NOx measurement – Automatic calibration using integrated gas cells in the NDIR analyzer		

Data subject to change without notice.

Dealer:

MRU – Always a safe and sustainable decision

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