

**MGA**  
*luxx*

# HEAVY DUTY FLUE GAS / EMISSION ANALYZER

for long time measurements of industrial combustions, large boilers, gas engines and turbines, furnaces and many more



O<sub>2</sub>

CO

CO<sub>2</sub>

NO

NO<sub>2</sub>

NO<sub>x</sub>

SO<sub>2</sub>

H<sub>2</sub>S

H<sub>2</sub>

CH<sub>4</sub>  
C<sub>3</sub>H<sub>8</sub>

°F

Δ°F

ΔP

Draft

Pres-  
sure

Flow

4-20 mA

LAN

AUX

Bluetooth

SD

USB

Touchscreen



since 1984®

EMISSION MONITORING SYSTEMS

Over 30 years of innovative gas analysis!

- Precise measuring technique using non dispersive infrared (NDIR) technique
- Up to 6 gas NDIR measurement: CO/CO<sub>2</sub>/HC/SO<sub>2</sub>/NO/NO<sub>2</sub> and oxygen with either long-life O<sub>2</sub>-ECS or O<sub>2</sub>-PM (paramagnetic cell)

# PORTABLE HEAVY DUTY EMISSION ANALYZER

The new MGA<sup>luxx</sup> achieves a maximum of versatility through the combination of (NDIR) infrared technology and (ECS) electrochemical sensors.

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



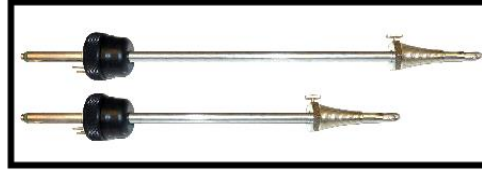
- Simultaneous analysis of up to 9 gas components!
  - CO, CO<sub>2</sub>, NO, NO<sub>2</sub>, SO<sub>2</sub> & HC using NDIR
  - H<sub>2</sub> & H<sub>2</sub>S using ECS
  - O<sub>2</sub> using ECS or PM
- Emission calculations such as mass flow, calculated or True NO(x), plus O<sub>2</sub> referencing to user defined values
- Gas temperature measurement up to 2,012°F  
(use stainless steel up to 1,200°F, use Inconel tubes up to 2,012°F)  
(use ceramic up to 3,090°F)
- Integrated DUAL stage Peltier cooler with automatic condensate drain pump
- Automatic zeroing using 3-way solenoid valve
- Internal sample flow monitoring
- Strong, regulated sample gas pump
- Fresh air inlet nozzle
- Differential pressure or stack gas pressure +/- 40 inH<sub>2</sub>O (100 hPa)
- Combustion air temperature up to 930°F, using adequate NiCrNi probes
- 7" high contrast, color touchscreen with graphical data display
- Automatic data logging
- Automatic, internal diagnostics
- Direct csv or pdf reporting
- Data transfer over LAN Ethernet or USB
- 8 channel analog outputs and 4 channel analog inputs (4-20mA)
- Single universal input 0-10V, 4-20mA, t/c, or RS485
- Internal 10,000 data memory and external 4GB USB-stick
- Universal power supply handles up to 600W heated sample line
- Rugged aluminum enclosure with rubber molded impact protection

# SMART GAS ANALYSIS

## PROBES AND PROBE TUBES



Low cost industrial probe for interchangeable probe tubes with 9' or 16' rugged, braided sheathed sampling line and Viton hose for clean combustions only



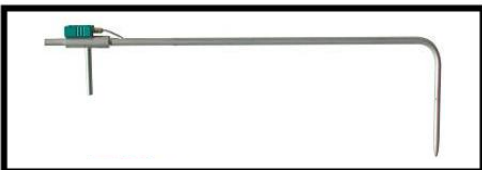
Probe tubes (4" to 80" long)  
in SS (1,200°F) or Inconel (2,000°F)  
Also available with sintered metal filter



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

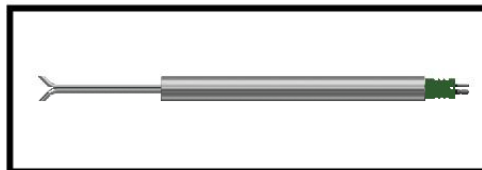


High temp ceramic probe (3,000°F)  
With temperature measurement  
and easy replaceable  
quartz glass wool filter



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)



- 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



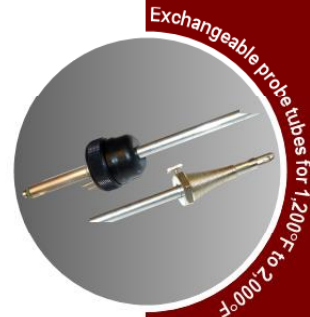
Heated probe and heated sampling line



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 luxx** Portable analyzer with up to 9 gas components

| Measurement components |                                               | Method | Meas. range (0...min / max) * | Resolution | Accuracy **             |
|------------------------|-----------------------------------------------|--------|-------------------------------|------------|-------------------------|
| O <sub>2</sub>         | Oxygen (long-Life)                            | ECS    | 0 ... 25.00 %                 | 0.01%      | 0.2%                    |
| O <sub>2</sub>         | Oxygen                                        | PM     | 0 ... 25.00 %                 | 0.01%      | 0.1%                    |
| CO <sub>2</sub>        | Carbon dioxide                                | NDIR   | 0 ... 5.00 / 40.00 %          | 0.01%      | ± 0.2 % or 2 % reading  |
| CO                     | Carbon monoxide                               | NDIR   | 0 ... 1,000 / 10,000 ppm      | 1 ppm      | ± 20 ppm or 2 % reading |
| HC                     | Hydrocarbons (CH <sub>4</sub> )               | NDIR   | 0 ... 1,000 / 10,000 ppm      | 1 ppm      | ± 20 ppm or 2 % reading |
| HC                     | Hydrocarbons (C <sub>3</sub> H <sub>8</sub> ) | NDIR   | 0 ... 1,000 / 10,000 ppm      | 1 ppm      | ± 10 ppm or 2 % reading |
| NO                     | Nitric oxide                                  | NDIR   | 0 ... 1,000 / 4,000 ppm       | 1 ppm      | ± 20 ppm or 2 % reading |
| NO <sub>2</sub>        | Nitrogen dioxide                              | NDIR   | 0 ... 500 / 1,000 ppm         | 1 ppm      | ± 10 ppm or 2 % reading |
| SO <sub>2</sub>        | Sulfur dioxide                                | NDIR   | 0 ... 500 / 1,000 ppm         | 1 ppm      | ± 10 ppm or 2 % reading |
| HC                     | Hydrocarbons (CH <sub>4</sub> )               | NDIR   | 0 ... 1,000 / 4,000 ppm       | 1 ppm      | ± 20 ppm or 2 % reading |
| H <sub>2</sub> S       | Hydrogen sulfide                              | ECS    | 0 ... 2,000 / 5,000 ppm       | 1 ppm      | ± 10 ppm or 5 % reading |
| H <sub>2</sub>         | Hydrogen                                      | ECS    | 0 ... 1,000 / 2,000 ppm       | 1 ppm      | ± 5 ppm or 5 % reading  |

\* overload range of ECS is usable only for short duration

\*\* which ever is larger

| OTHER MEASUREMENTS<br>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 <sub>2</sub> 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 <sup>3</sup> , reference O <sub>2</sub> , 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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