

MGA⁵plus

PORTABLE, INFRARED EMISSION MONITORING SYSTEM



High accuracy emission analysis

O₂

CO₂

CO

NO

NO₂

NO_x

SO₂

CH₄



since 1984

AIR fair

EMISSION MONITORING SYSTEMS

High-quality, portable INFRARED MULTIGAS ANALYZER for emission monitoring and combustion analysis

The **MGA5plus** is designed for accurate measurements of all combustion processes including gas, oil, and solid fuels.

The high quality infrared modules allow the detection of high and low gas concentrations.

To maximize portability and flexibility, the analyzer is packaged in two cases:

1st unit for the gas conditioning system & display **2nd** unit for the measuring modules

Important features and performance characteristics include:

- >> Double stage gas cooler with automatic condensate draining pump
- >> Heated gas sampling line with lengths of 9.84' / 16.4' / 32.81' or 65.62'
- >> 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 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 plus 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
- >> Automatic calibration using integrated calibration gas cells,
without use the of external calibration gas cylinders

Additional options are available:

Stack temperature sampling up to 3,000°F (1,700 °C)
Combustion air temperature measurement
Differential pressure measurement
Gas flow velocity measurement using Pitot tube
Emission and combustion calculations such as:
Excess air, mg/m³, referenced to % O₂, NO_x as mg/m³ NO₂

Interfaces:



RS 232 / 485:
Data transfer



4 ... 20 mA
Connect to PLC

OPTIONAL *



SD card*:
4 GB data memory



AUX*:
For external sensors

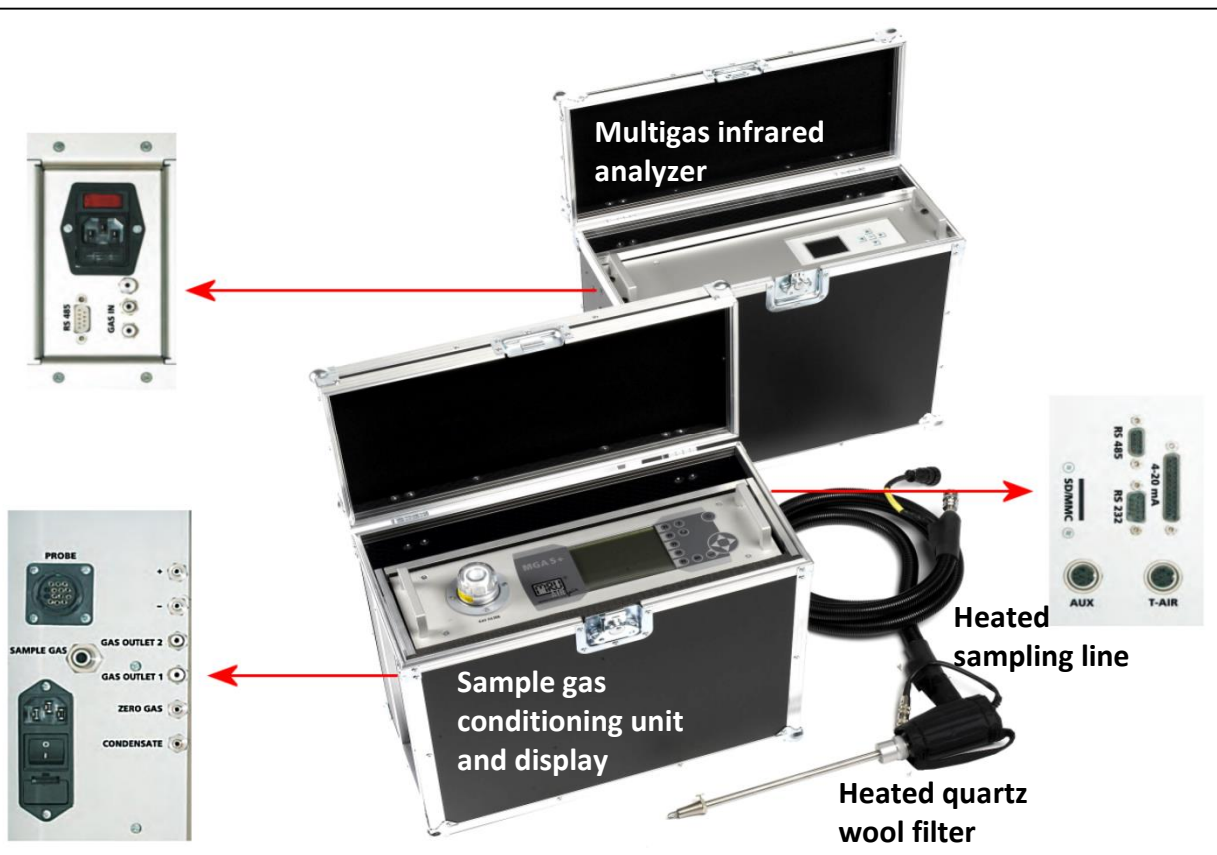


MGA⁵ plus

Maximum portability using 2 cases

1 for the sample gas conditioning & display

1 for the measuring modules



Remote control unit
with 30' RS232 cable



Probe with heated sampling line
and heated quartz wool filter

TECHNICAL SPECIFICATIONS

DATA SUBJECT TO CHANGE WITHOUT NOTICE

MGA 5 Portable multigas analyzer for combustion and emission testing

Measurement components

Electrochemical sensors		Measuring range	Accuracy	Resolution
O2	Oxygen EC or paramagnetic	0 ... 25.0 Vol-%	± 0.2 Vol-% abs.	0.01%
NDIR multi-gas bench		Min-Measuring range	Max-Measuring range	Linearity error
CO	Carbon monoxide	0... 200 ppm	0... 1,000 ppm	2 % of full scale
CO2	Carbon dioxide	0... 4 %	0... 20 %	2 % of full scale
NO	Nitric oxide	0... 200 ppm	0... 1,000 ppm	2 % of full scale
SO2	Sulfur dioxide	0... 200 ppm	0... 1,000 ppm	2 % of full scale
CH4	Methane	0... 200 ppm	0... 1,000 ppm	2 % of full scale
OR				
Catalytic converter				
NO2 to NO		min. 90 % conversion efficiency		
Flue gas temperature TF		Measuring range	Accuracy	
		32°F ... 1,200°F (0... 650 °C) with stainless steel probe tube	±2 °F <392 °F, 1 % of full scale >392 °F	
		32°F ... 2,000°F (0... 1,100 °C) with Inconel steel probe tube	±2 °F <392 °F, 1 % of full scale >392 °F	
		32°F ... 3,000°F (0... 1,700 °C) with ceramic probe tube	±2 °F <392 °F, 1 % of full scale >392 °F	
Combustion air temperature TL		Measuring range	Accuracy	
		32... 572°F	±1 °F	
		0... 300 °C	±1 °C	
Differential pressure measurement		Measuring range	Accuracy	
		±40 inH2O (±100 hPa)	±0.01 inH2O or 1 % of full scale	
			±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		ppm reference to xx % O2		
		mg/m3		
		mg/m3 reference to xx % O2		
		mg/s with Pitot tube		

General specifications

Operation temperature	41°F 113°F, max. 90 % RH, non condensing
Storage temperature	-4°F 122°F
Power supply	100 ... 240 Vac / 50 ... 60 Hz / 250W
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 = 41°F (+5 °C)
Sample gas filtering	filtering particle size <2μ
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
Ambient conditions	no use in hazardous, aggressive, corrosive or very high dust environments
Protection class	IP40
Dimensions (gas conditioning)	(W x H x D) 22.04" x 19.28" x 11.41" (560 x 490 x 290 mm) rugged, aluminum framed transport case
Weight (gas conditioning)	approx. 35 lbs. (16 kg)
Dimensions (NDIR analyzer)	(W x H x D) 22.04" x 19.68" x 10.23" (560 x 500 x 260 mm) rugged, aluminum framed transport case
Weight (NDIR analyzer)	approx. 48 lbs. (22 kg)
Further features	– Measurement of the flue gas temperature with thermocouple in the probe – Heated gas sampling line 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 – NO2/NO converter for true NOx measurement – Automatic calibration using integrated gas cells in the NDIR analyzer