AMPRO 2000

POWERFUL HANDHELD Combustion / Emission Analyzer

for industrial combustion and emission measurements

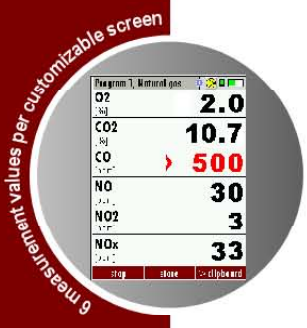
Bluetooth · USB · SD · IR · AUX · MRU 4U

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

- With up to 6 true gas measurements
- Up to 20 hours operation / Lithium-Ion battery
- Low cost of ownwership
- Extremely user friendly
- +4 Years O_2 sensor Life Expectancy

MRU since 1984 ®
AIR fair
EMISSION MONITORING SYSTEMS

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...

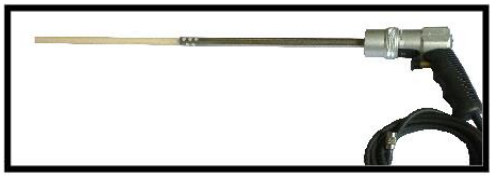
- CO_2
- CO/CO_2 ratio
- Dew point
- Excess air and air ratio (Lambda)
- Combustion efficiency
- Heat losses

1.800.561.8187 www.itm.com information@itm.com

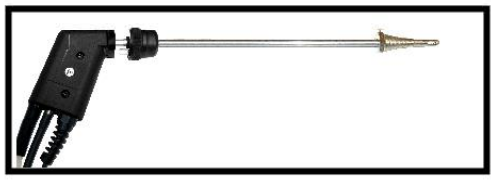
Combustion / Emission Analyzer

PROBES AND PROBE TUBES

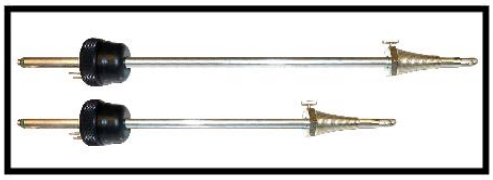
Standard probe: 10" insertion;
9' rugged, braided sheathed sampling line with K-Type t/c (1,200°F max) and silicone hose for combustion applications



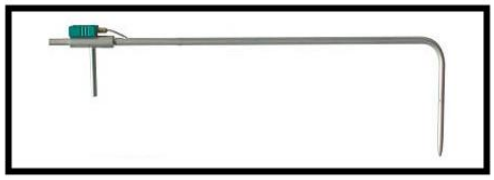
High temp ceramic probe (3,000°F)
Without temperature measurement



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

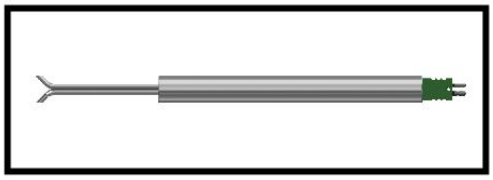


Probe tubes (4" to 80" long)
in SS (1,200°F) or Inconel (2,000°F)
Also available with sintered metal filter

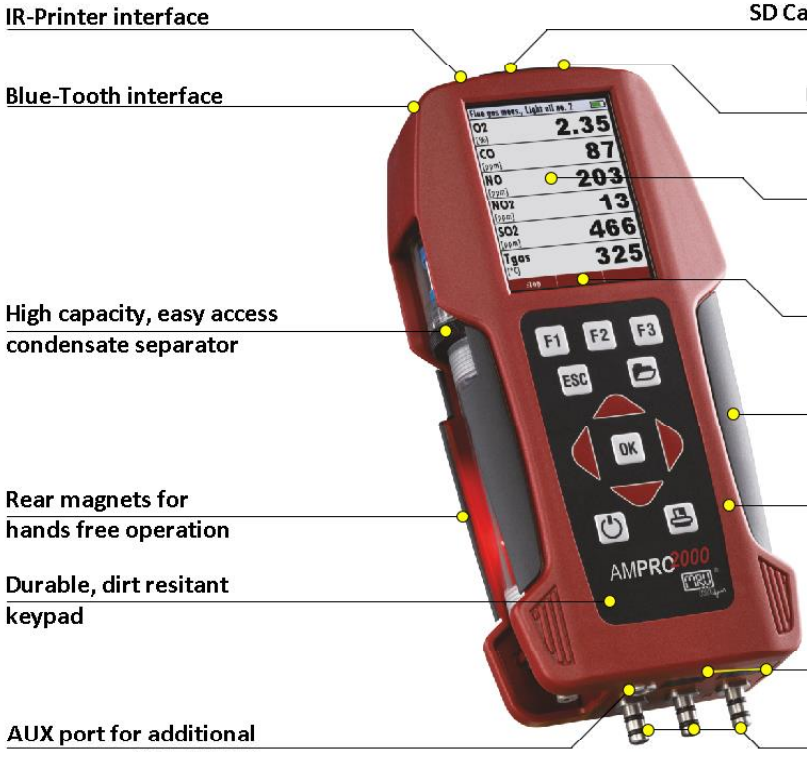


L-Type SS with or without K-Type t/c
In sizes from 4" (0.12Ø) to 79" (0.47 Ø)

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)



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

Measured components		Measuring range	Resolution	Response T90	Accuracy
O_2	Oxygen	0 ... 21.0 Vol-%	0.1%	< 20 sec.	± 0.2 Vol-% abs.
CO	Carbon monoxide (H2 compensated)	0 ... 4,000 ppm **overload 20,000ppm *1**	1 ppm	< 40 sec.	± 10 ppm or 5 % reading < 4,000 ppm / 10 % reading > 4,000 ppm
CO	Carbon monoxide low *2	0 ... 500 ppm	0.1 ppm		± 2.0 ppm or** 5 % reading
CO	Carbon monoxide very high	0 ... 4.0% **overload 10.0% *1**	1 ppm	< 40 sec.	± 0.02% or 5 % reading < 0.4% / 10 % reading > 0.4%
NO	Nitric oxide	0 ... 1,000 ppm **overload 5,000ppm *1**	1 ppm	< 30 sec.	± 5.0 ppm or 5 % reading < 1,000 ppm / 10 % reading > 1,000 ppm
NO	Nitric oxide low *2	0 ... 300 ppm	0.1 ppm		± 2.0 ppm or** 5 % reading
NO_2	Nitrogen dioxide	0 ... 200 ppm **overload 1,000ppm *1**	1 ppm	< 40 sec.	± 5 ppm or 5 % reading < 200 ppm / 10 % reading > 200 ppm
NO_2	Nitrogen dioxide low *2	0 ... 100 ppm	0.1 ppm		± 2.0 ppm or** 5 % reading
SO_2	Sulfur dioxide	0 ... 2,000 ppm **overload 5,000ppm *1**	1 ppm	< 40 sec.	± 10 ppm or 5 % reading < 2,000 ppm / 10 % reading > 2,000 ppm
CO_2	Carbon dioxide *3	0.....40%	0.01%	< 35 sec.	± 0.3 % or 3% reading
CO_2	Carbon dioxide *4	0.....40%	0.01%	< 35 sec.	± 0.3 % or 3% reading
CxHy	Hydrocarbons	100....40,000ppm	10 ppm	< 35 sec.	± 400 ppm or 5% reading

***1 - overload range recommended only for short time measurements**
***2 - are not separate sensors; selected sensors are used with special calibration**
***3 - single NDIR**
***4 - DUAL NDIR**

Stack / Flue gas temperature	32 ... 1,472°F (0 ... 800°C)	(with Stainless Steel probe tube)	± 4°F ... < 392°F / 1 % reading > 392°F
	32 ... 2,012°F (0 ... 1100°C)	(with Inconel probe tube)	± 4°F ... < 392°F / 1 % reading > 392°F
Primary-air / Ambient air temperature	32 ... 212°F (0 ... 100 °C)		± 2°F
Differential temperature	up to 2,012°F **(with suitable material of sampling tube)**		± 4°F ... < 392°F / 1 % reading > 392°F
Stack draft	+/- 40 inH2O (100hPa)		± 0.01 inH2O or 1% reading
Differential pressure	+/- 120 inH2O (300hPa)		± 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

Max suction range gas pump	60 inH2O (150 hPa)
Typical gas flow	16 gal/h (60 l/h)
Operation temperature	41°F .... 113°F (5 ... 45°C) max. 95 % RH, none condensing
Storage temperature	-4°F ..... 122°F (-20°C ... 50°C)
Ambient conditions	not in aggressive, corrosive or high dust ambience, not for use in hazardous areas
Power supply	Lithium-Ion battery, 20 h operation time
Grid power supply	100 - 240 V AC / 50 ... 60 Hz 1.2A
Protection class	IP30
Weight	approx. 2.2 lbs. (with 7 sensors)
Dimensions	(W x H x D) 4.3" x 8.8" x 2.04"