KEJIE MANUAL OF ANALYTICAL INSTRUMENTATION

科捷分析仪器手册

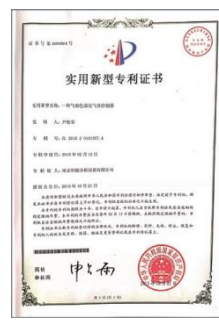## V5.0

KEJIE
INSTRUMENT

BRIEF INTRODUCTION OF KEJIE HOLDINGS GROUP

Kejie Holdings Group is an international manufacturing platform for analytical scientific instruments, providing laboratory equipment and overall solutions for environmental science, food safety, life science, chemical energy, materials science and other industries, helping researchers to explore scientific secrets, assisting enterprises to develop new products and quality control. Kejie holdings enables customers to understand things in simple terms with its leading scientific analytical instruments and professional services.

At present, Kejie holding owns: Nanjing Kejie Testing Technology Development Co., LTD., Nanjing Xinchuang Kejie Instrument Manufacturing Co., LTD ., Beijing Xinchuang ruili Instrument Co., LTD., Shanghai Jili Instrument Co., LTD., Hunan Chuangte Technology Development Co., LTD., and foreign trade service subsidiaries: Guangzhou Changior Instrument Technology Co., Ltd. which is fully responsible for the sales, service and agent cooperation of the global overseas customers of Kejie brand instruments.

With nearly 20 years of continuous exploration and accumulation, Kejie holding adheres to the international operation thinking and provides customers with the most suitable scientific research platform. It is our constant mission to make human life better.

KEJIE
INSTRUMENT

· Honorary Certificate ·

· Service System ·

R&D

RAM

ASP

VAS

AMS

KEJIE
INSTRUMENT

www.Changior.com

01 Chromatograph Series

02 Spectrometer Series

PRODUCT CATALOG ≫

03 **Auxiliary Product**

Gas Chromatograph Supporting Products

Liquid Chromatograph Supporting Products

AAS Accessory Products

Sample Pretreatment Products
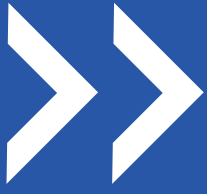
01

SUBDIRECTORY

Chromatograph Series

Gas Chromatograph

Liquid Chromatograph

Ion Chromatograph

GC–MS 8900

Gas chromatography mass spectrometry

INTRODUCTION

GC-MS 8900 Gas chromatography-mass spectrometry (GC-MS) is a new powerful intelligent combined mass spectrometry system developed by gas chromatography and mass spectrometry technologists with 15 years of experience in the field. Innovative GAS chromatography/mass spectrometry support intelligent control system, gas chromatography peak scan speed is the highest (20000 amu/s), wide mass range (1~ 1200 amu), instrument detection limit is the lowest (OFN less than 10FG), high sensitivity.

CHARACTERISTICS

1. High-performance ion source extends the service life of the double filament, through a powerful tuning protocol, improve the detection limit of trace compounds;
2. High stability vacuum zone with high capacity vacuum system, can analyze and run high throughput samples, powerful tuning function, improve the sensitivity, stability and reproducibility of mass spectrometry detection, with optimized full scan and selective ion mode, ultra-fast scan speed (20000 AMu /s);
3. Eliminate the deflection electrode of neutral particles in the detection system, improve the MSD sensitivity and signal-to-noise ratio. The chemical ionization and direct sample probe are controlled by special software, and NIST mass spectrometry library is supported and optimized for more accurate qualitative retrieval of substances.

APPEARANCE

1. Larger touch color LED screen, all parameters at a glance;
2. Classic design ability and laboratory perfect match;
3. Chromatographic analysis data system using intuitive friendly interface.

GC ·FEATURE

1. Use network system control to ensure high-speed data processing;
2. Enhanced APC module is configured;
3. Improve the pressure and flow control precision, detection and analysis results more accurate and reliable;
4. With automatic temperature and pressure compensation function;
5. Pressure increment: 0.001psi, pressure stability: ±0.001psi (constant pressure);
6. 4 kinds of pressure flow control mode: constant pressure, constant current, program variable pressure (order 5), program variable flow (order 5);
7. The instrument adopts shockproof design and stable structure to protect the column box temperature from external influence;
8. Upgrade column box, thermal stability: ±0.01.

Application Field

- Food Safety
- Auto Industry
- Petrochemical Industry
- Police Forensics
- Security Check
- Quality Control
- Electrical Electronics
- National Security
- Water Soil

GC–MS · PERFORMANCE CHARACTERISTICS

1. High performance ion source can prolong the service life and operation function of double filament, enhance the performance of GC-MS.

2. The super optimization program in MS software can increase the system sensitivity, and the system can achieve lower detection amount when analyzing trace level compounds.

3. Large capacity vacuum system can provide a stable high vacuum area, can analyze a large number of samples. Vacuum system capacity is 240L/s and 300L/s (optional).

4. The ultra-strong tuning process enhances the sensitivity, stability and reproducibility of the MSD. Manual tuning can change the set value to obtain higher sensitivity in specific analysis.

5. Optimized full scan and selective ion mode can support simultaneous analysis of multiple samples.

6. Super fast scanning speed (20000 amu/s), supported by the most advanced firmware protocol, improve analysis performance, ensure fast analysis of narrow aperture capillary column.

7. Four level of mass filter super ion filtration function, can effectively remove the non-target ion, to ensure a more stable, more sensitive signal.

8. The deflector electrode can eliminate the neutral particles arriving at the detection system, thus improving the sensitivity of MSD and enhancing the signal-to-noise ratio.

9. Wide mass range (1 ~ 1200 AMU), which can be analyzed for compounds with wider mass number.

10. Professional tools make it easier to change the column. The distance from the end of the column to the MSD ion source box can be easily measured using patented tools.

11. Chemical ion sources and direct injection probes (DIP) are available in some models.

12. Innovative MSD hardware and software design is easy to operate using the system, and operators can spend less time on sample analysis to obtain satisfactory results.

13. Clarity makes it easier for operators to control GC/MS by optimizing and supporting the NIST mass spectrometry library for automatic compound retrieval.

TECHNICAL PARAMETERS

Ion source	EI（CI optional）
Mass range	1 ～ 1200amu
Sensitivity（EI）	SNR＞1500:1 （SIM，When the OFN is 1pg/μL, 1μL）
Resolution ratio	0.7amu
Electron energy	Adjustable from 0 to 240eV
Instrument Detection Limit (IDL)	＜ 10fg（8 sequences were injected inseparably, 100fg OFN. m/z 272）
Radiation energy	Maximum 500μA
Power supply	220V±10%，50/60Hz
Maximum scan rate	20000amu/s
Power	Maximum 900W
Mass stability	±0.1amu/48h
Weight	48kg
Ion source temperature	Maximum 350℃
Size	350x650x500mm
Transmission line temperature	Maximum 400℃
Data transmission	LAN
Scanning mode	Full scan, selective ion scan, alternate scan
Applicable gas phase model	GC 8900 Gas chromatograph
Turbopump	240L/s（300L/s optional）

GC 7900

Fully automatic digital gas chromatograph

INTRODUCTION

GC 7900 gas chromatograph, with mature and stable technology, mainly used in environmental science, food safety, petrochemical, fine chemical, electronic high purity gas industry, suitable for scientific research institutes, quality inspection, safety supervision, public security forensic and national security and other fields of analysis and detection.

PERFORMANCE CHARACTERISTICS

● High Precision Gas Flow Control System (AFC)
A. AFC digital control technology is adopted to improve the automatic analysis and online analysis ability, and the overall performance is close to the international first-line brands.
B. High precision gas flow control ensures accuracy of GC analysis and improves efficiency of daily analysis. AFC control accuracy is 0.01psi.
C. It realizes the functions of self-protection, automatic ignition, flameout key, automatic opening of the gas circuit, so as to achieve a key start.
D. A variety of combined control mode operation, pressure flow automatic adjustment, control and display, can run the gas-saving mode.

● Color widescreen screen, unique design of touch buttons
A. 7 inch industrial color LCD screen design, more complete display information, more reasonable interface operation.
B. It has two operating systems, Chinese and English, to meet different user needs.
C. Resistive touch screen is adopted, with good feel and durability, and seamless connection between screen and software dual operation.

● Leading structural design
A. Modular structure design, easy to upgrade. A variety of high-performance detectors can be selected, such as FID, TCD, ECD, FPD and NPD, to meet the needs of a variety of samples.
B. Advanced injector design, unique lining tube construction and special treatment process ensure extremely low residual adsorption.
C. Suitable for various injection methods, such as headspace injector, thermal analyzer, automatic liquid injector, thermal cracking injector, etc.
D. Designed timed self-start program, which can easily complete laboratory online analysis of gas and liquid samples.

● User experience software operating system
A. Advanced 10/100M self-applicable Ethernet communication interface, built-in IP protocol, easy to form a LAN, remote transmission, remote control, remote diagnosis.
B. Simple interface and powerful data processing function realize rigorous and efficient automation of GC analysis and management.
C. Equipped with IBrainChrom workstation, which can support the simultaneous operation of multiple chromatographs (253) to achieve data processing and reverse control.
D. With complete audit tracking, user rights management, electronic signature and other functions, so that the data and documents are in line with GMP management requirements.

E. Modbus/TCP server built into IBrainChrom workstation makes it easy to access analysis results to DCS (distributed control system)

F. Three independent connection threads are designed internally, which can be connected to the local, the supervisor of the unit and the superior competent department for processing, so as to facilitate the supervisor and superior competent department to monitor the operation of the instrument and analyze the data in real time.

THE MAINTECHNICAL INDICATORS

- **Temperature control area:** route 8
- **Temperature control range:** 5 ~ 450℃ above room temperature, increment: 1℃, accuracy: ±0.01℃
- **Temperature programmed order:** 16
- **Programmed heating rate:** 0.1 ~ 40℃ /min (common type); 0.1 ~ 60℃ /min (high-speed)
- **External events:** route 6
- **Type of injector:** filling column and capillary injection
- **Number of detectors:** FID, TCD, ECD, FPD and NPD; 3 (maximum)
- **Air path control:** AFC mode
- **AFC working mode:** 2; Constant current mode, constant voltage mode
- **AFC range: pressure:** 0 ~ 0.6mpa; Flow rate 0 ~ 100mL/min or 0 ~ 500mL/min (air)
- **Pressure sensor: accuracy:** full scale <±2%; Reproducibility: <±0.05 KPa; Temperature coefficient: <±0.01 KPa/℃ · **Flow sensor: accuracy:** full scale <±5%; Reproducibility: <±0.5%(full scale); Range: 0 ~ 500mL/min
- **Start sampling:** manual and automatic optional
- **Communication interface:** Ethernet
- **Power supply:** 220V±10%, 50Hz; 2500W (maximum)
- **Volume:** 585×503×525mm
- **Weight:** 50kg (approx)

DETECTOR TECHNOLOGY INDICATORS

FID
- Detection limit：Mt ≤ 3×10^{-12}g/s （n-hexadecane - isooctane solution）
- Noise：≤ 5×10^{-14}A
- Drift：≤ 1×10^{-13A}/30min
- Linear range：≥ 10^6

TCD
- Sensitivity S ≥ 3500mV·mL/mg （conventional）5000mV·mL/mg （High sensitive）（Benzene-toluene solution）
- Noise：≤ 10μV
- Baseline drift≤ 30μV/30min
- Linear range：≥ 10^4

ECD
- Detection limit：≤ 1×10^{-14}g/s
- Baseline drift：≤ 0.2mV/30min
- Radioactive source：Ni63
- Noise：≤ 0.03mV
- Linear range：≥ 10^3

FPD
- Detection limit：（S）≤ 5×10^{-11}g/s ,（P）≤ 1×10^{-12}g/s；
- Noise：≤ 0.03mV
- Baseline drift：≤ 0.2mV/30min
- Linear range：≥ 10^3（S）,10^2（P）

GC 6891N

Fully automated EPC gas chromatograph

INTRODUCTION

A new generation of fully automatic EPC gas chromatograph GC 6891N, based on the international advanced technology platform and decades of industry technology application experience developed, reliability, application flexibility and other aspects in the industry leading level.

Application Field

Electronic Gas

Environmental Protection

Quality Control

Safety Monitoring

Police Forensics

National Security

Oil Refining

Petrochemical Industry

Chemical Industry

Food Safety

PERFORMANCE CHARACTERISTICS

1. Injection port flow, chromatographic column gas flow, detector gas flow, a full set of EPC control.
1.1 Microchannel gas path integrated board
1.2 Fully imported miniature proportional and flow/pressure sensors
1.3 Automatic temperature compensation to ensure accurate flow; Accurate to 0.01Psi pressure control

2. Industry-leading detector design.
2.1 All detectors are highly accurate electronic flow/pressure control.
2.2 Suitable for packed column and capillary column
2.3 Special ceramic processing of the amplifier plate, in the wet season is always stable.

3. Automatic ignition, hydrogen leakage automatic protection, safe and reliable.

4. Accurate furnace temperature tracking design.

5. Independent heating column box, multi-column chromatography system, can be set separately for the use of different column temperature, so as to achieve the separation effect of each column.

6. Fully imported valve configuration system.
Equipped with up to 8 valves (four-way valve, six-way valve, ten-way valve and liquid injection valve optional) automatic control, sequential operation.

7. Precise temperature programmed control system.
7.1 The internal control accuracy of column temperature box is less than 0.01℃
7.2 The temperature difference between the internal points is not more than 1℃
7.3 Rapid heating and cooling, the highest programmed heating rate: 120℃/min, balancing time of 10 seconds; Fast cooling rate
7.4 The difference between absolute control temperature accuracy and actual temperature is less than 0.3℃

8. Convenient realization of gas path cutting technology.
8.1 Multi-dimensional chromatographic function can be realized to complete the separation of complex samples analysis
8.2 Can realize the column blowback function, greatly save the analysis time and cycle

9. Advanced power distribution management shunt.
A 3000 watt UPS can provide 10 GC with normal power of 2250 watts/unit for stable operation at the same time

10. Automatic sampler
8 bit, 16 bit, 110 bit, 156 bit automatic sampler (optional Agilent 7683/7693 automatic sampler)

11. With automatic online detection function

TECHNICAL PARAMETERS

Column temperature box	
Column temperature box size	280 x 300 x 180mm
Temperature control range	5℃～450℃ (higher than room temperature); using liquid nitrogen cold trap -80℃～400℃, using dry ice cold trap -55℃～400℃
Temperature setting accuracy	0.1℃
Maximum programmed temperature rate	120℃/min
Maximum method run time	999.99 min
Program warming maximum order	7 steps
Programmed temperature rate	0.1～120℃/min(increment 0.1℃)
Operational column loss compensation (double channel)	
Heating area	
6 independent control heating zone control (not including oven temperature control, 2 injection ports, 2 detectors, 2 auxiliary heating zones)	
Maximum service temperature of auxiliary heating area	300℃
Detector	
Hydrogen flame ionization detector（FID）	
Maximum service temperature	450℃
Minimum detection limit	≤2.5pg C/s [nC_{16}]
Dynamic linear range	10^7（±10%）
Data acquisition frequency	Maximum 100 Hz
Thermal conductivity cell detector (TCD)	
Maximum service temperature	400℃
Minimum detection limit	＜400pg C_3H_8/mL (He)
Dynamic linear range	10^5（±5%）
Data acquisition frequency	Maximum 100 Hz
Flame photometric detector（FPD）	
Maximum service temperature	250℃
Minimum detection limit	＜4pgS/s，＜1pgP/s
Dynamic linear range	＞10^3S，＞10^4P
Selectivity	10^5g S/g C，10^6g P/g C
Electron capture detector（ECD）	
Maximum service temperature	400℃
Detector compensating gas type	5%CH_4/Ar（N_2）
Minimum detection limit	＜0.01Pg/s
Dynamic linear range	＞5 x 10^5
Data acquisition frequency	Maximum 100 Hz
Radioactive source	＜12 mCi Ni63
Nitrogen and phosphorus detector（NPD）	
Maximum service temperature	450℃
Minimum detection limit	＜0.2pgN/sec，＜0.2pgP/s
Minimum detection limit	＜3 pg C/s
Dynamic linear range	10^5N，10^5P
The above detectors are suitable for packed and capillary columns	
Optional configuration	
Reverse software/G reverse P Special for pharmaceutical factory	Automatic sampler B6891N

GC 5890N
Full digital gas chromatograph

INTRODUCTION

GC 5890N full digital gas chromatograph can be selected with a variety of detectors, and packed column, shunt/non-shunt capillary column sampling system; Fully compatible with Agilent 6890N gas chromatograph detector and associated detector control panel, chromatography workstation and automatic samplers. Excellent cost performance, excellent performance, stable and reliable operation.

PERFORMANCE CHARACTERISTICS

1. New integrated digital electronic circuit, high control precision, stable and reliable performance, up to 0.01 temperature control precision.
2. With self-diagnosis function, stopwatch function (convenient flow measurement), operation timer function, power failure storage and protection function, keyboard lock function, anti-power mutation interference function, network data communication and remote control function.
3. Injection system unique design, lower detection limit.
4. Optional automatic/manual gas six-way injector, headspace injector, thermal resolution injector, cracking furnace injector, methane converter, automatic injector.
5. Temperature programmed, column temperature box temperature precision control, stable balance more quickly.
6. Can be installed FID, TCD, ECD, FPD, NPD, PDHID six detectors, each detector can be independent temperature control, FID detector is easy to disassemble and install, easy to clean or replace the nozzle; TCD stability time 20 minutes.
7. With automatic online detection function.

Application Field

Environmental Protection

Disease Control

Pharmaceutical

Food

Petrochemical Industry

Quality Department

Research Institute

Metallurgical

Power Sector

Water Affairs

Safety Monitoring

Supporting Products

Headspace sample feeder	Thermal desorption instrument
Gas generator	Cracker
Gas purifier	Chromatographic workstation

TECHNICAL PARAMETERS

Column Temperature Box	
Column temperature box size	280 x 300 x 180mm
Temperature control range	Higher than the room temperature 5℃ ～ 450℃
Temperature setting	1℃；Program set heating rate 0.1℃
Temperature stability	When the ambient temperature changes 1℃, the variation is 0.01℃
Temperature programmed	Order 7 temperature programmed
Operational column loss compensation (double channel)	

Injection Port	
A variety of injection ports available: filled column injection, shunt/non-shunt capillary injection, temperature programmed cold cylinder inlet	

Hydrogen flame ionization detector（FID）	
Maximum service temperature	400℃
Detection limit	$\leqslant 5 \times 10^{-12}$ g/s [nC_{16}]
Dynamic linear range	$\geqslant 10^7$
Drift	$\leqslant 5 \times 10^{-13}$A/30min
Noise	$\leqslant 2 \times 10^{-13}$A

Thermal conductivity cell detector (TCD)	
Maximum service temperature	400℃
Sensitivity	$\geqslant$ 10000mv. mL/mg [nC_{16}]
Dynamic linear range	$\geqslant 10^4$
Drift	$\leqslant 100\mu V/30min$
Noise	$\leqslant 20\mu A$

Flame photometric detector（FPD）	
Maximum service temperature	250℃
Detection limit	$\leqslant 2 \times 10^{-13}$g/s（P）,$\leqslant 5 \times 10^{-11}$g/s（S）
Dynamic linear range	$\geqslant 10^3$（P）, $\geqslant 10^2$（S）
Noise	$\leqslant 2 \times 10^{-12}$A
Drift	$\leqslant 4 \times 10^{-11}$A/30min

Electron capture detector（ECD）	
Maximum service temperature	350℃
Drift	$\leqslant 50\mu V/30min$
Detection limit	$\leqslant 1 \times 10^{-14}$g/mL（γ-666）
Dynamic linear range	$\geqslant 10^4$
Noise	$\leqslant 20\mu A$

Nitrogen and phosphorus detector（NPD）	
Maximum service temperature	400℃
Detection limit	$\leqslant 5 \times 10^{-13}$g/s（P）,$\leqslant 1 \times 10^{-12}$g/s（N）
Noise	$\leqslant 4 \times 10^{-13}$A
Drift	$\leqslant 2.5 \times 10^{-12}$A/30min
Dynamic linear range	$\geqslant 10^3$（P）, $\geqslant 10^3$（N）

Photoionization detector（PDHID）	
Detection limit	< 5ppb

Optional configuration	
Counter-control software /GMP pharmaceutical factory special	Automatic sampler B6891N

LC–MS/MS 6880

Liquid Chromatography Mass Spectrometer / Mass Spectrometer

INTRODUCTION

The lC-MS /MS 6880 triple quadrupole liquid chromatography mass spectrometer simplifies the process of complex analysis through intelligent workflow, with high sensitivity and reliable quantitative function. Each individual module can be operated intelligently, and the system provides a lower limit of quantitative detection, synchronous data processing selectivity, and thus maximizes laboratory efficiency . For biopharmaceutical, universities, research institutes and other institutions to provide the best mass spectrometry solutions and intelligent instrument configuration.

PERFORMANCE CHARACTERISTICS

·ESI/APCI free switching, optional installation

· High efficiency ceramic heater heat setting technology

· Active empting system to reduce interference to ion source contamination

· Human-machine dialogue access mode of instrument, more intelligent

· Optimal overall solution

· Reliable quantitative data

· Comprehensive real case of the project

· Quick reporting mode

· Software specialization and unique interface protocol provide reliability

· Quality ExpressTM, data ExpressTM,

· Software unique professional extension interface

· Maintain high sensitivity

· Streamline workflow

· Improved work efficiency

· Ensure the stability of the instrument

· Enhanced ionization efficiency, reduced degradation of thermally unstable compounds and increased sensitivity.

APPLICATION DIRECTION

High-performance instruments provide the most ideal solution for a wide range of applications in food safety, pharmaceutical analysis, environmental science, toxicological judgment and chemical structure characterization.

TECHNICAL PARAMETERS

●Ultra high pressure liquid chromatograph

· Pump system: double cylinder HPG(high pressure mixing) double channel
· Flow range :0.001 ~ 2.000mL/min(Max. 5 mL/min)
· Flow accuracy :1% or 10μL/min
· Flow accuracy: 0.075%RSD or 0.005min SD
· maximum working pressure :0 ~ 18850psi (0 ~ 1300 bar)
· Sample capacity :108 bits (2mL Abei bottle)
· Sample temperature :4 ~ 40℃

●Triple quadrupole mass spectrometer

·Ion source

1. The ion source ensures the maximum amount of ion ionization and minimizes neutral particles and high-energy ion groups that produce noise.
2. The axial direction of the spray atomizer is perpendicular to the interface of the orifice plate to improve the spray effect and greatly reduce the neutral particles entering the mass spectrometer, thus eliminating noise.
3. Substances of different polarity can be analyzed by providing electrospray ion source (ESI) and atmospheric pressure chemical ionization source (APCI).

· Ion guidance: High frequency (RF) double ion funnel optical optimization, large range of ion transport and efficient ion focusing.
· Quadrupole with front and rear filters 1 and 2 are used for optimized ion transport and spectral level resolution.
· Collision unit: The collision unit has an optimized mode of 180 degree bending at high pressure, while eliminating interference.
· Detector: electron accelerator with 5kV post acceleration.
· Vacuum system: two single-stage 40L/h primary pumps, three-stage 25/300/400L/s turbomolecular pumps

·System performance

1. MRM sensitivity, SIGNal-to-noise ratio (S/N), ESI positive ions
   Reserpine 1pg, scanning m/ Z 609 to 195 for quantification; S/N : 1000000:1

2. MRM sensitivity, SIGNal-to-noise ratio (S/N), ESI anion
   1pg chloramphenicol, scanning m/z321 to 152 for quantification; S/N : 500000:1

3. Quality range: M/Z 10 ~ 1250

4. Polarity switch: 25ms

5. Quality resolution: 0.7DA to 4.0DA (user adjustable)

6. Quality stability: 0.1Da/24h

7. Dynamic range>10^5

8. Scanning mode: full scan, daughter ion scan, precursor ion scan, neutral loss scan, selective ion scan (SRM/MRM)

9. Maximum scanning rate: 20000 Da/S

10. Maximum MRM acquisition rate: 600 MRMs/S

11. Minimum MRM residence time: 1.0ms

LC 600A

High Performance Liquid Chromatograph

INTRODUCTION

The LC 600A high performance intelligent fully controlled Liquid chromatograph adopts a modular design, P600 high pressure constant current pump and UV600 UV detector to optimize the isometric/gradient analysis system. WS600 workstation can control several P600 high voltage constant current pumps, UV600 ULTRAVIOLET detector and constant temperature column box at the same time to achieve multiple high pressure elution and wavelength scanning.

PERFORMANCE CHARACTERISTICS

1. LC−P600 high pressure constant current pump

1.1 Reciprocating parallel pump design, high flow accuracy, small pressure pulsation, prolong the service life of sealing ring and piston rod;
1.2 Diaphragm second shock damper and electronic pulsation suppression technology simultaneously control pressure pulsation to ensure the lowest baseline noise;
1.3 Overall check valve, simple structure, good sealing;
1.4 The plunger rod is automatically indented, convenient to replace the sealing ring;
1.5 Optional column cleaning function, suitable for analysis conditions with buffer salt.

2. UV600 ULTRAVIOLET detector

2.1 The circulation pool designed by parallel double-cone hole greatly improves the SIGNal-to-noise ratio and has better detection effect;
2.2 Power-on self-check function, through the spectrum wavelength 486.6nm and 656nm, to judge the accuracy of the wavelength display error, to ensure excellent wavelength accuracy, to ensure the best state of the instrument;
2.3 The control circuit adopts multi-microprocessor structure to manage signal acquisition, data processing, system control and communication respectively. When doing isometric analysis, it is convenient to set parameters such as wavelength, filter constant, output range and running time through the LCD screen with all Chinese characters and seven function keys. And can realize deuterium lamp switch, spectrum scanning, start the analysis program and other functions;
2.4 All-digital switching system, avoiding the signal distortion and interference caused by multi-analog-digital conversion of chromatographic signals.

3.WS600 chromatographic workstation

3.1 It has dual functions of liquid chromatography system control and chromatographic data processing;
3.2 Six quantitative calculation methods;
3.3 Multiple standard samples with different concentrations were calibrated to establish sample concentration-area correction curves;

INDUSTRY APPLICATIONS

Compound Detection

Forensic Analysis

Proteomic Food Testing

Pharmaceutical Analysis

Polymer Analysis

Matching Products

Six−way injection valve

Autosampler

Ultrasonic Cleaner

Chromatography Column Warmer

Online degasser

Solvent filter

Vacuum Pumps

Liquid Chromatography Columns

3.4 Flexible peak recognition and processing capabilities;
3.5 Chromatographic graph, quantitative calculation method, peak processing parameters and peak identification table can be saved in the user named file.

4. With automatic online detection function

TECHNICAL PARAMETERS

Infusion Unit	Model	P600(analytical type)	
	Infusion form	Double plunger reciprocating parallel	
	Maximum working pressure	42MPa	
	Flow setting range	0.001mL/min～9.999 mL/min	
	Flow accuracy	RSD< 0.06%	
	Pulse	0.1MPa	
	Power supply	220V/110V	
Ultraviolet Detector	Model	UV600	
	Optical source	D2 lamp	D2+W lamp
	Wavelength range	190 ～ 680nm	190 ～ 900nm
	Wavelength accuracy	±1nm	
	Wavelength precision	Below 0.1nm	
	Noise	±0.25×10^{-5}AU（static state）/ ±1×10^{-5}AU（Dynamic, under specified conditions）	
	Drift	Not exceeding 0.4×10^{-4} AU/h(static state) / 2×10^{-4}AU/h（Dynamic, under specified conditions）	
	Minimum detection concentration	5×10$_{-9}$g/mL	
	Flow tank volume	8μL	
	Power supply	220V/110V	
Column Oven	Model	CO600	
	Temperature control range	Indoor temperature +5℃ ～ 80℃	
	Temperature setting error	±2℃	
	The temperature precision	±0.1℃	
	Power supply	220V/110V	
Whole engine test	Qualitative repeatability	RSD≤ 0.1%（n=6）	
	Quantitative repeatability	RSD≤ 0.2%（n=6）	
Chromatographic workstation	Model	WS600	
	Signal transmission mode	All digital signals	
	Operating mode	It can reverse control and monitor the operation of each unit of the instrument (edit gradient program, variable wavelength scan, event program setting, spectrum scan, spectrum comparison and other functions)	
	Interface	English interface (optional)	
	Installation	Built - in, CD - mount	
Optional Detector	Differential refractive detector	RI2000	
	Differential refractive detector	RI-201H	
	Fluorescence detector	RF-20A	
	Diode array detector	SPD-M20A	
	Typical evaporative light scattering detector	ELSD-5000	
	Typical evaporative light scattering detector	ELSD-180	

Equal degrees　　　　**Gradient**
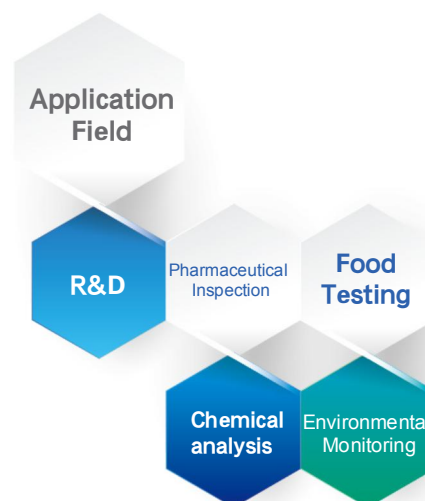
LC 600B

High Performance Liquid Chromatograph

INTRODUCTION

LC 600B intelligent fully controlled liquid chromatography system adopts modular design, P600B high pressure constant current pump, UV600B UV-visible variable wavelength detector and 600B system controller to form the isometric/gradient analysis system. Infusion pump adopts plunger floating installation mode, enhances the stability and durability of the instrument performance, the instrument is easy to operate, a variety of configurations for customers to choose.

PERFORMANCE CHARACTERISTICS

1. Rich functions - to meet the different needs of customers for analysis.
The hardware has VP function, records maintenance information and operation records, and meets GLP/GMP requirements. System controller has clock, thermometer, hygrometer and other humanized design functions.

2. Excellent performance -- to meet customers' strict requirements for instruments.

2.1 Infusion pump made of corundum material structure of the plunger, enhanced teflon sealing ring, plunger floating installation, enhance the stability and durability of the instrument performance;

2.2 Detector adopts imported deuterium lamp, photocell and 1200 /mm concave grating double beam monochromator, precision machining double lens flow cell, high precision microprocessor controlling wavelength adjustment, double channel high-speed sampling frequency, ensuring low noise, low drift and ultra-high sensitivity;

2.3 After the mixer is evenly mixed, the baseline collected using the gradient program maintains good reproducibility.

3. reliable results -- to meet customers' accurate requirements for results.

3.1 The analysis results have good accuracy;

3.2 Simple interaction mode, easy for customers to skillfully operate the software;

3.3 The software adopts multi-window mode, easy to operate.

4. Exquisite appearance ： To meet the customer's visual requirements of the instrument exquisite appearance, bring visual enjoyment.

5. A variety of user software - to meet the needs of different users.
Dedicated chromatographic data workstation embedded in the detector, VI5890, N2000,N3000 three sets for customers to use, GMP pharmaceutical factory special, to meet the needs of different users.

6.With automatic online detection function.

Application Field

- R&D
- Pharmaceutical Inspection
- Food Testing
- Chemical analysis
- Environmental Monitoring

Matching Products

- Six–way injection valve
- Autosampler
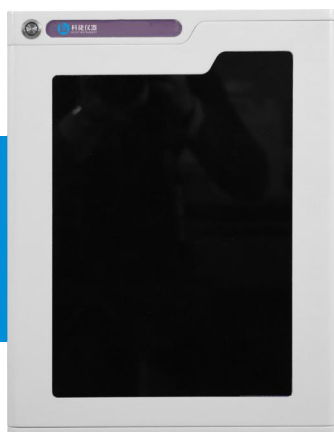- Ultrasonic Cleaner
- Chromatography Column Warmer
- Online degasser
- Solvent filter
- Vacuum Pumps
- Liquid Chromatography Columns

TECHNICAL PARAMETERS

P600B High pressure constant current infusion pump	
Mode of fluids infusion	Micro volume series double plunger
Maximum infusion pressure	0～9999Psi
Flow setting range	0.001 ～ 9.999mL/min （0.001mL/min Step size adjusts the flow rate）
Flow set value error	≤0.5%
Flow stability error	RSD≤ 0.2%
Gradient error	±1%（0 ～ 100% water / Acetone aqueous solution 2 gradient）
Pressure fluctuation	＜15Psi （flow rate 1mL/min， pressure 600 ～ 1600Psi）
Pump seal	Pressure 5400Psi，time 10min，Pressure drop less than 400Psi
Time program function	Yes
Size	290×130×420mm
Weight	11kg
Ambient temperature range	4～40℃

UV600B Uv-vis variable wavelength detector	
Wavelength range	190nm～700nm
Wavelength indication error	≤ ±1nm
Wavelength repeatability error	≤ ±0.1nm
Dynamic noise	±0.75×10^{-5} AU（Methyl alcohol，1mL/min，254nm，20℃）
Static noise	±0.5×10^{-5}AU（Empty pool，Response time 1 second，20℃）
Dynamic baseline drift	±1×10^{-4} AU/h（methyl alcohol，1mL/min，254nm，20℃）
Static baseline drift	5×10^{-4}AU/h（Empty tank，Response time 1 second，20℃）
Linear range	≥ 10^4
Minimum detection concentration	1×10^{-9} g/mL（Naphthalene/methanol solution）
Qualitative repeatability	RSD≤ 0.1%（n=6）
Quantitative repeatability	RSD≤ 0.2%（n=6）
Spectral bandwidth	6nm
Flow tank volume	8μL
Optical path	10mm
Time program function	Yes
Size	290×130×420mm
Weight	11kg
Ambient temperature range	4～40℃

Optional detector	
Differential refractive detector	RI2000
Differential refractive detector	RI-201H
Fluorescence detector	RF-20A
Diode array detector	SPD-M20A
Typical evaporative light scattering detector	ELSD-5000
Typical evaporative light scattering detector	ELSD-180

IC 700
Ion Chromatograph

INTRODUCTION

IC700 ion chromatograph can be used for anion detection in samples： F^-、Cl^-、NO_2^-、PO_4^{3-}、Br^-、NO_3^-、SO_4^{2-}、SO_3^{2-}、BrO_3^-、 ClO_3^-、 ClO_2^- anion analysis； The cations in the samples were detected，Li^+、Na^+、NH_4^+、K^+、Mg^{2+}、Ca^{2+} and other cations were analyzed. The packing of ion chromatography column is different from traditional ion exchange chromatography column. The resin has high cross-linking degree and low exchange capacity, and the sample volume is very small. The eluent is transported by plunger pump for on-line automatic continuous conductivity detection。

PERFORMANCE CHARACTERISTICS

1. Split block structure mode
Split mode has good anti-interference and extensibility. And it can be equipped with UV/visible detector, electrochemical detector or pH, conductivity module, to meet the unconventional sample analysis, multiple data analysis at the same time, to achieve one machine multi-function.

2. High sensitive circuit
The machine adopts industrial electrical components and advanced shielding technology to improve the detection sensitivity and stability of the instrument, which can meet the diversified testing needs of users.

3. Automatic signal acquisition system
The injection valve is linked with the host circuit to realize the automatic recognition of signals when the valve changes position, and start the software analysis function to avoid the error caused by manual operation.

4. Channel activation system
When the machine is shut down for a certain period of time, the flow path is automatically started regularly to flush each system component to avoid pipeline crystallization and achieve the purpose of maintenance.

5. Intelligent constant temperature system
During detection and analysis, the separation column is kept constant temperature to ensure good separation effect. Under low temperature condition (including shutdown condition) automatically start and heat up to the ideal temperature suitable for storing separation column, prolong the service life of separation column.

TECHNICAL PARAMETERS

1. Constant temperature conductivity detector
· Pentapole conductance cell: PEEK material, ring type passivation 316 stainless steel electrode;
· Pool volume≤0.8μL;
· Resolution≤0.0020ns;
· Temperature control range: +5℃~ 60℃, temperature control accuracy: ±0.01℃, temperature compensation:
 1.7%/℃;
· Detection range: 0 ~ 30000μs/cm, output voltage -5000 ~ 5000mV;
· Baseline noise: superior to national standard; baseline drift: superior to national standard;

2. Ion chromatography peek pump
· Maximum working pressure: 36MPa
· Flow range: 0.001-9.999ml /min To adjust the flow by 0.001mL/min step;
· Flow accuracy: 0.1%
· Flow repeatability: RSD<0.1%

3. Flow system
The joints and flow channels are Peek materials, with good generality, can use strong acid and alkali mobile phase, can be 100% compatible with organic solvent, convenient for users to analyze complex samples, and can be replaced at will separation column and suitable eluent. Improve the system's pressure resistance and eliminate the hidden danger of leakage.

4. High pressure six way valve, high pressure resistance, no leakage, flexible sample switching, strong acid and alkali corrosion resistance.

5. Lon chromatographic column
High efficiency anion column, suitable for analysis of F^-、 Cl^-、 NO_2^-、 PO_4^{3-}、 Br-、 NO_3-、 SO_4^{2-}、 SO_3^{2-}、 BrO_3-、 ClO_3-、 ClO_2^- and other anions. High efficiency cationic column, meet the analysis of Li^+、 Na^+、 NH_4^+、 K^+、 Mg^{2+}、 Ca^{2+} and other cations.

6. Anion and cation suppressor
Continuous automatic regeneration electrochemical suppressor, high suppression capacity, automatic online regeneration, long life, simple operation, fast balance, good repeatability, no need to use any consumables.

7. Test technical parameters
· Separation ability
Anions such as F^-、 Cl^-、 NO_2^-、 PO_4^{3-}、 Br-、 NO_3^-、 SO_4^{2-}、 SO_3^{2-}、 BrO_3^-、 ClO_3^- and ClO_2^- were detected and analyzed at the same time. Cations such as Li^+、 Na^+、 NH_4^+、 K^+、 Mg^{2+}、 Ca^{2+} were detected and analyzed at the same time.
· Minimum detection limit
Cl^-≤0.0005ppm Li^+≤0.005ppm
· Analysis reproducibility (accuracy)
Qualitative repeatability≤0.4%; Quantitative repeatability≤1.0%

8. Instrument linearity≥ 10^3

9. Data processing system
· Full Chinese/English display, with electronic version of the operation demonstration video, convenient for users to master familiar.
· Support Windows 98/2000/ XP/Win7 and other operating systems, can be transmitted through USB or COM digital signal; It has two modes of single channel workstation and double channel workstation, which can simultaneously complete data acquisition and processing of anion and anion.
· Simple operation, intuitive and easy to understand, spectrum data intelligent processing, can display spectrum, retention time, peak height, peak area, concentration quantitative calculation, calibration curve production, printing spectrum data, etc.
· Spectral data automatic storage, providing data view, batch printing, results summary, operation management and other functions.
· Equipped with excellent performance of 24 bit analog-to-digital conversion device, to provide high resolution and high sensitivity detection.
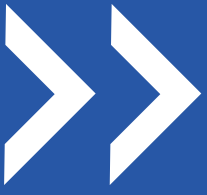
SUBDIRECTORY

Spectrometer Series

4520A

Atomic absorption spectrophotometer (Flame / Graphite furnace)

INTRODUCTION

All functions of 520A atomic absorption spectrophotometer are controlled by PC, flame and graphite furnace can be flexibly selected. Unique optical-mechanical design, safe and convenient flame system, advanced graphite furnace temperature control technology, optional deducting background technology, and various convenient functions provided by the workstation, to meet your pursuit of accurate measurement automation.

Hollow cathode lamp	6 /8 light position
Slit	Six slit
Resolution	＜20％
Flame function	Yes
Graphite furnace function	Yes

PERFORMANCE CHARACTERISTICS

1. Using the classic design of Agilent Technology, the instrument has strong stability and long service life
2. Fully functional, with flame atomization and graphite furnace atomization function
The same host can achieve flame, graphite furnace and other different ways; Graphite furnace and flame do not need mechanical switching, which can avoid the cumbersome work such as light path recalibriation caused by switching, and improve the analysis efficiency.
3. Stable and reliable graphite furnace atomization system, more accurate temperature control
Adopt PID technology, make the temperature control more accurate; At the same time, it has high precision automatic injection technology, with an additional 85 bit automatic injection device.
4. The use of high sensitivity flame sensor, eliminate the interference of external light
5. Domestic unique graphite furnace visual system
CCD camera installed in the instrument and video capture software to implement real-time monitoring of the inside of the graphite tube, capillary injection needle and platform can be clearly displayed, to ensure that the automatic injector capillary injection test solution of the best location and the best parameter selection, convenient operation of analysts, and ensure the high reliability of analysis.

√Correct injection depth

✕Wrong injection depth

6. High analysis efficiency
Flexible on-line dilution system can greatly reduce analysis operations and improve detection efficiency.
7. Advanced and reliable safety protection system
Fully protect the safety of operators; At the same time, the implementation of safe and timely control of abnormal conditions, such as insufficient pressure, leakage, flameout control.
8. More comprehensive software functions
Add the working software of hydride generator method; Software added method storage function, users can store the standard curve at any time after the call out, can save analysis time.
9. Compact shape design and more convenient operation
The same kind of instrument has the smallest volume (700×550×440mm) and occupies little laboratory space. Simple lifting platform structure, user adjustment more convenient.
10. With automatic online detection function

TECHNICAL PARAMETERS

| Mainframe	
Wavelength range	190～900nm
6 light /8 light lighthouse	No lamp replacement is required for multielement analysis
Wavelength repeatability	±0.1nm
Wavelength accuracy	Full-wave band±0.2nm
Absorbance range	0～2.5ABS
Resolution ratio	Spectral bandwidth 0.2nm, can separate manganese bilinear (279.5 and 279.8) and valley to peak energy ratio <20%
Spectral bandwidth (6 levels) Static baseline drift	0.1nm，0.2nm，0.4nm，0.7nm，1.0nm，2.0nm ≤0.002ABS/30min(Cu)
Weight	80kg
Size	500×450×430(mm)
Number of grating	1800bars/mm
D2 Background deduction method	When the background signal is 1ABS, the background deduction capacity is≥ 50 times
Power supply	220V AC
Flame system	
Air - acetylene flame burner	≤ 0.004ABS/30min(Cu)
Ignition dynamic baseline drift	100mm
Sensitivity (Cu) characteristic concentration	≤ 0.025µg/mL/1%
Relative standard deviation	0.5%(Cu, absorbance >0.8ABS)
(Detection limit Cu 0.004µg/mL)	Automatic gas shut-off in case of insufficient pressure, power interruption, abnormal flameout, or mismatch of burner heads
Graphite furnace system	
Working temperature of graphite furnace	Normal temperature～ 3000℃
Maximum rate of heating	≥ 2000℃ /s
Characteristic quantity	Cd≤ 1pg, Cu≤ 10pg
Relative standard deviation of precision	Cd≤ 3%, Cu≤ 3%
Heating temperature control mode	Power control in drying and ashing stage and maximum power temperature control in atomization stage
Weight	60kg
Size	550×450×280(mm)
Safty	OCP(over-current protection)
	Protection gas pressure insufficient alarm/automatic stop heating
	Insufficient cooling water flow alarm/automatic stop heating
Power supply	220V AC
Power	7000W
Automatic sampler	85-bit, automatic configuration standard curve, automatic dilution function, high precision injection
GFTV visual system	
Software	Free update

APPLICATION FIELD

It is widely used in material science, life science, space technology and other fields to analyze metal elements in opaque substances, but also can be used in food, medicine, drinking water, environmental sample detection, detection of trace heavy metal elements in the natural environment.
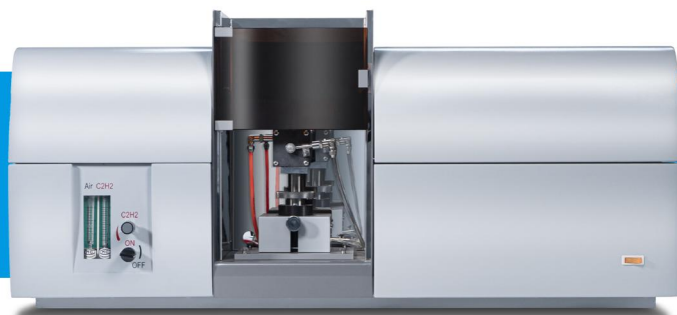
4520B
Atomic absorption photometer (single flame)

INTRODUCTION

The 4520B atomic absorption spectrophotometer has high analysis accuracy and considerate humanized design, which can fully meet the specific needs of different customers. Graphite furnace control, automatic sampler and hydride generator can be selected according to different analysis requirements.

PERFORMANCE CHARACTERISTICS

1. Four or six light positions are optional
Automatic 3D switching, energy balance, multi-light preheating saves waiting time, deuterium lamp buckle background and high-performance element lamp are available.

2. Automatic optimization of instrument Settings
The instrument is equipped with automatic memory optimization function and one key to complete scanning peak search.

3. Data report saving and printout in multiple formats
Easy data search and comparison

4. Software design makes operation easier
Instrument software adopts single-interface multi-function window design, real-time monitoring of data changes, support mainstream Windows operating system, support remote control and calibration. The Chinese or English version is optional.

5. Advanced and reliable multiple security protection system
Automatic detection, alarm, such as pressure shortage, air leakage, flameout and other abnormal conditions.

6. Expand and combine functions
Hydride system and graphite furnace system and combined functions.

7. With automatic online detection function.

APPLICATIONFIELD

It can be widely used in geology, metallurgy, medicine, chemical industry, petroleum, agriculture, environmental protection, commodity inspection and other industries. In recent years, the application of trace and trace elements has gradually infiltrated from inorganic chemistry to organic chemistry.

SUPPORTINGPRODUCTS

Hollow cathode lamp

Microwave digestion apparatus

Ultrapure water machine

Oil free silent air compressor
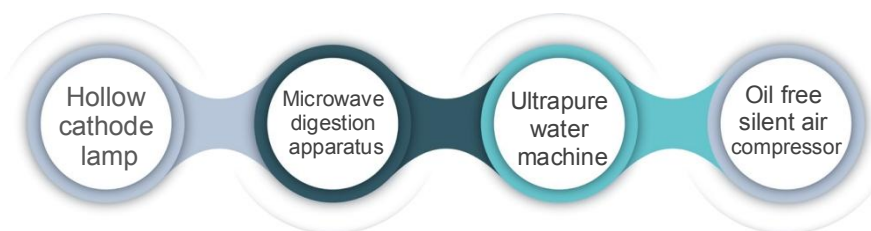
TECHNICAL PARAMETERS

Mainframe	
Power supply	AC220 V/50 Hz
Power	150 W
Operating ambient temperature	10℃ ～35℃
Working environment humidity	≤80%
Appearance size	1000 mm（L）×400 mm（W）×470 mm（H）
Weight	70 kg
Optical system	
Detector	Photoelectric multiplier tube(Japan)
Wavelength range	185 nm～900 nm
Grating line density	1800 strips
Monochromator	Czerny-Turner Reinforced
Spectral bandwidth	0.2 nm、0.4 nm、1.0 nm、2.0 nm Multi-file automatic switch
Wavelength indication error	≤ ±0.1 nm
Wavelength repeatability	≤ ±0.025 nm
Baseline drift	0.003 ABS/30min（static state） 0.005 ABS/15min（dynamic state）
Resolution	Cu 324.7 nm wavelength，0.2 nm bandwidth，half width 0.2 nm±0.01 nm
Light source system	
Lamp holder	Turret type automatic switching lamp holder
Lamp power supply mode	400 Hz，1/4 duty cycle pulse lit
Lamp current adjustment range	(0 ～ 10) mA（average current) software adjustment
Atomized system	
Characteristic Concentration	（Cu）0.025 µg/mL /1%
Detection limit	（Cu）0.006 µg/mL
Burner	0.5 mm×100 mm All titanium burner
Repeatability	RSD≤ 0.5%
Sprayer	Metal sleeve high efficiency glass sprayer
Atomizing chamber	Corrosion-resistant all-plastic atomizing chamber
Security and protection	With a variety of automatic safety protection functions, acetylene leakage alarm, shut down the system
Analytical method	
Measuring method	Air acetylene flame method
Concentration calculation method	The linear regression method automatically fits the working curve and calculates the result automatically
Number of repeated measurements	1～99 times, automatically calculate the mean value, content, standard deviation and relative standard deviation
Results output	Multi-format data storage and print output
Communication interface	Standard RS232, USB expansion interface
Software environment	Windows XP/Vista/Windows7 Operating system, Chinese professional software
Expanded function	Hydride system and graphite furnace system

4520G

Atomic absorption spectrophotometer (Flame - graphite furnace integrated)
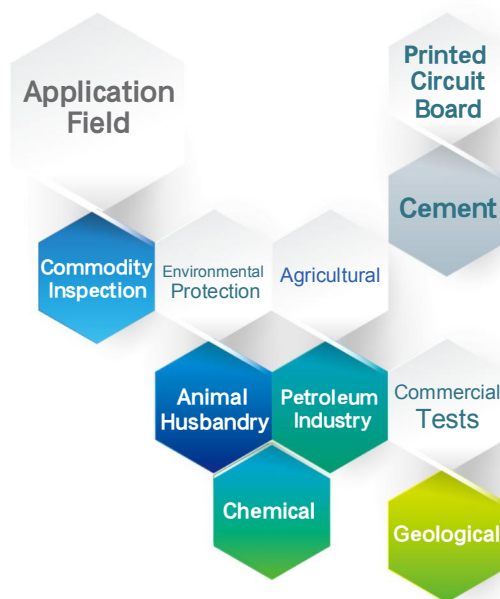
INTRODUCTION

Model 4520G atomic absorption spectrophotometer adopts deuterium lamp button background technology to provide reliable guarantee for quantitative analysis of elements. The design of multi-function window with single interface reduces the difficulty of analyst's work. Graphite furnace adopts domestic advanced GFTV visual system to realize automatic sampler system. Instrument plus hydride system.

PERFORMANCE CHARACTERISTICS

1. Four lamp position, six lamp position, eight lamp position optional (optional high-performance element lamp), automatic THREE-DIMENSIONAL switching, energy balance, multi-lamp position preheating at the same time to save waiting time, with deuterium lamp buckle background and self-suction buckle background function;

2. Unique flame atomizer and graphite furnace atomizer integrated design, realize automatic switching and manual switching mode;

3. The setting conditions of the instrument automatically optimize the memory function, one key to complete the scanning peak search, energy balance;

4. Data report is saved and printed in multiple formats to facilitate data query and comparison;

5. The instrument software uses single interface multi-function window design, so that the operation is simpler, real-time monitoring data changes,

support mainstream Windows operating system, support remote control and calibration, Chinese/English version optional, with total quality control (QC) function;

6. Advanced and reliable multiple safety protection system, automatic detection, alarm, such as insufficient pressure, air leakage, flameout and other abnormal conditions;

7. Domestic advanced graphite furnace GFTV visual system, CCD camera real-time monitoring of graphite furnace atomizer, prolong the service life of graphite tube;

8. Automatic sampler system can be realized, automatic configuration of standard curve, automatic dilution, high precision injection;

9. Can be expanded: hydride system and combined function;

10. ith automatic online detection function.

Supporting Products

- Hollow cathode lamp
- Graphite furnace atomization system
- Flame atomization system
- Microwave digestion apparatus
- Cooling water circulator

Application Field

- Printed Circuit Board
- Cement
- Commodity Inspection
- Environmental Protection
- Agricultural
- Animal Husbandry
- Petroleum Industry
- Commercial Tests
- Chemical
- Geological

TECHNICAL PARAMETERS

Optical system	
Wavelength range	185 nm~900 nm
Monochromator	Czerny-Turner Reinforced
Grating line density	1800 strips /mm
Spectral bandwidth	0nm、0.1nm、0.2nm、0.4nm、1.0nm、2.0nm Multi gear automatic switching
Wavelength accuracy	≤±0.1nm
Wavelength repeatability	≤ ±0.025nm
Baseline drift	0.003ABS/30min（static state）
	0.005 ABS/15min（dynamic state）
Resolution	Cu 324.7nm wavelength，0.2nm bandwidth，half width 0.2nm±0.01nm
Detector	Japan Hamamatsu photomultiplier tube
Element lamp holder	Turret type automatic switching lamp holder
Flame atomization system	
Detection limit	（Cu）0.006 μg/mL
Burner	0.5mm×100mm Full titanium burner
Repeatability	RSD≤ 0.7%
Sprayer	Metal sleeve high efficiency glass sprayer
Atomizing chamber	Corrosion-resistant all-plastic atomizing chamber
Security measures	With a variety of automatic safety protection functions
Position adjustment	Flame burner optimal height and front and rear position automatically set
Graphite furnace atomization system	
Detection limit (Cd)	1.5pg
Precision	≤ 3%
Heating temperature range	Indoor temperature~3000°C
Heating temperature control mode	Dry ashing stage power control mode, atomization stage using light control maximum power mode
Temperature control accuracy	1%
Heating rate	2000°C /sec
Heating condition setting	11 steps, ramp heating, step heating, maximum power heating, heating monitoring backtesting system
Security Protection	Air pressure system, cooling system fault protection, power monitoring
Background correction	
Deuterium lamp background correction	≥ 60 times at 1ABS
Self priming background correction	≥ 60 times at 1ABS
Data Processing	
Measurement Method	Air-acetylene flame method, graphite furnace method
Data Processing	Linear regression method automatically fits the working curve and automatically calculates the results
Number of repeated measurements	1 to 99 times, repeat measurements to calculate the average value, and automatically give the standard deviation and relative standard deviation
Result Output	Multi-format data saving and printout
Communication Interface	Standard RS232, USB expansion interface
Autosampler systems	Optional 85-position autosampler, automatic standard curve configuration, automatic dilution, high-precision injection
Visualization System	Optional GFTV visualization system, graphite furnace video capture system
Functional Expansion	Hydride Systems

AFS12002
Atomic fluorescence photometer

INTRODUCTION

AFS12002 upgraded automatic intermittent pump feed dual-channel atomic fluorescence spectrometer for elemental trace analysis, dual-channel for simultaneous determination of two elements, automatic adjustment of the optimal energy ratio of the dual-cathode lamp to improve the stability of the measured elements while significantly reducing the memory effect. Fully automatic control, convenient, fast and accurate.

PERFORMANCE CHARACTERISTICS

1. **Measurement mode**
Dual-channel, single-element test, dual-element simultaneous test optional, dual-element simultaneous measurement, improve the speed of instrument analysis.
2. **Light source system**
Cluster pulse power supply mode, special high-intensity coding hollow cathode lamp; automatic identification of single and double cathode lamps, automatic adjustment of the best energy ratio of double cathode lamps.
3. **Atomizer**
Adopt double-layer shielded quartz atomizer, argon-hydrogen flame low-temperature automatic ignition ignition device, imported ignition filament with long life and low cost, which improves the stability of the measured element while substantially reducing the memory effect.
4. **Photometric system**
Adopt high signal-to-noise ratio photoelectric detection system, short focal length lens concentrated light dispersion-free fully enclosed light avoidance path system.
5. **Gas-liquid separator**
Chemical gas phase generation gas-liquid separation device, reactants fully mixed contact, online automatic removal of organic components of complex body samples generated by a large number of bubbles; secondary gas-liquid separator: with a device to remove water vapor, effective elimination of water vapor.
6. **Harmful element trap device, recovery of residual contaminated elements**
Adopt atomic fluorescence analysis of harmful elements trap device, using this recovery of residual pollution elements in the environment (such as arsenic, lead, etc.), especially the recovery of mercury vapor. Not only to avoid secondary pollution of the laboratory but also to further protect the safety of the instrument operator.
7. **With automatic online detection function**

APPLICATION FIELD

It is widely used in food hygiene testing, environmental sample testing, urban water supply and drainage testing, agricultural product testing, fishery and seawater sample testing, geological metallurgy testing, cosmetics testing, drug testing, soil feed fertilizer, As, Sb, Bi, Hg, Se, Te, Sn, Ge, Pb, Zn, Cd, Au in clinical medical testing Trace analysis of elements.

UPGRADE FUNCTION

1. Configure the configuration pretreatment module to analyze the configuration of As, Hg, Se, and Sb (and analyze the configuration of As and Sb simultaneously).
2. The interface of solid sampling device for cadmium detection is reserved, that is, to directly detect cadmium in solid and liquid samples (relevant device models and color pages should be provided for proof).

3. The interface of solid injection mercury measuring device is reserved, which can directly detect mercury in solid and liquid samples.
4. Powerful Windows 7/XP English and Chinese software workstation. Maintain expert help system to recommend the best instrument.
5. Conditions and optimization methods, and guidelines for sample pretreatment, standard fluid preparation, interference elimination, etc.; Automatic control, convenient, fast and accurate.
6. Energized automatic sampler arm automatically returns to zero.
7. The software automatically recognizes the automatic sampler upon startup.
8. High-precision polar coordinate mechanical arm, moving deviation is within 0.1mm.
9. Rotating disk array 160 bit sample tray, using standard 10mL (1-158th bit), 30mL (159.160-bit) sample tube.
10. Large capacity current-carrying tank, small hole low diffusion cleaning, effectively eliminate the sampling needle residual current-carrying pollution and cross-contamination between samples.
11. Zero reset of the coordinate of the cleaning position, and the minimum accumulated error of the moving position.
12. 3 motors independently control optocouplers to shorten sampling time.
13. Smooth operation, fast and accurate, low noise, no sample dripping phenomenon.
14. Ultraviolet on-line digestion device can be upgraded.

TECHNICAL PARAMETERS

Measurable elements	Trace analysis of eleven elements such as As, Sb, Bi, Hg, Se, Te, Sn, Ge, Pb, Zn, Cd, etc.
Instrument type	Intermittent pump injection dual-channel atomic fluorescence photometer
Operating Conditions	
Ambient temperature	15℃ ～35℃
Relative humidity	75%
Adapter power	220V（AC），50Hz
Light source	Adopt special hollow cathode lamp, cluster pulse control method
Optical system	Short focal length lens concentrating light, non-dispersion fully enclosed light avoidance dimming system
Sampling system	Automatic intermittent pump sampling hydride generator
Atomizer	Argon-hydrogen flame, shielded quartz furnace atomizer
Pneumatic system	Mass flow meter control with alarm function
Steam Device	Membrane separation and water vapor removal device
Catch trap device	Harmful gas exhaust trap device
Separator	Chemical gas phase gas-liquid separator
Software operating system	Standard RS-232 interface / RS-485 communication port, powerful Windows 98/ME, 2000XP Chinese and English software operating system
Optical path structure	Fully enclosed new light-avoidance dimming system, argon-hydrogen flame real-time observation window hidden, mercury measurement stability
Detection limit	<0.01µg/L	（DL）As、Sb、Bi、Se、Te、Sn、Pb
	≤ 0.001µg/L	Hg、Cd
	≤ 0.05µg/L	Ge
	≤ 1.0µg/L	Zn
Measurement accuracy	RSD≤ 1.0%（n = 6）
Linear range	Three orders of magnitude
Autosampler	Fully automated 160-position polar coordinate autosampler
Support	Online single-point dilution function, automatic configuration of the working curve, linearity coefficient 0.999
	10 sample blanks and 10 management samples with optional automatic import
Technical Services	
User Support	Provide 1 year warranty to users
Instrument installation	Installation videos and online guidance for foreign customers
Training	Free training for technical users

7230G

Scanning type visible spectrophotometer

PERFORMANCE CHARACTERISTICS

1. The instrument adopts 128×64 bit dot matrix LCD display, which can directly display the standard curve and test data, and the host can store the test data and print with optional printer.

2. USB data output interface, optional YOKE3.0 professional software for online operation.

3. The instrument has built-in analysis software, which can be used for standard curves for related testing, continuous testing and storage of 200 sets of data, and can store 100 standard curves, which can be named directly by the user and conveniently called according to the naming.

4. Unique design of optical system, high performance 1200 bars / mm grating and imported receivers to ensure the excellent performance indicators of the instrument.

5. Automatic wavelength calibration, automatic wavelength setting

6. Wide sample chamber, can accommodate 5 ~ 100mm cuvettes of various specifications.

7. Ultra-thin keys, simple and convenient operation.

8. The instrument can be equipped with the national patent-awarded disc rotating automatic eight-link sample holder, with good reliability and centralized light spot (compared with double-row automatic eight-link holder), thus the instrument has high photometric accuracy. (Patent No.: ZL 2010 2 0562307.8)

TECHNICAL PARAMETERS

Model	7230G Scanning type visible spectrophotometer
Optical system	Dual beam proportional detection
Wavelength range	320～1100nm
Wavelength accuracy	±1nm
Spectral bandwidth	4nm
Wavelength repeatability	0.5nm
Stray light	≤ 0.1%T@360nm
Photometric accuracy	0.5%T
Photometric repeatability	0.2%T
Photometric range	0～200%T,-0.301～3.000A
Baseline linear type	±0.004A
Stability	±0.002A/h@500nm
Display range	-3～3A,0～200@T,0～9999C
Display System	128×64-bit LCD
Wavelength drive method	Automatic wavelength
Energy (lamp source)	Imported tungsten lamp
Net weight	12kg
Software support	Yes

752/752N
UV–Visible Spectrophotometer

PERFORMANCE CHARACTERISTICS

1. The wide sample chamber can accommodate 5~100mm cuvettes.
2. It can be directly connected with special printer (optional) and print data.
3. All key components are imported to ensure the accuracy and precision of measurement.
4. Digital display of measurement values.
5. The instrument adopts the latest microcomputer processing technology, easy to operate.
6. Automatic light gate, to ensure the service life of the photoelectric sensor, the instrument test more simple.

TECHNICAL PARAMETERS

Model	UV752	UV752N
Optical System	Achromatic (1200 bars/mm grating）	Achromatic (1200 bars/mm grating）
Wavelength range	195～1020nm	195～1020nm
Wavelength Accuracy	±2nm	±2nm
Spectral bandwidth	5nm	4nm
Wavelength repeatability	1nm	1nm
Photometric Accuracy	0.5%T	0.5%T
Photometric repeatability	0.2%T	0.2%T
Photometric range	0～200%T，-3～3A	0～200%T，-3～3A
Drifting	≤ 0.2%T	≤ 0.2%T
Baseline linear type	±0.004A/h@500nm	±0.002A/h@500nm
Noise	100%≤ 0.3%T	100%≤ 0.3%T
Stability	±0.004A/h@500nm	±0.002A/h@500nm
Working method	T,A,C	T,A,C
Display range	0～200%T，-0.3～3A	0～200%T，-0.3～3A
Display System	4-digit LCD LED display	4-digit LCD LED display
Wavelength drive	Manual	Manual
Printer (Interface)	Thermal printer (parallel port) optional	Thermal printer (parallel port) optional
Energy (Lamp Source）	Imported tungsten lamp, imported deuterium lamp	Imported tungsten lamp, imported deuterium lamp
Net weight	12kg	12kg
Lamp switching method	Automatic	Automatic

UV 1700/1800
UV–Visible Spectrophotometer
（UV 1700，UV 1700PC，UV1800）

INTRODUCTION

The latest wavelength is automatically saved according to the set wavelength, which increases the stability of the measurement compared with the common similar products.

It is possible to measure the light range of 100mm, to establish quantitative analysis according to the standard mode or input standard mode, and to save 200 calibration curves. Optionally, a software unit can be installed for connection to a PC.

PERFORMANCE CHARACTERISTICS

1. Using 1200 bars / mm high-performance grating. New light source control system, so that the instrument light source switching more quickly.
2. Accurate 2nm bandwidth, making the test data more accurate. The use of imported long-life light source, reducing the consumption of consumables.
3. Specific wavelength control system, so that the wavelength accuracy is higher. Improved optical system, making the test more accurate.
4. The use of imported photoelectric converter, so that the instrument has higher sensitivity.
5. New type of microcomputer data processing system. Make the instrument more convenient to use, and better stability.
6. The instrument adopts 126×64 bit dot matrix liquid crystal display, which can directly display the standard curve and test data, the host can store the test data, and the optional printer.
7. The instrument can be equipped with the national patented disc rotating automatic eight-link sample holder, which has good reliability and centered light spot (compared with double-row automatic eight-link holder), thus the instrument has high photometric accuracy. (Patent No.: ZL 2010 2 0562307.8)

TECHNICAL PARAMETERS

Technical parameters	UV1700 / UV1700PC	UV1800
Wavelength range	190～1100nm	190～1100nm
Wavelength accuracy	±0.5nm	±0.3nm
Wavelength repeatability	0.2nm	0.1nm
Spectral bandwidth	2nm	1.8nm
Transmittance ratio accuracy	±0.5%T	±0.3%T
Transmittance ratio repeatability	0.2%T	0.1%T
Baseline straightness	0.001A/h	0.001A/h
Photometric range	-3～3A，0～200%T，0～9999C	-3～3A，0～200%T，0～9999C
Stray light	0.05%T@220nm，360nm	0.05%T@220nm/360nm
Stability	±0.001A/h@500nm	±0.001A/h@500nm
Display method	128×64 bit dot matrix LCD display	128×64 bit dot matrix LCD display
RS232 communication	USB port	USB port
Printers	Optional	Optional
Analysis Software	Support	Support
Automatic eight colorimetric cell	Optional	Optional
Optical System	Dual beam proportional monitoring	Dual beam proportional monitoring
Noise level	±0.001A/2min@500nm	±0.001A/2min@500nm

UV 1810

Scanning ultraviolet visible spectrophotometer

（ UV 1810， UV 1810S ）

INTRODUCTION

This series of instruments provides easy access to photometric analysis, quantitative analysis, kinetic analysis, spectral scanning, multi-wavelength measurements, and DNA/protein analysis with simple parameter settings.

PERFORMANCE CHARACTERISTICS

1. Using the latest ARM system, built-in Chinese and English operating system, can be stored through the USB interface transfer data.
2. Powerful, the host can independently complete photometric measurement, quantitative weighing, spectral scanning, kinetics, DNA / protein testing, multi-wavelength testing and data printing and other functions.
3. The instrument adopts 320×240 dot matrix high brightness 6-inch LCD display, directly displaying the scanned spectrum with simple screen interface.
4. The unique design of the optical system, high-performance 1200 bars / mm grids and imported receivers to ensure that the instrument has excellent performance indicators.
5. Socket type deuterium lamp and tungsten lamp design, no optical debugging after lamp replacement.
6. 24-bit high-speed, high-precision A/D conversion, high precision instrument, fast response time.
7. Wide sample chamber, can accommodate 5 ~ 100mm cuvettes of various specifications.
8. It can be directly connected to the printer to print the graphs and experimental data.
9. The instrument adopts suspension optical system design and long optical path design, which greatly improves the stability and reliability of the instrument and the optical resolution of the instrument.
10. Built-in Chinese and English bilingual operating system, convenient for you to use.
11. The instrument is equipped with the national patented disc rotating automatic eight-link sample holder with good reliability and centered light spot (compared with the double-row automatic eight-link holder), thus the instrument has high photometric accuracy. (Patent No.: ZL 2010 2 0562307.8)

TECHNICAL PARAMETERS

Technical Parameters	UV1810	UV1810S
Wavelength range	190～1100nm	190～1100nm
Spectral bandwidth	1nm	0.5/1.0/2.0/4.0/5.0nm adjustable
Wavelength Accuracy	±0.1nm (at 656.1nm), ±0.3nm All Region	±0.1nm (at 656.1nm), ±0.3nm All Region
Wavelength Repeatability	≤ 0.1nm	≤ 0.1nm
Photometric Accuracy	±0.002A(0～0.5A),±0.004A(0.5～1A),±0.2%T(0～100%)	±0.002A(0～0.5A),±0.004A(0.5～1A),±0.2%T(0～100%)
Photometric Repeatability	±0.001A(0～0.5A),±0.002A(0.5～1A),≤ 0.15%T(0～100%)	±0.001A(0～0.5A),±0.002A(0.5～1A),≤ 0.15%T(0～100%)
Stray light	≤ 0.03%T	≤ 0.03%T
Stability	±0.0005A（at500nm）	±0.0005A（at 500nm）
Baseline Straightness	±0.0015A	±0.0015A
Working method	T,A,C,E	T,A,C,E
Photometric range	0～200%T,-4～4A	0～200%T,-4～4A
Data output	USB Port	USB Port
Printout	Parallel port	Parallel port
Display System	320×240 bit high brightness, large screen LCD	320×240 bit high brightness, large screen LCD
Light source	Imported long life tungsten lamp, deuterium lamp	Imported long life tungsten lamp, deuterium lamp
Detectors	Imported silicon photodiode	Imported silicon photodiode
Noise level	0.05%T	0.05%T
Weight	15kg	18kg

UV 1901/1902

Double–beam UV–Vis spectrophotometer
（UV 1901，UV 1902，UV1901PCS）

INTRODUCTION

1. Photometric measurement: The transmittance and absorbance at 1~6 wavelengths can be measured simultaneously.
2. Spectral measurement: the spectrum scan of transmittance, absorbance and energy in the wavelength range, and various data processing such as peak and valley detection, derivative operation, spectrum operation, etc.
3. Quantitative measurement: single-wavelength, dual-wavelength, three-wavelength and multi-wavelength measurement 1 ~ 9 points of the working curve (1 ~ 4 times) regression.
4. Kinetic measurement: time scan of transmittance and absorbance at any set wavelength and various data calculations can be performed.
5. Data output: data files and parameter files can be accessed, and the measurement results are output in standard common data file format.

PERFORMANCE CHARACTERISTICS

1. Double beam photometric system, with advanced circuit measurement and control system, so that the instrument has a high degree of stability and very low noise.
2. New design of excellent optical system, high-performance holographic shining grating, to ensure the instrument's low stray light, so that the instrument can be in the absorbance value of four decimal places (transmittance value of 2 decimal places) full wavelength stable work.
3. Fully automatic control system, advanced design concept, to ensure that the instrument has high reliability and high stability.
4. Detachable structure of the sample chamber design, easy to replace different accessories to meet different analytical needs.
5. Spacious open light source chamber design, making it more convenient to replace the lamp source.
6. Imported components are used in key parts to ensure the high reliability of the instrument performance.
7. The English and Chinese operating software developed under the windows environment provides a wealth of unique color measurement analysis functions.

TECHNICAL PARAMETERS

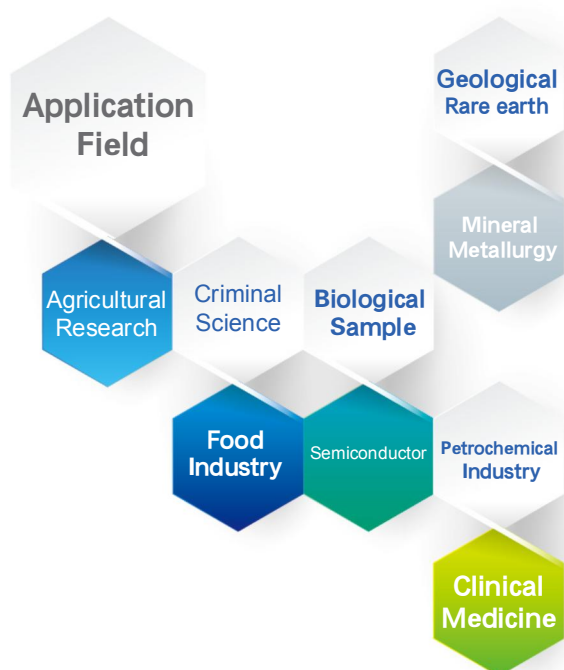| Technical parameters	UV1901	UV1902	UV1901PCS
Wavelength range	190～1100nm		
Spectral bandwidth	1nm	2nm	0.5/1/2/4/5nm adjustable
Wavelength accuracy	±0.1nm (at 656.1nm), ±0.3nm full area		
Wavelength repeatability	≤ 0.1 nm		
Photometric accuracy	±0.002A(0～0.5A),±0.004A(0.5～1A),±0.2%T(0～100%)		
Photometric repeatability	±0.001A(0～0.5A),±0.002A(0.5～1A),≤ 0.15%T(0～100%)		
Stray light	≤ 0.02%T		
Stability	±0.0004A (at 500nm)		
Baseline straightness	±0.0004A		
Working method	T,A,C,E		
Photometric range	0～200%T,-4～4A		
Data output	USB Port		
Printout	Parallel port		
Display System	320×240 bit high brightness, large screen LCD		
Light source	Imported long life tungsten lamp, deuterium lamp		
Detectors	Imported silicon photodiode		
Weight	25kg	24kg	26kg

ICP-OES 6800

Inductively Coupled Plasma Emission Spectrometer

INTRODUCTION

ICP-OES 6800 full-spectrum direct-reading inductively coupled plasma emission spectrometer, with outstanding anti-interference and analytical detection performance, is applied to research and development, detection and other high-end analytical needs, and can easily perform qualitative, semi-quantitative and precise quantitative analysis, and is the ideal instrument for simultaneous analysis of macronutrient, trace and trace inorganic elements.

PERFORMANCE CHARACTERISTICS

1. Graphical operation interface, easy and intuitive software operation, with qualitative, semi-quantitative and quantitative analysis functions.
2. Method library management software based on classification and version, which is convenient for method management, maintenance and inheritance; some standard methods are built-in, which helps to improve analysis efficiency.
3. With full spectrum data acquisition function of all elemental spectral lines recorded at the same time, data can be stored safely, support analysis data saving and retrieval function, convenient for future re-analysis.
4. With a library of more than 50,000 spectral lines, each spectral line can be at least
Select at least 30 pixel points for each spectral line for measurement.
5. With full-spectrum acquisition function, the software can directly obtain the complete full-spectrum map to understand the sample spectrum and spectral interference status.
6. With a variety of interference correction methods and real-time background deduction functions: such as standard comparison method, internal standard method, interference element correction coefficient method (IEC), standard addition curve method, etc., which enriches the user's means of multiple analysis and research.
7. With instrument calibration function, supporting torch tube collimation, light source optimization and other functions, which is convenient for users' daily maintenance; with visualization of instrument operation status monitoring.
8. With login password protection, multi-level operation authority setting and network security management, permanent history record keeping.

9. With visualization of torch flame observation module.
10. With both Chinese and English versions of the software.
11. With network remote service function, comes with remote service assistant, remote diagnosis, 4G network data connection technical service department for the instrument to achieve remote diagnosis and maintenance.
12. The software design comprehensively conforms to the 21 CFR Part 11 management regulations of electronic signature management, the software has three levels of management authority and audit trail function, in line with 3Q certification and other regulatory requirements.
13. It can be integrated with the software operation of automated analysis instrument platform and online analysis instrument platform.

Application Field

- Geological Rare earth
- Mineral Metallurgy
- Agricultural Research
- Criminal Science
- Biological Sample
- Food Industry
- Semiconductor
- Petrochemical Industry
- Clinical Medicine

TECHNICAL PARAMETERS

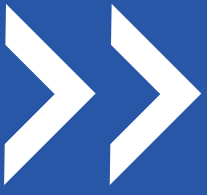|	
Operating frequency	40.68MHz
Frequency stability	<0.05％
Matching method	Automatic Matching
Output power	700W ~ 1600W, continuously adjustable, power efficiency greater than 65%
Output power stability	≤ 0.2％
Optical path	Czerny turner type
Focal length	1000mm
Resolution	0.002nm
Liquid content	0.01ppm to several thousand ppm
Solids content	0.001%～70%
Repeatability	(i.e., short-term stability) Relative standard deviation RSD 1.5% (n = 6)
Stability	Relative standard deviation RSD≤ 2.0% (n = 6)
Test Speed	5 to 8 elements per minute
Volume	1.5m×0.6m×0.8m

Typical element detection limit（μg/L）

Element	La	Ce	Pr	Nd	Sm	Eu	Gd	Tb
Wavelength (nm)	408.672	413.765	414.311	401.225	360.946	381.967	342.247	350.917
Detection limit	<3.0	<5.0	<5.0	<5.0	<10.0	<1.0	<10.0	<3.0

Element	Dy	Ho	Er	Tm	Yb	Lu	Y	Sc
Wavelength(nm)	353.170	345.600	337.271	313.126	369.419	261.541	371.030	335.373
Detection limit	<3.0	<3.0	<3.0	<3.0	<1.0	<3.0	<1.0	<1.0

Element	Ta	Nb	Mn	Mg	B	Zn	Co	Si
Wavelength(nm)	226.230	313.340	257.610	279.553	249.773	13.856	228.616	251.611
Detection limit	<5.0	<5.0	<3.0	<1.0	<10.0	<3.0	<3.0	<10.0

Element	Ni	Cd	Fe	Ca	Mo	V	Be	Ti
Wavelength(nm)	232.003	226.502	239.562	393.366	281.615	310.230	313.041	334.941
Detection limit	<5.0	<3.0	<3.0	<1.0	<5.0	<5.0	<1.0	<3.0

Element	Cu	Cr	Al	Zr	Ag	Sr	Au	Pt
Wavelength(nm)	324.754	267.716	396.152	343.823	328.068	407.771	242.795	265.945
Detection limit	<3.0	<5.0	<5.0	<5.0	<3.0	<1.0	<5.0	<5.0

Element	Pd	Ir	Rh	Ru	Ba
Wavelength(nm)	340.458	224.268	343.489	240.272	455.403
Detection limit	<5.0	<10.0	<10.0	<5.0	<1.0

Element	As	Sb	Bi	Hg	Pb	Ga	Se
Wavelength(nm)	228.812	206.833	223.061	253.652	220.353	294.364	203.985
Detection limit	≤ 15	≤ 15	≤ 10	≤ 15	≤ 15	≤ 10	≤ 10

Element	Sn	Te	Ta	Th	Tl	Re	Ge
Wavelength(nm)	242.949	214.281	226.230	283.730	276.787	227.525	209.426
Detection limit	≤ 20	≤ 10	≤ 5.0	≤ 10	≤ 30	≤ 5	≤ 15

Element	Os	W	Se	Li	Na	K
Wavelength(nm)	225.585	207.911	203.985	670.784	588.995	766.490
Detection limit	≤ 1	≤ 10	≤ 30	≤ 3	≤ 20	≤ 60

WORK ENVIRONMENT

Content	Scope of Adaptation
Storage and transportation temperatur	15℃ ～25℃
Storage and transportation relative humidity	≤ 70％
Power supply adaptability	220±10v 50～60Hz
Operating humidity	≤ 70％
Operating temperature	15℃ ～30℃

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03

Supporting Products

For more details of supporting products,
Please contact your sales consultant at: sales@changior.com

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Strategic Partners

Some serve customers

Kejie Holding Group adheres to the international operation thinking, we provide chromatography, spectroscopy, mass spectrometry and other analytical scientific instruments and professional solutions to customers around the world. After nearly 20 years of continuous exploration and development, Kejie Instrument has become a well-known analytical instrument brand in China, Kejie always adhere to the concept of " better human life", continuous innovation, looking forward to achieving win-win cooperation with customers and partners in all regions of the world.

KEJIE INSTRUMNET
Technology creates a better life

We are not only a supplier of analytical equipment,
We are also the solution solvers of the whole analytical laboratory.

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