AMPRO 2000

POWERFUL HANDHELD Combustion / Emission Analyzer

for industrial combustion and emission measurements





USB · SD · IR · AUX · MRU 4U

O2 · CO · CO2 · NO · NO2 · NOx · SO2 · °F · ΔP · Draft · Pres-sure · Flow

- With up to 6 true gas measurements
- Up to 15 hours operation / Lithium-Ion battery
- Low cost of ownwership
- Extremely user friendly
- +4 Years O_2 sensor Life Expectancy
- Active CO sensor protection

MRU AIR fair since 1984 ®

EMISSION MONITORING SYSTEMS

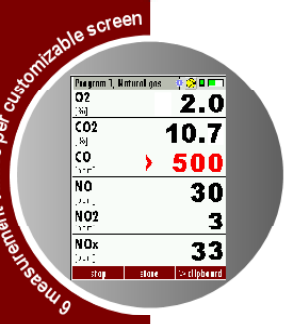
Over 30 years of innovative gas analysis!

THE MOST POWERFUL HANDHELD GAS ANALYZER











Simultaneous measurements of up to 6 gas components!

- O_2, CO, CO_2, NO, NO_2, SO_2, CO-high, & CO-very high
  - Up to 5 electrochemical sensors, plus CO_2 NDIR bench is possible!
  - Low CO, NO and NO_2 ranges are available
- Emission calculations such as mass flow, calculated or True NO(x), plus O_2 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)
- Large condensate separator with PTFE (Teflon) coated filter
- Air purging pump for CO-sensor protection
- Internal data storage for up to 16,000 measurements!
- High energy Li-Ion battery provides up to 15 hours operation time
- Large color graphic, backlit display with zoom function
- Customizable screen settings
- Durable and dirt resistant keypad
- IR interface for external printer (printer is optional)
- Integrated SD card reader for additional memory and easy data handling

Also measures...

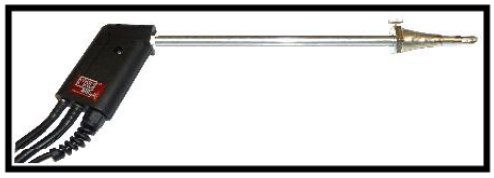
- Combustion air temperature
- Stack gas temperature
- Stack draft
- Differential pressure
- Differential temperature

And calculates...

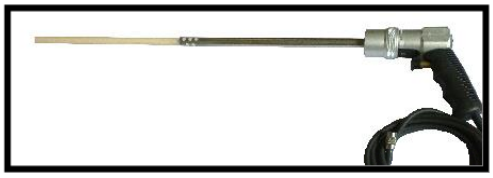
- CO_2
- CO/CO_2 ratio
- Dew point
- Excess air and air ratio (Lambda)
- Combustion efficiency
- Heat losses

Combustion / Emission Analyzer

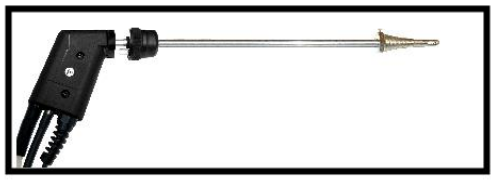
PROBES AND PROBE TUBES



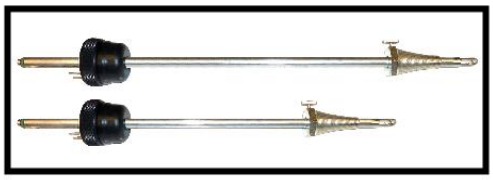
Standard probe: 10" insertion;
9' rugged, braided sheathed sampling line with K-Type t/c (1,200°F max) and silicone hose for combustion applications



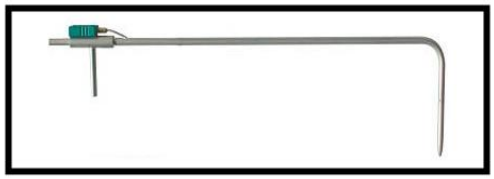
High temp ceramic probe (3,000°F)
Without temperature measurement



Industrial probe for interchangeable probe tubes with 9' or 16' rugged, braided sheathed sampling line with K-Type t/c and Viton hose for combustion and emission measurements

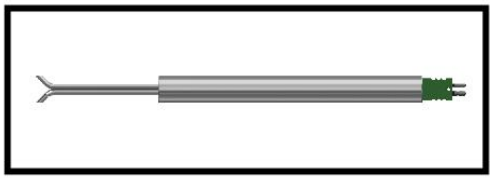


Probe tubes (4" to 80" long)
in SS (1,200°F) or Inconel (2,000°F)
Also available with sintered metal filter

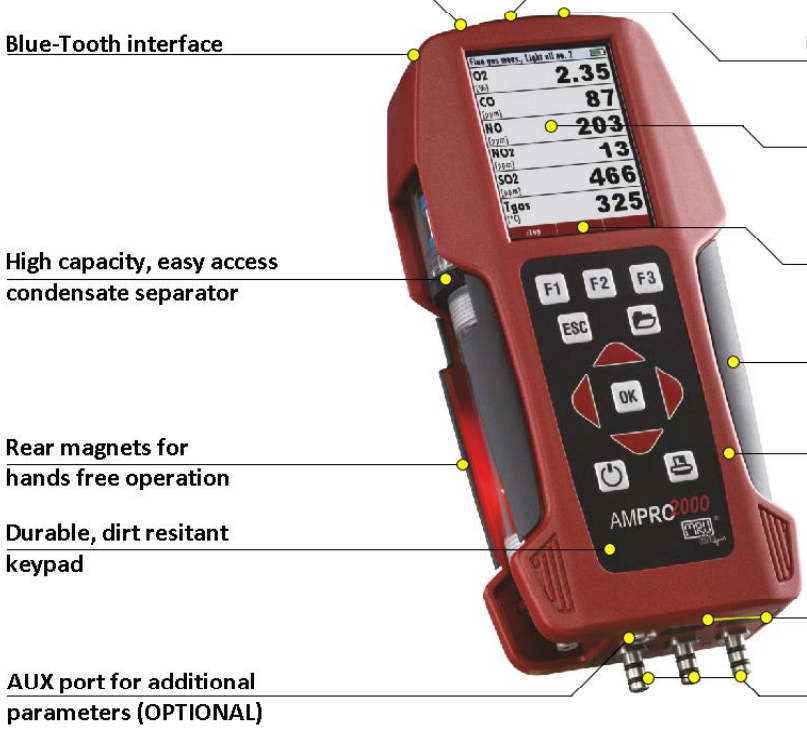


L-Type SS with or without K-Type t/c
In sizes from 4" (0.12Ø) to 79" (0.47 Ø)

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)



IR-Printer interface

Blue-Tooth interface

High capacity, easy access condensate separator

Rear magnets for hands free operation

Durable, dirt resitant keypad

AUX port for additional parameters (OPTIONAL)

SD Card reader for data transfer and additional storage

USB Ports for data transfer and battery charging

3.5" color display with zoom function

Intuitive, easy to navigate menu structure

Secure grip side panels

Fiberglass reinforced enclosure

K-Type temperature sockets

Stainless steel connectors











AMPRO 2000

TECHNICAL SPECIFICATIONS

AMPRO 2000 analyzer	Handheld analyzer with up to 5 electrochemical sensors and a single or dual gas NDIR bench
Fuel types	Natural gas, propane, butane, #2, #5, & #6 light oils, heavy oil, kerosene, distillate #1, diesel, coal, coal anthracite & bituminous, wood (dry, 10%, 20%, 30%, &40% M.), pellets, and four user defined fuel types

Measurement components			Measuring range	Accuracy
O_2	Oxygen		0 ... 21.0 Vol-%	± 0.2 Vol-% abs.
CO	Carbon monoxide (H2 compensated)		0 ... 4,000 ppm **overload 10,000ppm ***	± 10 ppm or 5 % reading < 4,000 ppm / 10 % reading > 4,000 ppm
CO	Carbon monoxide low		0 ... 500 ppm **with 0.1 ppm resolution ****	± 2.0 ppm or** 5 % reading
CO	Carbon monoxide very high		0 ... 4.0% **overload 10.0% ***	± 0.02% or 5 % reading < 0.4% / 10 % reading > 0.4%
NO	Nitric oxide		0 ... 1,000 ppm **overload 5,000ppm ***	± 5.0 ppm or 5 % reading < 1,000 ppm / 10 % reading > 1,000 ppm
NO	Nitric oxide low		0 ... 300 ppm **with 0.1 ppm resolution ****	± 2.0 ppm or** 5 % reading
NO_2	Nitrogen dioxide		0 ... 200 ppm **overload 1,000ppm ***	± 5 ppm or 5 % reading < 200 ppm / 10 % reading > 200 ppm
NO_2	Nitrogen dioxide low		0 ... 100 ppm **with 0.1 ppm resolution ****	± 2.0 ppm or** 5 % reading
SO_2	Sulfur dioxide		0 ... 2,000 ppm **overload 5,000ppm ***	± 10 ppm or 5 % reading < 2,000 ppm / 10 % reading > 2,000 ppm
CO_2	Carbon dioxide	single NDIR	0.....40%	± 0.3 % or 5% reading
CO_2 CxHy	Carbon dioxide Hydrocarbons	dual NDIR	0.....40% 100....40,000ppm	± 0.3 % or 5% reading

***overload range recommend only for short time measurements**
****are not separate sensors; selected sensors are used with special calibration**

Stack / Flue gas temperature	0 ... 1,200°F / 2,012°F **(with stainless steel / Inconel steel tube)**	± 4°F ... < 392°F / 1 % reading > 392°F	
Primary-air / Ambient temperature	0 ... 212°F	± 2°F	
Differential temperature	up to 2,012°F **(with suitable material of sampling tube)**	± 4°F ... < 392°F / 1 % reading > 392°F	
Stack / Differential pressure	+/- 40 inH2O (100hPa)	± 0.01 inH2O or 1% reading	
Gas flow velocity measurement	1 ... 40 m/s (using Pitot tube)		

Calculated values (fuel type dependent)

Carbon dioxide	0 ... CO_2 max.	**Air Ratio (Lambda)**	1 ... 9.99
Heat losses qA	0 ... 99.9 %	**Excess Air**	0 ... 99.9
Efficiency	0 ... 100 % / 120 %	**CO/CO_2 ratio**	0 ... 10

General specifications

Operation temperature	41°F .... 113°F, max. 95 % RH, none condensing
Storage temperature	-4°F ..... 122°F
Ambient conditions	not in aggressive, corrosive or high dust ambience, not for use in hazardous areas
Power supply	Lithium-Ion battery, 15 h operation, (with NDIR 6 to 8 hours)
Grid power supply	100 - 240 V AC / 50 ... 60 Hz 1A
Protection class	IP42
Weight	approx. 2.2 lbs. (with 7 sensors)
Dimensions	(W x H x D) 4.3" x 8.8" x 2.04"

Data subject to change without notice

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