Comprehensive performance parameters:

Technical indicators	Technical Parameters	
Particulate matter module	Measurement principle	Light scattering method can monitor $PM_{2.5}$/PM_{10}/TSP in real time
	Measuring range	0~10 mg/m³
	Accuracy	±20%
	Dehumidification	With automatic dehumidification function
Noise monitoring module (optional)	Measuring range	30~132dB
	Instrument accuracy	Comply with IEC 61672:2002 Level 2, GB/T3758-2010 Level 2
Meteorological parameters (optional)	Temperature	Measuring temperature: -40~80℃ Accuracy: ±0.3℃
	Humidity	Measuring range: 0-100%RH Accuracy: ±2%RH
	Wind speed	Measuring range: 0-60m/s
		Accuracy: ±0.3 m/s (wind speed <10m/s) or ±3% of reading
	Wind direction	Measuring range: 0-359.9° Accuracy: ±3°
	Atmospheric pressure	Measuring range: 10~1100hpa Accuracy: ±0.3 hpa
HD ball machine (optional)	2 million pixel infrared network high-definition smart dome camera, 4x optical zoom, Smart image enhancement,Supports 350° horizontal rotation and 0°-90° vertical direction	
TVOC module (optional)	The measurement principle adopts photoion detector, and the response time is less than 30s.	
Communication Interface	Communication Interface	4G wireless communication, configurable LED display
Other	Supply voltage	(220±10%)V AC/(45～55)Hz, power ≤50W
	Working conditions	Temperature: (-30-50)℃, humidity: (0-100)% RH (no condensation)
	Instrument specifications	Dimensions (length × width × height): 500 × 360 × 200mm, weight ≤10kg

CEMS-2000 B FT

Flue Gas Components and Parameter Measurement Solution

- FTIR continuous flue gas monitoring system
- FTIR continuous monitoring system. Adopting FTIR analysis technology, wide dynamic measurement range, low detection limit, can achieve real-time monitoring of multi-components
- FTIR analyser White cavity design, measuring range up to 5m, cavity mirror surface using special anti-corrosion treatment technology, good stability, long service life.
- The surface of the lens is treated with special anti-corrosion technology for good stability and long service life. Patented design of ROCKSOILD interferometer, anti-shear movement, vibration interference ability is strong, the system can be stable operation in the industrial field.
- The system can be operated stably in industrial sites. The whole 180 ° C high temperature operation, will not be due to the sample gas condensation caused by the analysis of deviation.
- The system is equipped with an automatic protection function against power failure. The system has a power failure automatic protection function, the scene of sudden power failure can avoid corrosive gases on the system flow path and optical device damage.

Measurement components:

SO_3,NO,NO_2,HCl,HF,CO,CO2,NH3,H2O

System Principle

- The system adopts in-situ extraction, full flow high temperature with heat sampling method (heat and humidity sampling), the flue gas will be extracted into the system to be analysed. The gaseous pollutants and humidity are analysed by FTIR technology, which uses the characteristic absorption of gas molecules in the infrared spectrum to reflect their concentrations. The beam from the infrared light source passes through the interferometer to form an interference spectrum, which is focused on the detector after the characteristic absorption of the sample gas in the measuring cell, and the single-channel spectrogram is obtained after data processing, and the concentration value of each gas parameter is finally calculated through the algorithmic model. Oxygen (0.)

measurement using the oxidation error method, temperature (T) measurement using platinum resistance method, pressure (P) measurement using the pressure sensor method, flow rate (F) measurement using the S-type Pitot tube method.

- Gas sampling transmission: sampling probe, tracer line
- Pre-processing: gas flow module, gas power module, gas purification processing module, electronic control module, etc.
- Temperature and pressure flow: used to monitor the temperature, pressure and flow rate parameters of the sample gas from the pollution source.
- Particle monitoring: Detect the particle concentration in the pollutant sample gas, quantitative analysis.
- FTIR gas analyser: Germany Bruker high-performance FTIR spectrometer Wyatt cavity design of high-temperature measurement cell, high signal-to-noise ratio, long optical range
- Data Acquisition and Transmission: Acquisition and transmission of pollutant concentration and flue gas parameters and other related information.

Fields of application

- Domestic waste incineration
- Medical waste, hazardous waste, solid waste incineration
- Sludge incineration
- Cement industry
- Coal-fired, oil-fired and gas-fired power plants

Technical Specifications:

Norm	Parameter
SO2 range	(0~100~200） mg/m^3(High range can be customised)
NO range	(0~200~400） mg/m^3(High range can be customised)
NO2 range	(0~50~100） mg/m^3(High range can be customised)
NH3 range	(0~20~50） mg/m^3(High range can be customised)
HCl range	(0~50~150） mg/m^3(High range can be customised)
HF range	(0~5~10） mg/m^3(High range can be customised)
CO range	(0~100~200） mg/m^3(High range can be customised)
CO2 range	(0~20)%
H2O range	(0~40)%
O2 range	(0~25)%
Zero Wander	≤± 2% F.S./7d
Span Drift	≤± 2% F.S./7d
Linear Error	≤± 2% F.S.
Response Time	SO2、NOx、CO、CO2≤180s (50m heat tracing line) NH3,HCl,HF(50m heat tracing line)
Power Supply	220(± 10%)V AC，(50 ± 1)Hz,Main cabinet power:2 kW

A. Measurement items

Content of SO_2, NO, O_2, dust, flow rate, temperature, pressure and humidity of flue gas

B. Measurement method

- Flue gas sampling method: full heat tracing method
- SO_2 monitoring method: Ultraviolet-visible Differential Optical Absorption Spectroscopy (DOAS)
- NO monitoring method: Ultraviolet-visible Differential Optical Absorption Spectroscopy (DOAS)
- O_2 monitoring method: zirconium oxide method
- Flue gas measurement method: Removable light scattering method
- Flow rate measurement method: Pitot tube method or matrix method
- Pressure measurement method: Isolation diaphragm pressure transducer
- Temperature measurement method: platinum resistance temperature sensor
- Humidity measurement method: sensor method

C. Environmental conditions

CEMS-2000 system can run safely for a long time in the harsh environment under the following conditions:

- Voltage of power supply: 220 (± 10%) V AC/(50 ~ 60) Hz
- Ambient temperature of system components inside the analysis cabin: (5 ~ 40) ℃
- Ambient temperature of system components outside the analysis cabin: (-30 ~ 60) ℃
- Relative humidity: (0 ~ 90%) RH
- Air pressure: (86 ~ 106) kPa
- Flue gas temperature: ≤400 ℃
- Total power consumption of all equipment (KW): power of main cabinet: ≤ 2 .5KW, power of heat tracing pipe: 60W/m

- The CEMS-2000 system is designed with protection against dust, rain, electromagnetic radiation, lightning, low temperature, and fire.

D. Main technical indicators:

Performance and design data	Value
System data	
Ambient temperature of cabinet	5~40℃
Relative humidity of cabinet	20~90%RH
Measurement range of flue gas temperature	0~400℃
Measurement range of flue gas flow rate	5~40m/s(Customized according to customer's requirements)
Sample gas flow	3L/min
Compressed air demand (peak value)	250L/min
Compressed air pressure range	0.4~0.7MPa
Working environment	Temperature：5~40℃; Relative humidity：20%~90%RH
Air source requirements	Clean instrumental air without oil and water
Size	19 "standard case
Output	4~20mA、RS232/RS485、Ethernet
Gaseous pollutants	
Equipment model	OMA-2000
Linear error	SO_2：0～100～3000mg/m^3, NO：0～100～2000mg/m^3
Linear error	≤±1%F.S.
Response time	≤90s
Zero drift	≤±2%F.S./7d
Range drift	≤±2%F.S./7d
Output signal type	4~20mA
Particulate matter	
Equipment model	Synspec PM
Measurement range	0~10~200mg/m^3
Limit of detection	0.1mg/m^3
Zero drift	±2%F.S./24h
Range drift	±2%F.S./24h
Error of indication	±2%
Measuring distance	0.7~20m
Output signal type	4~20mA
Integrated temperature, pressure and flow transmitter	
Equipment model	TPF-100
Temperature module	
Measurement range	0~400℃ (Customized according to customer's requirements)
Measurement accuracy	±0.5%F.S.
Output signal type	4~20mA
Pressure module	
Measurement range	-5~5kPa
Measurement accuracy	±0.5%F.S.
Output signal type	4~20mA
Alternating velocity-adjusted module	
Measurement range	5~40m/s (Customized according to customer's requirements)
Measurement accuracy	±1%F.S.
Output signal type	4~20mA
Humidity & Oxygen measurement	
Equipment model	HMS-100
Measurement range	H_2O：0~40%vol, O_2：0~25%vol
Measurement accuracy	H_2O：±1%F.S., O_2：±1%F.S.
Repeatability	H_2O：±1%F.S., O_2：±1%F.S.
Stability	＜±1%F.S./7d
Output signal type	4~20mA

E. Features of system

◆ High reliability

- The gas analyzer is equipped with xenon light source, with a service life of 10 years;
- The gas analyzer is designed with holographic grating for beam splitting and array sensor free of moving parts, which can result in high reliability;

◆ User-friendly and low-cost maintenance

- The pretreatment sampling is carried out with a high-temperature jet pump, which can ensure that the gas is maintained at a high temperature when it passes through the analytical instrument and the jet pump, so there won't be any