

MGA prime

PORTABLE GAS ANALYZER

Reference Accuracy and Performance
in a Single Compact, Rugged Package



Flow

Pres-
sure

Draft

ΔP

$\Delta^{\circ}F$

$^{\circ}F$

CH₄

C₃H₈

N₂O

SO₂

NO_x

NO₂

NO

CO₂

CO

O₂



since 1984 ®

EMISSION MONITORING SYSTEMS
AIR fair

Over 30 years of innovative gas analysis!

- High precision for compliance or critical applications
- Versatility to measures up to 9 gases
- Superior performance via dual stage cooler
- Multiple interface / network capabilities
- Compact design for easy portability

ACCURACY, STABILITY VERSATILITY & PORTABILITY

MRU online View Software for trending and data export



Linux operating system



Bright and large color touch screen



Nylon protection case with shoulder strap



Safe transport with the aluminum framed case



- Reference Accuracy via enhanced NDIR sensor technology provides superior stability
Optimized IR beam with gold mirrored sample cell
Control, measure and compensation of H₂O
Improved cross sensitivity compensation
- Superior Performance from onboard gas conditioning
Strong, 1.5l pump
Internal double stage gas-cooler maintains dewpoint under high loads
Condensate alarm
Optional active vent pump
- NO_x measurement accuracy
Direct measurement of NO and NO₂ eliminates a converter and its inherent inefficiencies
- Incredible Versatility
Simultaneously measure
CO₂, CO, CH₄, C₃H₈, SO₂, NO, NO₂, N₂O
Plus Oxygen via paramagnetic or long-life electrochemical sensor
User definable O₂ referencing for all values
Stack gas temperature plus additional K-type thermocouple input
Differential pressure measurement included as standard
Volume and velocity flow with L-type or S-type Pitot tube
Mass emissions calculations
- Innovative Interface with 7" graphic, touch screen
Displays 12 parameters at time
LINUX OS provides media supported Help & Hints
- Interfaces / Networking
LAN / WLAN, Bluetooth, USB, RS485, 4-20mA (8ch In/ 4ch Out)
Optional wireless printer
- Portability
22lb, 17"x11.5"x 6" Aluminum enclosure with impact protection
Li-Ion battery backup for short power interruptions

SMART GAS ANALYSIS

PROBES AND PROBE TUBES



Industrial probe for interchangeable probe tubes with 9' or 16' sampling line and heated probe handle and easy replaceable quartz glass wool filter
Available with and without heated sampling line

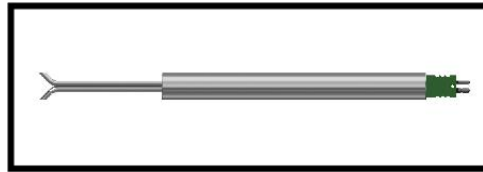


High temp ceramic probe (3,000°F)
With temperature measurement and easy replaceable quartz glass wool filter



L-Type SS with or without K-Type t/c
In sizes from 4" (0.12 \varnothing) to 79" (0.47 \varnothing)

PITOT TUBES



S-Type SS with K-Type t/c (59" lead) and 1.1" \varnothing protection tube
Available in 19" or 39" lengths (0.31" \varnothing)



- 1 Pressure-/diff. Pressure
- 2 Pressure-/diff. Pressure
- 3 Combustion air temperature
- 4 AUX-port
- 5 Probe electrical connector
- 6 Outlet fan of gas cooler
- 7 Sample gas inlet
- 8 Fresh air inlet port
- 9 Sample gas outlet port (VENT)
- 10 Condensate outlet port
- 11 Sample gas filter
- 12 Loudspeaker
- 13 Ethernet (LAN)
- 14 USB socket*
- 15 Second USB socket (option)
- 16 RS485 (option)
- 17 Analog outputs 4 ... 20 mA
- 18 Mains power supply



Heated probe and heated sampling line



Heated probe handle to avoid condensation



Quartz glass wool filter in heated probe handle



Exchangeable probe tubes for 1,200°F to 2,000°F



DUAL Stage Gas Cooler

*) including USB stick in MRU design for data storage and transfer
optional USB to WLAN dongle for wireless data transfer
optional USB to Bluetooth dongle for wireless data to smartphone with MRU4u app
optional RS485 connector for long cable data transfer using Modbus RTU protocol

TECHNICAL SPECIFICATIONS

MGA prime HIGH END Portable analyzer with up to 9 gas components

Measurement components	Method	Meas. range (0...min / max)	Reso- lution	Repeat- ability	Drift per 8h		Temperature drift 41°F to 113°F	Respons Time
					(Offset, Span)	Lack-of-Fit (Linearity)		
O ₂ Oxygen (long-Life)	ECS	25.00%	0.01%	< 0.2 Vol%	< 0.1 Vol%	< 0.1 Vol%	< 0.2 Vol%	20 sec
O ₂ Oxygen	PM	25.00%	0.01%	< 0.01 Vol%	< 0.1 Vol%	< 0.1 Vol%	< 0.1 Vol%	20 sec
CO ₂ Carbon dioxide	NDIR	40.00%	0.01%	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
CO Carbon monoxide	NDIR	200 / 10,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
HC Hydrocarbons (CH ₄)	NDIR	500 / 10,000 ppm	0.1 ppm	< 2 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
HC Hydrocarbons (C ₃ H ₈)	NDIR	200 / 10,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
NO Nitric oxide	NDIR	250 / 4,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
NO ₂ Nitrogen dioxide	NDIR	200 / 1,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
SO ₂ Sulfur dioxide	NDIR	200 / 4,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec
N ₂ O Nitrous oxide	NDIR	200 / 1,000 ppm	0.1 ppm	< 1 % m.r.	< 1 % m.r.	< 2 % m.r.	< 0.5 % m.r.	120 sec

NOTE: m.r. = measuring range, established by the calibration gas anywhere between min to max range
CH₄ = selective methane measurement ; C₃H₈ = non-methane measurement

OTHER MEASUREMENTS AND CALCULATIONS	Method	Meas. range (0...min / max)	Resolution	Accuracy **
T-gas Flue gas temperature	NiCrNi	32 °F ... 2,192 °F (0 °C ... 1,200 °C)	2 °F (1 °C)	± 2°F or 2 % reading
T-air Combustion air temperature	NiCrNi	32 °F ... 932 °F (0 °C ... 500 °C)	2 °F (1 °C)	± 2°F or 2 % reading
T-amb Ambient air temperature	PT2000	32 °F ... 212 °F (0 °C ... 500 °C)	2 °F (1 °C)	± 2°F or 2 % reading
P-Press Differential pressure	Piezoresistiv	-48 ... +48 inH ₂ O (-120 ... +120 hPa)	1 Pa	± 2 Pa or 1 % reading
V-flow flow velocity measurement	Diff.pressure	3 ... 100 m/s	1 m/s	± 1 m/s or 1 % reading
AUX-connector	Software	for K-thermocouple, 0 ... 10 Vdc, 4 ... 20 mA, RS485		
Combustion analysis	Software	Losses, excess air, Lambda, dew point		
Emission calculations	Software	mg/Nm ³ , reference O ₂ , g/s, kg/h		

GENERAL TECHNICAL DATA

Operating system	LINUX
Display, operation	7" TFT (800 x 480 px) color display, backlit, with touch and swipe operation
Data storage type	10,000 data sets internal and external USB-Stick
Interface to PC / Notebook	Ethernet, Bluetooth, WLAN, RS485
Cable communication interface	RS485, RJ45 (Ethernet)
Wireless communication	Bluetooth, WLAN
Thermal printer	external only
Analog output 4 - 20 mA/analog input 4 - 20 mA	8 channel out / 4 channel in/user configurable
Universal analog input - AUX -	0...10 Vdc / 4...20 mA / NiCrNi / RS485
System warming up time	30 minutes (typical)
Warming up temperature NDIR bench	131°F (55 °C)
Mains free operation time / stand-by only	1 hour
Internal battery	Li-Ion , 96W, for standby
Operating conditions	41°F to 113°F, RH up to 95% non condensing
Storage temperature	-4°F to 122°F
Power supply / consumption	86 .. 265 Vac / 47...63 Hz / 105 W (analyzer only)
Enclosure material	aluminum, rubber molded impact protection
Protection class	IP20 (or IP42 inside transport case)
Dimensions	16.92" x 11.41" x 5.9" (WxHxD)
Weight	from 16.5 lbs. for minimal configuration

Data subject to change without notice

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