



pSmoke2000 Series
Model:pFlue2000

Portable Flue Gas Analyzer

____Special Designed for Analysis of Flue Gas from Combustion of Normal Fuel

Ref:pFlue2000_IntE
Revision: 2006-11-15

**More Less of maintenance, Never replace of sensors!
Really long life design and continuously analysis supported**

You would get infrared photometric analyzer in the price of
electrochemical sensors

- Infra-red bench & sensors inside.
- Fast 30-second warm up
- Combined technology: infra-red & electrochemical sensors
- No filters needed in our normal models
- 5 gases embedded and one or two gas sensor might added by user's order
- 1 watt power requirement, Battery supply.
- ASM/BAR 97, OIML Class 0 applied for Flue and automotive flue analysis



Why choose IR sensors?

Infra spectroscopy is traditional method for chemical analysis. Relative to electrochemical sensors, IR sensor holds more advantages as following:

- 1) long life and stability. most IR sensors can be used for 5-10 years. But electrochemical sensors only lasts for 1-2 years in air. If the test period lasting longer or being in heavy duty working, it would be flueed earlier unexpectedly. If working in full scale, most sensor would be flueed in 400 hours.
- 2) Embedded filter or external filter is necessary for electrochemical system. The filter efficiency is changing along using, varying to contaminants, so it is difficult to forecast the compensation. Thus could not get reliable measurements.
- 3) IR sensor is more specific to objective gases, professional speaking, it is high selective to gases. Generally speaking, there is less of interferences among different gases. For example, EC CO sensors is cross sensitive to HC,H₂,CH₂CH₂, and even H₂S,SO₂ etc.; EC O₂ sensor is sensitive to CO₂; EC H₂S would be cross interfered by SO₂,CO,NO₂,NO etc.; SO₂ would be cross interfered by CO,NO₂,H₂,CH₂CH₂ etc.

Applications

- Combustion research
- Emission monitor and control
- Boiler smoke test and combustion efficiency measurement
- Industrial stove flue monitor and combustion efficiency measurement
- Power plant emissions monitoring and combustion efficiency measurement
- Coking plant emissions monitoring and combustion efficiency measurement
- Concrete plant emissions monitoring and combustion efficiency measurement
- Automotive flue test and quality control

- Motorcycle flue test and quality control

Instrumental Functions

- ◆ LCD 4 × 16 LCD Display, with backlight
- ◆ RS232/RS485 serial port. Supporting STIMcom / Modbus communication, and printer; USB support in new version
- ◆ Non-volatile memory supported data store and read out, or output to computer
- ◆ Built-in Sampling pump included, and suitable sample pre-process assembly
- ◆ Built-in alarm include LED flash, LCD indication, and Beep; Alarm limit setup supported
- ◆ Sampling gun with filter/trap for dusts and condensated water drain.
- ◆ System diagnostic
- ◆ Protection against accidental turn-off
- ◆ Over-range protection for all installed sensors and pumping
- ◆ Storage protection for sensors
- ◆ Flexible tubing for re-configuration
- ◆ User complete calibration, zero-adjust and essential data setup support
- ◆ Interfering gas compensation select
- ◆ Basal humidity and temperature detected for compensation and controlled for normal test. Over limit alarm support
- ◆ Rechargeable batteries to provide 100 hours of continuous operation
- ◆ 15-24 V DC powered. Local AD to DC adapter supported
- ◆ Basal intrinsically safe system, except parts of pump and heater. Special order for class 1 div. 1, groups a, b, c and d and class 2 div. 1, groups e, f and g for use in hazardous areas recommended.

Parameter list

Gas	Gas	Range	Accuracy	Repeatability	Response	Method	Flue-Pro	E8s	E6s	E5s	M?
Hydrocarbons	HC	0 to 2000 ppm	+/-3% rel.	-3ppm/abs or +/-2% rel.	4.5s	ND IR	⊙	⊙	⊙	⊙	⊕
	n-hexane	2001 to 5000 ppm 5001 to 30000 ppm	+/- 5% rel. +/-10% rel.	+/-3% rel. +/- 4% rel.							
Carbon Monoxide	CO	0.00% to 10.00%	+/-3% rel.	-200ppm/abs or +/-2% rel.	4.5s	RD IR	⊙	⊙	⊙	⊙	⊕
Carbon Dioxide	CO ₂	10.01% to 15.00%	+/-5% rel.	+/-3% rel.							
		0.00% to 16.00%	+/-3%rel.	-0.1%/abs or +/-2% rel.	4.5s	ND IR	⊙	⊙	⊙	⊙	⊕
Nitric oxide	NO _x	0 to 4000/5000 ppm	+/-4% rel.	-20ppm/abs or +/-3%rel	10s	EC	⊙	⊙	⊙	⊙	
Nitric oxide	NO	0 to 5000 ppm	+/-4% rel.	-20ppm/abs or +/-3%rel	1s	LNIR					⊕
Nitrogen dioxide	NO ₂	0 to 200/1000ppm	+/-2% rel.	0.5ppm	60s	EC	⊙	⊙			
Nitrogen dioxide	NO ₂	0 to 2000ppm	+/-2% rel.	0.5ppm	1s	LNIR					⊕
Sulfur dioxide	SO ₂	0-2,000/5,000ppm	± 1%rel	1ppm/abs or ±3%rel	40s	EC	⊙	⊙	⊙	⊙	
Sulfur dioxide	SO ₂	0-5,000ppm	± 1%rel	1ppm/abs or ±3%rel	1s	LNIR					⊕
Hydrogen Sulfide	H ₂ S	0-50/500ppm	± 1%rel	0.1ppm	30s	EC	⊙	⊙			
Hydrogen Sulfide	H ₂ S	0-500ppm	± 1%rel	0.1ppm	1s	LNIR					⊕
Oxygen	O ₂	0.00% to 25.00%	-0.01% abs.	-0.1% abs.	40s	EC	⊙	⊙	⊙		
Oxygen	O ₂	0.00% to 25.00%	-0.01% abs.	-0.1% abs.	1s	LNIR					⊕
Black dust/Opacity		Rb 0-10.0 Green:0-12	<3%			Photo	⊙				⊕
Temperature		-40 to 750 °C/J	<0.4%			RTD	⊙				⊕
Suspended Particles	TSP	0-1000; 0-5000; 0-20000 mg/M ³	<5%			Light scattering	⊙				⊕
AFR	α	0-15	<1.5%			Calc	⊙	⊙	⊙		⊕

Combustion efficiency	β	0-100%	<2%	Calk	⊙	⊙	⊙	⊙	⊙
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①② special innovation.

*For the application for engine and automotive industry, refer to pAuto2000.

*Pro and E series is for occasional test, specially for normal patrol quality and combustion efficiency analysis.

*M series is designed for long time continuously and heavy duty analyzing. Recommended for burner manufacturer and research team.

*for contaminant emissions analysis, please refer to pSmoke2000 Analyzer;

*for automotive flues analysis, please refer to pAuto2000 Analyzer

Auxiliary Selective Parameters Tested

Stove temperature, stove pressure and/or flue gas velocity, combustion efficiency

Series Products

pFlue2000	For combustion analysis	
pAuto2000	For automotive flues analysis	
pSmoke2000	For contaminants analysis	

Ordering Attentions:

- 1) This instrument basically employed electrochemical sensors. The guaranteed life is 1 year. But always you can use it as long as 3 years with normal burden. The long time offset of this kind of sensor is about 10% each year in average. So if you do not order standard gas to calibrate on time. Pay attention to the error caused by excursion. This kind of sensor need to be replaced at time.
- 2) This instrument is guaranteed to use in normal burner flue gas analysis. For the application of engine and automotive industry, refer to pAuto2000. Otherwise, refer to information of pSmoke2000 please.
- 3) Application system in unsafe area, must order special Anti-explosive Extension
- 4) Heavy duty test or continuously analysis, please configure M series sensors for long stability and reliable gauge.
- 5) Non-standard system would be charge extra fee of 30% of budget for additional part

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Products Catalogue:

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