

7800 Atomic Absorption Spectrophotometer



The multi-media graphite furnace visual system can intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube. It enables convenient observation of the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime.

■ Sensitive and Reliable

Electronic control of flame gas flow. Closed

& isolated optical system.

Suspension type of optical platform design.

Power control of graphite furnace temperature programming.

■ Flexible Configuration

Flame only, graphite furnace only, and combined flame & graphite furnace are available according to demand.

One instrument has multi-functional configuration of flame, graphite furnace and hydride generator. 6-lamp turret meets the requirement of multi-elements analysis.

Complete optional accessories support the instrument's upgrade and extension.

■ Compact and Easy to Use

Stack design of combined flame and graphite furnace makes the system compact, 10 seconds to complete flame/graphite furnace switch.

High-performance auto sampler conveniently and reliably improves laboratory efficiency.

Intelligent EZPectrumTM workstation provides simple and easy-to-use user experience and laboratory standard requirements.

■ Convenient Operation

National initiative visual system of atomization in graphite furnace. Dynamically monitor drying, ashing and atomization process.

Intuitively control the depth and position of sampling. Perfectly demonstrate graphite furnace sampling.

7800 Flame Atomic Absorption Spectrophotometer

7800 Atomic Absorption Spectrophotometer is fully PC controlled. It can be flexibly equipped with optional graphite furnace, auto sampler, and hydride generator.

Unique optical mechanical design, safe and convenient flame system, optional background correction technologies, as well as convenient functions provided by the workstation, suit your pursuit of automatic and precise test results.

Main Features

- Compact and delicate appearance
- Convenient options of background correction method
- Unique optical design
- Perfect automation control is easily realized by using the software workstation
- Safe, reliable and convenient flame system
- Multi-functional software workstation

Specifications 6-lamp

turret:

- Wavelength range: 190-900nm
- Wavelength indication error: $\leq \pm 0.3\text{nm}$
- Wavelength repeatability: $\leq 0.15\text{nm}$
- Photometric range: -0.1-2.5 (A)
- Spectral bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0nm
- Static baseline drift: $\leq 0.002\text{ABS}/30\text{min}$ (Cu)
- D2 background correction capability: ≥ 50 times when background signal = 1A
- Self-reversal background correction
- Power supply: AC220V $\pm$ 22V 50Hz $\pm$ 1Hz

Flame System

- Air/Acetylene burner head: 100mm
- Nitrous oxide /Acetylene burner head: 50mm
- Spray chamber: polypropylenecoating
- Ignition dynamic baseline stability: $\leq 0.004\text{ABS}/30\text{min}$ (Cu)
- Characteristic concentration: $\leq 0.02\mu\text{g} / \text{ml} / 1\%$

- Repeatability: $Cu \leq 0.5\%$; (Absorbance $> 0.8Abs$)
- Detection limit: $Cu \leq 0.004 \mu g/ml$
- Safety system: automatically cut off gas in case of low pressure, power failure, flame out, or burner mismatched.

7800 Graphite Furnace Atomic Absorption Spectrophotometer

It achieves perfect combination of graphite furnace and automation technology. Integrate graphite furnace and auto sampler into one module, and solve the problems of auto sampler adjustment and optical path calibration during switching process. Checked by hundreds of laboratories, this graphite furnace system is extremely cost effective.

It can be used with flame atomic absorption spectrophotometer. From high concentration ppm level to trace ppt level can all be analyzed. The atomizer needs no switching, which greatly simplifies operation.

Main Features

- 6-lamp turret, multi-lamps can be preheated simultaneously
- 85 position auto samplers
- Max. heating speed: $3000^{\circ}C/s$; Working temperature of graphite furnace: room temperature- $3000^{\circ}C$
- Compact design, fully automatic process control
- Self-reversal and D2 background correction

Gas Control

- Separate control of in-tube gas and external gas. During the analysis, keep the gas flowing outside the tube, cut off the gas in the tube at atomization stage, effectively protect graphite tube, maximize the tube's lifetime, and gain high analysis sensitivity.

Visual System of Graphite Furnace

- The multi-media graphite furnace visual system can intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube. It enables convenient observation of the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime. Meanwhile, it is a perfect training tool.

Specifications

- Max. heating speed: $3000^{\circ}C/s$;
- Working temperature of graphite furnace: room temperature- $3000^{\circ}C$
- Characteristic value: $Cd \leq 1pg$; $Cu \leq 10pg$
- Precision RSD: $Cd \leq 3\%$; $Cu \leq 3\%$
- Weight: 80kg
- Dimension: 700*550*440mm
- Safety: over current protection, alarm when the pressure of protection gas is low, automatically stop heating when over temperature

- Power supply: 220VAC
- Power: 6000W (instantaneous maximum power)

7800 Multi-elements Fast Analysis Atomic Absorption Spectrophotometer

The outstanding feature of this product is that multi-elements can be analyzed simultaneously. It is very suitable for analyzing multiple components in one sample. It uses similar analysis mode to that of ICP, but has the price of atomic absorption spectrophotometer. It can greatly increase analysis efficiency and save sample volume. Besides, this model, according to user's demand, can also analyze one single component, working in the same mode as a flame atomic absorption spectrophotometer.

Main Features:

- Simultaneously analyze 4-6 elements within one-minute (similar speed to ICP) AAS price while enjoy ICP function (multi-elements analysis simultaneously)
- Fast analysis, similar to the speed of ICP, test result of multiple components come out simultaneously by one sampling
- Freely combine the multiple elements according to the requires of analysis
- Save sample volume for multiple components analysis
- Rapid change of gas flow, grating rotation, slit and hollow cathode lamps
- Unique optical design greatly increases the sensitivity in visible range
- Excellent mechanical and optical system plus outstanding software ensure the measurement accuracy

Specifications

- Wavelength range: 190-900nm
- 6-lamp turret: 1 lamp working, and 3 lamps preheating
- Wavelength repeatability: ± 0.1 nm
- Wavelength accuracy: ± 0.2 nm whole range
- Photometric range: 0-2.5Abs
- Resolution: spectral bandwidth = 0.2nm, can separate Mn two lines (279.5nm and 279.8nm), valley/peak energy ratio < 20%
- Spectral bandwidth: 0.1, 0.2, 0.4, 0.7, 1.0, 2.0nm
- Static baseline drift: ≤ 0.002 ABS/30min (Cu)
- Weight: 80kg
- Dimension: 500*450*430mm
- Grating: 1800lines/mm
- D2 background correction: background signal = 1Abs, correction capability ≥ 50 times self-reversal background correction

Accessories

Graphite Furnace

- Graphite furnace atomization device is an electrothermal atomizer that increases the sensitivity of most metal

elements from mg/L to µg/L

- Advanced optical controlled temperature programming system, realize automatic full power heating at atomization stage.
- Heating condition setup: drying, ashing, atomization and two heating modes.
- Temperature range: ambient-3000°C
- Temperature control mode: voltage feedback mode for drying and ashing, voltage or optical control feedback for atomization
- Characteristic concentration: Cu<1.0×10⁻¹⁰g, Cd<1.0×10⁻¹²g

Auto Sampler

- Automatic curving function: do not need manual set of calibration curves. Prepare a standard solution, then the sampler will automatically set the calibration curve and measure.
- Intelligent residual removal function: do not need artificial judgement and operation. It will automatically tell whether there are residuals and remove residuals to eliminate cross- contamination
- Intelligent dilution function: fully automatic dilution. According to sample concentration, the instrument will automatically give dilution ratio, match to the best measurement area, and automatically finish dilution and measurement. The whole process needs no manual intervention
- In-tube visual system: monitor injection and drying process. All tiny subtleties of drying come into your view, enabling fast and accurate setup of ashing temperature
- Quality control: intelligent analysis quality control technology, calibrate blank and quality control sample at regular intervals and monitor the precision of test results

Hydride Generator

- Essential analytical equipment for environmental monitoring, food hygiene, quality inspection, commodity inspection, and drinking water monitoring
- Highly automated: only one start key. Sampling, generating, measuring and cleaning will all be done by pressing the button.
- Unique electrothermal quartz absorption tube: Small and exquisite device, heated quickly, convenient to install, with stabled temperature, more than 10 times lifetime than flame, free of gas consumption, analytical method can be rapidly changed once it is cooled down.
- Adopt advanced flow injection technology. Sample reaction is more uniform. The stability is improved. RSD<2%
- Measurement rate: 100times/hour
- Single sampling volume: <2mL

Flame System

Item	5800	7800
Wavelength Range	190-900nm	190-900nm
Grating	1800lines/nm	1800lines/nm
Wavelength Repeatability	±0.1nm	±0.1nm

Wavelength Indication Error	Whole range $\pm 0.2\text{nm}$	Whole range $\pm 0.2\text{nm}$
Optical System	Czerny-Turner system, integrated optical platform, fully sealed optical system	Czerny-Turner system, integrated optical platform, fully sealed optical system
Resolution	Spectral bandwidth $= 0.2\text{nm}$ can separate Mn two lines (279.5nm and 279.8nm, valley/peak energy ratio $< 30\%$)	Spectral bandwidth $= 0.2\text{nm}$ can separate Mn two lines (279.5nm and 279.8nm, valley/peak energy ratio $< 20\%$)
Spectral Bandwidth	0.1nm, 0.2nm, 0.4nm, 1.0nm	0.1nm, 0.2nm, 0.4nm, 0.7nm, 1.0nm, 2.0nm
Static Baseline Drift	$\leq 0.004\text{ABS}/30\text{min}$ (Cu)	$\leq 0.002\text{ABS}/30\text{min}$ (Cu)
Background Calibration Technology	D2 (background signal $= 1\text{Abs}$, background correction capability ≥ 50 times)	D2 (background signal $= 1\text{Abs}$, background correction capability ≥ 50 times)
Instrument Design	Integrating structure of suspended internal and external optical path	Integrating structure of suspended internal and external optical path
Lamp Turret	4-lamp turret (4 lamps can be preheated simultaneously)	6-lamp turret (6 lamps can be preheated simultaneously)
Burner Head	Air-acetylene burner head (100mm, optional 50mm nitrous oxide-acetylene is available)	Air-acetylene burner head (100mm)
Nebulizer	High-efficiency glass nebulizer	High-efficiency glass nebulizer
Ignition Dynamic Baseline Drift	$\leq 0.004\text{ABS}/30\text{min}$ (Cu)	$\leq 0.004\text{ABS}/30\text{min}$ (Cu)
Characteristic Concentration (Cu)	$\leq 0.025\mu\text{g}/\text{ml}/1\%(\text{Absorbance} > 0.8\text{ABS})$	$\leq 0.02\mu\text{g}/\text{ml}/1\%(\text{Absorbance} > 0.8\text{ABS})$
Detection Limit	$\text{Cu} \leq 0.008\mu\text{g}/\text{ml}$	$\text{Cu} \leq 0.004\mu\text{g}/\text{ml}$
Repeatability (Cu)	$\leq 0.5\%$	$\leq 0.5\%$
Gas Flow Control	Manual	Auto
Ignition Method	via buttons on the control panel	PC control
Safety Protection	Automatically cut off gas in case of low pressure, power failure, flame out, or burner mismatched	Automatically cut off gas in case of low pressure, power failure, flame out, or burner mismatched

Background Correction Method	SR and D2, correct 1A background. When background signal =1Abs, correction capability ≥ 50 times	SR and D2, correct 1A background. When background signal =1Abs, correction capability ≥ 50 times
Dimension	700*550*530mm	700*550*530mm

Graphite Furnace System

Item	Specification
Graphite Furnace Visual System	Must be configured with graphite furnace visual system, to intuitively monitor the sample's dynamic evolution during drying, ashing and residue burning process in the graphite tube, conveniently observe the auto sampler's capillary injection needle reaching the best position and depth in the tube, as well as the position of the platform placed in the graphite tube. It ensures analysis precision and graphite tube's lifetime. Meanwhile, it is a perfect training tool.
Graphite Furnace Protection	Instantly stop heating and alarm in case of graphite furnace accidentally broken
Heating Method	Longitudinally
Internal Gas Flow	Automatic adjustment
Working Temperature	Ambient - 3000°C
Max. Heating Rate	$\geq 3000^\circ\text{C/s}$
Characteristic Value	$\text{Cd} \leq 1\text{pg}$, $\text{Cu} \leq 10\text{pg}$
Measurement Repeatability	$\text{Cd} \leq 3\%$, $\text{Cu} \leq 3\%$
Temperature Control Method	Power control for drying and ashing, optical control max. Power heating for atomization
Operation Software	Windows operation software
Extended Function	Hydride generator
Dimension	280*550*450mm

Auto Sampler

No. of Samples	85 positions	Sampling Volume	1 μL -50 μL
Cup Material	Polypropylene	Sampling Precision	Better than 1% when volume $\geq 10\mu\text{L}$
No. of Matrix Modifier	5	Min. Increment	1 μL

Standard Cup Volume	2mL sample, 10mL reagent		
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