

MGA
prime

PORTABLE GAS ANALYZER

Reference Accuracy and Performance
in a Single Compact, Rugged Package



since 1984®

EMISSION MONITORING SYSTEMS

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



- **Reference Accuracy via enhanced NDIR sensor technology**
Innovative DPT technique provides superior stability
Optimized IR beam with gold mirrored sample cell
Control, measure and compensation of H₂O
Improved cross sensitivity compensation

Linux operating system



- **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

Bright and large color touch screen



- **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

Nylon protection case with shoulder strap



- **Innovative Interface with 7" graphic, touch screen**
Displays 12 parameters at time
LINUX OS provides media supported Help & Hints

Safe transport with the aluminum framed case



- **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

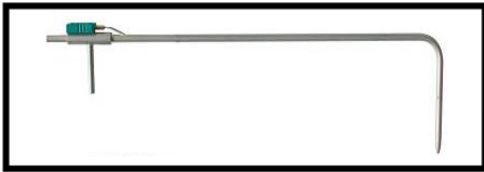
PROBES AND PROBE TUBES



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

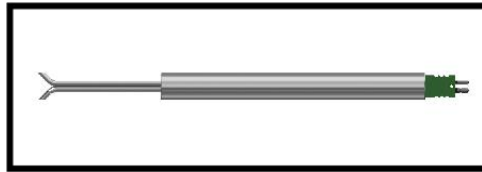


High temp ceramic probe (3,000°F)
With temperature measurement and easy replaceable quartz glass wool filter



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

PITOT TUBES



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



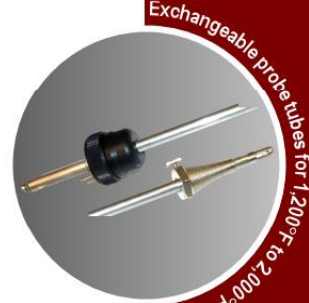
Heated probe and heated sampling line



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



- 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



*) 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)	Resolution	Repeatability	Drift per 8h (Offset, Span)		Lack-of-Fit (Linearity)	Temperature drift 41°F to 113°F	Response Time
O ₂	Oxygen (long-Life)	ECS	25.00%	0.01%	< 0.2 Vol%	< 0.1 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%	< 0.1 Vol%	20 sec
CO ₂	Carbon dioxide	NDIR	40.00%	0.01%	< 1 % m.r.	< 1 % m.r.	< 2 % 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.	< 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.	< 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.	< 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.	< 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.	< 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.	< 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.	< 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, 96Wh, 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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