SHUOBODA instruments

Spectrometer

Visible / UV-Visible / Fluorescence / Near Infrared / FTIR / Raman / Micro / Flame / AAS / Atomic Fluorescence/ ICP-OES / ICP-AES / ICP-MS Spectrometers

Environmental management system: ISO14001

Medical devices quality management system: ISO1348

CE ISO

Shuoboda Instruments (Hunan) Co., ltd

An ISO9001:2015 certificate company

CONTENTS

Fluorescence Spectrophotometer

1. FSP-93/93A Fluorescence Spectrophotometer

The FSP-93 fluorescence spectrophotometer has the advantages of low background, low power consumption, low temperature, long life, high intensity, avoids thermal pollution, and has the advantages of energy saving and environmental protection. With an excitation wavelength of 365nm, the detection limit of quinine sulfate is 1 x 10^{-9}.

Features

1. The emission monochromator adopts 1200-line diffraction grating. Its large aperture and non-spherical reflecting mirrors produce extra high sensitivity.
2. High stable and long-life xenon lamp and power source ensure high stable testing and wide range of spectrum.
3. EX light uses LED, match with the central wavelength of 365nm,420nm,475nm,525nm narrow banding-ultra low back grounding precision filters to consist 4 set of EX wavelength replacing system. The system can be replaced by customer, carry on the maintenance expediently & can satisfy more choices and demand;
4. The central wavelength of 365nm,420nm,465nm,515nm narrow banding-ultra low back grounding precision filters with low fluorescence background, its performance is better than glass filter;
5. LED is a cold-light source with longevity, lower background & reliability, prevent from thermo-pollution;
6. Automatic zero adjustment and automatic background subtraction; Eight stage sensitivity adjustment; Real time fluorescence reading display and concentration print out, Extra wide dynamic range of fluorescence reading, accurate measurement of minute changes in samples;
7. RS-232C serial port interface attached, after option Data Processing Software Package it is convenient to store record & transmit data & draw up a standard operating curve;
8. Quality fine, less weight & measure, test simply, particularly suitable for education & Lab.

Specifications:

Model	FSP-93/FSP-93A
Detection sensitivity	**Quinine sulfate solution detection limit: 1 x 10^{-9}**
Excitation wavelength Bandwidth	10/20nm
Emission wavelength Bandwidth	12nm
Emission Wavelength accuracy	±2.0nm
Emission Wavelength repeatability	≤1.0nm
Light source	**High intensity LED cold light source**
Optical system	C-T manually grating monochromator
Fluorescence Receiver	Original photomultiplier (Hamamatsu, Japan)
Central wavelength	365nm (FSP93) 365nm,405nm,470nm,515nm (FSP93A)
Excitation wavelength range	250nm ~ 600nm
Emission wavelength range	360nm ~ 650nm
Measurement line	≥0.995
Gain adjustment range	0~7 position optional
Data transmission	RS232
Light value range	0.00-250
Peak intensity Repeatability	≤1.5%
Power source	220V / 50Hz, 110V / 60Hz
Standard energy consumption	35W
Dimensions (mm)	360×320×205
Weight	7kg/9kg

Standard configuration:

Standard configuration items	Quantity
FSP-93 fluorescence spectrophotometer host	1 set
Excite LED light source	One each for 365nm, 376nm, 392nm and 405nm
Instruction Manual	1
Product Certificate of Conformity	1
10mm glass cuvette	2 pcs
Power cable	1 pc
Fuse(2A)	2 pcs
Packing List	1

Optional items:

Measurement accessories	Function
Single-hole sample cell holder (standard configuration)	Routine liquid fluorescence measurements
Multipurpose fluorescence sample holder	Various measurement accessory bases
frequency doubling filter	Eliminate frequency doubling interference peaks in fluorescence measurements
200uL microcentrifuge tube measurement accessories	Centrifuge tube fluorescence measurement function
Single well sample cell adapter	Combined with the multi-purpose fluorescence sample holder, it can form conventional liquid fluorescence measurement and fluorescence reflection measurement functions.
Membrane fluorescence sample	Combined with the multi-purpose fluorescence sample

measurement holder	holder, it can form conventional film sample fluorescence measurement and fluorescence reflection and transmission measurement functions.
Powdered fluorescence sample measurement stand	Combined with the multi-purpose fluorescent sample holder to form a conventional powder sample fluorescence measurement function
Sheathed sample cell holder	Combined with a multi-purpose fluorescent sample holder to form a sheathed fluorescent sample cell with fluorescence measurement function
Micro quartz four-way cuvette	Provides micro-sample fluorescence measurement function

2. FSP-95S Fluorescence Spectrophotometer

1. fluorescence intensity measurements and calculated sample concentrations, single sample fluorescence can be carried out quantitative and qualitative analysis.
2. 128 * 64 LCD display, more user-friendly interface.
3. cold light source with high reliability, relative to the heat source usually has a low background, low power, low temperature, long life, high strength advantage, avoid thermal pollution, more energy-saving advantages. 365nm excitation wavelength, quinine sulfate detection limit to 5 *10-10
4. can be an external serial printer performs data printout, convenient data storage.
5. supports stand-alone, on-line two modes, use the standalone state machine computer systems to provide fluorescence intensity measurements, establish the standard curve equation and preservation, concentration measurement, data printing, auto-zero, automatic background subtraction and other functions. Online and with selected general data processing software package for on-line operation, more convenient for you to further calculations and data processing, saving you hours of operation.
6. variety of measurement accessories, including single-hole sample cell holder, multi-fluorescent sample holder, 200μL microcentrifuge tube measurement accessories, capillary micro sample measurement accessories, semi-automatic sample injection fluorescence attachment hole sample cell adapter, film and powder samples shaped sample measurement accessories and sheathed sample cell holder and so on. Wealth of accessories greatly expands the application range of the instrument.
7. small size of the model can save a lot of desk space

Specifications:

Model	FSP-95S
Detection sensitivity	Water Raman peak signal-to-noise ratio: S/N 290 (P-P)
Excitation wavelength bandwidth	10/20nm

Emission wavelength bandwidth	10nm
Emission wavelength accuracy	±1.0nm
Emission wavelength repeatability	⩽0.5nm
light source	**High intensity LED cold light source**
Optical system	C-T monochromator grating automatic wavelength scanning
fluorescence receiver	original photomultiplier tube
Optional range of excitation wavelength (LED light source)	250~600nm
Emission wavelength range	200-650nm, expandable to 200-900nm
Wavelength scan speed	48000~15nm/min
Measure linearity	Correlation coefficient⩾0.995
Data output method	Microsoft (R) Excel format, bmp picture format
Data transmission method	USB2.0 interface
Peak intensity repeatability	⩽1.5%

Standard configuration:

Standard configuration items	Quantity
FSP-95S fluorescence spectrophotometer host	1 set
Excite LED light source (FSP-95S)	365nm
Instruction Manual	1
Product Certificate of Conformity	1
10mm quartz cuvette	2 pcs
Power cable	1 pc
Fuse(2A)	2 pcs
Packing List	1

Optional items:

Measurement accessories	Function
Software	Connect to a computer for use, with more functions and easier operation
Single-hole sample cell holder (standard configuration)	Routine liquid fluorescence measurements
Multipurpose fluorescence sample holder	Various measurement accessory bases
frequency doubling filter	Eliminate frequency doubling interference peaks in fluorescence measurements
200uL microcentrifuge tube measurement accessories	Centrifuge tube fluorescence measurement function
Single well sample cell adapter	Combined with the multi-purpose fluorescence sample holder, it can form conventional liquid fluorescence measurement and fluorescence reflection measurement functions.
Membrane fluorescence sample measurement holder	Combined with the multi-purpose fluorescence sample holder, it can form conventional film sample fluorescence measurement and fluorescence reflection and transmission measurement functions.
Powdered fluorescence sample measurement stand	Combined with the multi-purpose fluorescent sample holder to form a conventional powder sample fluorescence measurement function

Sheathed sample cell holder	Combined with a multi-purpose fluorescent sample holder to form a sheathed fluorescent sample cell with fluorescence measurement function
Micro quartz four-way cuvette	Provides micro-sample fluorescence measurement function

3. FSP-96S/96PRO Fluorescence spectrophotometer

The FSP-96S fluorescence spectrophotometer is suitable for quantitative fluorescence measurement in the ultraviolet and visible light regions. It can be extended to red-sensitive band detection by using a special photomultiplier tube detector.

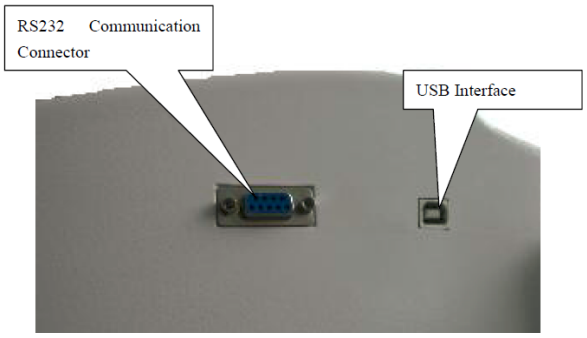
It supports stand-alone and online modes. In stand-alone mode, the on-board microcomputer system is used to provide fluorescence intensity measurement, standard curve equation creation and saving, concentration measurement, data printing, automatic zero adjustment, automatic background deduction and other functions.

Applicable to materials research, pharmaceutical analysis, biochemical and clinical testing, quality control analysis, food safety testing and other areas of the samples were analyzed qualitatively and quantitatively.

Features

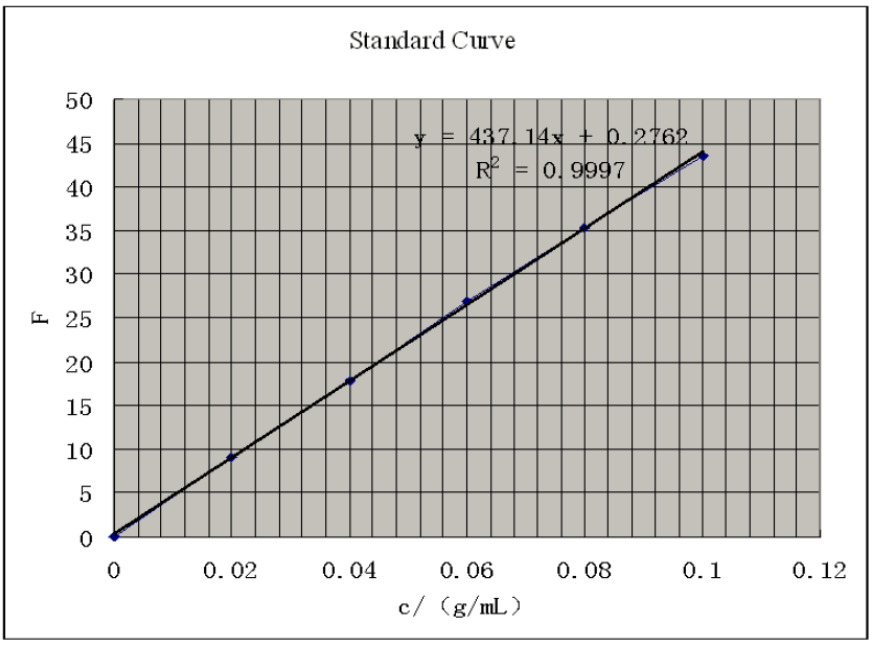
1. Two operation way fluorescence intensity and emission intensity can be chosen, can scanning fluorescence spectra, fluorescence kinetic measurements and quantitative analysis in fluorescence intensity model
2. High reliability of cold light source (FSP-96S), 150W xenon lamp (FSP-96pro)
3. 10 position of emission spectrum sweep speed can be selected, including high-speed low-noise scanning and fine scanning, to reach fastest at 30000nm/min, can be completed full spectrum scanning in 1 second, with intelligent pre-scan feature which can quickly display the spectral information of the unknown sample, automatically excludes other scattering peak and peak multiplier effects, determine the best measure parameters, locate the fluorescence emission peaks.
4. Built with microcomputer system to measuring fluorescence intensity, concentration direct reading, auto-zero, automatic background subtraction and other functions; Via USB2.0 interface & software to control & data acquisition to computer.
5. The normalized feature for fluorescence value could make different fluorescence's result comparable.
6. Feature-rich software for qualitative / quantitative, the emission spectrum wavelength scanning menus available for map zoom, multiple maps compare, map operation, peak detection, peak area calculation and 1-4 derivative spectra function; quantitative tests menu can use standard curve method with undetermined coefficients assay sample concentration.

7. A variety of measurement accessories, including hole cuvette holder, multipurpose fluorescent sample holder, 200μl Eppendorf tube fluorescence measurement, micro-capillary sample holder, sample fluorescence semiautomatic injection, hole cuvette adapter, a film sample holder powdered sample holder and sheathed cuvette racks, small sample volumes as low as 5μl can be easily measured with high concentrations of fluorescence detection, fluorescence detection applies equally solid, able to meet a variety of requirements.
8. Compact design to save space.

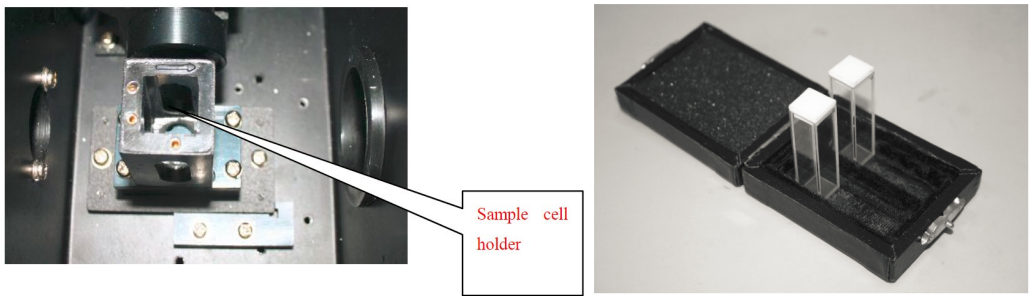


Fluorescence spectrophotometer Main Unit

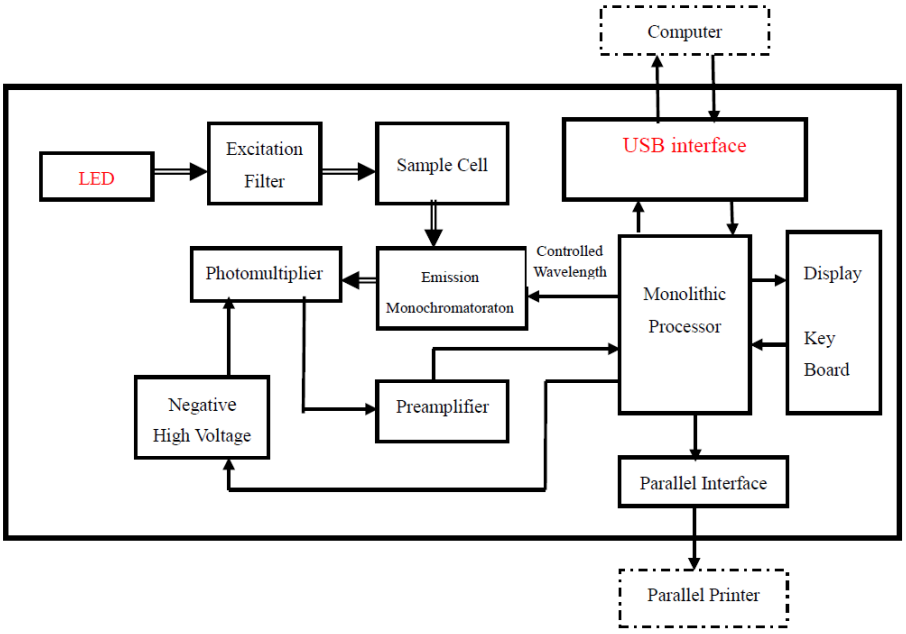
1. Mode key, 2. Print key, 3. Adj 0% key, 4. Normalize key, 5. Display Window.



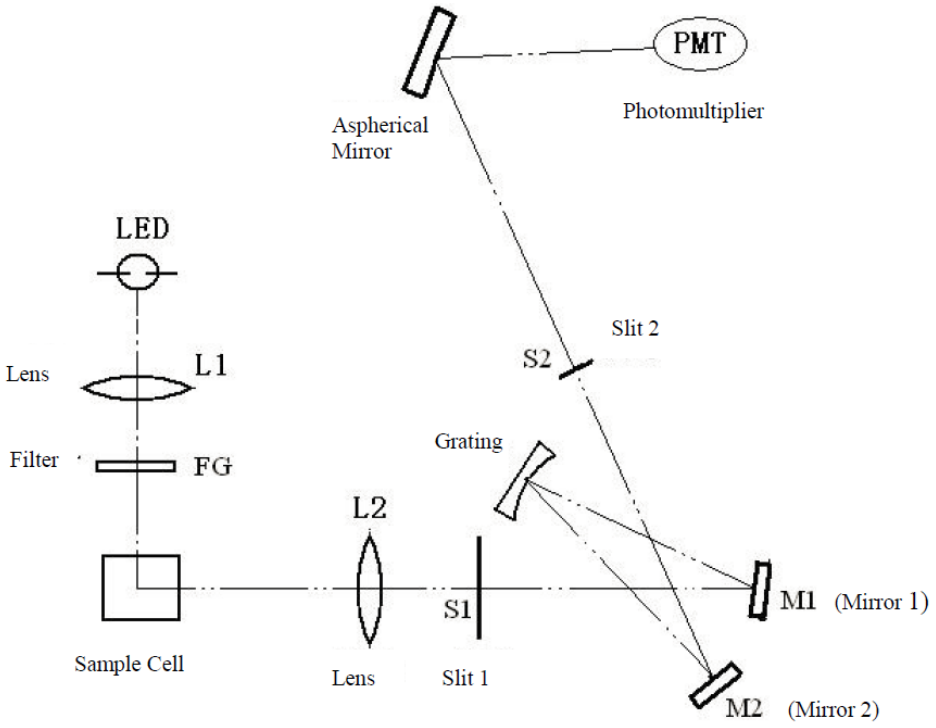
The Standard Curve Plotted after Data Processing With Excel 2000 Software in Measurement of Riboflavin by fluorophotometry



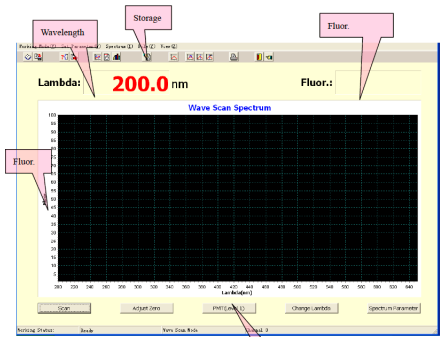
Sample Compartment and Quartz Sample Cell (10 mm)



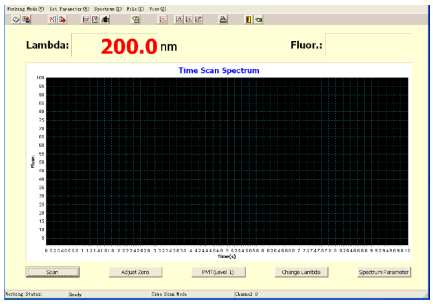
Signal Processing and Control System



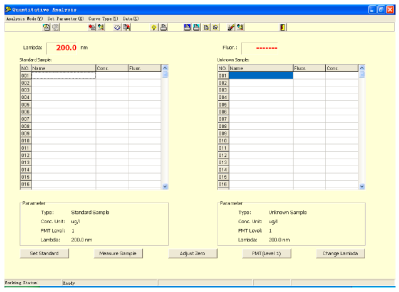
Optical System Arrangement of Fluorescence spectrophotometer



Interface of Wavelength Scan



Interface of Time Scan



Interface of Quantitative Analysis

Specifications:

Model	FSP-96S	FSP-96pro
Detection sensitivity (water Raman peak signal noise ratio)	**S/N ≥90 (P-P)**	**S/N ≥150 (P-P)**
Excitation wavelength band	10/20nm	10nm
Emission wavelength Bandwidth	10nm	10nm
Emission wavelength accuracy	± 1.0nm	± 1.0nm
Emission wavelength repeatability	≤0.5nm	≤0.5nm
Light source	**High intensity LED cold light source**	**Photomultiplier (Hamamatsu, Japan)**
Optical system	C-T automatic scanning grating monochromator	
Fluorescence Receiver	Original photomultiplier (Hamamatsu, Japan)	
Emission wavelength range (LED light source)	250 ~ 600nm	200 ~ 850nm
Emission wavelength range	200-650nm	200nm~900nm
Wavelength scanning speed	fastest 30000nm/min, fine scanning 15nm/min	
Measurement line	≥0.995	

Gain adjustment range	1~17 position optional	
Integral Response time	6 position options: 0.1s ~ 4s	
Scan time setting	can be set, up to 60,000 seconds	
Data output	Microsoft (R) Excel format, bmp image format	
Data transmission	USB2.0 Interface	
Light value range	0.00-600	
Peak intensity Repeatability	≤1.5%	
Power source	220V / 50Hz, 110V / 60Hz	
Standard energy consumption	35W	190W
Dimensions (mm)	442 × 400 × 250	442 × 400 × 250
Weight	GW 14kg, NW 9.6kg	GW 14kg, NW 9.6kg

Standard Configuration

Model	FSP-96S	FSP-96pro
Host	1 set	
Emission LED source	4 kinds of 365nm, 405nm, 465nm, 515nm	365nm
Software	1 pc	
10mm quartz cell	2 pcs	
Power line	1 pc	
USB line	1 pc	
Fuse（2A）	2 pcs	

4. FSP-97/97pro Fluorescence Spectrophotometer

FSP-97/F97pro fluorescent spectrophotometer is a new generation of high-performance molecular luminescence analysis instrument. The product structure is exquisite, has the characteristics of high detection sensitivity, fast scanning speed, wide spectrum measuring range, high dynamic range, fast 3D scanning, and so on. Easily meet the requirements in the field of material research, pharmaceutical analysis, biochemical and clinical testing, water quality analysis and control, food safety testing (dairy products, aquatic products, such as vitamin C, selenium, aflatoxin), and other areas.

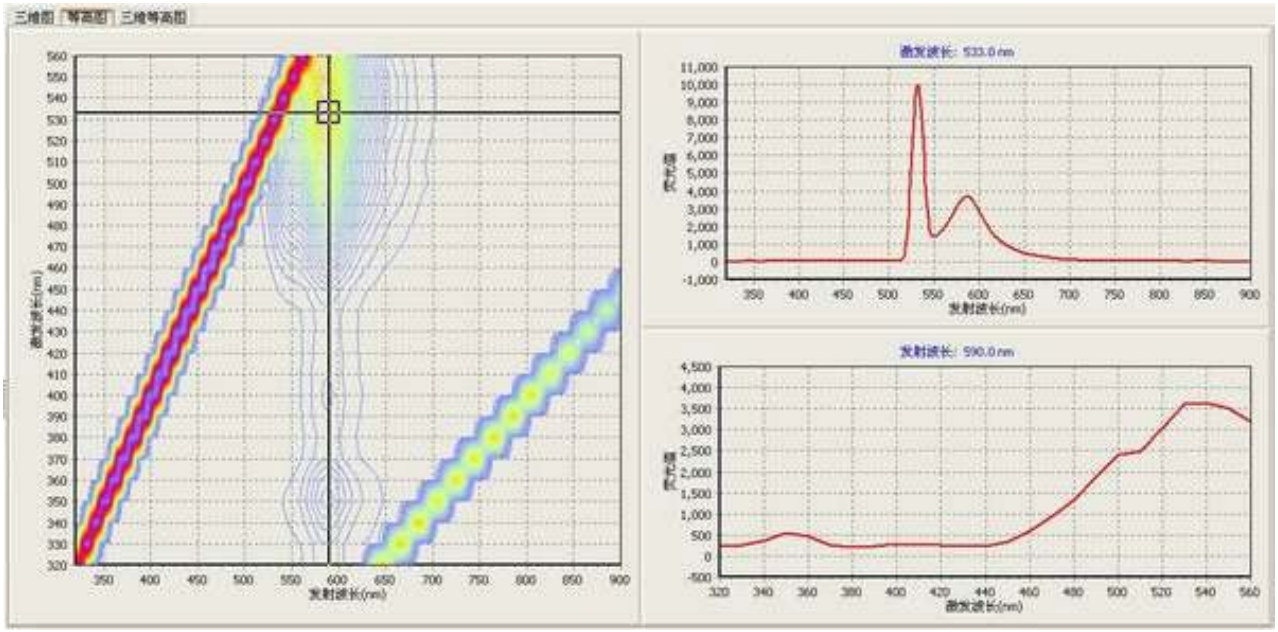
Instrument introduction:

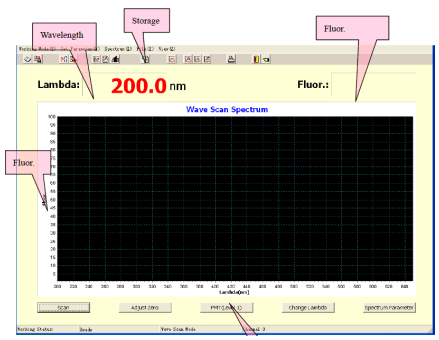
FSP-97 series fluorescence spectrophotometer (FSP-97, FSP-97Pro, FSP-97XP) is a high-end fluorescence spectrophotometer product carefully developed by Xiangyi Instruments. The product adopts dual monochromator, proportional double optical path design with excitation light monitoring system, 150W Hamamatsu high quality xenon lamp, 1200 line/mm concave grating and large aperture aspheric mirror spectroscopic system. It is small in size, compact in structure and has detection. High sensitivity, fast scanning speed, wide spectral measurement range, large detection dynamic range and fast 3D scanning. Excellent mechanical structure and digital signal processing ensure that the instrument can complete 3D full-spectrum scanning in 1 minute during high-speed 3D scanning.

The new, professional, and user-friendly software design includes a variety of analysis capabilities. At the same time, the rich accessories greatly expand the application range of the instrument, and can support the measurement of liquid, powder and film samples. It can measure high-concentration samples with fluorescence quenching, and can accurately measure small samples as small as 5μl. Equipped with an automatic sample introduction system.

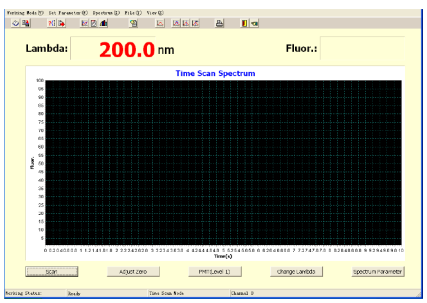
Usage:

FSP-97 series fluorescence spectrophotometer (FSP-97, FSP-97Pro, FSP-97XP) easily meets materials research, drug analysis, biochemical and clinical testing, water quality analysis control, food safety testing (vitamin C-GB5413.18-2010, selenium-GB5009.93- 2010, aflatoxin - GB5413.37-2010, benzo (a) - GB / T5009.27-2003, etc.) qualitative and quantitative analysis needs. It is your choice for multi-function, high-precision, high-efficiency fluorescence analysis!

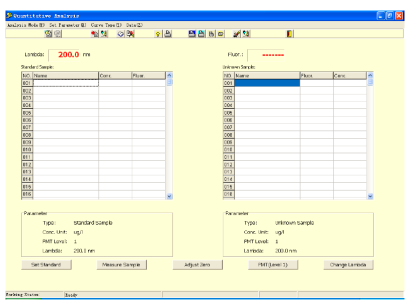




Interface of Wavelength Scan



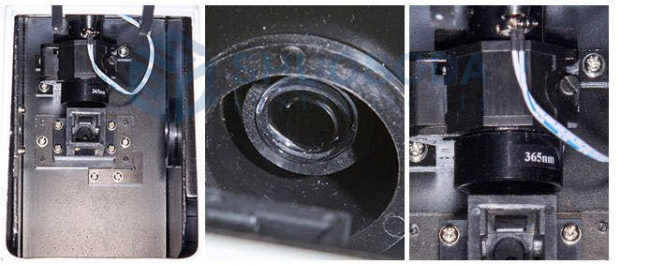
Interface of Time Scan



Interface of Quantitative Analysis

Features:

Product Details



01
Large sample room
Suitable for kind of testing

02
Light receiver
Higher transmittance, stability & reliability

03
LED Cold light
Standard four sets of excitation light source 365nm, 376nm, 392nm, 405nm

04
Power switch & fuse
AC220V/50Hz or 110V/60Hz

05
RS232C & USB interface
Comes with professional data analysis software

1. High detection sensitivity: The Raman peak signal-to-noise ratio of the distilled water at 350nm in the F97PRO fluorescence spectrophotometer can reach ≥150 (P/P).
2. High scanning speed: The instrument adopts high-speed digital signal processing technology, and the scanning speed is up to 48000nm/min, reaching the world advanced level. The classic fluorescence spectrum can be obtained in 1 second, and high-quality 3D map scanning can be obtained in 1 minute, which is convenient for obtaining the fluorescent fingerprint information of the sample quickly.
3. New software analysis function: The new, professional and user-friendly software design includes a variety of analysis functions, enabling the instrument to perform analysis and test functions on samples under various conditions.
4. The structure of the instrument is exquisite: the small size and volume of the instrument are less than half of the domestic equivalent model products, breaking through the large and heavy product set of the traditional high-end fluorescence spectrophotometer, effectively saving laboratory space.
5. Excitation light path monitoring system: The instrument uses excitation light source monitoring technology to ensure that the instrument obtains a highly stable fluorescent signal.
6. Spectral bandwidth is multi-stage optional: the instrument excitation spectrum bandwidth and emission spectrum bandwidth are 2/5/10/20nm four-speed bandwidth.
7. High quality assurance: The instrument adopts high-quality Japanese Aachen original device for key components such as long-life de-ozone-type xenon lamp source and photomultiplier tube detector. Ensure that the instrument provides sufficient light intensity signal and detection sensitivity in the spectral range from 200nm to 900nm.
8. Spectral correction function: The spectral correction function can correct the spectral response function of the instrument itself to obtain the true fluorescence spectrum data of the sample.

9. Built-in automatic light door: shortens the sample's excitation time and protects samples that are easily photoreactive. Designed for samples that are prone to photoreaction or unstable fluorescence signals, the fluorescence analysis accuracy is improved by uniformly exciting the detection rhythm.
10. The detection dynamic range is large: the instrument fluorescence photometric value display range is 0.00-10000, and the large detection dynamic range makes the instrument more able to meet various analysis and testing requirements.
11. Supports a variety of measurement accessories: including single-hole sample cell holder, multi-purpose fluorescent sample holder, 200μL microcentrifuge tube measurement accessories, capillary micro sample measurement accessories, fluorescent sample semi-automatic injection accessories, single-hole sample cell adapter, membrane samples and Powder sample measurement accessories and jacketed sample cell holders. A wide range of accessories greatly expands the range of applications of the instrument.
12. Universalized online interface: USB2.0 interface, fast data transmission and convenient connection.

Specification

Model	FSP-97	FSP-97pro	FSP-97xp
Detection sensitivity (water Raman peak signal noise ratio)	S/N ≥150 (P-P)		S/N ≥200 (P-P)
Excitation wavelength Bandwidth	10nm	2nm/5nm/10nm/20nm	
Emission wavelength Bandwidth	10nm	2nZm/5nm/10nm/20nm	
Wavelength accuracy	± 1.0nm	± 1.0nm	±0.4nm
Wavelength repeatability	≤0.5nm	≤0.5nm	≤0.2nm
Light source	150W automatic deodorizing xenon lamp (Hamamatsu, Japan)		
Optical system	Double-grating monochromator automatic wavelength scanning with optical excitation double beam ratio monitoring		
Fluorescence Receiver	Original photomultiplier (Hamamatsu, Japan)		
Excitation wavelength range	200nm~900nm		
Emission wavelength range	200nm~900nm		
Wavelength scanning speed	10 positions, fastest 48000nm/min, fine scanning 15nm/min		
Measurement line	≥0.995		
Gain adjustment range	1~17 position optional		
Integral Response time	6 position options: 4s ~ 20ms		
Data output	Microsoft (R) Excel format, bmp image format		
Data transmission	USB2.0 Interface		
Light value range	0.00-10000		
Peak intensity Repeatability	≤1.5%		
Power source	220V / 50Hz, 110V / 60Hz		
Standard energy consumption	200W		
Dimensions (mm)	380×445×310		
Weight	GW 14kg, NW 12kg		

Standard Accessories

Item Name	Qty
Fluorescence spectrophotometer host	1 pc
Instruction Manual	1 pc
Product certificate	1 copy

Application reference material	1 pc
Software U disk	1 pc
10mm stone English color dish	2 pcs
Power cable	1 pc
USB cable data line	1 pc
Fused wire (2A and 5A)	2 each
Packing List	1 pc
Dustproof cover	1 pc

Optional accessories

Item name	Function
Single hole sample cell holder (standard)	Conventional liquid fluorescence measurement
Multipurpose fluorescent sample holder	Multiple measuring attachment bases
Multiplier filter	Elimination of frequency doubling interference peaks in fluorescence measurements
200μL microcentrifuge tube measurement accessories	Centrifuge tube fluorescence measurement function
Capillary micro sample measurement accessories	Capillary micro sample measurement function
Single hole sample cell adapter	Combined with a multi-purpose fluorescent sample holder to form a conventional liquid fluorescence measurement and fluorescence reflection measurement function
Membrane fluorescent sample measuring frame	Combined with multi-purpose fluorescent sample holder to form fluorescence measurement and fluorescence reflection and transmission measurement function of conventional film samples
Powdery fluorescent sample measuring rack	Combined with multi-purpose fluorescent sample holder to form a fluorescence measurement function of conventional powder samples
Sheathed sample cell holder	Combined with multi-purpose fluorescent sample holder to form a fluorescent measurement function of the sheathed fluorescent sample cell
Trace quartz four-pass cuvette	Provides a small sample fluorescence measurement function

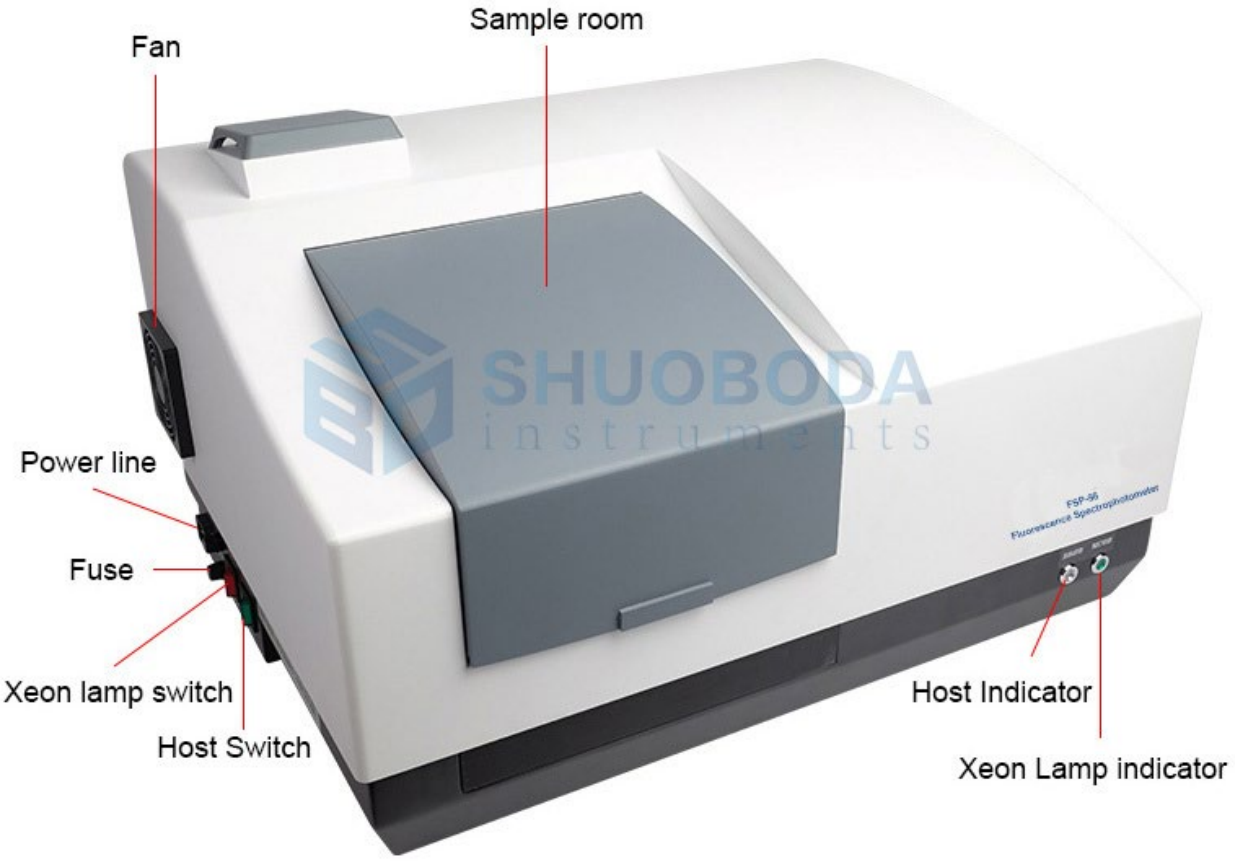
5. FSP-98 Fluorescence Spectrophotometer

Features

1. Ultra-high signal noise ratio: unique horizontal beam design, large diameter concave grating monochromator optical system, excellent luminous efficiency and ultra-high detection signal to noise ratio, the water Raman peak signal noise ratio greater than 250:1(PP) or 800:1(RMS).
2. Ultra-high scanning speed: world's highest speed wavelength scanning 60000nm/min, can be easily achieved to scan three-dimensional fluorescence spectra of samples within 1 minute.
3. Ultra-high resolution: Multi-level bandwidth adjustable, excitation and emission spectra can achieve 1nm, 2nm, 5nm, 10nm and 20nm five-speed adjustment. 1nm spectral resolution can easily meet similar rare earth fluorescent materials and other special fluorescent substance spectrum differentiate needs.
4. High wavelength accuracy: precision wavelength drive mechanism and intelligent wavelength calibration, wavelength accuracy of the instrument reach to the highest level in the same type of product.
5. Super-rich set of advanced scanning capabilities: to achieve three-dimensional fluorescence scanning, three-dimensional time scanning, wavelength difference synchronous scanning, and constant energy differential synchronized scanning functions.
6. Less sample volume needs: only need 0.5ml sample (in 10mm sample pool) to meet the test requirements.
7. High quality assurance: xenon light source and a photomultiplier tube detector and other key components of the instrument are made of high quality Japanese Hamamatsu.
8. Large sample chamber: Compared to the previous generation it has a large volume of sample room design, sample replacement and accessory adjustment work more easier, more comfortable experience with the instrument.

9. Built-in optical gate device: built-in programmable optical gate device, designed for easy photo-reactive fluorescent signal instability or a sample survey design, unified sample excitation fluorescence det ection rhythm improve the accuracy of analysis.
10. kinds of measurement accessories include: hole sample cell holder, multi-fluorescent sample holder, 200μL microcentrifuge tube measurement accessories, capillary micro sample measurement accessories, semi-automatic sample injection fluorescence attachment hole sample cell adapter, film and powder samples accessories and sample measurement sheathed sample cell holder and other accessories, greatly expanded the scope of application of the

instrument.



Specifications:

Model	FSP-98
Detection sensitivity (water Raman peak signal noise ratio)	S/N ≥250 (P-P) or 800(RMS)
Excitation wavelength Bandwidth	1nm/2nm/5nm/10nm/20nm
Emission wavelength Bandwidth	1nm/2nm/5nm/10nm/20nm
Minimum sample volume	0.5ml(using 10mm sample pool)
Wavelength accuracy	±0.4nm

Wavelength repeatability	≤0.2nm
Light source	150W automatic deodorizing xenon lamp (Hamamatsu, Japan)
Optical system	Double-grating monochromator automatic wavelength scanning with optical excitation double beam ratio monitoring
Fluorescence Receiver	Original photomultiplier (Hamamatsu, Japan)
Excitation wavelength range	200nm~900nm
Emission wavelength range	200nm~900nm
Wavelength scanning speed	10 positions, fastest 60000nm/min
Measurement line	≥0.995
Gain adjustment range	1~17 position optional
Integral Response time	7 position options: 8s ~ 20ms
Data output	Microsoft (R) Excel format, bmp image format
Data transmission	USB2.0 Interface
Light value range	-9999~9999
Peak intensity Repeatability	≤1.5%
Power source	220V / 50Hz, 110V / 60Hz
Standard energy consumption	200W
Dimensions (mm)	610mm×460mm×365mm
Weight	21kg

Standard accessories

Item	Qty
FSP-98 Host fluorescence spectrophotometer	One
Instruction Manual	One
Product qualified certificate	One
Reference materials used should be funded	One
Software disc	One
10mm quartz cuvette	Two pieces
Power cables	One
USB cable data lines	One
Fuse (2A and 5A)	Each 2
Packing List	One
Anti-dust cover	One

Optional accessories

Item name	Function
Single-hole sample pool (standard)	Conventional liquid fluorescence measurements
Multipurpose fluorescent sample holder	A variety of measuring accessories base
Frequency filter	Eliminates frequency doubling interference peaks in fluorescence measurements
200 μL microcentrifuge tube measurement accessories	Centrifuge tube fluorescence measurement function
Membrane Fluorescence Sample	Combined with multi-purpose fluorescent sample holder to form a conventional film-like sample Fluorescence measurement and fluorescence reflection and transmission measurement function

Single hole cell adapter	The multi-purpose fluorescent sample holder composes conventional liquid fluorescence measurement and fluorescence reflection measurement
Sheath-type sample pool	Combined with multi - purpose fluorescent sample holder composed of jacketed fluorescent sample pool fluorescence measurement function
Powdery fluorescent sample measuring frame	Combined with multi-purpose fluorescent sample holder composed of conventional powder sample fluorescence measurement function
Micro Quartz Stone cuvette	Provides trace sample fluorescence measurement

6. FSP-180 Fluorescence Spectrophotometer

Instrument introduction:

The FSP-180 fluorescence spectrophotometer is a general analytical molecular fluorescence product launched by SHUOBODA. The product has stable performance, easy use and high-cost performance. It can conduct qualitative and quantitative analysis of fluorescent samples and supports both stand-alone and online operation modes. Suitable for customers with limited financial budget and no need to control equipment through computer

Features:

(1) Advanced spectroscopy technology

High-standard optical components improve instrument performance indicators

The product adopts a large-size concave holographic machine-engraved grating (60mm*60mm), which has a large light aperture and high efficiency; instead of the single Φ20mm lens used in other domestic models, this product uses two Φ45mm quartz lenses, which greatly improves the fluorescence collection efficiency.

(2) High sensitivity, high speed and high reliability

- Fewer samples required

The unique slit design reduces the amount of sample extraction required. A 10mm standard cuvette only requires 0.5mL sample.

- High-quality high-speed scanning to ensure precise test spectra

The high-quality drive motor enables the scanning speed to be as high as 30000nm/min. The advanced data acquisition system ensures that abundant data points are obtained during high-speed scanning, thus ensuring the authenticity and accuracy of the test spectrum.

- Unique light protection system

With a unique light protection system. The excitation side is equipped with a light-blocking shutter, which can reduce the exposure time of the sample and protect the photosensitive Sample; the transmitter side is equipped with a gated shutter to ensure that the receiver is not exposed to direct

strong light and prolongs the service life of the receiver.

(3) Excellent ease of use

- Unique design concept, fast and convenient replacement of accessories

The unique design concept of the product makes it easier to replace excitation filters, light sources and other components. It can be used without any adjustments after replacement.

- Xenon lamp life monitoring

Automatically record the service life of the xenon lamp, and remind the operator to replace the xenon lamp in time when it expires

- Support attachment expansion

Solid sample holder and filter accessories can be used to expand functions

- Support offline scanning to achieve perfect presentation of maps

Large-size blue-ray LCD (320*240 pixels) display can display clear spectra; full keyboard numeric input can provide a better human-machine operation interface, making testing more convenient and faster

- 3Q certification service

Provide professional 3Q certified installation services

Technical Specifications:

Model	FSP-180
Test function	fluorescence, luminescence
Test items	Wavelength scan, time scan, photometry
Sensitivity (P-P)	>150:1 water Raman peak
Wavelength accuracy	±1.0 nm
Wavelength Repeatability	≤0.5nm
light source	150W high-intensity long-life high-pressure xenon lamp (imported light source, automatic deozone)
Monochromator	EX: Precision narrowband low background interference filter; EM: Concave holographic grating, 1200L/mm
Wavelength range	EX: Standard 365nm (200~800nm optional); EM: 200~900 nm
Spectral bandwidth	EX: 10.0 nm, EM: 10.0 nm
Wavelength scan speed	30; 60; 120; 240; 1200; 12000; 30000 nm/min
Scan interval	The minimum distance is 0.2nm, the maximum distance is 1.0nm
Response time	4 milliseconds to 8 seconds (8 levels adjustable)
light blocking shutter	Yes
Gated shutter	Yes
Minimum sample size	0.5mL (10mm standard cuvette)
Photometric range	-9999~9999
Way of working	Online/Offline
transfer method	USB2.0
Print function	Support online/offline printing
Power supply	220V/50Hz, 110V/60Hz
Size and weight	600mm*450mm*335mm; about 33kg

7. FSP-280 fluorescence spectrophotometer

Instrument introduction:

The FSP-280 fluorescence spectrophotometer is a mid-range research-type molecular fluorescence product launched by SHUOBODA. The product has stable performance and powerful functions. The internal optical design makes the product more outstanding in precision and repeatability indicators. It is an ideal choice for universities and scientific research institutions. A good assistant for institutions, quality inspection agencies and other related industries

Product features:

(1) Bringing together a variety of spectroscopic technologies

- High-density screw sub-scanning mechanism

The monochromator adopts an imported high-precision screw sub-scanning mechanism and a multi-CPU motor control system to achieve high-precision and high-repeatability spectral scanning.

- Three-dimensional scanning, rapid fluorescence positioning

The fluorescence three-dimensional scanning function can quickly locate the fluorescence information of unknown samples and improve work efficiency. Colorful three-dimensional spectra can add artistic color to academic papers

- Protection of photolyzed samples

The built-in light cutter function can effectively shorten the exposure time of the sample under the excitation beam. The shortening of the sample exposure time can

Protect samples prone to photoreaction and improve the analysis accuracy of continuous experiments

(2) High sensitivity, high speed and high reliability

- Fewer sample requirements

The unique horizontal slit design is applied to both the excitation and emission beams, improving detection sensitivity while reducing the amount of sample extraction required. A 10mm standard cuvette only requires 0.5mL sample.

- Unique light protection system

The transmitting side is equipped with a gated shutter to prevent the receiver from being exposed to direct light and extend the service life of the receiver.

(3) Excellent ease of use

- Double background subtraction

The software workstation has a dual background subtraction function. During sample testing, select different buttons according to different test backgrounds to achieve the purpose of subtracting your

own background. The software can directly calculate the fluorescence intensity and concentration of the solution to be tested.

- Rich fluorescent accessories

Can be equipped with a variety of practical accessories, from solid sample holders, automatic eight-link sample cell holders, water bath constant temperature magnetic stirring sample cell holders, polarization accessories to fluorescent water bath constant temperature systems, to help customers solve a variety of application analysis problems

- Audit tracking function

The supporting software of the instrument has the function of "three-level management authority" and meets the testing requirements of the National Pharmacopoeia.

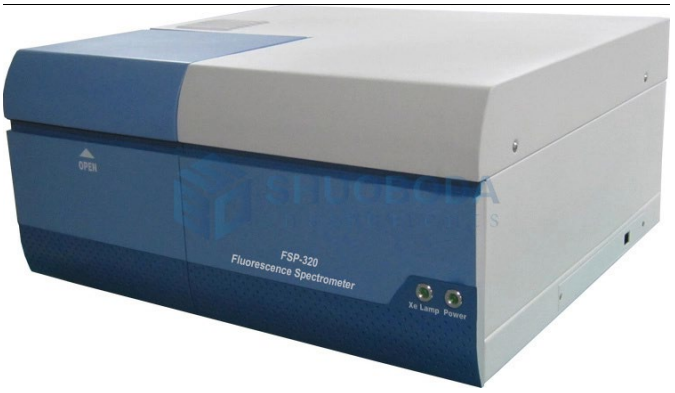
- 3Q certification service

Provide professional 3Q certified installation services

Technical Specifications:

Model	FSP-280
Test function	fluorescence, luminescence
Test items	Wavelength scan, time scan, photometry, three-dimensional scan
Sensitivity (P-P)	>150:1 water Raman peak
Wavelength accuracy	±0.4 nm
Wavelength Repeatability	≤0.2nm
light source	150W high-intensity long-life high-pressure xenon lamp (imported light source, automatic deozone)
monochromator	EX and EM: concave holographic grating, 1200L/mm
Wavelength range	EX and EM: 200~760 nm and zero-order light (can be expanded to 200~900nm by replacing the special photomultiplier tube)
Spectral bandwidth	EX: 1.0; 2.5; 5.0; 10.0; 20.0 nm EM: 1.0; 2.5; 5.0; 10.0; 20.0 nm
Wavelength scan speed	30; 60; 240; 1200; 2400; 3000 nm/min
Scan interval	The minimum distance is 0.2nm, the maximum distance is 1.0nm
Response time	4 milliseconds to 8 seconds (8 levels adjustable, automatic response)
light blocking shutter	Yes
Gated shutter	Yes
Minimum sample size	0.5mL (10mm standard cuvette)
Photometric range	-9999~9999
Way of working	online
transfer method	USB2.0
Print function	Support online printing
size and weight	670mm*540mm*310mm; about 45kg

8. FSP-320 fluorescence spectrophotometer



Instrument introduction:

The FSP-320 fluorescence spectrophotometer is a mid-to-high-end research-type molecular fluorescence product launched by SHUOBODA Company. Its core components are all selected from well-known foreign suppliers. The product has stable performance and powerful functions. It is widely used in food safety testing, materials research, Environmental monitoring and other fields

Product features:

(1) Advanced spectroscopy technology

High-speed three-dimensional scanning and rapid fluorescence positioning

The fluorescence three-dimensional scanning function can quickly locate the fluorescence information of unknown samples. High-speed scanning can shorten the analysis time of unknown samples and improve work efficiency. Colorful three-dimensional spectra can add artistic color to academic papers

(2) High sensitivity, high speed and high reliability

- Fewer samples required

The unique horizontal slit design is applied to both the excitation and emission beams, improving detection sensitivity while reducing the amount of sample extraction required. A 10mm standard cuvette only requires 0.5mL sample.

- High-quality high-speed scanning

The scanning speed is as high as 30000nm/min. Combined with the advanced data acquisition system, rich data points can be obtained during high-speed scanning to ensure the authenticity and accuracy of the test spectrum.

- Unique light protection system

The transmitting side is equipped with a gated shutter to prevent the receiver from being exposed to direct light and extend the service life of the receiver.

(3) Excellent ease of use

- Double background subtraction

The software workstation has a dual background subtraction function. During sample testing, select different buttons according to different test backgrounds to achieve the purpose of subtracting your own background. The software can directly calculate the fluorescence intensity and concentration of the solution to be tested.

- Rich fluorescent accessories

Can be equipped with a variety of practical accessories, from solid sample holders, automatic eight-link sample cell holders, water bath constant temperature magnetic stirring sample cell holders, polarization accessories to fluorescent water bath constant temperature systems, to help customers solve a variety of application analysis problems

- Audit trail function

The supporting software of the instrument has the function of "three-level management authority" and meets the testing requirements of the National Pharmacopoeia.

- 3Q certification service

Provide professional 3Q certified installation services

Technical Specifications:

Model	FSP-320
test function	fluorescence, luminescence
Test items	Wavelength scan, time scan, photometry, three-dimensional scan
Sensitivity (P-P)	>150:1 water Raman peak
Wavelength accuracy	±2.0 nm
Wavelength Repeatability	≤1.0nm
light source	150W high-intensity long-life high-pressure xenon lamp (imported light source, automatic deozone)
monochromator	EX and EM: concave holographic grating, 1200L/mm
Detector	Photomultiplier tubes imported from Japan Hamamatsu
Wavelength range	EX and EM: 200~760 nm and zero-order light (can be expanded to 200~900nm by replacing special photomultiplier tube)
Spectral bandwidth	EX: 1.0; 2.5; 5.0; 10.0; 20.0 nm EM: 1.0; 2.5; 5.0; 10.0; 20.0 nm
Wavelength scan speed	30; 60; 120; 240; 1200; 2400; 12000; 30000 nm/min
Scan interval	The minimum distance is 0.2nm, the maximum distance is 1.0nm
Response time	4 milliseconds to 8 seconds (8 levels adjustable, automatic response)
Gated shutter	have
Minimum sample size	0.5mL (10mm standard cuvette)
Photometric range	-9999~9999
Way of working	online
transfer method	USB2.0
Print function	Support online printing
power supply	220V/50Hz, 110V/60Hz
size and weight	620mm*550mm*295mm; about 48kg
support system	Windows 7, Windows 10

9. FSP-380 fluorescence spectrophotometer

Instrument introduction:

The FSP-380 fluorescence spectrophotometer is a high-end research-type molecular fluorescence product independently developed by SHUOBODA. It can realize high-speed three-dimensional scanning and phosphorescence testing. Its core components are all selected from well-known foreign suppliers. The product performance is stable and powerful. It's easy to operate, and its main indicators such as sensitivity and signal-to-noise ratio have reached the level of similar foreign products. It is widely used in food safety testing, materials research, environmental monitoring and other fields. It is suitable for customers with a wide range of sample testing and high-performance index requirements.

Product features:

(1) Bringing together a variety of spectroscopic technologies

- Unique shining holographic concave grating optical system

It has lower stray light, higher resolution (1200L/mm), and better test resolution (better than 1.0nm).

- Unique chopper system structure

The chopper system adopts a unique design structure, and the control system uses multi-CPU division of labor and collaboration to achieve high-precision control of the chopper system and ensure the accuracy of phosphorescence measurement. Phosphorescence measurement takes advantage of the long life of phosphorescence to completely avoid the interference of Rayleigh light, Raman light and stray light. It is the most effective trace measurement method.

- Phosphorescence measurement

Measures phosphorescence lifetimes as short as 1ms and can be applied to a variety of sample types

- High-speed three-dimensional scanning and rapid fluorescence positioning

The fluorescence three-dimensional scanning function can quickly locate the fluorescence information of unknown samples. High-speed scanning can shorten the analysis time of unknown samples and improve work efficiency. Colorful three-dimensional spectra can add artistic color to academic papers

- Synchronous fluorescence method

It can realize constant wavelength synchronous fluorescence spectrum scanning of the tested sample. Constant wavelength synchronous scanning can reduce the overlapping phenomenon of fluorescence peaks when measuring multi-component samples, narrow the spectrum and reduce the influence of scattered light.

(2) High sensitivity, high speed and high reliability

- High sensitivity

The unique optical system design, combined with digital signal processing technology, can achieve a signal-to-noise ratio of more than 250:1 (P-P), easily meeting the testing needs of high-resolution and ultra-trace samples.

- Fewer samples required

The unique horizontal slit design is applied to both the excitation and emission beams, improving detection sensitivity while reducing the amount of sample extraction required. A 10mm standard cuvette only requires 0.5mL sample.

- High-quality high-speed scanning

The scanning speed is as high as 30000nm/min. Combined with the advanced data acquisition system, rich data points can be obtained during high-speed scanning to ensure the authenticity and accuracy of the test spectrum.

- Unique light protection system

The excitation side is equipped with a light-blocking shutter to reduce sample exposure time and protect photosensitive samples; the emission side is equipped with a gated shutter to prevent the receiver from being directly exposed to strong light and extend the service life of the receiver.

(3) Excellent ease of use

- Double background subtraction

The software workstation has a dual background subtraction function. During sample testing, select different buttons according to different test backgrounds to achieve the purpose of subtracting your own background. The software can directly calculate the fluorescence intensity and concentration of the solution to be tested.

- Rich fluorescent accessories

Can be equipped with a variety of practical accessories, from solid sample holders, automatic eight-link sample cell holders, water bath constant temperature magnetic stirring sample cell holders, polarization accessories to fluorescent water bath constant temperature systems, to help customers solve a variety of application analysis problems

- Audit trail function

The supporting software of the instrument has the function of "three-level management authority" and meets the testing requirements of the National Pharmacopoeia.

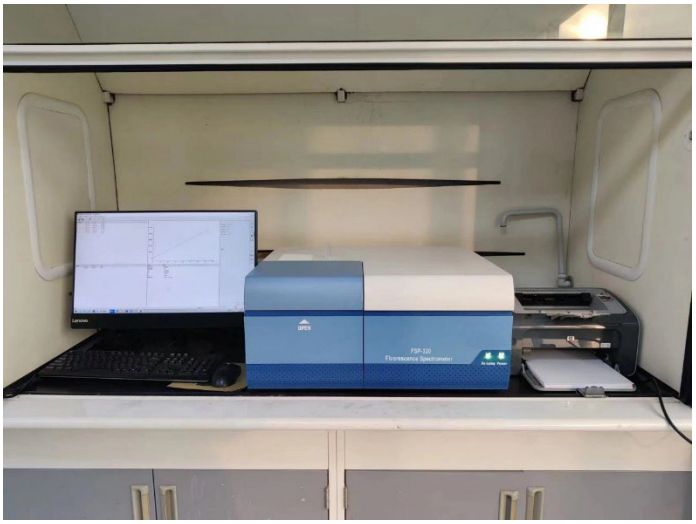
- 3Q certification service

Provide professional 3Q certified installation services

Technical Specifications:

Model	FSP-380
Test function	Fluorescence, phosphorescence, luminescence
Test items	Wavelength scan, time scan, photometry, three-dimensional scan
Sensitivity (P-P)	>250:1 water Raman peak
Wavelength accuracy	±2.0 nm
Wavelength Repeatability	≤0.5nm
light source	150W high-intensity long-life high-pressure xenon lamp (imported light source, automatic deozone)
monochromator	EX and EM: concave holographic grating, 1200 L/mm
Wavelength range	EX and EM: 200~760 nm and zero-order light (can be expanded to 200~900nm by replacing the special photomultiplier tube)

Spectral bandwidth	EX: 1.0; 2.5; 5.0; 10.0; 20.0 nm EM: 1.0; 2.5; 5.0; 10.0; 20.0 nm
Wavelength scan speed	30; 60; 120; 240; 1200; 2400; 12000; 30000 nm/min
Scan interval	The minimum distance is 0.2 nm, the maximum distance is 1.0 nm
Response time	4 milliseconds to 8 seconds (8 levels adjustable, automatic response)
light blocking shutter	Yes
Gated shutter	Yes
Minimum sample size	0.5mL (10mm standard cuvette)
Photometric range	-9999~9999
Way of working	online
transfer method	USB2.0
Print function	Support online printing
size and weight	670mm*540mm*320mm; about 48kg



10.FSP-390 fluorescence spectrophotometer

Instrument introduction:

The FSP-390 fluorescence spectrophotometer is a high-end research molecular fluorescence product that can achieve high-speed three-dimensional scanning and phosphorescence testing. Its core components are selected from well-known foreign suppliers. The product has stable performance, powerful functions, easy operation, sensitivity, the main indicators such as signal-to-noise ratio have reached the level of similar foreign products, and are widely used in teaching and scientific research, food safety testing, materials research, environmental monitoring and other fields. It is suitable for customers with a wide range of sample testing and high-performance index requirements.

Product features:

(1) Bringing together a variety of spectroscopic technologies

- Unique shining holographic concave grating optical system

It has lower stray light, higher resolution (1200L/mm), and better test resolution (better than 1.0nm).

- Unique chopper system structure

The chopper system adopts a unique design structure, and the control system uses multi-CPU division of labor and collaboration to achieve high-precision control of the chopper system and ensure the accuracy of phosphorescence measurement. Phosphorescence measurement takes advantage of the long life of phosphorescence to completely avoid the interference of Rayleigh light, Raman light and stray light. It is the most effective trace measurement method.

- Phosphorescence measurement

Measures phosphorescence lifetimes as short as 1ms and can be applied to a variety of sample types

- High-speed three-dimensional scanning and rapid fluorescence positioning

The fluorescence three-dimensional scanning function can quickly locate the fluorescence information of unknown samples. High-speed scanning can shorten the analysis time of unknown samples and improve work efficiency. Colorful three-dimensional spectra can add artistic color to academic papers

- Synchronous fluorescence method

It can realize constant wavelength synchronous fluorescence spectrum scanning of the tested sample. Constant wavelength synchronous scanning can reduce the overlapping phenomenon of fluorescence peaks when measuring multi-component samples, narrow the spectrum and reduce the influence of scattered light.

(2) High sensitivity, high speed and high reliability

- High sensitivity

The unique optical system design, combined with digital signal processing technology, can achieve a signal-to-noise ratio of more than 300:1 (P-P), easily meeting the testing needs of high-resolution and ultra-micro samples.

- Fewer samples required

The unique horizontal slit design is applied to both the excitation and emission beams, improving detection sensitivity while reducing the amount of sample extraction required. A 10mm standard cuvette only requires 0.5mL sample.

- High-quality high-speed scanning

The scanning speed is as high as 60000nm/min. Combined with the advanced data acquisition system, rich data points can be obtained during high-speed scanning to ensure the authenticity and accuracy of the test spectrum.

- Unique light protection system

The excitation side is equipped with a light-blocking shutter to reduce sample exposure time and protect photosensitive samples; the emission side is equipped with a gated shutter to prevent the receiver from being directly exposed to strong light and extend the service life of the receiver.

(3) Automatic deozone function

Use long-life automatic deozone xenon lamp to ensure laboratory air quality; long-life xenon lamp to reduce the frequency of xenon lamp replacement

(4) Excellent ease of use

- Double background subtraction

The software workstation has a dual background subtraction function. During sample testing, select different buttons according to different test backgrounds to achieve the purpose of subtracting your own background. The software can directly calculate the fluorescence intensity and concentration of the solution to be tested.

- Rich fluorescent accessories

Can be equipped with a variety of practical accessories, from solid sample holders, automatic eight-link sample cell holders, water bath constant temperature magnetic stirring sample cell holders, polarization accessories to fluorescent water bath constant temperature systems, to help customers solve a variety of application analysis problems

- Audit trail function

The supporting software of the instrument has the function of "three-level management authority" and meets the testing requirements of the National Pharmacopoeia.

- 3Q certification service

Provide professional 3Q certified installation services

Technical Specifications:

Model	FSP-390

Test function	Fluorescence, phosphorescence, luminescence
Test items	Wavelength scan, time scan, photometry, three-dimensional scan
Sensitivity (P-P)	>300:1 water Raman peak
Wavelength accuracy	±1.0 nm
Wavelength Repeatability	≤0.5nm
light source	150W high intensity long life automatic deozone xenon lamp
monochromator	EX and EM: concave holographic grating, 1200 L/mm; EX and EM: 200~900 nm and zero-order light
Wavelength range	EX: 1.0; 2.5; 5.0; 10.0; 20.0 nm
Spectral bandwidth	EM: 1.0; 2.5; 5.0; 10.0; 20.0 nm
Wavelength scan speed	30; 60; 120; 240; 1200; 2400; 12000; 30000; 60000 nm/min
Scan interval	The minimum distance is 0.2 nm, the maximum distance is 1.0 nm
Response time	4 milliseconds to 8 seconds (8 levels adjustable, automatic response)
light blocking shutter	have
Gated shutter	have
Minimum sample size	0.5mL (10mm standard cuvette)
Photometric range	-9999~9999
Way of working	online
transfer method	USB2.0
Print function	Support online printing
size and weight	670mm*540mm*320mm; about 48kg

UV-Visible spectrophotometer

1. USP-759S/756S UV-Visible Spectrophotometer

The UV-visible spectrophotometer is a single-beam, wavelength-automatic scanning UV-visible spectrophotometer product developed by SHUOBODA. It has the characteristics of exquisite structure, high-cost performance, rich and convenient instrument functions.

Features:

1. **Long-life Light Source:** dramatically reduce the cost of light source replacement and the frequency of maintenance.
2. **Low Stray Light:** ensure the stray light lower than 0.05% to meet clients' need when they want to test high absorbance sample.
3. **High Wavelength Accuracy: ensure the accuracy and long-term stability.**
4. **Wide Wavelength Range: meet the needs of most spectrophotometric test.**
5. **High-speed Scanning: help user to capture the instantaneous spectrum change of** sample and improve the work efficiency.
6. **Auto-matching Function of Cuvettes: decrease the deviation occurred by the** difference of cuvettes when process quantity measurement.
7. **High Photometric Accuracy: ensure that the measurement of optical light path to** meet the design requirements, improve process efficiency of the Assembly to achieve high precision photometry testing index.
8. **Offline U disk storage:** make it easy for user to manage data in the format like Excel and etc.
9. **USB ports:** User needn't set any parameter to enable online communication while the RS232 serial port have to set it.
10. **Various offline quantitative measurement function:** Electronic System use 32 bits ARM core processor system, equipped with 128*64 big screen LCD, offline quantitative measurement could do multi wavelength test, Standard curve fitting and measurement, standard coefficient equation input, save and load standard equation, data storage and printing, quantitative measurement of concentration.
11. **Powerful Software Function:** Software could achieve spectrum scanning, time scanning, dynamic scanning, quantitative measurement, multi wavelength analysis and formula calculation, spectrum processing, find peak and valley, print data, DNA/RNA test, instrument calibration, performance verification and etc. to meet different needs in various analysis fields.

Specifications:

Model	USP-756S	USP-759S
Optical system:	Diffraction grating C-T monochromator	Diffraction grating C-T monochromator
Light source:	Deuterium lamp (500 hours), tungsten lamp	Japan's Hamamatsu long-life and highly stable deuterium lamp (2000 hours), long-life tungsten lamp
Wavelength Range	190nm~1100nm	
Wavelength Accuracy	±0.5nm	
Wavelength Repeatability	≤0.2nm	
Bandwidth	2nm	
Photometry Accuracy	±0.5%T	±0.3%T
Photometry Repeatability	≤0.2%T	≤0.15%T
Stray Light	≤0.1%T(220nm, NaI)	≤0.05%T(220nm, NaI)
Baseline Flatness	±0.002A	
Stability	≤0.0008A	
Noise	≤0.3%T(100%T), ≤0.1%T(0%T)	
Photometry Range	0.0~200%(T),-0.3~4(A)	
Display System	128*64 LCD Display	
Functional Port	USB-A(U Disk), USB-B(PC), Serial Port(Printer)	
Instrument Dimension	370mm×357mm×220mm	370mm×440mm×220mm
Weight	N.W.: 9KG; G.W.: 10KG	

Standard configuration:

Main instrument	1
Power cable	1
User's manual	1
Certification	1
Fuse(2A)	2
1cm Rectangle sample cell (Quartz)	2
1cm Rectangle sample cell (Glass)	4
1cm Sample cell holder (in the instrument)	1
Warranty card	1
USB flash drive	1
Software (Only for PC version)	1
USB cable (Only for PC version)	1

Optional items:

Optional accessory items	Specification
Rectangular cuvette (glass)	1cm, 2cm, 3cm, 5cm
Rectangular Colorimetric Blood (Quartz)	1cm, 2cm, 3cm, 5cm
5cm light diameter colorimetric blood stand	
operating software (CD)	
USB communication cable	
computer	
praseodymium neodymium filter	

Holmium Oxide Filter
Fuse(2A/3A)
Deuterium lamp, tungsten lamp
Other accessories

2. USP-752S UV-Vis Spectrophotometer

Function

USP-752S UV-Visible spectrophotometer is a concise easy-operated general use spectrophotometric instrument, it can measure transmittance, absorbance and direct reading within the wavelengths of 190nm~1100nm, Wavelength regulated by button, the 2nm bandwidth can satisfy almost all metered tests request, adopt the Japanese Hamamatsu original L2D2 long life, high brightness, high stable Lamp Combination& technology can reduce the maintenance and lower the customer usage cost.
This instrument is widely used in medical science and hygiene, clinical analysis, biochemistry, petroleum chemical industry, environmental monitoring and quality control department for qualitative and quantitative analyses

Features

1. Optical system: Diffraction grating C-T monochromator;
2. Light source: the series of L2D2 of Japanese Hamamatsu original L2D2 long life (above 3000 hours), high brightness, high stable deuterium lamp and long life (above 10000 hours)tungsten lamp; high stable & credibility of light source with patent technical Combination;
3. Receiver: Hamamatsu1226 UVR receiver
4. 4RS-232C serial port interface attached, Optional serial printer; Data processing software& Optional serial printer are attached;
5. Wavelength regulated by button; Concentration factor setting and direct read-out ability;
6. Auto-zero and auto-100%(T)adjustment;
7. Large sample compartment, 4-positions sample cuvette rack, optional 5cm optical length rectangular cuvettes.

Specifications

Model	USP-752S
Optical system	Japanese Hamamatsu gas lamp (2000 hours life) + tungsten lamp
Wavelength range	190nm~1100nm

Wavelength accuracy	±2.0 nm
Wavelength Repeatability	≤0.5nm
bandwidth	2nm
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T
stray light	≤0.2%T
Photometric range	0.0~199.9(T)，-0.3-2.999(A)
Dimensions(mm)	370mmX 320mmX 240mm
weight	7.5kg

Standard Parts List:

1.USP-752S 1 set
2. Power cable 1 pc
3. Instruction manual 1 copy
4.Quality certificate of product 1copy
5.Fuses (2A) 2 pcs
6.1cm rectangular cuvette(glass) 2 boxes (4 pcs)
7.1cm rectangular cuvette(quartz)1 box(2 pcs)
8.1cm optical path cuvette rack(LG5.084.001)1 pair
9. Packing list 1 copy

Optional Accessories and Spare Parts:

1. Fuse(2A/3A)
2. Rectangular cuvette 1/2/3/5cm(glass), 1cm(quartz hermetical)
3. 5cmoptical path cuvette rack (LG5.084.005)
4. Data processing software package(set) (for personal computer)
5. RS-232C serial port cord
6. Optional serial printer
7. Praseodymium-neodymium optical filter
8. Holmium oxide optical filter

3. USP-752Pro UV-visible spectrophotometer

The UPS-752 series UV-Vis spectrophotometer is a simple and easy-to-use general-purpose instrument for spectrophotometry. It can perform direct reading measurement of transmittance, absorbance and concentration in the range of 190-1100nm, as well as concentration factor setting. The wavelength is manually adjusted, and the 2nm bandwidth can be adjusted.

It can meet almost all quantitative testing requirements, and can be widely used in medical and health, clinical testing, biochemistry, petrochemical, environmental monitoring, quality control and other departments for qualitative and quantitative analysis.

Features

- The whole machine base and parts are made of aluminum alloy die-casting, and the quality and reliability of the instrument are guaranteed.
- High-quality C-T grating monochromator, precision grating and aspherical mirror optical components, excellent optical performance.
- Adopting the patented technology of combined light source, UPS-752S uses a deuterium lamp with high stability, high brightness and a working life of not less than 2000 hours imported from Hamamatsu, Japan. For deuterium lamps with a working life of less than 500 hours, UPS-752S and UPS-752Pro use UV receivers from Hamamatsu, Japan, which greatly improves the stability and reliability of the instrument.
- Pre-calibrated light source and spectral energy correction system, which is convenient for users to replace and maintain the instrument.
- Ultra-low stray light, excellent UV metering accuracy, the instrument has better cost performance.
- The RS232 serial communication interface can be equipped with a special data processing software package to expand various data processing functions.
- The quality of the instrument is stable. It is characterized by simple and reliable use and high cost performance. It has a high brand awareness and share in the market. It is widely used in medical

and health, clinical testing, biochemistry, petrochemical, environmental monitoring, quality control, etc. Department for qualitative and quantitative analysis.

Specifications

Model	USP-752Pro
Optical system	Diffraction grating C-T monochromator
light source	Deuterium lamp (500 hours life) + tungsten lamp
Wavelength range	190nm~1100nm
Wavelength accuracy	±2.0 nm
Wavelength Repeatability	≤0.5nm
bandwidth	2nm
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T
stray light	≤0.2%T
Noise	≤0.2%T (0% line), ≤0.5%T (100% line)
Photometric range	0.0~199.9(T)，-0.3-2.999(A)
Dimensions(mm)	370mmX 320mmX 240mm
weight	7.5kg

Standard Parts List:

1.USP-752S 1 set
2. Power cable 1 pc
3. Instruction manual 1 copy
4.Quality certificate of product 1copy
5.Fuses (2A) 2 pcs
6.1cm rectangular cuvette(glass) 2 boxes (4 pcs)
7.1cm rectangular cuvette(quartz)1 box(2 pcs)
8.1cm optical path cuvette rack(LG5.084.001)1 pair
9. Packing list 1 copy

Optional Accessories and Spare Parts:

9. Fuse(2A/3A)
10. Rectangular cuvette 1/2/3/5cm(glass), 1cm(quartz hermetical)
11. 5cmoptical path cuvette rack (LG5.084.005)
12. Data processing software package(set) (for personal computer)
13. RS-232C serial port cord
14. Optional serial printer
15. Praseodymium-neodymium optical filter
16. Holmium oxide optical filter

4. USP-1900 series double beam UV-visible spectrophotometer 190nm～1100nm, 1nm, 2nm

Introduction:

The USP-1900 series double-beam UV-visible spectrophotometer adopts rigorous precision double-beam optical system and circuit control system design. The high-quality instrument determines its high standards of accuracy, repeatability, low noise and low stray light indicators, as well as excellent stability and linear range.

Instrument features

- With rigorous design of precision double-beam optical system and circuit control system, the instrument has high standards of accuracy, repeatability, low noise and low stray light indicators, as well as excellent stability and linear range.
- There are two bandwidth configurations, 1nm and 2nm, suitable for different user choices.
- The instrument uses German Heraeus high-quality pre-adjusted deuterium lamps and OSRAM long-life tungsten halogen lamps to facilitate light source replacement.
- The large-screen 6-inch 320×240 dot matrix digital LCD display with backlight makes the operation of the instrument easy and intuitive.
- The sample chamber is designed with a detachable structure. Users can choose measurement accessories such as reflection sample holders and solid sample holders to meet the analysis and testing needs in different application fields.
- The Chinese and English operating software developed under Windows environment provides a rich and unique analysis system, including data collection (single point, multi-point measurement, spectrum scanning, quantitative measurement, time scanning and DNA measurement) and various data processing. Help complete analysis and research in many fields, from routine quality control to environmental protection, biochemistry, medicine and health, materials, etc.
- Special measurement accessories (optional): USP-1900 long optical path sample holder, USP-1900 seven-unit cell, USP-1900 four-unit cell, USP-1900 reflection rack, USP-1900 solid sample holder.
- Wide range of application fields: scientific research, teaching and research institutions, environmental monitoring, petrochemical industry, health and epidemic prevention, geological

survey, water quality analysis, agriculture, forestry, animal husbandry and fishery, manufacturing, etc.

Technical specifications:

Model	USP-1901	USP-1902
light source	Imported Hamamatsu deuterium lamp, imported tungsten lamp	
Wavelength range	190nm～1100nm	
Spectral bandwidth	1nm	2nm
Wavelength accuracy	±0.3nm	
Wavelength Repeatability	≤0.1nm	
Photometric range	-4A～4A	
Transmittance accuracy	±0.3% (T) (0～100%T), ±0.002A (0～0.5A), ±0.004A (0.5～1A)	
Transmittance repeatability	≤0.001A (0～0.5A), ≤0.002A (0.5～1A)	
stray light	≤0.03%(T)(220nm,NaI)	
Baseline straightness	±0.0008A	±0.001A
drift	≤0.0004A/h	
noise	±0.0003A	
baseline correction	Implement baseline correction and save correction data through computer software	
Communication Interface	RS232	
Display method	6-inch 320×240 dot matrix digital LCD display with backlight	
voltage	110/220V 50/60Hz	
Instrument size	650×450×220mm	
weight	21kg	

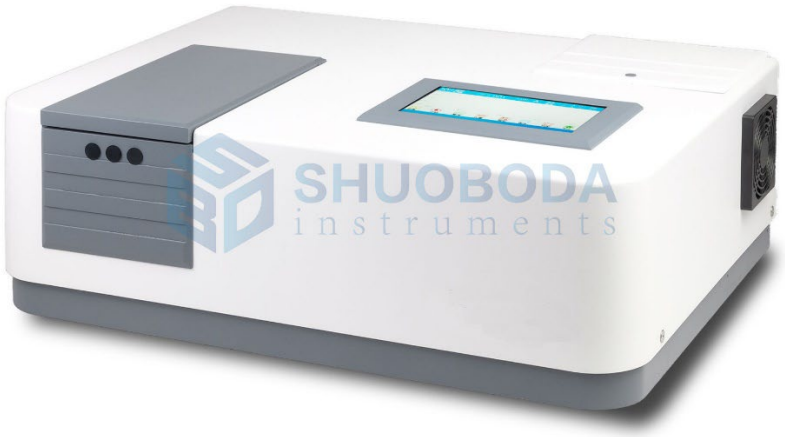
Standard configuration:

Main instrument	1
Power cable	1
User's manual	1
1cm Rectangle sample cell (Quartz)	2
1cm Rectangle sample cell (Glass)	4
1cm Sample cell holder (in the instrument)	1
Warranty card	1
Dust cover	1

Optional items:

Optional accessory items	Specification
Glass (quartz) cuvette	1cm, 2cm, 3cm, 5cm,10cm
long light path sample holder	
seven-joint pool	
quadruple pool	
reflective stand	
solid sample holder	

5. USP-1910 double beam UV-visible spectrophotometer 190nm～1100nm, 1nm



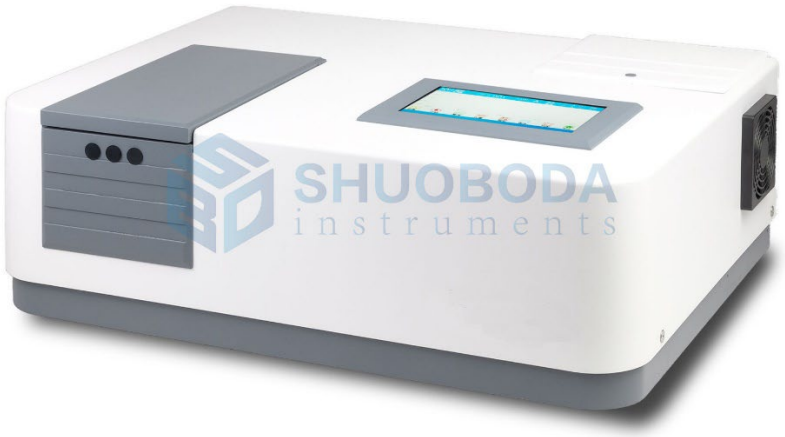
Introduction:

The USP-1910 double-beam UV-visible spectrophotometer adopts rigorous precision double-beam optical system and circuit control system design. The high-quality instrument determines its high standards of accuracy, repeatability, low noise and low stray light indicators, as well as excellent stability and linear range.

Technical Specifications:

Model	USP-1910
Optical system	Optical double beam
Wavelength range	190nm-1100nm
Spectral bandwidth	1nm
Baseline straightness	±0.0008A
light source	Japan's Hamamatsu long-life gas lamp, imported long-life tungsten halogen lamp
Detector	Imported silicon photovoltaic cells
Display	7-inch large color touch LCD screen

6. USP-1920 double beam UV-visible spectrophotometer 190nm～1100nm, 2nm



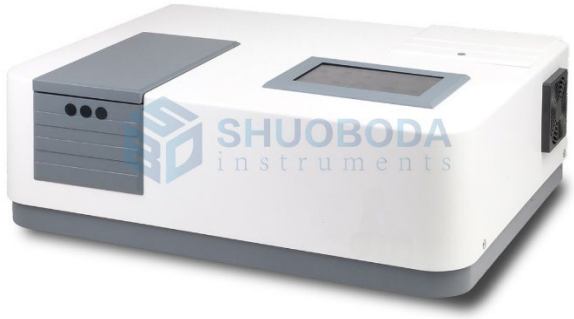
Introduction:

The USP-1910 double-beam UV-visible spectrophotometer adopts rigorous precision double-beam optical system and circuit control system design. The high-quality instrument determines its high standards of accuracy, repeatability, low noise and low stray light indicators, as well as excellent stability and linear range.

Technical Specifications:

Model	USP-1920
Optical system	Optical double beam
Wavelength range	190nm-1100nm
Spectral bandwidth	1nm
Baseline straightness	±0.0008A
light source	Japan's Hamamatsu long-life gas lamp, imported long-life tungsten halogen lamp
Detector	Imported silicon photovoltaic cells
Display	7-inch large color touch LCD screen

7. USP-7600 double-beam UV-visible spectrophotometer, 190nm~1100nm, 0.5nm~6nm



Introduction

USP-7600 double-beam UV-visible spectrophotometer is a high-performance photometer product developed by shuoboda, based on 25 years of experience in the research and development of spectroscopic instruments.

The product has the characteristics of high resolution, high stability, flexibility and ease of use, and can meet the needs of daily analysis in various laboratories and research and analysis in scientific research institutes.

Instrument features

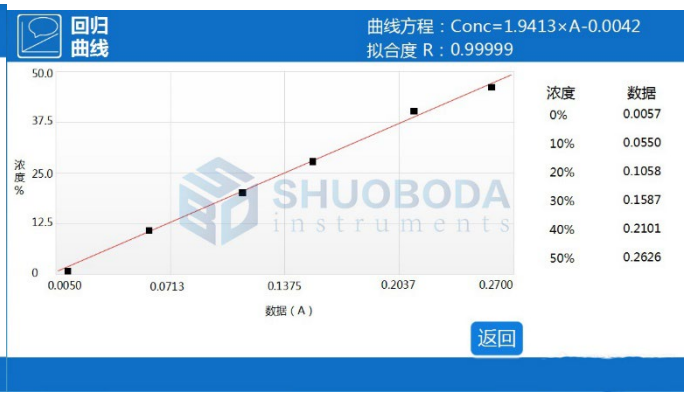
- **Continuously variable spectral bandwidth:** The spectral bandwidth of the instrument is continuously variable from 0.5nm to 6nm, with a minimum bandwidth of 0.5nm and a variable interval of 0.1nm. It not only ensures excellent spectral resolution, but also provides a variety of bandwidth options. Better match the analysis test target and further ensure the accuracy required for analysis.
- **Ultra-low stray light:** The excellent C-T monochromator optical system and advanced electronic system ensure ultra-low stray light levels better than 0.03%, meeting users' measurement needs for high-absorbance samples.
- **High-quality components:** The core components are all made of high-quality imported components to ensure the stability, reliability and long life of the instrument. For example, the core light source device is derived from the long-life deuterium lamp of Japan's HAMAMATSU, which guarantees a working life of more than 2,000 hours, greatly reducing the maintenance frequency and cost of daily replacement of the instrument's light source.
- **Long-term stability and reliability:** The optical double-beam optical system design, combined with real-time digital proportional feedback signal processing, effectively offsets the signal drift of light sources and other devices, ensuring the long-term stability of the instrument baseline.
- **High wavelength accuracy:** The high-level wavelength scanning mechanical system ensures wavelength accuracy better than 0.3nm and wavelength repeatability better than 0.1nm. The instrument uses the built-in spectral characteristic wavelength to automatically detect and correct the wavelength, ensuring long-term wavelength accuracy. stability.
- **Light source replacement is convenient:** the instrument can replace the light source without

removing the casing. The light source switching mirror supports the function of automatically finding the best position. The in-line deuterium and tungsten lamp design eliminates the need for optical debugging when maintaining and replacing the light source.

- **The stand-alone machine has rich functions:** The stand-alone machine is equipped with a 7-inch large-screen color touch LCD screen, which can perform wavelength scanning, time scanning, multi-wavelength analysis, quantitative analysis, etc. It supports method and data file storage. The files can be stored in a USB flash drive and can be used by a computer. View and print charts. Easy to use, flexible and efficient.
- **The online software is powerful:** the instrument is connected to the computer via USB. The online software supports wavelength scanning, time scanning, kinetic testing, quantitative analysis, multi-wavelength analysis, DNA/RNA analysis, instrument calibration, performance verification and other functions. Supports user rights management and operation traceability functions to meet various requirements in different analysis fields such as pharmaceutical companies.
- **Rich accessory support:** The instrument can be configured with a 6-cell or 8-cell automatic sample rack, supports cuvette specifications from 1mm to 100mm optical path length, and supports spectral testing of various sample forms such as film samples.

Interfaces (English is available)

Wavelength Scan



Regression Curve

Technical specifications:

Model	USP-7600
Optical system	Double beam
monochromator system	Czerny-Turner monochromator
grating	1200 lines/mm high quality holographic grating
Wavelength range	190nm~1100nm
Spectral bandwidth	0.5nm~6nm continuously variable (0.1nm interval)
Wavelength accuracy	±0.3nm
Wavelength Repeatability	≤0.1nm
Transmittance accuracy	±0.3%
Transmittance repeatability	≤0.1%
stray light	≤0.03%
noise	≤0.1%T (100%T), ≤0.05%T (0%T)
Baseline straightness	±0.0008A
baseline dark noise	±0.1%T

drift	≤0.0005Abs/h
Metering method	transmittance, absorbance, energy
Photometric range	-0.00~200.0 (%T) -4.0~4.0 (A)
Scan speed	High/medium/low/extremely low, four levels adjustable
Wavelength scan interval	0.05/0.1/0.2/0.5/1/2 nm
light source	Japan's Hamamatsu long-life deuterium lamp, imported long-life tungsten halogen lamp
light source conversion	Automatic switching, the conversion mirror automatically finds the best position
Detector	Imported silicon photovoltaic cells
show	7-inch large color touch LCD screen
Data interface	Stand-alone U disk storage/USB computer connection
power supply	AC90V~250V, frequency 50Hz (or 60Hz)
size	600×475×220mm
weight	18kg

Instrument functions

- **Photometric measurement:** can measure absorbance, transmittance and concentration direct reading, etc.
- **Wavelength scanning:** Customize the wavelength scanning range, scanning interval, scanning speed, etc.
- **Time scan:** can measure the change curve of the sample over time.
- **Multi-wavelength test:** supports automatic test of multiple wavelength photometrics
- **Quantitative analysis:** Supports quantitative analysis such as fully automatic standard curve method and coefficient input method.
- **File storage:** A single machine supports U disk storage of method files and data files.
- **Kinetic testing:** Supports kinetic analysis methods.
- **Data security:** Supports user authority control, and the entire instrument operation can be traced.
- **Other functions:** Support report printing, map processing, etc.

8. USP-1200 UV-Vis Spectrophotometer, 200-1000nm, 4nm

USP-1200 UV-VIS spectrophotometer is the ideal instrument for education and QC laboratories. Using your standard sample solutions, you can get a standard curve on the large LCD screen, easy for photometric analysis, quantitative analysis and dynamic testing. It is widely used in colleges and enterprises for general quantitative analysis and experiments.

Features

- 128 × A 64 bit dot matrix LCD display that can directly display standard curves, curve equations and their correlation coefficients, 200 sets of test data, and can work with thermal, stylus and other types of printers
- Save 100 standard curves, and load the curve at any time.
- Connect to PC by USB port, control the instrument by PC software
- The unique optical system, 1200/mm gratings, and detectors ensure excellent performance
- Automatic wavelength calibration, automatic wavelength setting, and automatic light source switching
- Control deuterium lamp and tungsten lamp separately
- Spacious sample room that can accommodate various sizes of cuvettes ranging from 5 to 100mm
- Slot type deuterium and tungsten lamps save the trouble of adjustment during lamp replacement

Specifications

Model	USP-1200
Wavelength Range	200-1000nm
Spectral Bandwidth	4nm
Detector	Silicon photodiode
Display	128×64 LCD screen
Mode	Absorbance, Transmittance, Energy
Light Source	Tungsten lamp & Deuterium lamp

Keyboard	Touch button
Output	USB Port
Printer	Parallel Port
Dimension(L*W*H)	480*360*210mm
Weight	12kg

9. USP-5100 UV/VIS Spectrophotometer, 190-1000nm,2nm

Product Introduction: 5100 series include 2 models classic models that with VSP-5100 works in visible range and USP-5100 works in UV/VIS range.

Features

1. 2.5' LCD screen

USP-5100 is equipped with a 2.5 LCD screen to give a clear display of standard curves and groups of results.

2. Standard curve

USP-5100 can set up various standard curves according to customer's solutions and find the concentration of unknown solutions.

3. Multiple results readout

USP-5100 can display wavelength, absorption and transmittance with 5 results per screen. It also has a memory store of up to 200 results.

4. Auto setting wavelength

Users set wavelength automatically through arrow keys to avoid operation errors.

5. Imported deuterium lamp

USP-5100 is equipped with imported deuterium lamp which ensures low stray light, photometric accuracy and is easy to be replaced.

6. Data output

USP-5100 is equipped with USB port to connect with a PC to display spectrum scanning, kinetics and multi wavelength testing results on the screen.

Technical Specification

Model	USP-5100
Optical System	Single beam, Grating 1200 lines/mm
Wavelength Range	190-1000nm
Bandwidth	2nm

Wavelength Accuracy	±2nm
Wavelength Repeatability	0.5nm
Wavelength Setting	Auto
Photometric Accuracy	±0.5%T
Photometric Repeatability	≤0.2%T
Photometric Range	-0.3-3A, 0-200%T, 0-9999C
Photometric Mode	T, A, C, F
Stray Light	≤0.1%T
Stability	± 0.002A/h @ 500nm
Display	128*64 LCD
Detector	4-position 10mm cell changer
Light Source	Tungsten Lamp
Output	USB Port & Parallel Port (Printer)
Power Requirements	AC 85-250V
Dimension	420*280*180mm
Weight	10kg

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

10.USP-5100B UV/VIS Spectrophotometer, 190-1000nm,2nm

USP-5100B is a practical UV Visible Spectrophotometer, it' s upgraded from model USP-5100. The special designed inner structure ensures high stability and makes it easy to replace spare parts.

Features

1. Low stray light

USP-5100B is made of high-quality components with rigid structure which ensures low stray light.

2. Auto setting wavelength

Users can set wavelength automatically through arrow keys to avoid operation errors.

3. Stability and durability

USP-5100B users a rigid die-cast aluminum base as its optical mount to ensure instrument stability and r eliability.

4. Data output

USP-5100B is equipped with USB port to connected with a PC to display spectrum scanning, kinetics a nd multi wavelength testing results on the screen. The software is optional.

5. Standard curve

USP-5100B can set up various standard curves according to customer's solutions and find the concent ration of unknown solutions.

6. Multiple results readout

UV-5100B can display wavelength, absorption and transmittance with 5 results per screen.
It also has a memory store of up to 200 results.

Specifications

Model	USP-5100B
Optical System	Single beam, Grating 1200 lines/mm
Wavelength Range	190-1000nm
Bandwidth	2nm
Wavelength Accuracy	±1nm
Wavelength Repeatability	0.2nm

Wavelength Setting	Auto
Photometric Accuracy	±0.5%T
Photometric Repeatability	≤0.2%T
Photometric Range	-0.3-3A, 0-200%T, 0-9999C
Stray Light	≤0.05%T@220, 360nm
Stability	±0.001A/h @500nm
Display	128*64 Dots LCD
Detector	Silicon Photodiode
Standard Cell Holder	4-position 10mm cell changer
Light Source	Tungsten & Deuterium lamp
Output	USB Port & Parallel Port (Printer)
Power Requirements	AC 85~250V
Dimension	490*370*220mm
Weight	15kg

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

11.USP-5600/5800 UV-Vis Spectrophotometer, VSP-5600/5800 VIS Spectrophotometer

Introduction:

5600 and 5800 series include 4 models: VSP-5600，USP-5600，VSP-5800 and USP-5800.

Both series are designed with precision lead screw structure, it ensures extremely high wavelength accuracy.

The 5800 series which with advanced technical specification would be your best choice of single beam spectrophotometer

Features

1. Precision Lead Screw Structure

Designed with precision lead screw structure which highly improves wavelength accuracy and wavelength resolution.

2. Automatic Wavelength Setting

The wavelength could be set automatically through arrow keys to avoid misoperation.

3. Complete Numerical Keys

All parameters, like wavelength, concentration, etc. can be easily set by complete numerical keys

4. Easy Data Output

The USB port is used for PC connection to realize spectrum scanning, kinetics, multi-wavelength, etc. The Parallel port is used for micro printer connection to print data and standard curve directly. PC software and micro printer are optional.

5. 8mm-thick Optical Base

All optical components are fixed on an 8mm-thick rigid die-cast aluminum board which ensures high stability and reliability.

6. Imported Tungsten Lamp and Deuterium Lamp

The imported tungsten lamp and deuterium lamp reduce most stray light which ensures high photometric accuracy. The ultra-long service life and stable working status make device perform perfectly.

7. Standard Curve, Quick Establishing

Easy and quick to establish various standard curve according to different samples and find the concentration of unknown samples.

Technical specification

Model	VSP-5600/USP-5600	VSP-5800/USP-5800
Wavelength Range	320nm-1100nm/190-1100nm	320nm-1100nm/190-1100nm
Band Width	2nm	
Wavelength Accuracy	±0.5nm	
Wavelength Repeatability	≤0.2nm	
Wavelength Setting	Auto	
Photometric Accuracy	±0.3%T	±0.2%T
Photometric Repeatability	0.2%T	
Photometric Display Range	0-200%T, -0.3-3.0A,0-9999C	
Stability	0.002A/h @ 500nm	
Stray Light	≤0.05%T@220nm,360nm	
Data Output Port	USB&RS232	
Display	128*64 Dots LCD	
Light source	W Lamp/ W & D2 Lamp	
Detector	Silicon Photodiode	
Power Requirement	220V/50Hz or 110V/60Hz	
Dimension (L*W*H)	460*360*225mm	
Weight	16KG/18kg	

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

12.USP-6000 UV/VIS Spectrophotometer, 190-1100nm, 1.8nm

Introduction

USP-6000 spectrophotometer equipped with 6 inches LCD display, is an ideal and advanced analytical instrument for laboratory to realize wavelength scanning, Kinetics test, multi wavelength functions. All functions can be operated on spectrophotometer and can be read directly on the display.

Features

1. 6 inches LCD display

USP-6000 series has a 6 inches LCD display to show results and curves directly on the screen.

2. 8mm thick optical base

USP-6000 uses a rigid 8mm die-case aluminum base as its optical mount to ensure instrument stability and reliability.

3. Powerful functions

Multi functions like spectrum scanning, standard curve, kinetics, multi wavelength, DNA/RNA/ Protein testing can be operated directly on the spectrophotometer and all corresponding curves and data can be displayed directly.

4. Data output

USP-6000 is equipped with USB port to connect with a PC to display spectrum scanning, kinetics and multi wavelength testing results on the screen. The software is optional.

Specifications

Model	USP-6000
Wavelength Range	190-1100nm
Bandwidth	1.8nm
Wavelength Accuracy	±0.5nm
Wavelength Repeatability	≤0.2nm
Photometric Accuracy	±0.3%T
Photometric Repeatability	≤0.15%T
Photometric Range	-0.3-3A, 0-200%T, 0-9999C
Stability	± 0.002A/h @ 500nm
Baseline Flatness	± 0.002A/h
Noise	± 0.0005A
Stray Light	≤0.05%T @ 220nm, 360nm
Data Output Port	USB

Printer Port	Parallel Port
Display	320*240 Dots LCD
Lamps	Tungsten Lamp & Deuterium Lamp
Detector	Silicon Photodiode
Power Requirements	AC 220V/50Hz or AC 110V/60Hz
Dimension	460*380*180mm
Weight	20kg

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

13.USP-6100 UV/VIS Spectrophotometer, 190-1100nm, 1.8nm,1.0nm, 0.5, 1.0, 2.0, 4.0nm

Introduction

USP-6100 series is the advanced scanning UV Visible spectrophotometer which combines all best features of single beam spectrophotometers. It is the most ideal choice of stand-alone spectrophotometers. 3 models are included in this series: USP-6100.USP-6100A and USP-6100S

Features

1. 520mm Long Light Path

The unique 520mm long light path design greatly improves the wavelength resolution and make the bandwidth reach 0.5nm

2. Multi Functions, Advanced Stand-alone System

Wavelength scanning, Standard curve, Kinetics, Multi-wavelength scanning, DNA/Protein test could be realized on device directly without PC software. The standard curves and test results would be shown on device directly as well.

3. 16mm Thick Aluminum Optical Base

A 16mm thick rigid aluminum base is used as the optical mount which ensures high stability and reliability.

4. Convenient Calibration System

The baseline, wavelength, dark current can be calibrated automatically to keep device in perfect working status.

5. 6 inches High-definition LCD Display

USP-6100 series equip with a 6 inches large LCD display to show results and curves.

6. Data Output

The USB port is equiped for PC connection and the PC software would come standard with the instrument

7. Easy Operation by PC Software

Spectrum scanning. Standard curve. Kinetics. Multi-wavelength scanning. DNA/Protein test can also be realized by PC software. The standard curve and test results is available to be exported and saved on PC directly.

Specifications

Model	USP-6100	USP-6100A	USP-6100S
Wavelength Range	190-1100nm		
Bandwidth	1.8nm	1.0nm	0.5, 1.0, 2.0, 4.0nm
Wavelength Accuracy	±0.1nm @656.1nm, ±0.3nm @ all		
Wavelength Repeatability	0.1nm		
Photometric Accuracy	±0.2%T(0-100%T)		
Photometric Repeatability	≤0.1%T(0-100%T)		
Photometric Range	-0.3-3A 0-200%T 0-9999C		
Stability	± 0.002A/h @ 500nm		
Baseline Flatness	± 0.0008A/h		
Noise	± 0.001A		
Stray Light	≤0.05%T @ 220nm,360nm		
Data Output Port	USB		
Printer Port	Parallel Port		
Display	320*240 Dots LCD		
Lamps	Tungsten Lamp & Deuterium Lamp		
Detector	Silicon Photodiode		
Power Requirements	AC 220V/50Hz or AC 110V/60Hz		
Dimension	625*430*206mm		
Weight	28KG	28KG	30KG

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

14.USP-6000T Touch Screen UV/VIS Spectrophotometer, 190-1100nm, 1.8nm

Stabilization & Innovation

- Full wavelength scanning (190-1100nm) covers ultraviolet, visible and near infrared regions.

- Fully sealed structure, all optical mirrors are equipped with SiO2 protective film to avoid stray light caused by dust and corrosive gas.
- Imported core components greatly reduce the stray light and improve the stability and reliability.
- Scientific design combined optics, machines, electricity and microcomputer technology, improve the stability and bring the instrument up to a high standard.
- Suspension designed optical system, all optical parts are independently fixed on a 16mm thick aluminum deformation-free base, resistant to environmental interference (temperature, humidity and stress) and avoid the impact of bottom plate deformation and external vibration.

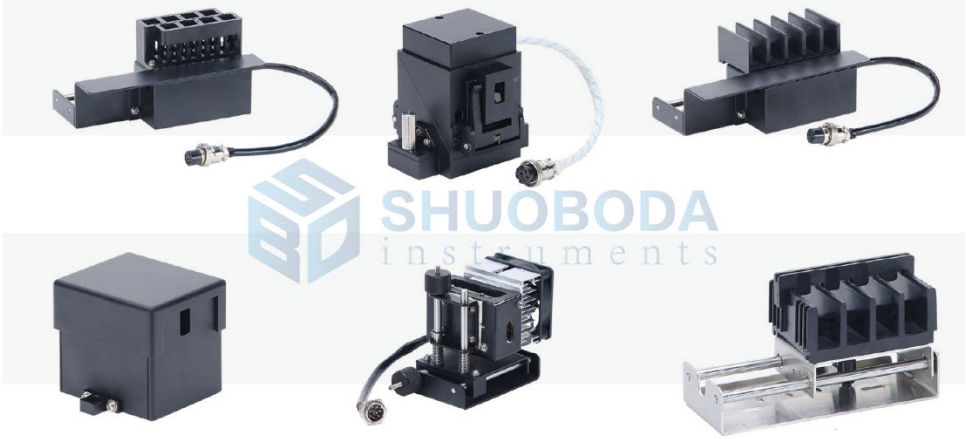
- Long-life socket type of lamps, easy to replace and adjust, lower maintenance cost.

- Unique optical design, automatically eliminating the error caused by light source and sample changes, make results more reliable.

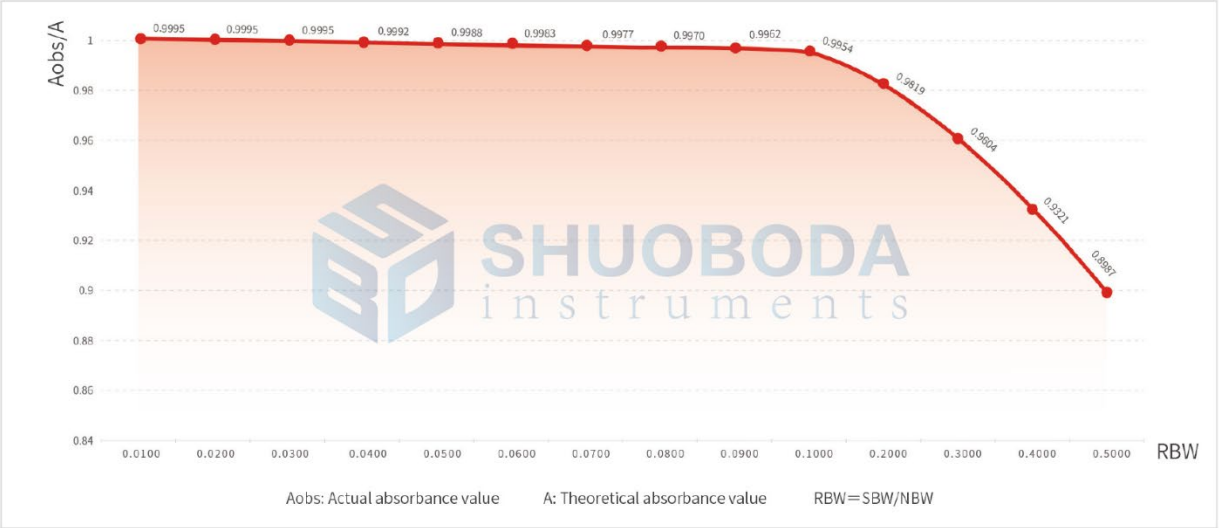
Multi-functions

- Photometric measurement, quantitative measurement, kinetics, spectral scanning, multi-wavelength analysis, DNA/ Protein test, etc.
- Automatic self-inspection: all system parameters will be inspected when device turns on. If any error occurs, the system will automatically beep to alarm, and the status indicator of the option is displayed as red which is easy to analyze the exact problem.

- Various optional accessories, like automatic cell holder, thermostatic automatic sampler, adjustable micro cell holder, reflection accessory and integrating sphere, etc. which extend the application range of device and combine the requirements of common samples and special ones.



- Automatic wavelength calibration when power on which promises a long-term stability of wavelength accuracy.
- Spectrum bandwidth adjustable at 0.5/1.0/2.0/4.0/5.0nm (model number with S), especially suitable for samples with sharp absorption peaks, like penicillin sodium, penicillin potassium, etc.



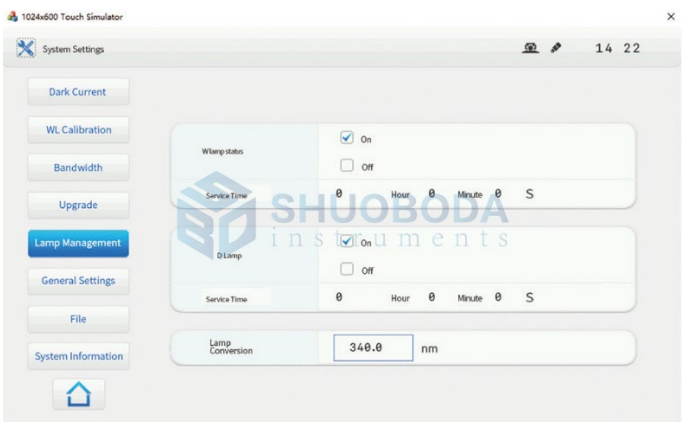
- Follow GLP/GMP standards, user management, logging, data tracking and exporting, etc. are all available.

Specifications

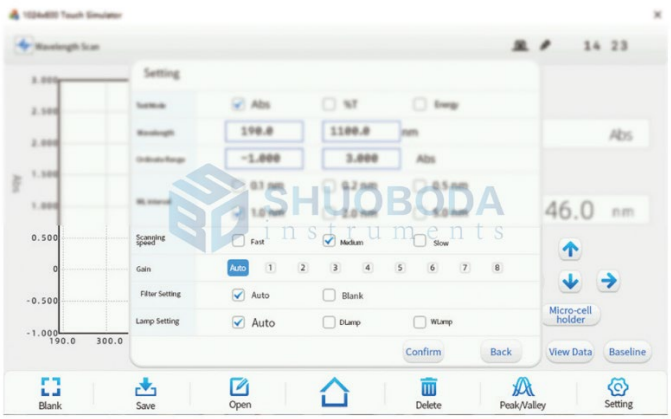
Model	USP-6000T
Optical System	Single beam
Light Source	Imported tungsten lamp & deuterium lamp
Wavelength Range	190-1100nm
Bandwidth	1.8nm
Display	7-inch truecolor touch screen
Control Mode	Stand-alone system/PC software
Data Output	Bluetooth and USB port

Interfaces:

Multi-functions



lamp monitoring system



Three levels of scanning speed

Upgrade the system software by one-click

15.USP-8000 Series Touch Screen Double Beam UV/VIS Spectrophotometer, 190-1100nm, 1.8nm/0.5, 1.0, 2.0, 4.0,5.0 nm

Stabilization & Innovation

- Full wavelength scanning (190-1100nm) covers ultraviolet, visible and near infrared regions.

- Fully sealed structure, all optical mirrors are equipped with SiO2 protective film to avoid stray light caused by dust and corrosive gas.
- Imported core components greatly reduce the stray light and improve the stability and reliability.
- Scientific design combined optics, machines, electricity and microcomputer technology, improve the stability and bring the instrument up to a high standard.
- Suspension designed optical system, all optical parts are independently fixed on a 16mm thick aluminum deformation-free base, resistant to environmental interference (temperature, humidity and stress) and avoid the impact of bottom plate deformation and external vibration.

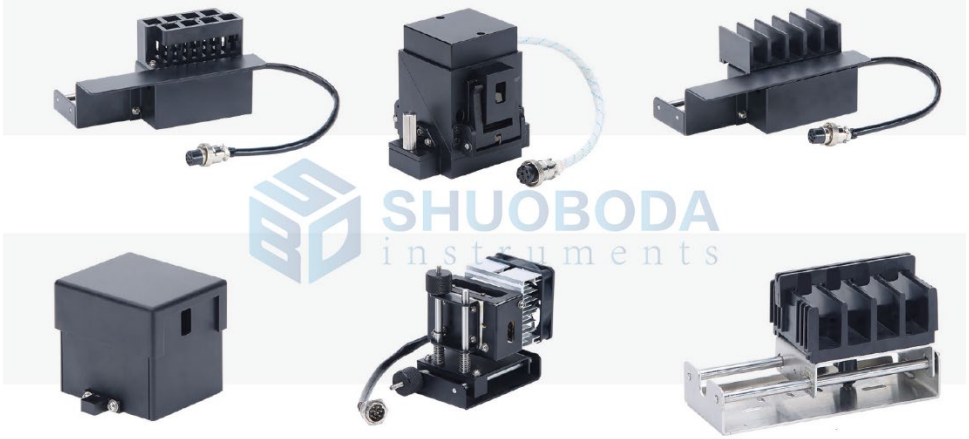
- Long-life socket type of lamps, easy to replace and adjust, lower maintenance cost.

- Unique optical design, automatically eliminating the error caused by light source and sample changes, make results more reliable.

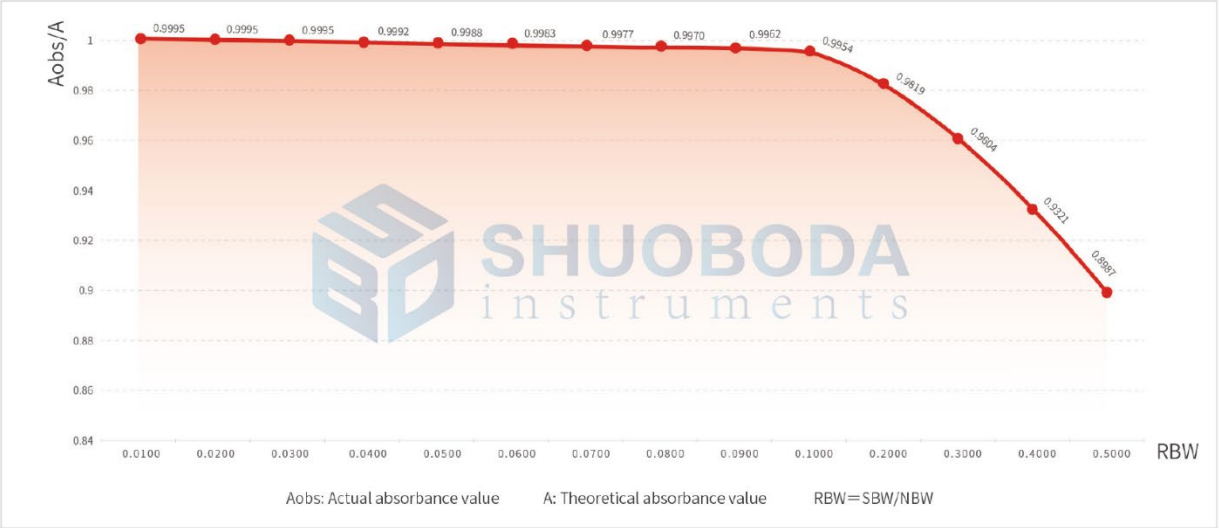
Multi-functions

- Photometric measurement, quantitative measurement, kinetics, spectral scanning, multi-wavelength analysis, DNA/ Protein test, etc.
- Automatic self-inspection: all system parameters will be inspected when device turns on. If any error occurs, the system will automatically beep to alarm, and the status indicator of the option is displayed as red which is easy to analyze the exact problem.

- Various optional accessories, like automatic cell holder, thermostatic automatic sampler, adjustable micro cell holder, reflection accessory and integrating sphere, etc. which extend the application range of device and combine the requirements of common samples and special ones.



- Automatic wavelength calibration when power on which promises a long-term stability of wavelength accuracy.
- Spectrum bandwidth adjustable at 0.5/1.0/2.0/4.0/5.0nm (model number with S), especially suitable for samples with sharp absorption peaks, like penicillin sodium, penicillin potassium, etc.



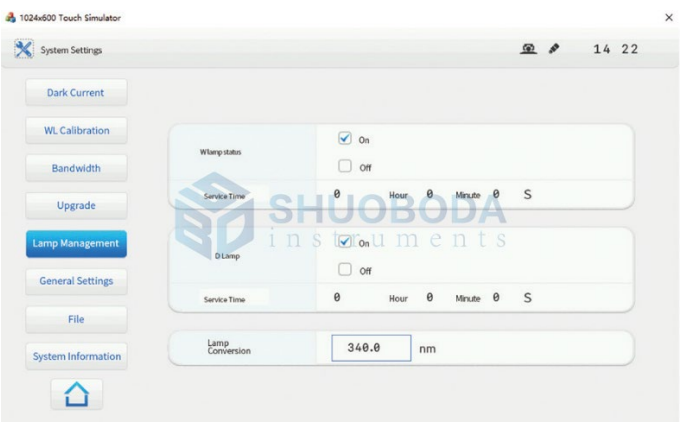
- Follow GLP/GMP standards, user management, logging, data tracking and exporting, etc. are all available.

Specifications

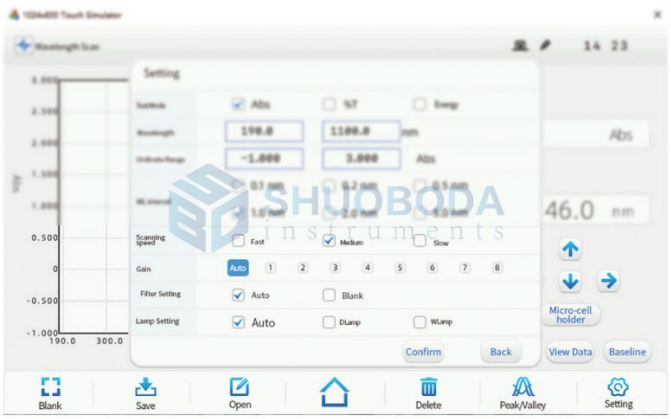
Model	USP-8000T	USP-8000TS
Optical System	Double beam	
Light Source	Imported tungsten lamp & deuterium lamp	
Wavelength Range	190-1100nm	
Bandwidth	1.8nm	0.5, 1.0, 2.0, 4.0,5.0 nm
Display	10-inch HD smart touch screen	
Control Mode	Stand-alone system/PC software	
Data Output	Bluetooth and USB port	

Interfaces:

Multi-functions



lamp monitoring system



Three levels of scanning speed

Upgrade the system software by one-click

16.USP-9000 Series LCD display Double Beam UV/VIS Spectrophotometer

Introduction

USP-9000 series are wide screen double beam spectrophotometer. They adopt double beam long light path design to ensure high stability and accuracy and they are the best choice of high-quality spectrophotometers.

Features

1. Dual Beam Light Path Design

USP-9000 series adopt double light path design, it greatly reduces circuit fluctuation and stray light and ensures high stability of the instrument.

2. Powerful Stand-alone Operation System

USP-9000 series are equipped with stand-alone operation system. Functions like spectrum scanning, standard curve, kinetics, multi wavelength scanning, DNA/Protein test, etc. can be directly completed on device without connecting PC software.

3. Long Light Path Design

The unique 520mm long ight path design is adopted to improv the wavelength resolution and make the bandwidth of U-9000S can be
switched to 0.5nm.

4. UV Analyst PC Software

PC software is provided to connect device with PC for easy data output and analysis, the functions include wavelength scanning, standard curve kinetics, multi wavelength scanning, DNA/Protein test, etc.

5. 16mm Rigid Aluminum Optical Base

A rigid 16mm thick die-cast aluminum base is used as the optical mount to ensure high stability and reliability.

6. One-button Automatic Calibration System

The baseline, wavelength and dark current can be calibrated automatically to keep device in good running conditions.

7. 6 inches Large LCD display

Equipped with a 6 inches large LCD display to show results and curves directly on the screen.

8. Easy Data Output and Printing

Equipped with USB port to connect with PC, easy to export and print data and analysis report.

Technical Specifications

Model	USP-9000	USP-9000A	USP-9000S
Optical system	Double Beam (1200 Lines/mm Grating)		
Wavelength Range	190-1100nm		
Bandwidth	1.8nm	1nm	0.5,1.0,2.0,4.0nm
Wavelength Accuracy	±0.1nm(D2 656.1), ±0.3nm@full range		
Wavelength Repeatability	≤0.1nm		
Photometric Accuracy	±0.2%T(0-100%T)		
Photometric Repeatability	≤0.1%T(0-100%T)		
Photometric Range	-0.3-3A, 0-200%T, 0-9999C		
Stability	± 0.0003A/h @ 500nm		
Noise	± 0.0005A		
Stray Light	≤0.03%T @ 220nm, 360nm		
Data Output Port	USB port		
Printer Port	Parallel Port		
Display	320*240 Dots LCD		
Lamps	Tungsten Lamp & Deuterium Lamp		
Detector	Silicon Photodiode		
Power Requirements	AC 220V/50Hz or AC 110V/60Hz		
Dimension	625*430*206mm		
Weight	32kg	32kg	34kg

17.USP-H6 Series Double Beam UV/VIS Spectrophotometer, 190nm-900nm, 0.1nm-5n

Introduction:

- Multi-application
  Various Optional Accessories
- Flexible
  Continuous Adjustable Bandwidth
- Intelligent & Reliable
  Mercury Lamp for Auto Calibration
- Sensitive
  Fast Response

Features

Advanced Technics Design

- Precision injection molding case promises robust structure and longer lifetime;
- Modern & smart design attracts more attention.

Environmental Care

- Compact structure, 30% installation space saved;
- Strong built-in cooling fan, 10% energy saved.

High Stability & Reliability

- Imported high-quality deuterium lamp & tungsten lamp.
- A mercury lamp equipped, one-key calibration for wavelength accuracy.
- Unique C-T optical structure, ultra-low stray light;
- Premium lens and lens coating, high repeatability;
- Real-time automatic calibration of dark current;
- Equipped with computer simulation optimized optical base;
- Dual beam optical path system, lower influence on test results;
- Multiple curve fitting makes curve regression more accurate.

Sensitive Detection

- High-quality photomultiplier, fast response, high sensitivity.
- Especially suitable for weak radiation energy detection.

Adjustable Bandwidth

- Continuous adjustable spectral bandwidth from 0.1nm to 5nm;

- 0.1nm variable interval, suitable for various requirements;
- Especially for samples with sharp absorption peaks, like penicillin sodium, penicillin potassium, etc.

Multi-application

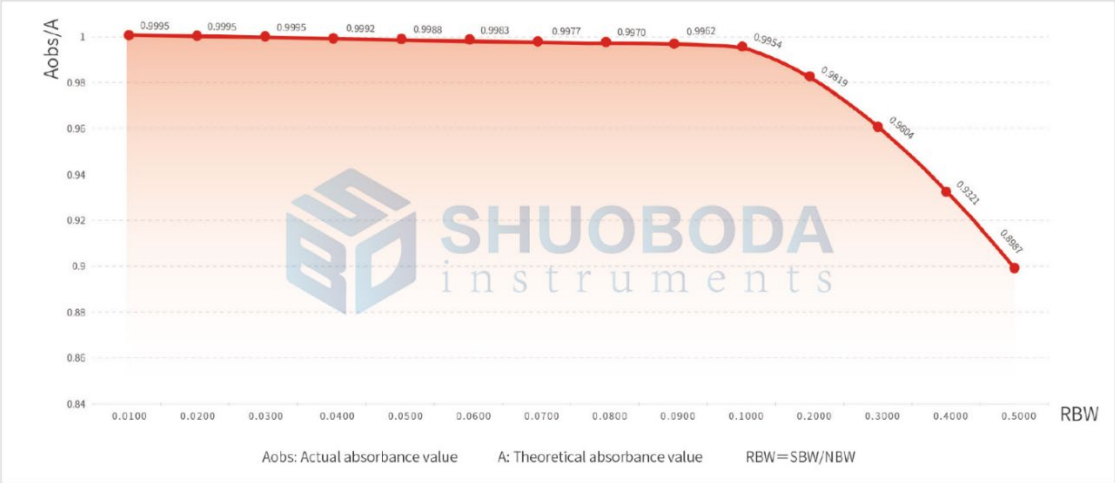
- Various optional accessories, like automatic 8-posotion cell holder, multi-function automatic sampler, thermostatic cell holder, integrating sphere, mirror reflection accessory, variable optical path cell holder and adjustable solid cell holder, etc.
- Extends the application range, combining the requirements of common samples and special ones.

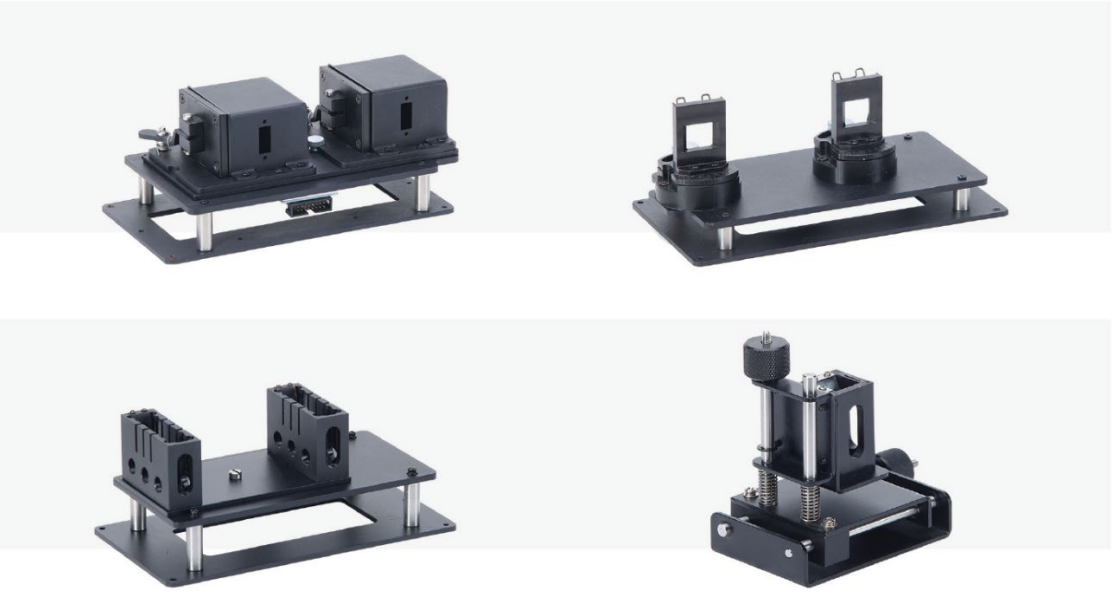
Efficient and Convenient

- Higher efficiency with optional auto 8-position cell holder and high throughput 100-position autosampler.
- User-friendly software interface.
- Comply with GLP/GMP standards, user management, logging and data tracking are available.
- Independent modular design, lower maintenance cost.
- Socket type of lamps, easy replacement and no need to adjust optical path.
- Large sample chamber, enough room for operating and replacing sample.

Professional Operating Software

- Follow GLP/GMP standards, user management, logging, data tracking, etc. are all available.

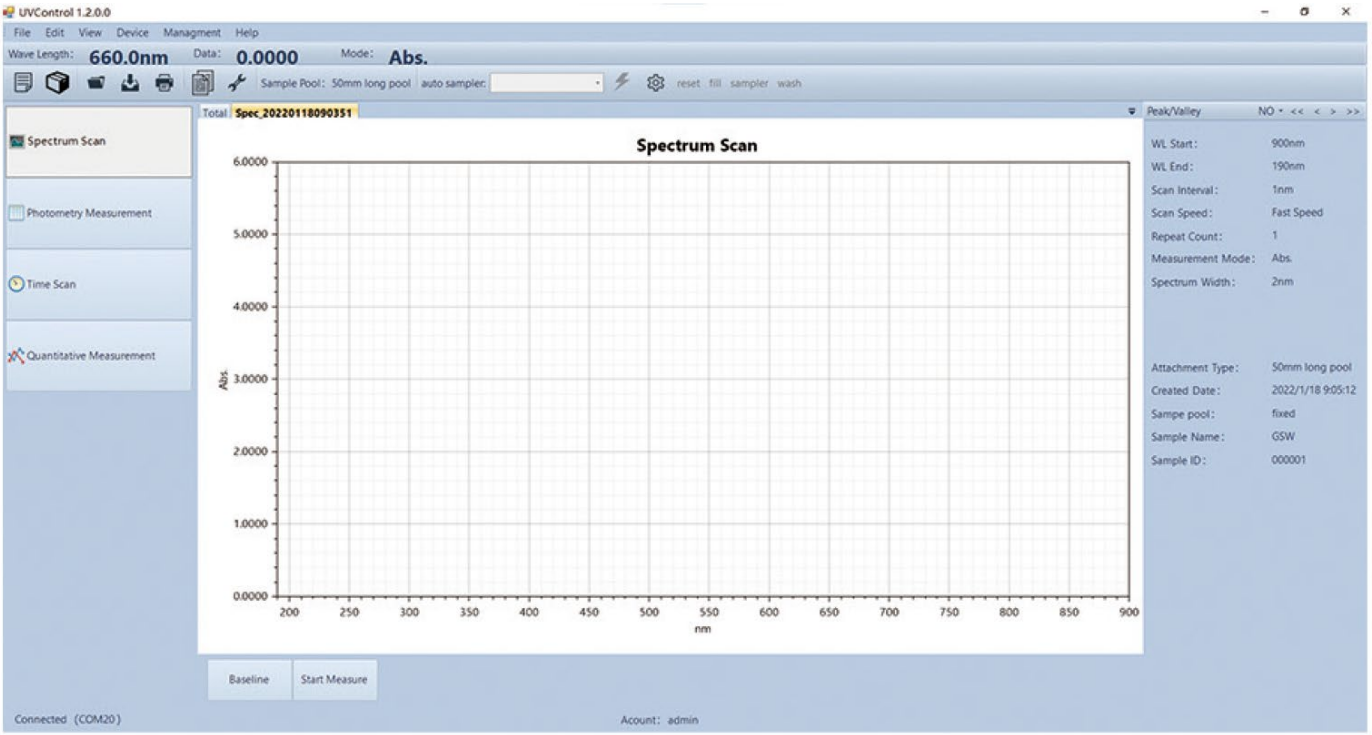


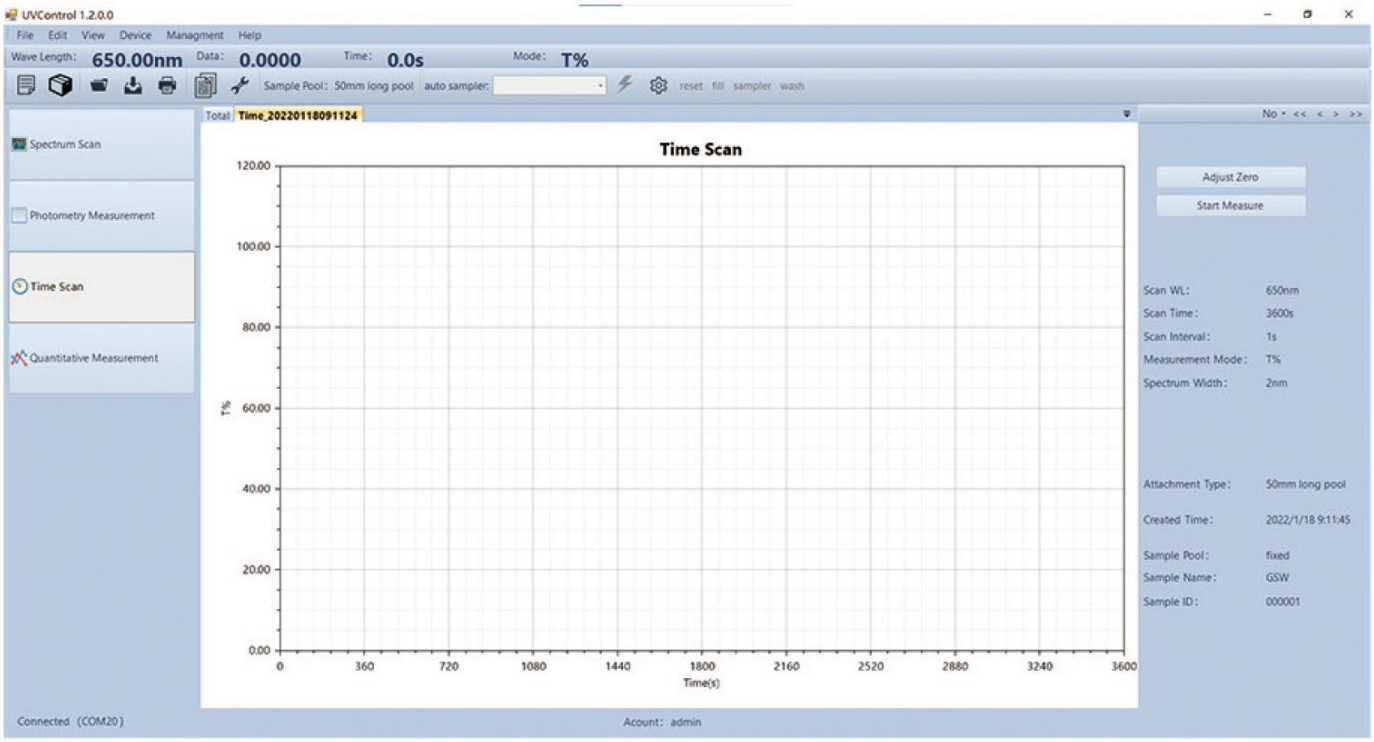


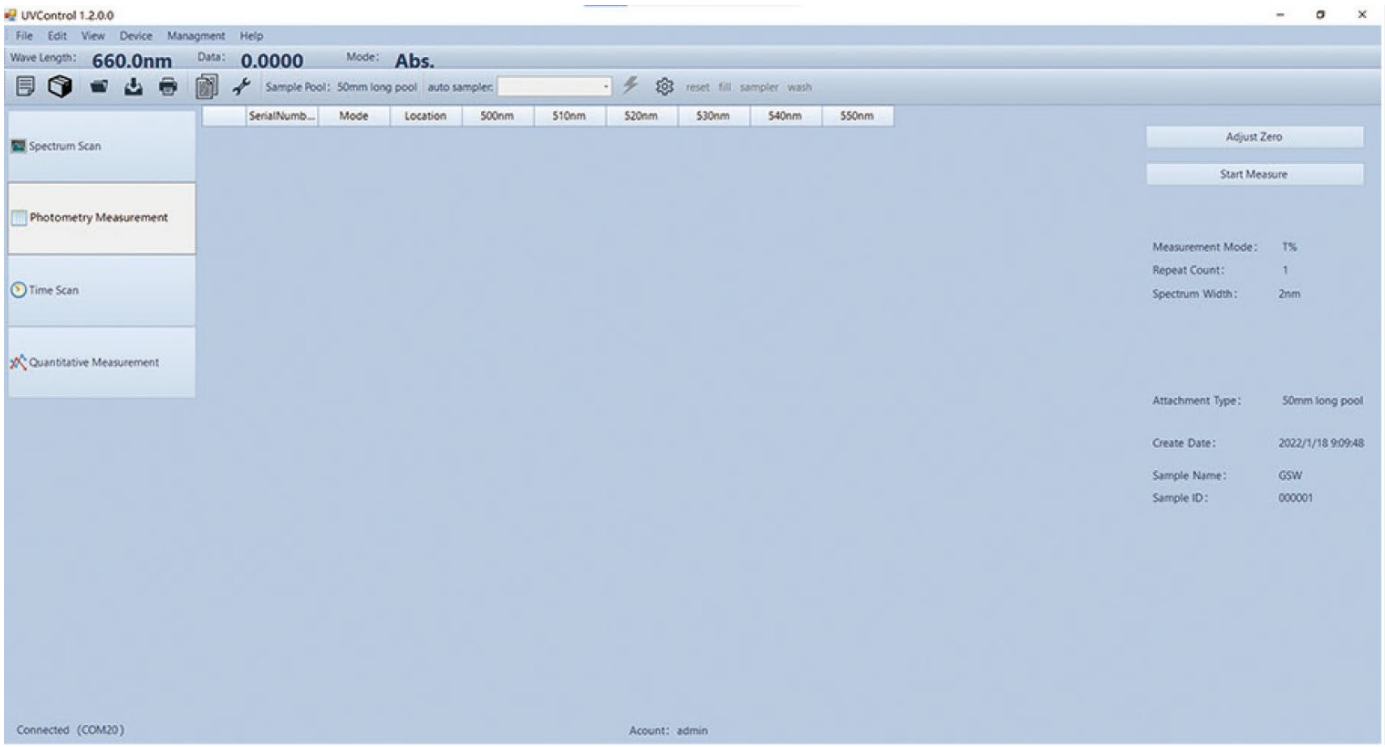
Technical specifications:

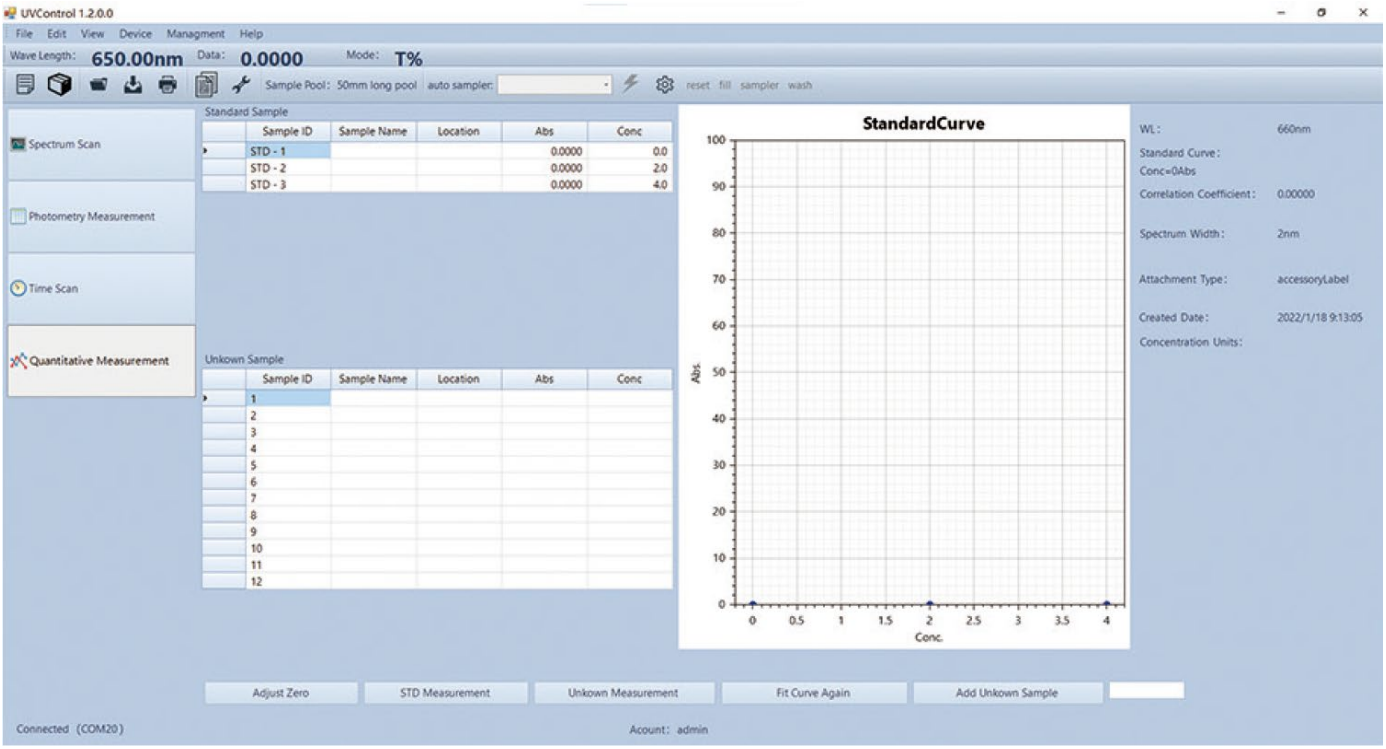
Model	USP-H6
Optical System	Double beam
Detector	PMT
Light Sources	Deuterium Lamp, Tungsten Lamp, Mercury Lamp
Control Mode	PC software controlled
Wavelength Range	190nm-900nm
Spectral Bandwidth	0.1nm-5n（0.1nm interval continuously adjustable）
Wavelength Accuracy	±0.3nm
Photometric Accuracy	±0.3 %
Stray Light	≤0.005%（@220nm&360nm）
Baseline Flatness	±0.0005 Abs（190nm-850nm）
Stability	≤0.0001 Abs/h
Power Supply	AC 220 V/ AC 110 V, 50/60Hz, 500
Dimensions（L*W*H）	500*550*260 mm

Interfaces



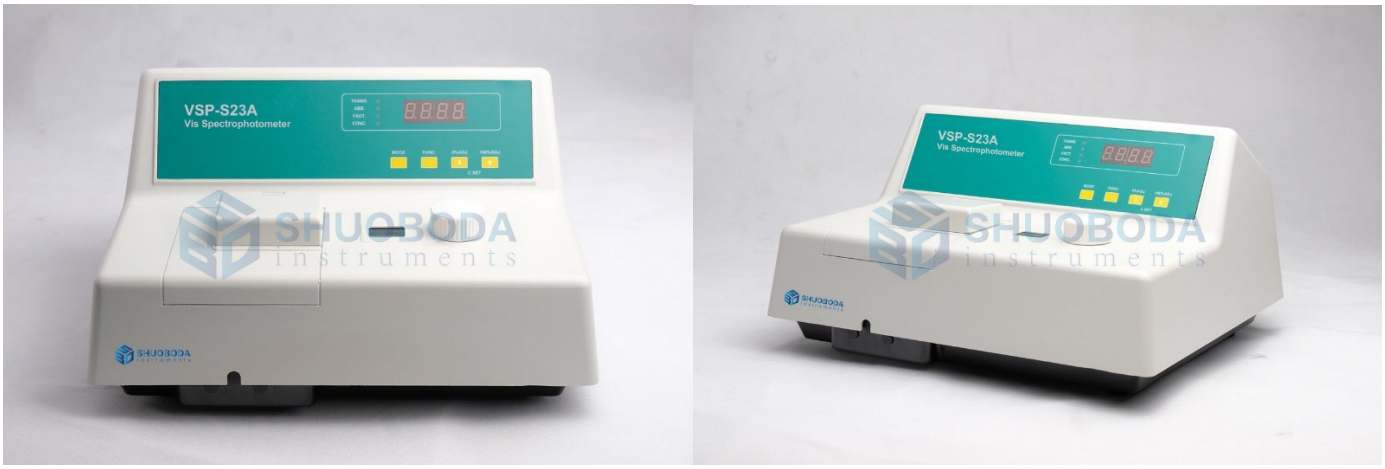

UVControl 1.2.0.0
File Edit View Device Managment Help
Wave Length: 650.00nm Data: 0.0000 Time: 0.0s Mode: T%
Sample Pool: 50mm long pool auto sampler: reset fill sampler wash
Spectrum Scan
Photometry Measurement
Time Scan
Quantitative Measurement
Total Time_20220118091124
Time Scan
120.00
100.00
80.00
60.00
40.00
20.00
0.00
T%
0 360 720 1080 1440 1800 2160 2520 2880 3240 3600
Time(s)
Adjust Zero
Start Measure
Scan WL: 650nm
Scan Time: 3600s
Scan Interval: 1s
Measurement Mode: T%
Spectrum Width: 2nm
Attachment Type: 50mm long pool
Created Time: 2022/1/18 9:11:45
Sample Pool: fixed
Sample Name: GSW
Sample ID: 000001
Connected (COM20)
Acount: admin


UVControl 1.2.0.0
File Edit View Device Managment Help
Wave Length: 660.0nm Data: 0.0000 Mode: Abs.
Sample Pool: 50mm long pool auto sampler: reset fill sampler wash
SerialNumb... Mode Location 500nm 510nm 520nm 530nm 540nm 550nm
Spectrum Scan
Photometry Measurement
Time Scan
Quantitative Measurement
Adjust Zero
Start Measure
Measurement Mode: T%
Repeat Count: 1
Spectrum Width: 2nm
Attachment Type: 50mm long pool
Create Date: 2022/1/18 9:09:48
Sample Name: GSW
Sample ID: 000001
Connected (COM20)
Acount: admin


UVControl 1.2.0.0
File Edit View Device Managment Help
Wave Length: 650.00nm Data: 0.0000 Mode: T%
Sample Pool: 50mm long pool auto sampler:
reset fill sampler wash
Spectrum Scan
Photometry Measurement
Time Scan
Quantitative Measurement
Standard Sample
Sample ID Sample Name Location Abs Conc
STD - 1 0.0000 0.0
STD - 2 0.0000 2.0
STD - 3 0.0000 4.0
Unkown Sample
Sample ID Sample Name Location Abs Conc
1
2
3
4
5
6
7
8
9
10
11
12
StandardCurve
Abs.
Conc.
WL: 660nm
Standard Curve: Conc=0Abs
Correlation Coefficient: 0.00000
Spectrum Width: 2nm
Attachment Type: accessoryLabel
Created Date: 2022/1/18 9:13:05
Concentration Units:
Adjust Zero
STD Measurement
Unkown Measurement
Fit Curve Again
Add Unkown Sample
Connected (COM20)
Acount: admin

Visible Spectrophotometer

1. VSP-S23A Visible Spectrophotometer (Cuvette or Tube), 340nm～950nm, 12nm



Application

VSP-S23A spectrophotometer is designed for the purpose of education and general analysis in low cost，It can use Φ10-Φ16mm tube or rectangular cuvette in sample department，high reliable and operate easily. It can be used for environmental protection, education etc., qualitative analysis & quantitative analysis can be done.

Features

- The instrument has variable wavelength and four scales: transmittance absorbency concentration and factor.
- Using universal test tubes or cuvette to make measure directly.
- The instrument is micro computerized and easy in operation.
- The 12nm spectral slit width provides the sensitivity required for almost any application.
- One solid-state silicon detector covers entire wavelength range, eliminating the need to change detectors between different analysis.
- It is easy to replace the unit of instrument specially the Unit of the Pre-adjusted light source, and make it convenient to maintain.
- Free adjusting for filter exchange.
- The grating and toroidal mirrors are selected in optical system.

Technical specifications:

Model	VSP-S23A
Optical system	Diffraction grating C-T monochromator
light source	Halogen lamp 20W/12V
Wavelength range	340nm～950nm
Wavelength accuracy	±2.5nm
Wavelength Repeatability	≤1.0nm
bandwidth	12nm
Transmittance accuracy	±2.0%T

Transmittance repeatability	≤0.5%T
stray light	≤0.5%T
Photometric range	0.0～199.9 (T), -0.3～2.999 (A)
Dimensions	370mm×320mm×190mm
weight	Net weight 7Kg

How to select the test tube

Generally, the round test tube is not for optic purpose unless it is pre-checked strictly.
We can select it as follow:

1. Check size. (The size should be f12+0.4×75mm)
2. Check the surface of tube. (It should be no bubbles, no scabs, no thread like things.)
3. Warming instrument according to §4.2.1.1 ~ §4.2.1.6 and set the wavelength at 360 nm.
4. Pour some pure water into tube and insert it to the test tube well in sample apartment. Check it just as §4.2.1.7. Then put some mark on the tube opposite the white mark at the instrument.
5. Put the other test tube into instrument one by one and get the readout for everyone and put mark at everyone. We can divide them in many groups. In each group the differential of readout for every tub is less then ±0.02A.
6. Then we can use tubes in same group for blank, sample, and standard solution needn't check the tube every time.

Standard package

1. VSP-S23A 1 Set
2. Cuvette holder 1 PCs.
3. Glass tube 2 PCs.
4. Power cable 1 PCs.
5. Operation manual 1 PCs.
6. Certificate of quality checking 1 PCs.
7. Fuse (2A) 2 PCs.
8. 1 cm rectangular cell 2 PCs.

Optional Spare Parts and Accessories

Data Processing Software package

2. VSP-723S Visible Spectrophotometer, 320nm～1100nm, 2nm


Application

VSP-723S visible spectrophotometer can meet the needs of qualitative and quantitative analysis in the fields of materials research, drug analysis, biochemical and clinical inspection, water quality analysis and control, food safety inspection and so on.

Features

- **Wavelength accuracy**: the instrument built-in spectrum characteristic wavelength automatic wavelength detection and correction, to ensure the accuracy of the wavelength and long-term stability.
- **Wavelength range:** the instrument wavelength range covers 320nm to 1100nm, to achieve the same level of equipment, the widest wavelength range, to meet the vast majority of spectrophotometric analysis of the wavelength of the test requirements.
- **High-speed scanning**: scanning speed and multi optional by high precision wavelength drives mechanism, with high precision stepping motor subdivision technology and high-speed digital signal processing technology, the highest wavelength scanning speed to achieve world-class level 7000nm/min and wavelength shift speed higher than 10000nm/min. High speed scanning can help users to capture the spectral changes in the sample moment, improve the efficiency of work.
- **Photometric accuracy:** the overall aluminum alloy die casting die, ensure the optical path to meet the design requirements, improve the efficiency of process assembly, to achieve a high precision test index.
- **Single U disk storage:** equipped with U disk storage function, the single test of the quantitative data stored in the U disk, file format compatible with Excel and other applications to facilitate user management data.
- **Single quantitative analysis feature rich:** electronic systems with 32-bit ARM core processor system, equipped with 128 * 64 LCD screen to display, single quantitative analysis function can be tested for multi wavelength, standard curve fitting and measurement, standard coefficient equation input, the standard equation read and storage, data storage and print, the quantitative concentration test function.
- **Light source replacement convenient:** the instrument deuterium lamp using universal flange fixed, only two screws can complete the operation of deuterium lamp replacement work, no need to adjust the light path, so that the maintenance of the instrument is more simple and reliable.

- **USB communication mode:** the instrument uses the USB way to connect the computer, the high penetration rate, the communication speed, the automation degree is high. Compared to the traditional RS232 serial port, users can achieve online communication without any parameter setting.
- **Powerful software:** the software can realize the spectral scan, scan time, dynamic test, quantitative analysis, multi wavelength analysis and formula calculation, processing map, peak search, print data, DNA / RNA testing, instrument calibration, performance verification functions, meet the various demands of different sectors of the analysis.

Technical specifications:

Model	VSP-723S
Optical system	Diffraction grating C-T monochromator
light source	Halogen lamp 20W/12V
Wavelength range	320nm～1100nm
Wavelength accuracy	±1.0nm
Wavelength Repeatability	≤0.5nm
bandwidth	2nm
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T
stray light	≤0.1%T (360nm, NaNO2)
Baseline straightness	±0.002A
drift	<0.0008A
noise	<0.5%T (100%T), <0.2%T (0%T)
Photometric range	0.0～200% (T), -0.3～4.0 (A)
Dimensions	370×357×220mm
weight	Net weight 9Kg

Standard packing list

1. VSP-723S 1 Set
2. 1 cm Rectangular cell 1 Case (4 PCs)
3. 4 position cell holder 1 PC.
4. Power cable 1 PC.
5. Operation manual 1 PC.
6. Certificate of quality checking 1 PC.
7. Fuse (2A) 1 PC.
8. Packing list 1PC
9. Product warranty 1PC
10. USB 1PC

Optional spare parts

1.Rectangular cells 1 cm, 2 cm, 3 cm, 5cm

3. VSP-722S Visible Spectrophotometer, 340nm～1000nm, 6nm

Applications

VSP-722S Spectrophotometer is a compact and easy to operate instrument. It can be applied in measurement of transmittance, absorbance and direct concentration readout of transparent material. They have been versatility employed in the fields of hygiene and medicine, clinical examination, biochemistry, petrol chemical engineering, environmental monitoring and inspections, and quality controls for qualitative and quantitative analysis of concerning samples。

Features

- The overall machine base and parts are made of aluminum alloy die-casting, ensuring the quality and reliability of the instrument.
- High-quality C-T grating monochromator, advanced optical system design, and rational use of precision optical components enable the instrument to achieve excellent optical performance.
- It adopts pre-calibrated light source and spectral energy correction system to facilitate user replacement and instrument maintenance.
- The microcomputer measurement system has functions such as accurate T/A conversion, automatic zero adjustment, automatic 100% T adjustment, concentration direct reading, and concentration factor setting.
- RS232 serial communication interface, optional serial printer to print test data directly; or optional special data processing software package, which can realize data storage, recording, transmission and linear regression functions after connecting to PC.
- It is suitable for qualitative and quantitative analysis in medical and health, clinical testing, biochemistry, petrochemical, environmental monitoring, quality control and other departments.

Technical specifications:

Model	VSP-722S
Optical system	Diffraction grating C-T monochromator

light source	Halogen lamp 20W/12V
Wavelength range	340nm～1000nm
Wavelength accuracy	±2.0nm
Wavelength Repeatability	≤1.0nm
bandwidth	6nm
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T
stray light	≤0.5%T
Photometric range	0.0～199.9 (T), -0.3～2.999 (A)
Dimensions	370×320×190mm
weight	Net weight 7Kg

Standard Package

1. VSP-722S main unit 1 Set
2. 1 cm Rectangular cell 1 Case (4 PCs)
3. 4 position cell holder 1 PC.
4. Power cable 1 PC.
5. Operation manual1 PC.
6. Certificate of quality checking1 PC.
7. Fuse (2A)1 PC.

Optional Spare Parts and Accessories

1. Fuse (2A/3A)
2. Source lamp assembly complete with pre-adjusted lamp holder
3. Rectangular cells 1 cm, 2 cm, 3 cm
4. 5 cm cell rack
5. Spectrophotometer data processing software package for cooperate with PC
6. RS-232C serial cable

4. VSP-722SP visible spectrophotometer, 325-1000nm, 5nm

Instrument features

- The overall machine base and parts are made of aluminum alloy die-casting, ensuring the quality and reliability of the instrument.
- High-quality C-T grating monochromator, advanced optical system design, and rational use of precision optical components enable the instrument to achieve excellent optical performance.
- It adopts pre-calibrated light source and spectral energy correction system to facilitate user replacement and instrument maintenance.
- The microcomputer measurement system has functions such as accurate T/A conversion, automatic zero adjustment, automatic 100% T adjustment, concentration direct reading, and concentration factor setting.
- RS232 serial communication interface, optional serial printer to print test data directly; or optional special data processing software package, which can realize data storage, recording, transmission and linear regression functions after connecting to PC.
- It is suitable for qualitative and quantitative analysis in medical and health, clinical testing, biochemistry, petrochemical, environmental monitoring, quality control and other departments.

Technical specifications:

Model	VSP-722SP
Optical system	Premium C-T monochromators and sealed gratings
Display	4-digit LED display
Wavelength range	325-1000nm
Wavelength Bandwidth	5nm
stray light	≤0.2%T
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T
Wavelength accuracy	±2.0nm
Wavelength repeatability	≤1.0nm
Transmittance ratio range	0.0-199.9%（T）
Absorbance range	-0.3-2.999(A)
Interface Type	RS232 serial port
power supply	220V/50Hz, 110V/60Hz

Dimensions (mm)	370×320×210
weight	Gross weight 9kg, net weight 7kg

5. VSP-S22PC Visible Spectrophotometer, 340-1000nm,4nm

Application

VSP-S22PC Spectrophotometer is a compact and easy to operate instrument. It can be applied in measurement of transmittance, absorbance and direct concentration readout of transparent material. They have been versatility employed in the fields of hygiene and medicine, clinical examination, biochemistry, petrol chemical engineering, environmental monitoring and inspections, and quality controls for qualitative and quantitative analysis of concerning samples.

VSP-S22PC Spectrophotometer adopts a reasonable structure and advanced optical system design. It uses a precision-processed high-quality C-T monochromator and sealed grating. It is small in size and has good optical performance. The sample chamber accommodates 4-position cuvette holders, with optional 1-5cm light diameter rectangular cuvette holders and 5cm cuvette holders.

Feature

- Aspherical light source optics, Curny-terner configuration diffraction grating monochromator.;
- Simple & clear keyboard operation is convenient to realize auto 0% T &100% T adjustment T/A transformation, , factor setting and direct concentration readout function;
- With RS232 parallel interface，special serial printer can be chosen for printing data directly;
- With RS232 serial interface，data processing package compatible，Transmittance and Absorbance，Standard Curve Mode，Quantitative Analysis Mode are provided;
- Spacious sample compartment, 4 position cell rack, adaptable for 1-5 cm optical path rectangular cells.

Technical specifications:

Model	VSP-S22P
Optical system	High quality C-T monochromator and 1200 lines/mm diffraction grating
Display method	4-digit LED display
Wavelength range	340-1000nm
wavelength bandwidth	6nm
stray light	≤0.2%T
Transmittance accuracy	±0.5%T
Transmittance repeatability	≤0.2%T

Wavelength accuracy	±2.0nm
Wavelength repeatability	⩽1.0nm
Transmittance range	0.0-199.9%（T）
Absorbance range	-0.3-2.999(A)
Interface Type	RS232 serial port machine parallel printing port
power supply	220V/50Hz
Dimensions	370mm×320mm×190mm
weight	7Kg/9Kg

Standard Package

1. VSP-S22PC 1 Set
2. 1 cm Rectangular cell 1 Case (4 PCs)
3. 4 position cell holder 1 PC.
4. Power cable 1 PC.
5. Operation manual 1 PC.
6. Certificate of quality checking 1 PC.
7. Fuse (2A) 1 PC.

Optional Spare Parts and Accessories

1. Fuse (2A/3A)
2. Source lamp assembly complete with pre-adjusted lamp holder
3. Rectangular cells 1 cm, 2 cm, 3 cm
   a) 4.5cmcell rack
4. Spectrophotometer data processing software package for cooperate with PC
5. RS-232C serial cable

6. VSP-721S Visible Spectrophotometer, 360nm～1000nm, 5nm

Application

VSP-721S visible spectrophotometer, compact and easy-to-use spectrophotometric equipment, can be used to measure transmission, absorption and concentration direct-reading at wavelengths from 360nm to 1000nm. It can be widely applied to departments related to medical health, clinical examination, biochemistry, petro-chemistry, environmental monitoring and quality control as qualitative and quantitative analyses.

Instrument features

- Reasonable structure and advanced optical system design, high-quality C-T grating monochromator and sealed grating, small size and excellent optical performance.
- It adopts a precision linkage cut-off filter system to automatically switch to the corresponding filter according to the wavelength, further improving the reliability of the instrument.
- The overall machine base and parts are made of aluminum alloy die-casting, ensuring the quality and reliability of the instrument.
- The power supply range of the instrument is extended to 100~240V.

Technical specifications:

Model	VSP-721S
Optical system	Diffraction grating C-T monochromator
light source	Halogen lamp 10W/8V
Wavelength range	360nm～1000nm
Wavelength accuracy	±3.0nm
Wavelength Repeatability	≤1.5nm
bandwidth	6nm
Transmittance accuracy	±0.8%T
Transmittance repeatability	≤0.3%T
stray light	≤1.0%T
Photometric range	0.0～199.9 (T), -0.3～2.999 (A)

Dimensions	370mm×320mm×240mm
weight	Net weight 4Kg

Standard Packing List:

1. Main device: 1pc
2. Power cord: 1pc
3. Operating manual: 1pc
4. Product Quality Certificate: 1pc
5. Fuse (2A): 2pcs
6. 1cmrectangular colorimetric dish (glass): 4pcs
7. 1cmoptical path colorimetric dish shelf: 1pc
8. Packing list: 1pc

Optional spare parts

1. Fuse (2A/3A)
2. Illuminant light components with pre-calibration lamp bracket
3. Rectangular colorimetric dish: 1cm, 2cm, 3cm, 5cm
4. 5cmoptical path colorimetric dish shelf
5. Pr-Nd filters
6. Holmium trioxide filters

7. VSP-5000 Visible Spectrophotometer, 325-1000nm, 4nm

Product Introduction:

VSP-5000 is a single beam visible spectrophotometer with manual wavelength setting. t is a basic model and ideal choice for routine analysis and general experiments. This specially designed single beam spectrophotometer is a low-cost spectrophotometer which offers high performance, easy operation and wide applications.

Features

1. Microprocessor controlled

With microprocessor controlled, V-5000 could realize Auto Zero and Auto 100%T adjustment with one push-button. V-5000 has a LCD display instead of LED display for direct readout of transmittance, Absorption and Concentration.

2. Grating monochromator

1200 line grating ensures high resolution, high accuracy and low stray light.

3. Data output

Equipped with USB port which can be connected to PC to edit date through specific software. Date can also be printed through a parallel port when connected to a micro printer

4. Compact design, easy to carry

The compact design of V-5000 saves bench space while all components function remain performed li ke 120mm wide sample compartment and long optical path monochromator.

5. Four Display Mode

can display absorption, transmittance, concentration and coefficient directly by different mode switching.

Specification

Model	VSP-5000
Optical System	Single Beam grating 1200 lines/mm
Wavelength Range	325-1000nm

Spectral Bandwidth	4nm
Wavelength Accuracy	±2nm
Wavelength Repeatability	≤0.5nm
Wavelength Setting	Manual
Photometric Accuracy	±0.5%T
Photometric Repeatability	≤0.2%T
Photometric Range	-0.3-3A,0-200%T, 0-9999C
Photometric Mode	T，A，C，F
Stray Light	≤0.2%T@360nm
Stability	±0.002A/h @500nm
Display	LCD
Detector	Silicon Photodiode
Output	USB Port & Parallel Port (Printer)
Light Source	Tungsten Lamp
Power Requirements	AC85~250V
Dimension	420*280*180mm
Weight	8kg

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	Black block	1	pcs
6	Dust Cover	1	pcs

8. VSP-5100 Visible Spectrophotometer, 325-1000nm, 2nm

Features

1. 2.5 inches LCD screen

Equipped with a 2.5 inches LCD screen to give a clear display of standard curves and groups of results.

1. Standard curve

Can set up various standard curves according to customer 's solutions and find the concentration of unknown solutions.

2. Data output

Equipped with USB port to connected with a PC to display spectrum scanning, kinetics and multiwavelength testing results on the screen. The software is optional

3. Multiple resules readout

Can display wavelength, absorption and transmittance with 5 results per screen. It also has a memory store of up to 200 results.

4. Auto setting wavelength

Users set wavelength automatically through arrow keys to avoid operation errors.

Specifications

Model	VSP-5100
Optical System	Single beam, grating 1200 lines/mm
Wavelength Range	325-1000nm
Bandwidth	2nm
Wavelength Accuracy	±2nm
Wavelength Repeatability	0.5nm
Wavelength Setting	Auto
Wavelength Resolution	0.1nm
Photometric Accuracy	±0.5%T
Photometric Repeatability	≤0.2%T

Photometric Range	-0.3-3A,0-200%T，0-9999C
Photometric Mode	T, A, C, F
Stray Light	≤0.1%T
Stability	±0.002A/h@500nm
Display	128*64 LCD
Detector	Silicon Photodiode
Light Source	Tungsten Lamp
Output	USB port & Parallel Port (Printer)
Power Requirements	AC85~250V
Dimension	420*280*180mm
Weight	10kg

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	Dust Cover	1	pcs

9. VSP-5600 Visible Spectrophotometer, 320-1100nm, 2nm

Introduction:

5600 and 5800 series include 4 models: VSP-5600，USP-5600，VSP-5800 and USP-5800.

Both series are designed with precision lead screw structure, it ensures extremely high wavelength accuracy.

The 5800 series which with advanced technical specification would be your best choice of single beam spectrophotometer

Features

8. Precision Lead Screw Structure

Designed with precision lead screw structure which highly improves wavelength accuracy and wavelength resolution.

9. Automatic Wavelength Setting

The wavelength could be set automatically through arrow keys to avoid misoperation.

10. Complete Numerical Keys

All parameters, like wavelength, concentration, etc. can be easily set by complete numerical keys

11. Easy Data Output

The USB port is used for PC connection to realize spectrum scanning, kinetics, multi-wavelength, etc. The Parallel port is used for micro printer connection to print data and standard curve directly. PC software and micro printer are optional.

12. 8mm-thick Optical Base

All optical components are fixed on an 8mm-thick rigid die-cast aluminum board which ensures high stability and reliability.

13. Imported Tungsten Lamp and Deuterium Lamp

The imported tungsten lamp and deuterium lamp reduce most stray light which ensures high photometric accuracy. The ultra-long service life and stable working status make device perform perfectly.

14. Standard Curve, Quick Establishing

Easy and quick to establish various standard curve according to different samples and find the concentration of unknown samples.

Technical specification

Model	VSP-5600/USP-5600	VSP-5800/USP-5800
Wavelength Range	320nm-1100nm/190-1100nm	320nm-1100nm/190-1100nm
Band Width	2nm	
Wavelength Accuracy	±0.5nm	
Wavelength Repeatability	≤0.2nm	
Wavelength Setting	Auto	
Photometric Accuracy	±0.3%T	±0.2%T
Photometric Repeatability	0.2%T	
Photometric Display Range	0-200%T, -0.3-3.0A,0-9999C	
Stability	0.002A/h @ 500nm	
Stray Light	≤0.05%T@220nm,360nm	
Data Output Port	USB&RS232	
Display	128*64 Dots LCD	
Light source	W Lamp/ W & D2 Lamp	
Detector	Silicon Photodiode	
Power Requirement	220V/50Hz or 110V/60Hz	
Dimension (L*W*H)	460*360*225mm	
Weight	16KG/18kg	

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

10.VSP-5800 Visible Spectrophotometer, 320nm-1100nm, 2nm

Introduction:

5600 and 5800 series include 4 models: VSP-5600，USP-5600，VSP-5800 and USP-5800.

Both series are designed with precision lead screw structure, it ensures extremely high wavelength accuracy.

The 5800 series which with advanced technical specification would be your best choice of single beam spectrophotometer

Features

15. Precision Lead Screw Structure

Designed with precision lead screw structure which highly improves wavelength accuracy and wavelength resolution.

16. Automatic Wavelength Setting

The wavelength could be set automatically through arrow keys to avoid misoperation.

17. Complete Numerical Keys

All parameters, like wavelength, concentration, etc. can be easily set by complete numerical keys

18. Easy Data Output

The USB port is used for PC connection to realize spectrum scanning, kinetics, multi-wavelength, etc. The Parallel port is used for micro printer connection to print data and standard curve directly. PC software and micro printer are optional.

19. 8mm-thick Optical Base

All optical components are fixed on an 8mm-thick rigid die-cast aluminum board which ensures high stability and reliability.

20. Imported Tungsten Lamp and Deuterium Lamp

The imported tungsten lamp and deuterium lamp reduce most stray light which ensures high photometric accuracy. The ultra-long service life and stable working status make device perform perfectly.

21. Standard Curve, Quick Establishing

Easy and quick to establish various standard curve according to different samples and find the concentration of unknown samples.

Technical specification

Model	VSP-5600/USP-5600	VSP-5800/USP-5800
Wavelength Range	320nm-1100nm/190-1100nm	320nm-1100nm/190-1100nm
Band Width	2nm	
Wavelength Accuracy	±0.5nm	
Wavelength Repeatability	≤0.2nm	
Wavelength Setting	Auto	
Photometric Accuracy	±0.3%T	±0.2%T
Photometric Repeatability	0.2%T	
Photometric Display Range	0-200%T, -0.3-3.0A,0-9999C	
Stability	0.002A/h @ 500nm	
Stray Light	≤0.05%T@220nm,360nm	
Data Output Port	USB&RS232	
Display	128*64 Dots LCD	
Light source	W Lamp/ W & D2 Lamp	
Detector	Silicon Photodiode	
Power Requirement	220V/50Hz or 110V/60Hz	
Dimension (L*W*H)	460*360*225mm	
Weight	16KG/18kg	

Standard Accessories

Item	Description	Quantity	Unit
1	Spectrophotometer	1	set
2	1cm Glass cuvette	4	pcs
3	Power cord	1	pcs
4	User's Manual	1	pcs
5	1cm quartz cuvette	2	pcs
6	Dust Cover	1	pcs

Near Infrared Spectrometer(NIR Analyzer / Near Infrared Analyzer)

1. SP-N430 Near Infrared NIR Spectrometer, 900nm~2500nm, 8nm

Introduction:

The SP-N430 near-infrared spectrometer is a grating-type near-infrared spectrometer. The instrument performs sample analysis based on the liquid transmission method and is mainly used for rapid non-destructive testing of liquid samples. The analysis process is extremely convenient. Just fill the cuvette with sample, place it on the instrument sample stage, and click on the instrument operation software. The near-infrared spectrum data of the sample can be obtained in about a minute. Combined with the corresponding near-infrared data model, the sample can be obtained at the same time. The analysis results of various components of the tested sample are obtained.

This near-infrared spectrophotometer can be widely used for rapid and non-destructive analysis of the quality of liquids such as oil, alcohol, and beverages. It can reliably analyze the quality components of liquid raw materials, semi-finished products, finished products, etc. in real time.

Instrument features

- Easy to use. No sample preparation is required, and the sample is not damaged.
- Wavelength range is 900nm-2500nm.
- The main parts performance is the international leader.
- Built-in high-quality PTFE reference module and polystyrene wavelength standard filter.
- Automatic reference calibration and monitoring wavelengths ensure accurate and stable measurement results.
- The instrument monitors the ambient temperature and humidity in real time and stores it in the spectrum file which is convenient for users to check and optimize the measurement conditions.

Technical specifications:

Model	SP-N430
Measurement	Transmission
Bandwidth	8nm
Wavelength Range	900nm~2500nm
Wavelength Accuracy	≤0.2nm

Wavelength Reproducibility	≤0.05nm
Stray Light	≤0.1%
Noise	≤0.0005 Abs
Analysis time	About 1 minute(adjustable)
Port	USB2.0
Power Supply	90~250V. 50/60Hz
Temperature Requirement	5~35C
humidity Requirement	5~85 %RH
Dimension	360mmx460mmx240mm
Weight	12Kg

Standard configuration:

1. Main device: 1set
2. Power cord: 1pc
3. Data processing software package: 1pc
4. USB cable: 1pc
5. User manual: 1pc
6. Fuse (2A): 2pcs
7. Product quality certificate: 1pc
8. L cm quartz square sample cell: 2pcs
9. l mm quartz micro sample cell: 2pcs
10. Packing list: 1pc

2. SP-N450 Near Infrared NIR Spectrophotometer, 900-2500nm, 8nm

Suitable for rapid and non-destructive analysis of feed, grain, and food quality.

Product introduction

SP-N450 Near Infrared Spectrophotometer is based on the previous generation of products, improving the software and hardware, striving for excellence, and achieving a faster, more accurate and more stable level. It can be widely used in the analysis of agricultural, food, tobacco, pharmaceutical and industrial samples.

Instrument features

- The operation is simple, no sample pretreatment is required, and the sample is not damaged.
- The instrument covers an ultra-wide wavelength range of 900-2500nm (11000-4000) cm-1, can comprehensively reflect the vibration absorption information of hydrogen-containing groups, and is suitable for simultaneous analysis of multiple indicators of various samples.
- The core components of the instrument, such as tungsten lamps, filters, gold-plated gratings, and refrigerated indium gallium arsenic detectors, are all made from international brands, ensuring the high quality of the instrument in every aspect.
- Each instrument uses a variety of traceable standard materials for wavelength calibration, and the calibration points are evenly distributed throughout the wavelength range to ensure consistent wavelength accuracy among multiple instruments.
- The instrument is equipped with an integrating sphere diffuse reflection sampling system that collects diffuse reflection light from multiple angles, which is more conducive to improving the measurement reproducibility of uneven samples.
- The instrument adopts front spectroscopic technology, so the temperature of the sample will not rise during the test process, effectively ensuring measurement reproducibility.
- Instrument performance indicators coupled with rigorous manufacturing process levels are a reliable guarantee for model transfer. After practical model verification, good model transfer can be carried out between multiple instruments, which greatly reduces the cost of model promotion.
- A variety of sample cups and accessories are available to meet the testing needs of particles, powders, liquids and films.
- The instrument monitors ambient temperature and humidity in real time and stores it in a spectrum file, making it easy for users to review and optimize measurement conditions.

- The software is simple to operate and powerful. Analyze multiple indicators with one click. With the permission management function, administrators can perform operations such as model establishment, maintenance, and method design. Operators can select methods for testing to prevent misoperation and ensure user data security. The audit trail function automatically records instrument operation steps.
- The modeling software has powerful model establishment, evaluation, optimization and maintenance functions, and can easily and quickly establish professional near-infrared quantitative analysis models for users. Unique digital partial least squares algorithm technology supports the establishment of qualitative identification analysis models, such as true and false identification, product classification determination, etc.
- The structure is compact and the open working platform is convenient for cleaning.

Technical specifications:

Model	SP-N450
Measurement	Diffuse reflectance sample cell
Spectral bandwidth	12nm
Wavelength range	900~2500nm
Wavelength accuracy	≤0.2nm
Wavelength repeatability	≤0.05nm
stray light	≤0.1%
absorbance noise	≤0.0005Abs
Analysis time	About 1 minute (adjustable)
Data transmission method	USB2.0
size	540x380x220mm
weight	18kg

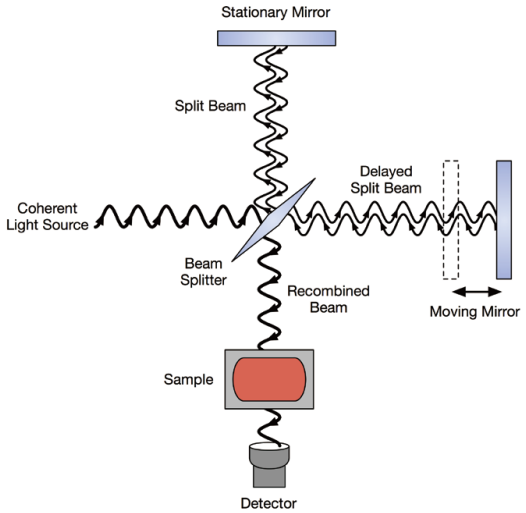
Fourier transform infrared spectrometer (FTIR)

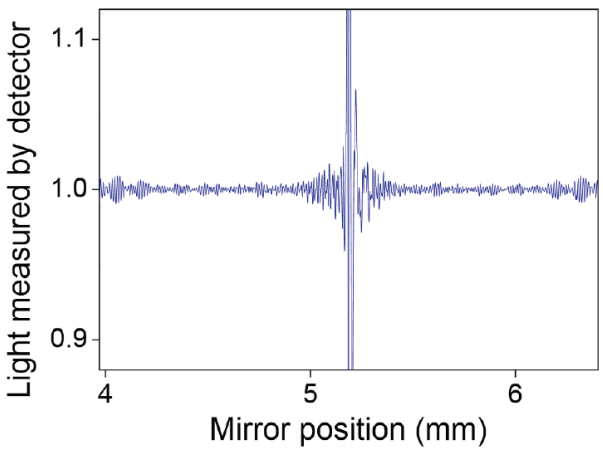
1. FTIR-650 Fourier transform infrared spectrometer

FTIR-650 is a Fourier transform infrared spectrometer with independent intellectual property rights. It has the characteristics of stable performance, simple operation, long service life and low maintenance cost. Its product performance and main technical indicators have reached the level of international similar products.

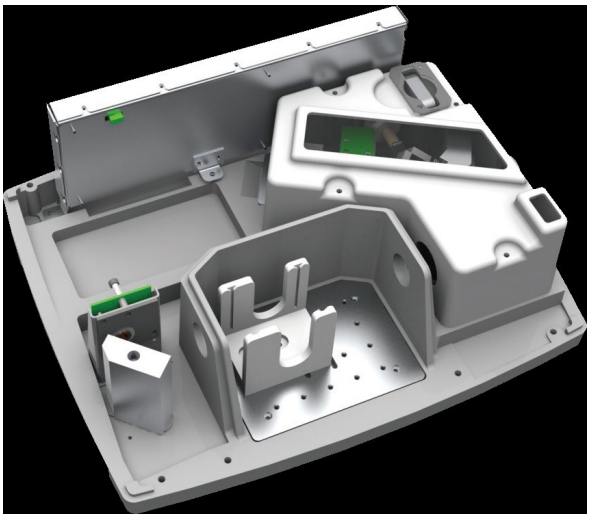
FT-IR650A(advanced) is a single beam FTIR spectrometer. This instrument is operated by a PC. It is a powerful tool to analyze the sample structure in many fields such as medicine, chemical, petroleum, environmental protection, food, materials, public security, national defense, semiconductor, optical and other fields, it is an indispensable analytical testing tool for laboratory research and enterprise production.

High stable optical system





- The design integrates main components to an optical bench machined from a cast aluminum. Highly stable and no need for adjustment, re-moving troubles of maintenance of optical path.
- Precision machinery ensures high repeatability of every scanning. Advanced design concept is adopted in both optical path and every part
- The system's corner cube optics provides easy operation without requiring complicated electronics and additional moving parts. In addition, many components of the spectrometer are user replaceable which saves time over the lifetime of the instrument.
- Internal dynamic collimation system and movable mirror driving system keep interferometer at optimum situation. Voice-coil driver and precision slide improves the ability of working in severe conditions.
- The spectrometer includes a container of desiccant that protects the beam splitter and other optical components from moisture damage.



FEATURES

(1) High-performance electronic systems

The latest 24-bit A / D converter, 500KHz the A / D conversion speed, the imported high-sensitivity detector DLATGS, truly real-time spectral data acquisition, to ensure the authenticity and reliability of data. With the latest USB2.0 communication interface, improved data transfer rates, just a few seconds to complete testing a sample.

(2) User-friendly Humidity Protection design

Closed type interferometer design, quick recognition humidity conditions, reducing the operator workload of instrument maintenance, through distinct color changes remind users to replace the desiccant, solve the biggest problems during the process of using infrared. The desiccant can be changed without opening the cover.

(3) Ultra-light weight design

Weighing just 16Kg, to facilitate the operator in the laboratory to mobile equipment for testing different position, and targeted to solve the problems of women in the experiment because the operator can not move too much weight instrument.

(4) Diversified accessories selection

The accessory replacement and experimental installation process is simple, and the large sample compartment can easily expand other infrared accessories, such as ATR accessories, gas pools, liquid pools, polarized accessories, and the like.

(5) Audit trail function

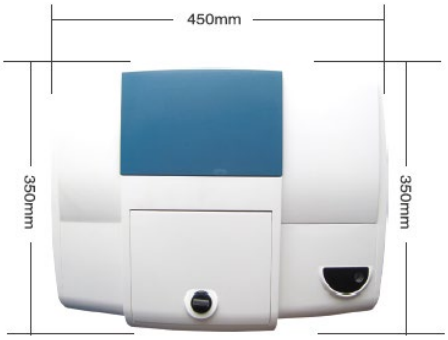
The instrument supporting software has the "three-level management authority" function, which meets the requirements of the National Pharmacopoeia.

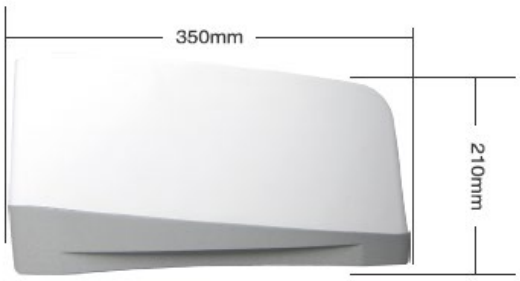
(6) 3Q certification service

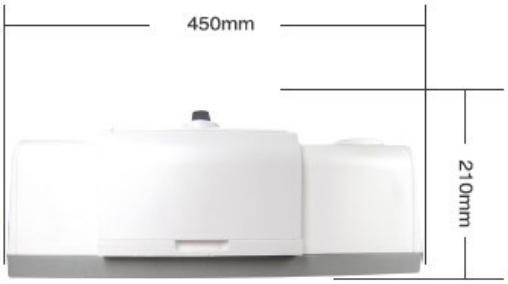
Provide professional 3Q certification installation services.

Specifications

Model	FT-IR650	FT-IR650A
Wave number Range	4000 ~ 400 cm-1	7800 ~ 375 cm-1
Resolution	1.5 cm-1	1 cm-1
Signal Noise Ratio	15000 : 1 (DTGS, resolution@4cm-1; sample and background scan for 1 min@2100cm-1)	30000 : 1 (DTGS, resolution@4cm-1; sample and background scan for 1 min@2100cm-1)
Detector	High resolution DTATGS detector (Famous brand)	
Beam splitter	Coated KBr	
Light Source	Long life, air cooled IR light source	
Scan speed	Selectable in PC	
Electronic System	A/D converter of 24 bits at 500MHz, USB 2.0	
Power	110-220V AC, 50-60Hz	
Data interface	USB2.0	
support system	Windows XP、Windows Vista、Windows 7、Windows 8, Windows 10	
dimension	450mm × 350mm × 210mm	
weight	16Kg	







Parts included

No.	Description	Qty
1	Spectrometer	1
2	Power Supply	1
3	Dust Cover	1
4	USB Cable	1
5	Power Cord	1

6	Screw Driver, 150x6mm	1
7	Allen Wrench, 2.5mm	1
8	Replacement Desiccant	1
9	Polystyrene Film	1
10	Software CD	1
11	User Manual	1 copy

Optional accessories

Item	Accessories	Description	Mode
1	Solid	Press	DF-4
	Package	Sheet mold	HF-12
		Agate mortar	HW-3
		Temperature-controlled IR Oven	HW-3A
		KBr	HF-2B
2	Liquid Package	Removable liquid cell	HF-7-j
3	Gas Package	Gas cell	HF-11
4	Medical software	Medical software	S-IR-M
5	S IRSPEC	IR lib	S-IRSPE
6	ATR	ATR（Znse crystal）	LA-110
7	Mirror reflectance accessory	Mirror reflectance accessory	HF-19

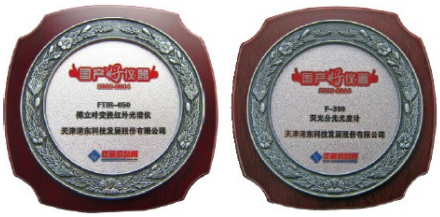
Certificates & Awards

In 2009, FT-IR650 Fourier Transform Infrared Spectrometer was rated as the top ten domestically produced instruments for two consecutive years.

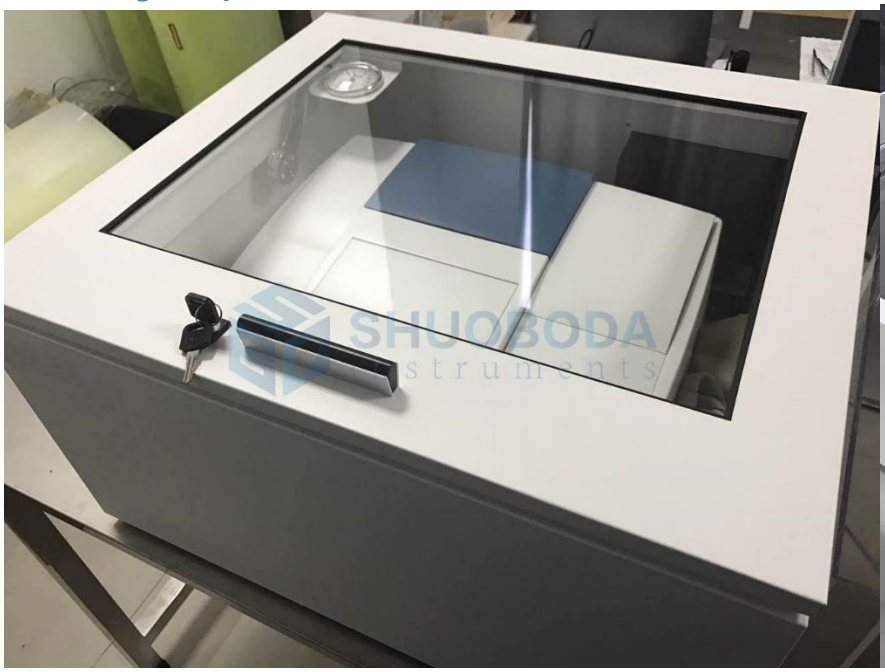
In 2013, the FT-IR650 Fourier transform infrared spectrometer was fully upgraded.

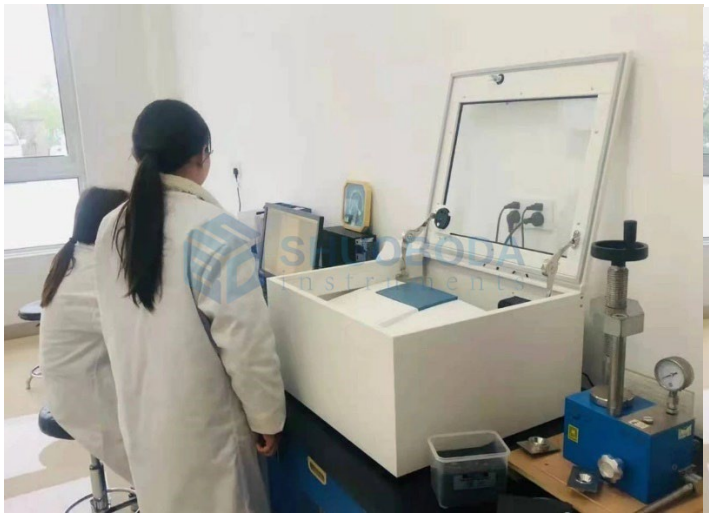
In 2014 FT-IR650 Fourier transform infrared spectrometer was rated as a good domestic instrument (2013-2014).

CE, ISO9001 14001 Certificated.



Product gallery





2. FTIR-650S Fourier transform infrared spectrometer

Product introduction

- FTIR-650S Fourier transform infrared spectrometer has been favored by market users in the past ten years.
- It has a higher signal-to-noise ratio, higher stability, better operating experience, and has better product features such as moisture resistance and anti-electromagnetic interference capabilities.
- It can be widely used in disease control, pharmaceuticals, basic scientific research, fine chemicals, electronics and electrical, petrochemical smelting, third-party testing and other fields. It is an indispensable analytical testing tool for laboratory scientific research and enterprise production, and is your right-hand man to improve your testing level.

Features:

1. Efficient optical path system design

1) Design of high-intensity infrared light source module

By optimizing the design of the infrared light source, the background energy value is increased by up to 50% compared to FTIR-650, which significantly enhances the infrared radiation energy in the low-frequency and high-frequency bands, making the full-wave (7800~350cm-1) energy distribution more balanced. ;

2) High performance interferometer module design

While inheriting the stability advantages of the corner mirror type interferometer, the optical system has been further optimized so that the FTIR-650S has a signal-to-noise ratio better than 45000:1, which is a 50% increase in signal-to-noise ratio compared to the FTIR-650. , which can better meet the practical application requirements for conventional weak signal detection.

2. New appearance design

- The more convenient power switch position design can effectively solve the pain points of customers' daily repetitive and laborious switching on and off;
- A more intuitive power switch style design allows you to grasp the operating status of the instrument in a more timely and accurate manner;

- The more convenient hatch opening method makes it easier for operators to complete sample pickup and placement more effectively, thereby effectively improving sample detection efficiency.

3. Multiple moisture-proof design

- Larger capacity desiccant cylinder structural design greatly reduces the frequency of desiccant replacement;
- The more excellent moisture-proof design of the interferometer and detector effectively protects the optical system and detection system of the infrared spectrometer from interference and corrosion by external moisture and harmful gases.

4. Anti-electromagnetic interference design

- A more optimized electromagnetic interference design effectively reduces external electromagnetic radiation on the one hand, and on the other hand effectively improves the anti-electromagnetic interference capability of the system itself to meet the requirements of electromagnetic compatibility design specifications (EMC [Note]).
- Note: EMC testing is also called electromagnetic compatibility testing, which specifically includes electromagnetic field interference (EMI) and anti-interference ability (EMS). It is one of the very important indicators of product quality.

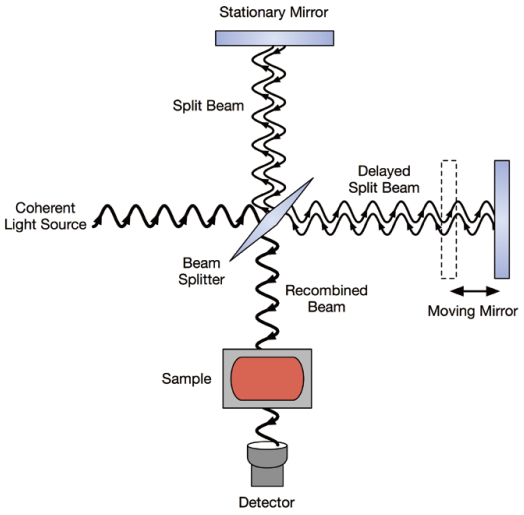
Technical Specifications

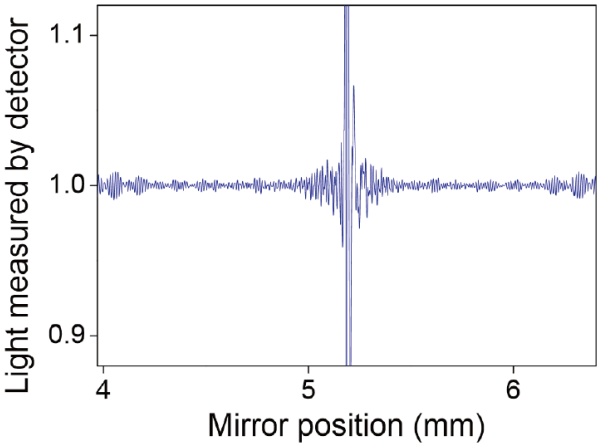
Model	FT-IR650S
Spectral range	7800 ~ 375 cm-1
Resolution	1 cm-1
Signal Noise Ratio	45000:1 (P-P value, 4cm-1, 1 minute background and sample scan, 2100cm-1)
Detector	Imported high-sensitivity infrared detector
Beam splitter	KBr substrate is germanium plated with moisture-proof coating
Light Source	Long-life, high-intensity air-cooled infrared light source, energy ratio better than 30%
linearity	0.1%
Power	110-220V AC, 50-60Hz
Data interface	USB2.0
support system	Windows 7 Professional, Windows10 Professional
dimension	430 (mm) * 360 (mm) * 200 (mm)
weight	15Kg

3. FT-IR850 Fourier Transform Infrared Spectrometer

FT-IR850 is a new type of Fourier transform infrared spectrometer. Based on the original FT-IR650, many improvements and innovations have been made, and the performance of the instrument has been significantly improved. It has the characteristics of high resolution, good scalability, stable performance, easy operation, long service life, low maintenance costs, etc. Its product performance and main technical indicators have reached the advanced level of similar international products. Widely used in pharmaceutical, chemical, petroleum, environmental protection, food, materials, public security, national defense, semiconductor, optics and other fields. It is an indispensable analysis and testing tool for laboratory research and enterprise production.

High stable optical system





- The design integrates main components to an optical bench machined from a cast aluminum. Highly stable and no need for adjustment, re-moving troubles of maintenance of optical path.
- Precision machinery ensures high repeatability of every scanning. Advanced design concept is adopted in both optical path and every part
- The system's corner cube optics provides easy operation without requiring complicated electronics and additional moving parts. In addition, many components of the spectrometer are user replaceable which saves time over the lifetime of the instrument.
- Internal dynamic collimation system and movable mirror driving system keep interferometer at optimum situation. Voice-coil driver and precision slide improves the ability of working in severe conditions.
- The spectrometer includes a container of desiccant that protects the beam splitter and other optical components from moisture damage.

FEATURES

(1) High resolution

The resolution can reach 0.5cm-1, which greatly meets the user's sample testing needs in different situations.

(2) High stability

- Adopt moving mirror dynamic collimation technology, real-time dynamic adjustment up to 130,000 times per second, to ensure better sample repeatability, long-term stability and spectral peak shape
- The use of a flat mirror to overcome the "spectral distortion" phenomenon of the stereo angle mirror compensation system interferometer
- Better structural design, strong anti-seismic ability, maintenance-free, no need for later adjustment

(3) New infrared light source

High temperature resistant ceramic oxide (temperature resistance greater than 1600 degrees) is used as the insulation material. The diaphragm is used cleverly to form a semi-closed thermal insulation bin to ensure long life. After power on, the filament can quickly rise to the working temperature, with high efficiency and good thermal insulation effect.

(4) Good moisture resistance

It adopts full-enclosed design to effectively isolate moisture; the super-large capacity desiccant box increases the dehumidification capacity by eight times, effectively reduces the frequency of desiccant replacement, and improves the efficiency of the instrument.

(5) Strong scalability

The large sample chamber design allows customers to expand other infrared accessories, such as gem identification accessories, parallel light accessories, infrared microscope accessories, specular reflection accessories, diffuse reflection accessories, ATR accessories, gas cells, liquid cells, polarization accessories, etc.

(6) Audit trail function

The supporting software of the instrument has the function of "three-level management authority", which meets the requirements of national pharmacopoeia testing.

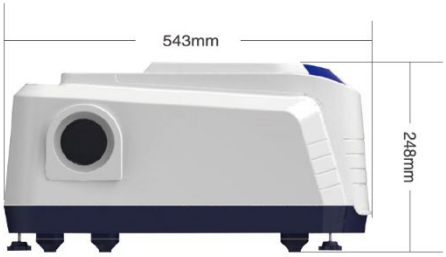
(7) 3Q certification service

Provide professional 3Q certification installation services.

Specification

Model	FT-IR850
Spectral range	7800 ~ 350cm-1
Resolution	0.5cm-1
Detector	Imported high sensitivity DLATGS
Beam splitter	KBr substrate germanium with moisture-resistant coating
Scan speed	Adjustable under computer control mode
light source	Air-cooled high-energy ceramic light source
Signal to noise ratio	<2.2 × 10-5 AU (1 minute scan, 4cm-1 resolution)

Linearity	<0.1%
Wave number accuracy	0.01cm-1
power supply	AC220V / 50Hz
Dimensions	543mm * 455mm * 248mm
data collection	He-Ne laser
Data interface	USB 2.0
support system	Windows XP, Windows 7



Parts included

No.	Description	Qty
1	Spectrometer	1
2	Power Supply	1
3	Dust Cover	1
4	USB Cable	1
5	Power Cord	1
6	Screw Driver, 150x6mm	1
7	Allen Wrench, 2.5mm	1
8	Replacement Desiccant	1
9	Polystyrene Film	1
10	Software CD	1
11	User Manual	1 copy

Powerful functions

Imported infrared light source, long life, high efficiency, fast heating

Aperture, can be switched between two levels to achieve a higher resolution of 0.5cm-1

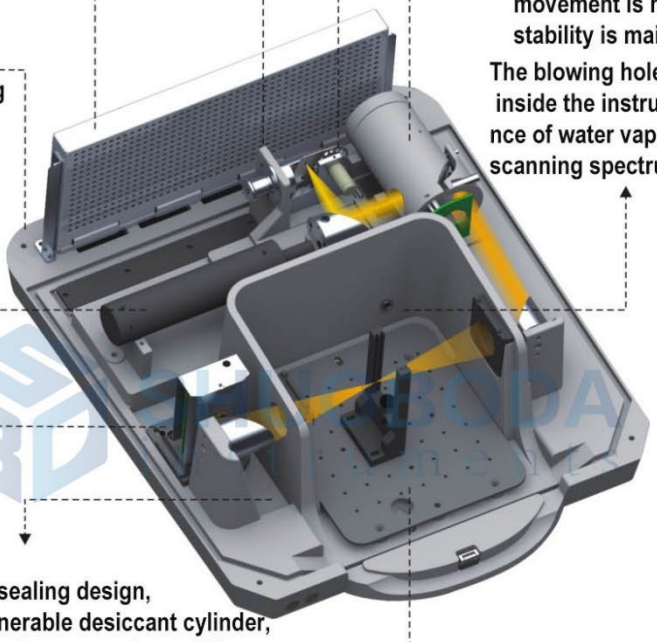
The unique long optical path design of the interferometer makes the instrument have higher resolution. ADA advanced dynamic collimation, continuously fine-tuning the tilt angle of the fixed mirror, keeping the angle between the fixed mirror and the moving mirror constant, eliminating the difference between the real-time state and the best state, ensuring that the interferometer is in the best interference state at all times. The special soft support structure makes the moving mirror Mirror deflection during movement is minimized and long-term stability is maintained.

The latest 24-bit A/D converter with 500kHz conversion speed, accurate and reliable real-time data

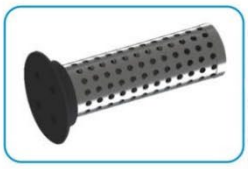
Integrated molding base and main components, pinhole positioning of main components, highly stable optical system

The blowing hole can realize nitrogen purging inside the instrument to eliminate the interference of water vapor and carbon dioxide on the scanning spectrum.

Imported He-Ne laser for sampling at the involved fringe position, improves wave number accuracy and sensitivity.



Original imported infrared detector, wide spectral response range, high thermal stability



1. Overall sealing design, large regenerable desiccant cylinder, stronger moisture-proof capability.
2. Multiple moisture-proof measures prevent the beam splitter from deteriorating and keep the interferometer in a stable interference state.

Large sample compartment, 25*25 array mounting holes, supports multiple accessory expansions

ART accessories

Infrared microscope

Gem accessories

Diffuse accessories

Parallel light accessories

Infrared fiber optic probe

Optional accessories

Item	Accessories	Description	Mode
1	Solid	Press	DF-4
	Package	Sheet mold	HF-12
		Agate mortar	HW-3
		Temperature-controlled IR Oven	HW-3A
		KBr	HF-2B
2	Liquid Package	Removable liquid cell	HF-7-j
3	Gas Package	Gas cell	HF-11
4	Medical software	Medical software	S-IR-M
5	S IRSPEC	IR lib	S-IRSPE
6	ATR	ATR（Znse crystal）	LA-110
7	Mirror reflectance accessory	Mirror reflectance accessory	HF-19

Certificates & Awards

In 2009, FT-IR850 Fourier Transform Infrared Spectrometer was rated as the top ten domestically produced instruments for two consecutive years.

In 2013, the FT-IR850 Fourier transform infrared spectrometer was fully upgraded.

In 2014 FT-IR850 Fourier transform infrared spectrometer was rated as a good domestic instrument (2013-2014).

CE, ISO9001 14001 Certificated.

Product gallery

4. DA-10 Electronic Dehumidifier for storage of infrared spectrometers

Product Introduction

DA-10 Electronic Dehumidifier cabinet is mainly used for long-term storage of instruments and equipment to prevent moisture. The DA-10 Electronic Dehumidifier is suitable for storage of infrared spectrometers in humid environments, with low frequency of use or phased outage.

Core components

1. Precision hygrometer

The independent dual-Sensor monitoring design that is not connected to the dehumidification heart avoids microcomputer numerical control distortion, fraud and failure problems. The gentle and stable mechanical induction displays the temperature, which avoids the electronic type being susceptible to deviations due to changes in temperature and current, and it still has a monitoring function during power outages.

2. Instructions for dehumidifying the heart

The dehumidification heart is controlled at 25~55%RH, and it is moisture-proof and durable. The front/rear indicator lights are used for fault diagnosis during detection and are energy-saving. Therefore, it is normal to light up and off, so don't worry. Please keep a distance of about 5cm from the wall or object behind it to facilitate moisture elimination. Do not block the suction port with items in the box to facilitate air circulation.

Technical specifications:

1. External dimensions: 610*540*330 mm
2. Internal dimensions: 570*460*250 mm
3. Hygrometer range: 0～100% RH
4. Thermometer range: -30～50 ℃
5. Operating voltage: 220VAC/50Hz
6. Average power consumption: 5W

5. FT-IR Smart Fourier Transform Infrared Spectrometer

Product introduction

FT-IR Smart Fourier Transform Infrared Spectrometer is a compact Fourier transform infrared spectrometer specially developed for laboratory teaching and basic scientific research in colleges and universities. It is compact, stable, reliable, and cost-effective. It can also be used with the university laboratory teaching management cloud system custom-developed by SHUOBODA, which can significantly Reduce the intensity and complexity of work, improve work effectiveness, and make the level of laboratory teaching in colleges and universities even more powerful.

Features

- Diverse test accessories, such as ATR accessories, solid tablet inserts, gas pools, liquid pools, etc.
- Original imported infrared detector, combined with the latest 24-bit A/D conversion technology, achieves high sensitivity, high accuracy, real-time collection and high-speed transmission of data
- The optical table is integrated and the main components are positioned once, eliminating the need for later adjustments, greatly improving the stability and reliability of the instrument.
- Fully sealed interferometer design, beam splitter coated with moisture-proof coating, visual humidity indicator card, desiccant can be replaced without opening the cover, and multiple protection measures to avoid the risk of instrument deliquescence

Modular design of accessories, ATR accessories can be plug-and-play and can be quickly installed and replaced.

Compact and lightweight, operators can move it easily, saving valuable laboratory space.

Technical Specification

Model	FT-IR Smart
Spectral range	7800 ~ 350cm-1, covering the mid-infrared spectrum range
Resolution	1.0cm-1, meeting the requirements of industrial testing, university teaching and basic scientific research
Signal to noise ratio	20000:1 (P-P value, 4 cm-1, 1 minute background and sample scan, at 2100 cm)

6. Thermogravimetry-Fourier Infrared (TG-FTIR) combined system

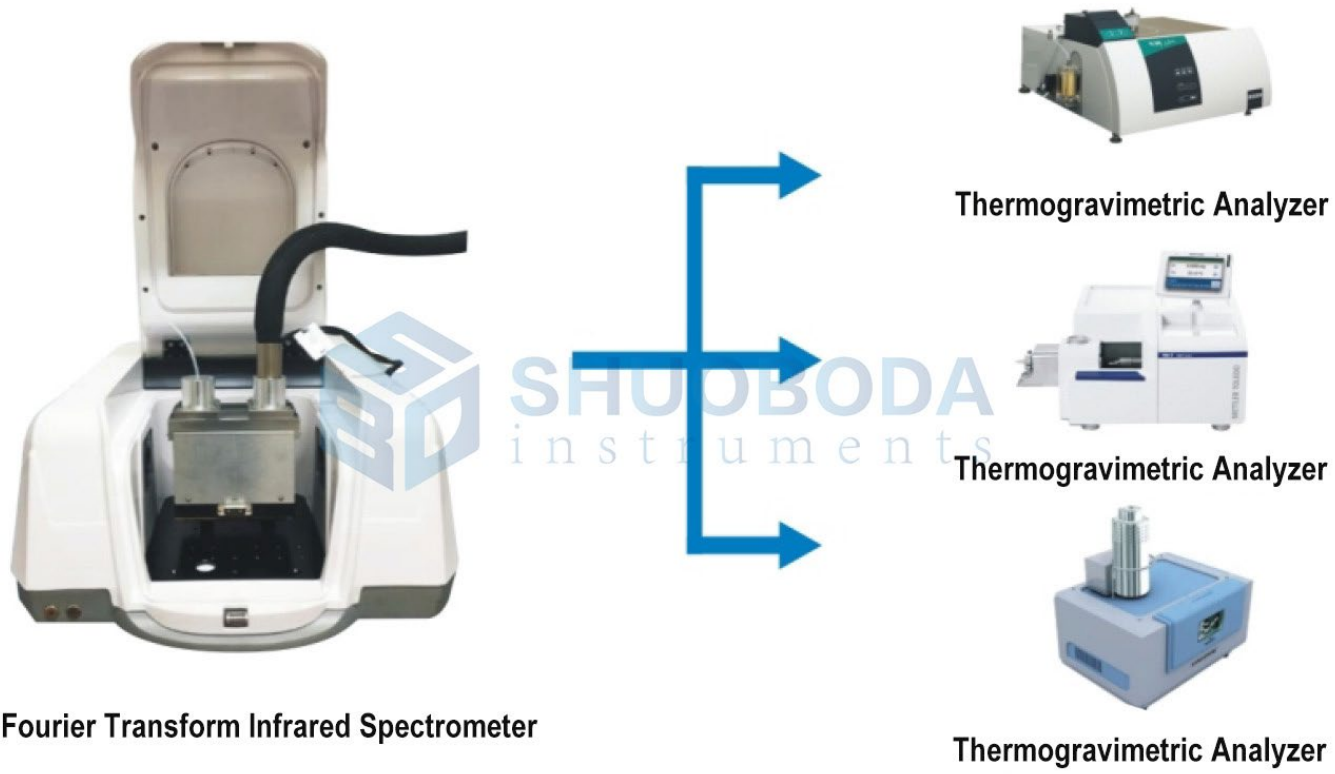
Product introduction

The Fourier transform infrared spectrometer-thermogravimetric analyzer combined system combines the quantitative analysis capabilities of the thermogravimetric analyzer with the qualitative analysis capabilities of the Fourier transform infrared spectrometer. It can be widely used in polymer, pharmaceutical and chemical industries. In other fields, it can conduct qualitative analysis of gaseous products produced during substance decomposition, solidification cross-linking reactions and other reactions.

Features

- It can be adapted to a variety of thermogravimetric analyzers, and can upgrade existing thermogravimetric analyzers to thermogravimetric-infrared coupling systems for customers.
- High sensitivity, good stability, high-cost performance
- Both the joint interface and the transmission pipeline are equipped with heating and insulation devices, equipped with a temperature controller, which can set the heating temperature as needed, and can support up to 230°C. The infrared spectrometer is equipped with a dedicated heated gas chamber to effectively avoid the condensation of decomposition products.
- The special focused optical path design enables the heated gas cell to maximize sensitivity while minimizing its size.

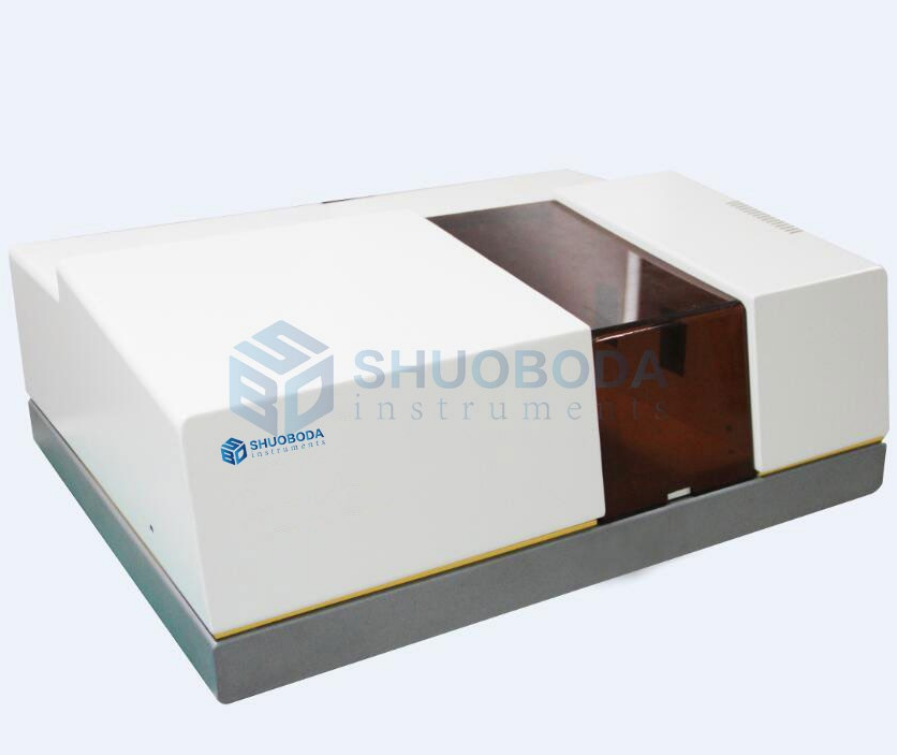
- The operating software of the thermogravimetric analyzer can automatically and synchronously trigger the infrared spectrometer software for automatic data collection.
- The professional thermogravimetric-infrared coupling module of the infrared spectrometer software solves time-resolved experiments, generates Gram-Schmidt curves, and compares them with the thermogravimetric analysis curves, so that the spectrum of the required area can be obtained



Technical Specification

Model	TG-FTIR
Spectral range	7800~350cm-1, covering the mid- and near-infrared spectrum range
resolution	0.5cm-1, which can meet the requirements of industrial high-end testing and scientific research
signal-to-noise ratio	<2.2x10-5 AU (1 minute scan, 4cm-1 resolution)
Connecting pipe heating temperature	230°C
Connecting pipe material	PTFE
Thermogravimetric maximum heating temperature room temperature	~1100°C
Maximum heating rate	200K/min
Balance sensitivity	0.1 ug

7. SP-I30 Double-beam infrared spectrophotometer



Instrument introduction:

The SP-I30 double-beam infrared spectrophotometer is a classic product. It uses an imported TGS receiver. It has stable performance, loose environmental requirements, and is extremely cost-effective. It is an excellent choice for customers with limited budgets and few inspection varieties. s Choice

Features:

(1) Economical infrared products with stable performance and trustworthy performance
Using imported TGS receiver, compared with other domestic receivers, the performance is more stable and the quantitative detection sensitivity is higher. It is one of the most classic products among domestic dispersive infrared models.

(2) Economical infrared products to improve customer economic benefits
It is an excellent choice for customers with limited budget and few types of inspections, and all key accessories are domestically produced.

(3) Certified infrared products to meet users' GMP certification needs
The technical parameters of this product fully comply with the requirements of the infrared regulations of the Pharmacopoeia, which greatly meets the user's GMP certification needs.

(4) Humanized operating software to effectively enhance user experience

- The spectrum comparison function facilitates users to judge whether the tested sample is qualified or not.
- Report printing function facilitates users to save test results.
- Spectrum self-adding function facilitates users to create their own infrared spectrum library

- The drug infrared spectrum query function facilitates users to search for spectra by using keywords.

(5) 3Q certification service

Provide professional 3Q certified installation services.

Technical specifications:

Model	SP-I30
Receiver	Imported TGS receiver
Spectral range	4000~400cm-1
Wavenumber accuracy	±4cm-1 (4000~2000cm-1); ±2cm-1 (2000~400cm-1)
Wavenumber repeatability	≤2cm-1 (4000~2000cm-1); ≤1cm-1 (2000~400cm-1)
Discrimination ability	Polystyrene can resolve 7 absorption peaks near 3000 cm-1
Transmittance accuracy	±0.2%T (excluding noise level)
transmittance repeatability	≤0.5%T（1000~930cm-1）
line straightness	≤±0.2%T
stray light	≤0.5%T (4000~650cm-1); ≤1.0%T (650~400cm-1)
test mode	Transmittance, absorbance, single beam, three types in total
Scan speed	There are five levels: very fast, fast, normal, slow and very slow.
Data transmission interface	USB2.0

Raman spectrometer

1. LRS-2/3 Laser Raman Spectrometer

Product description

The LRS-2/3 laser Raman spectrometer is a teaching-grade laser Raman spectrometer independently developed by SHUOBODA. The product has high sensitivity, simple operation, good stability and high-cost performance. It can be used in physics and chemistry in scientific research institutes and colleges and universities. The laboratory serves as a measuring instrument for Raman spectroscopy and fluorescence spectroscopy.

Features

- computer control
- Can automatically record Raman and fluorescence spectra
- High resolution, low stray light monochromatic system
- High sensitivity, low noise single photon counter as receiving system
- High-power semiconductor laser as excitation light source
- Equipped with an external optical path system with good stability and high precision
- Equipped with a variety of accessories, suitable for the analysis of liquid and solid samples
- Equipped with notch filter to reduce Rayleigh scattering

Technical Specifications

Model	LRS-2/3
monochromator	D/F=1/5.5, grating 1200L/mm, slit width 0-2mm continuously adjustable, slit accuracy 0.01mm
A semiconductor laser	Output wavelength: 532nm output power ⩾100mW
External light path system	Including laser focusing optical system and Raman signal collection optical system. Optical components such as polarizers, analyzers, wave plates, and Raman filters can be placed in the optical path.
sample holder	Five-dimensional adjustable vertical sample holder, horizontal liquid

	sample holder, transparent solid sample holder, oblique incidence solid sample holder, backscattered sample holder
Single photon counting system	Photon counting photomultiplier tube, single photon signal discrimination circuit system

Basic configuration

Name	Parameters
focal length	f=302.5mm
Relative aperture	D/F=1/5.5
Scan range	0nm-1200nm
Linear dispersion	2.7nm/mm
resolution	≤0.1nm (500nm)
slit	Width 0~2mm continuously adjustable, indication accuracy 0.01mm, seam height up to 20mm
modal	Near TEM00
Wavelength accuracy	≤0.1nm
Wavelength Repeatability	≤0.2nm
stray light	≤10-3
Dimensions	700mm×500mm×450mm
weight	70kg

2. MRS-4 Micro-Raman spectrometer

Product description

MRS-4S is a general-purpose microscopic confocal Raman spectrometer. Based on the modular design concept and advanced optical system, it achieves high performance and high-cost performance. It is suitable for university teaching, basic scientific research, enterprise testing and R&D., environmental protection and other fields

Features

- Visual operation control, intuitive and simple
- Sample size up to 2μm
- Low wavenumber detection down to 20cm-1 is possible
- Different detection methods of wavelength/wave number can be selected
- Detectable polarization properties of Raman spectra

Model	MRS-4
Monochromator	
Focal length	300mm
Grating	1200 pieces/mm
Wavelength range	200~800nm
slit	0~2mm continuously adjustable
Wavelength accuracy	≤0.2nm
Repeatability	≤0.2nm

Laser	
excitation wavelength	532nm
Output Power	100mW
Microscope optical system	
Infinity chromatic aberration correction system, minimum measurement diameter 2μm	
eyepiece	High eye point and large field of view plan eyepiece PL10x/22mm
	Micrometer available
objective lens	Infinity plan semi-apochromatic fluorescence objective (10x, 50x, 100x)
converter	Internally positioned five-hole converter
Focusing mechanism	Low hand position coarse and fine adjustment coaxial
	Coarse adjustment stroke 30mm
	Fine adjustment accuracy 0.002mm
	Tightness adjustment device and upper limit device
	Stage bracket set height adjustable
Stage	150mm x 162mm double-layer composite mechanical platform
	Movement range 76mm x 50mm
	Accuracy 0.1mm
	X-axis single linear rail transmission
	Upper platform ceramic spray paint
Lighting system	Adaptive 100V~240V wide voltage
	Reflector light room
	Single high-power 5W high-brightness LED light
	Kohler Lighting
	Reservation center
	Light intensity continuously adjustable
Camera	Ultra HD 16 million pixels

3. CRM-5 confocal Raman microscope (CRM)

Product description

The CRM-5 confocal Raman microscope is a research-level Raman testing instrument equipped with a three-dimensional automatic platform. The true confocal microscope optical path ensures that the most detailed spectral images can be obtained quickly and accurately.

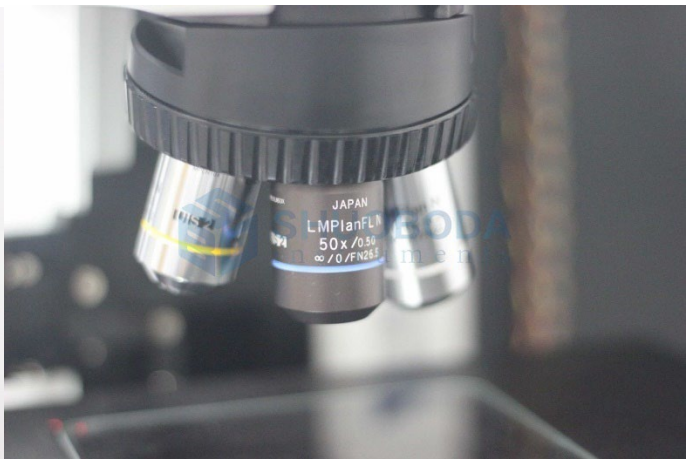
The MRS-5 model has optimized the optical path design to ensure that it has the highest sensitivity on the market, taking into account the spatial resolution to reach the diffraction limit while ensuring the high light throughput of the instrument. Combined with the self-developed software operating system, the Raman testing process is more convenient, faster and more user-friendly.

Features

- 800mm focal length, high spatial and high spectral resolution
- Fully automatic 3D platform enables fast automatic scanning of mapping
- True confocal Raman imaging capabilities
- Software controlled automatic variable pinhole
- Open sample stage can meet the testing needs of samples of different shapes and volumes.
- Ultra-low wave number detection
- Scalable for use with a variety of other testing technologies
- Wide range of applications
- Low maintenance and simple to use

Function extension

- Optional multi-laser, suitable for various types of samples and optimizing experimental results
- Can be combined with Raman AFM and TERS (tip enhanced Raman)
- Optional professional Raman database for rapid identification and analysis



Technical Specifications

Model	CRM-5
measurement method	Qualitative/semi-quantitative testing
Laser (excitation wavelength)	532nm (633nm, 785nm scalable)
Spectral range	50～7000cm-1
Spectral resolution	Better than 1.5cm-1
Wavelength accuracy	⩽±1cm-1
Sensitivity	The fourth-order peak of silicon can be observed
spatial resolution	X/Y axis: 0.01μm, Z-axis: 0.002μm (related to the microscope's fine-tuning gear reduction ratio)
CCD spectrum detector size	26.6×3.2mm
Effective Pixels	1650×200
Pixel size	16×16μm
confocal pinhole	50μm, 150μm, 200μm, 400μm

Micro-Spectrophotometer

1. MSP-100 Micro-Spectrophotometer

Product introduction:

MSP-100 is a perfect full-spectrum, UV-Vis spectrophotometer, used to quantify and assess concentration of DNA, RNA, protein and more.

MSP-100 utilizes CCD detector, a Xenon light source for long lifetime lamp together with simple software. Simple pipette 0.5~2 μl sample onto the pedestal, laying down the sampling arm, it can complete the measurement within 5 seconds.

Features

- **User-friendly software, easy to use**

Graphical software operation, the interface is more intuitive, and the results can be directly exported, which is convenient for data saving, viewing and output

- **Micro-volumes measuring**

Only require 0.5~2 μl sample to accurate determinate of nucleic acids, proteins

- **Fast and easy measurements**

Turn on and instantly measure without lamp warm up time; Easy measurement within 5 sec

- **Long life's Xenon flash lamp**

Xenon flash lamp, 10 flashes, up to 10 years, no dilutions and expensive consumables

- **High detection concentration**

The highest concentration of the measurable sample is 4500 ng/μl (dsDNA as an example), and the sample basically does not need to be diluted

- **Ease of use**

Spot the sample directly on the base without dilution or cuvette, the measurable sample concentration is 50 times that of a conventional UV-Vis spectrophotometer, and the result is directly output as the sample concentration

- **MSP-100 Unique Advantages:**

1. Turn on and instantly measure without lamp warm up time;
   Full scan capability from 200-800 nm within 5 sec

2. Detects Nucleic Acids up to 4500 ng/ul (dsDNA)
3. 3864-Element linear silicon CCD array
4. Need to connect computer
5. Software compatibility: WinXP, Win7, Win8

Technical Specifications

Model	MSP-100
Wavelength range	200-800 nm
Minimum sample size	0.5-2.0 μl
Path length	0.2 mm 1.0 mm
Light source	Xenon flash lamp
Detector type	2048-Linear CCD array
Wavelength accuracy	1 nm
Spectral resolution	≤3 nm
Absorbance precision	0.003Abs
Absorbance accuracy	1%（7.332Abs at 260 nm)
Absorbance range	0.04 - 90 A
Detects nucleic acid up to	2~4500 ng/μl (dsDNA)
Measurement time	<5 S
Data output	Connect PC
Sample pedestal material	Aluminum alloy and Quartz fiber
Operating voltage	DC 24 V 2 A
Operating power	20 W
Standby power	5 W
Dimension (W×D×H) mm	200×250×166
Weight	2.6 kg
Software compatibility	WinXP, Win7, Win8

2. MSP-300 Nano UV-Vis Micro-spectrophotometer

Product introduction:

MSP-300 is a perfect full-spectrum, UV-Vis micro-spectrophotometer based on MSP-100 with full range of wavelength (200-800nm). Not only can it quickly and accurately detect nucleic acids, proteins and cell solutions with only 2 µl of sample like MSP-100, but it is also equipped with a cuvette mode to detect the concentration of bacteria and other culture solutions, and then determine the growth of bacteria. MSP-300 is added a new function of bacterium cell concentration test (OD600). MSP-300 uses 7-inch touch screen and is integrated with Android system, which do not need to connect to a computer. It can be efficiently and conveniently applied to various fields of life science, and has become a routine configuration instrument in many laboratories.

Features

- Android system, 7-inch capacitive touch screen, intuitive APP software, simple and easy to use
- To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
- With a 2048-Element linear CCD array detector, the detection and display can be completed in 5s
- Equipped with HD touch screen, no need to connect PC
- When the MSP-300 is idly left more than 5mins. it will switch of automatically, Then, the user can awake the machine by touching the screen
- The data can be printed with built-in printer, and can output via USB for data analysis and storage
- Turn on and instantly measure without lamp warm up time: full scan capability from 200-800nm within 5 sec

Application Range

260 nm: dsDNA, ssDNA, RNA

280 nm: A280, BSA, IgG, Lysozyme

562 nm: BCA

595 nm: Bradford

600 nm: Bacterial concentration

650 nm: Lowry

Technical Specifications

Model	MSP-300
Wavelength range	200-800 nm
Minimum sample size	0.5-2.0 μl
Path length	0.2 mm 1.0 mm
Light source	Xenon flash lamp
Detector type	2048-Linear CCD array
Wavelength accuracy	1 nm
Spectral resolution	≤3 nm (FWHM at Hg546 nm)
Absorbance precision	0.003Abs
Absorbance accuracy	1%（7.332Abs at 260 nm)
Absorbance range	0.04 - 90 A
Detects nucleic acid up to	2~4500 ng/μl (dsDNA)
Measurement time	<5 S
Data output	USB
Sample pedestal material	Aluminum alloy and Quartz fiber
Operating voltage	DC 24 V 2 A
Operating power	25 W
OD600nm measurement	
Standby power	5 W
Dimension (W×D×H) mm	210×268×181
Weight	2.8 kg
Software compatibility	Android system
Light source	LED
Wavelength range	600±8 nm
Absorbance range	0-4 A

3. MSP-400A ultra-micro nucleic acid analyzer

Product introduction:

MSP-400A ultra-micro nucleic acid analyzer is an instrument used to detect the concentration and purity of DNA and RNA. The sample size required for each measurement is only 1 to 2 μl. User can directly add the sample point to the template without colorizing cup or capillary accessories. After the measurement, you can choose to wipe the sample directly or use a pipettor to recover the sample. All steps are simple and fast.

Features

- MSP-400A is a basic micro-volume UV spectrophotometer designed (only 3 types of wavelengths: 260 nm, 280 nm and 365 nm) for the measurement of nucleic acids and proteins
- Android system operation, 7-inch touch screen no computer, APP software, simple interface, easy to use
- LED light source long-life components
- To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
- Measures nucleic acid concentration at 260 nm and purity using the ratio 260/280
- Measure purified protein concentration at 280 nm
- The data can be printed with built-in printer, the data can output via SD-RAM card and USB memory

Technical Specifications

Model	MSP-400A
Wavelength range	260 nm, 800 nm
Minimum sample size	1-2.0 μl
Path length	0.5 mm
Light source	LED

Detector type	UV-sillion photocell
Spectral resolution	≤8 nm
Absorbance precision	0.003Abs
Absorbance accuracy	2%（7.332Abs at 260 nm)
Absorbance range	0.2 - 50 A
Detects nucleic acid up to	10-2500 ng/μl（dsDNA）
Measurement time	<6 S
Data output	USB
Sample pedestal material	Aluminum alloy and Quartz fiber
Operating voltage	DC 24 V 2 A
Operating power	25 W
Standby power	5 W
Dimension (W×D×H) mm	208×280×186
Weight	3.6 kg
OD600nm measurement	
Software compatibility	Android system
Light source	LED
Wavelength range	600±8 nm
Absorbance range	0-4 A

4. MSP-500 advanced micro UV VIS spectrophotometer

Product introduction:

MSP-500 is an advanced model of micro UV VIS spectrophotometer based on MSP-300, with full range of wavelength (200-800 nm). It is with an added new function of bacterium cell concentration measurement (OD600) in a cuvette. The MSP-500 only requires 0.5-2 μl sample to measure nucleic acids, proteins as quickly as MSP-300. MSP-500 come with a 7 inch touch screen and integrated Android operating system, with no computer required. It is an ideal equipment for a biology laboratory to make life science research more efficient.

Features

- The patented lifting motor structure makes the liquid column stretch gentler, preventing the liquid column from breaking due to structural problems
- To detect the concentration of bacteria and microorganism are more convenient with the OD600 function
- Android system, 7-inch capacitive touch screen, intuitive APP software, simple and easy to use
- With a 2048-Element linear CCD array detector, the detection and display can be completed in 6S Long-life pulsed xenon light source
- The result can be printed by a built-in printer or exported via USB for data analysis and storage

Perfect fusion of micro-detection and fluorescence detection

To added the 0.05mm optical path length, and the highest detection concentration up to 15000ng/ul	To added the Fluorescence detection function, which can be used for accurate quantification of extremely low concentration nucleic acid with a lower limit of 0.5pg/μl	Automatic detect after put down the arm

Application

Application range

260 nm: dsDNA, ssDNA, RNA

280 nm: A280, BSA, IgG, Lysozyme

562 nm: BCA

595 nm: Bradford

600 nm: Bacterial concentration

650 nm: Lowry

Application of different fluorescence channel

Channel	Excitation Filters	Normal kits	Applications
UV channel	365±20 nm	Hoechst 33258, 4-MU, EnZCheK Caspase	Nuclear acid quantification, Plant GUS reporter gene detection, Poptosis detection
Blue channel	460±20 nm	PicoGreen®, oligreen, RiboGreen®, GFP, Protein, Fluorescein, Quant-iT™	dsDNA, ssDNA, RNA quantification, GFP gene detection, Fluorescein detection, Protein detection
Green channel	525±20 nm	Rhodamine, Cy3, RFP Vybrant Cytotoxicity	Rhodamine detection, Cy-3 fluorescence labeling detection, RFP gene detection, Cell activity position detection
Red channel	625±20 nm	Cy5, Quant-iT RNA	Cy-5 fluorescence labeling dectection, RNA quantification

Easy Handling

1.Adding sample

2.Measuring sample

3.quick and easy cleaning

Technical Specifications

Model	MSP-500
Wavelength range	260 nm, 800 nm
Minimum sample size	1-2.0 μl
Path length	0.5 mm
Light source	LED
Detector type	UV-sillion photocell
Spectral resolution	≤8 nm
Absorbance precision	0.003Abs
Absorbance accuracy	2%（7.332Abs at 260 nm)
Absorbance range	0.2 - 50 A
Detects nucleic acid up to	10-2500 ng/μl（dsDNA）
Measurement time	<6 S
Data output	USB

Sample pedestal material	Aluminum alloy and Quartz fiber
Operating voltage	DC 24 V 2 A
Operating power	25 W
Standby power	5 W
Dimension (W×D×H) mm	208×280×186
Weight	3.6 kg
OD600nm measurement	
Software compatibility	Android system
Light source	LED
Wavelength range	600±8 nm
Absorbance range	0-4 A

5. MSP-600/800 ultra-micro-volume UV spectrophotometer

Product introduction:

MSP-600 ultra-micro-volume UV spectrophotometer is a high-reproducibility full-wavelength spectrophotometer that adopts dual detection modes of base and cuvette loading. The ultra-micro-volume UV spectrophotometer is suitable for sample detection in a wider concentration range, easy to operate, not only can be used to measure DNA, RNA purity and concentration, measure protein concentration, but also can be used for absorbance detection in general material analysis. Ultra-trace UV spectrophotometer

Features:

- 7-inch capacitive touch screen, optimized design of Android system software
- No preheating is required, the detection can be completed in 5 seconds, and the results are directly output as sample concentration.
- If there is no operation within 5 minutes, the light source will be automatically turned off to extend the service life.
- The software graphical interface is simple and easy to use, the operation is more intuitive, and the results can be exported directly.
- Only a trace sample of 0.5~2ul can be used for purity and concentration measurements, and the sample can be recovered.
- External printer (optional) prints reports directly.

Technical Specifications

model:	MSP-600	MSP-800
Software operating platform:	7-inch capacitive touch screen, Android system	7-inch capacitive touch screen, Android system
Wavelength range:	185-910nm;	185-910nm;
Cuvette mode (OD600):	600±8nm	600±8nm
Sample volume requirements:	0.5-2.0ul	0.5-2.0ul
Optical path:	0.2mm, 1.0mm automatic switching	0.05mm, 0.2mm, 1.0mm automatic

		switching
light source:	Xenon flash lamp (life span up to 10 years)	Xenon flash lamp (life span up to 10 years)
Detector:	3648 pixel linear CCD array	3648 pixel linear CCD array
Wavelength accuracy:	1nm	1nm
Wavelength resolution	≤3nm(FWHM at Hg 546nm)	≤3nm(FWHM at Hg 546nm)
Absorbance Accuracy:	0.003Abs	0.003Abs
Absorbance Accuracy:	1% (7.332 Abs at 260nm)	1% (7.332 Abs at 260nm)
Absorbance range (equivalent to 10mm):	0.02-300A;	0.02-300A;
Cuvette mode (OD600 measurement):	0~4A	0~4A
testing time:	≤5S	≤5S
Nucleic acid detection range:	2-4500ng/ul(dsDNA)	2-17500ng/ul(dsDNA)
Protein detection range:	0-440mg/ml (BSA)	0-440mg/ml (BSA)
Data output method:	USB, SD-RAM card	USB, SD-RAM card
Sample base material:	Quartz fiber and high hard aluminum	Quartz fiber and high hard aluminum
lithium battery	none	6800mmA
Appearance size (mm)	270x210x196	270x210x196

6. MSP-600+ Ultra Micro UV Visible Spectrophotometer

Product introduction:

MSP-600+ Ultra Micro UV Visible Spectrophotometer (ultra-trace nucleic acid and protein analyzer) is a highly reproducible spectrophotometer. It adopts dual detection modes of base and cuvette loading, and is suitable for sample detection in a wider concentration range, easy to operate, mainly used to detect nucleic acid concentration and protein purity.

Features:

- 7-inch capacitive touch screen, optimized design APP software
- Only a trace sample of 0.5~2ul can be used for purity and concentration measurements, and the sample can be recovered.
- A new OD600 optical path detection system and a new cuvette mode are added to facilitate the detection of the concentration of culture fluids such as bacteria and microorganisms.
- Extremely fast detection speed, each sample can be tested within 5 seconds.
- The built-in printer prints reports directly.
- 6800mmA lithium battery (optional).
- It can be output through USB flash memory and SD-RAM card to facilitate data analysis and storage.
- Fluorescence detection function (optional), compatible with common fluorescence quantitative reagents.

Technical Specifications

Model	MSP-600+	MSP-800+
Software operating platform:	7-inch capacitive touch screen, Android system	7-inch capacitive touch screen, Android system
Wavelength range:	260nm, 280nm	185-910nm
Cuvette mode (OD600):	600±8nm	600±8nm
Sample volume requirements:	0.5-2.0ul	0.5-2.0ul
Optical path:	0.05mm;0.2mm;1.0mm automatic	1mm, 0.2mm, 0.05mm, 0.02mm

	switching	automatic switching
light source:	LED light emitting diode	Xenon flash lamp (life span up to 10 years)
Detector:	UV silicon photovoltaic cell	3648 pixel linear CCD array
Wavelength accuracy:	1nm	1nm
Wavelength resolution	≤3nm(FWHM at Hg 546nm)	≤3nm(FWHM at Hg 546nm)
Absorbance Accuracy:	0.003Abs	0.003Abs
Absorbance Accuracy:	1% (7.332 Abs at 260nm)	1% (7.332 Abs at 260nm)
Absorbance range (equivalent to 10mm):	0.02-300A;	0.02-300A;
Cuvette mode (OD600 measurement):	0~4A	0~4A
testing time:	≤5S	≤5S
Nucleic acid detection range:	2-38880ng/ul(dsDNA)	2-38880ng/ul(dsDNA)
Protein detection range:	0-440mg/ml (BSA)	0-440mg/ml (BSA)
Data output method:	USB, SD-RAM card	USB, SD-RAM card
Sample base material:	Quartz fiber and high hard aluminum	Quartz fiber and high hard aluminum
Print:	Built-in thermal printer	Built-in thermal printer
lithium battery	none	6800mmA optional
Fluorescence detection:	none	Excitation wavelength 460nm, emission wavelength 525nm
size (mm)	270x210x196	270x210x196

7. MSP-800+ ultra-trace nucleic acid and protein analyzer

Product introduction:

MSP-800+ ultra-trace nucleic acid and protein analyzer (ultra-trace spectrophotometer) is a highly reproducible spectrophotometer that adopts dual detection modes of base and cuvette loading, and is suitable for sample detection in a wider concentration range. , easy to operate, mainly used to detect nucleic acid concentration and protein purity.

Features:

- 7-inch capacitive touch screen, optimized design APP software
- Only a trace sample of 0.5~2ul can be used for purity and concentration measurements, and the sample can be recovered.
- A new OD600 optical path detection system and a new cuvette mode are added to facilitate the detection of the concentration of culture fluids such as bacteria and microorganisms.
- Extremely fast detection speed, each sample can be tested within 5 seconds.
- The built-in printer prints reports directly.
- 6800mmA lithium battery (optional).
- It can be output through USB flash memory and SD-RAM card to facilitate data analysis and storage.
- Fluorescence detection function (optional), compatible with common fluorescence quantitative reagents.

Technical Specifications

Model	MSP-600+	MSP-800+
Software operating platform:	7-inch capacitive touch screen, Android system	7-inch capacitive touch screen, Android system
Wavelength range:	260nm, 280nm	185-910nm
Cuvette mode (OD600):	600±8nm	600±8nm
Sample volume requirements:	0.5-2.0ul	0.5-2.0ul

Optical path:	0.05mm;0.2mm;1.0mm automatic switching	1mm, 0.2mm, 0.05mm, 0.02mm automatic switching
light source:	LED light emitting diode	Xenon flash lamp (life span up to 10 years)
Detector:	UV silicon photovoltaic cell	3648 pixel linear CCD array
Wavelength accuracy:	1nm	1nm
Wavelength resolution	≤3nm(FWHM at Hg 546nm)	≤3nm(FWHM at Hg 546nm)
Absorbance Accuracy:	0.003Abs	0.003Abs
Absorbance Accuracy:	1% (7.332 Abs at 260nm)	1% (7.332 Abs at 260nm)
Absorbance range (equivalent to 10mm):	0.02-300A;	0.02-300A;
Cuvette mode (OD600 measurement):	0~4A	0~4A
testing time:	≤5S	≤5S
Nucleic acid detection range:	2-38880ng/ul(dsDNA)	2-38880ng/ul(dsDNA)
Protein detection range:	0-440mg/ml (BSA)	0-440mg/ml (BSA)
Data output method:	USB, SD-RAM card	USB, SD-RAM card
Sample base material:	Quartz fiber and high hard aluminum	Quartz fiber and high hard aluminum
Print:	Built-in thermal printer	Built-in thermal printer
lithium battery	none	6800mmA optional
Fluorescence detection:	none	Excitation wavelength 460nm, emission wavelength 525nm
size (mm)	270x210x196	270x210x196

Flame Spectrophotometer

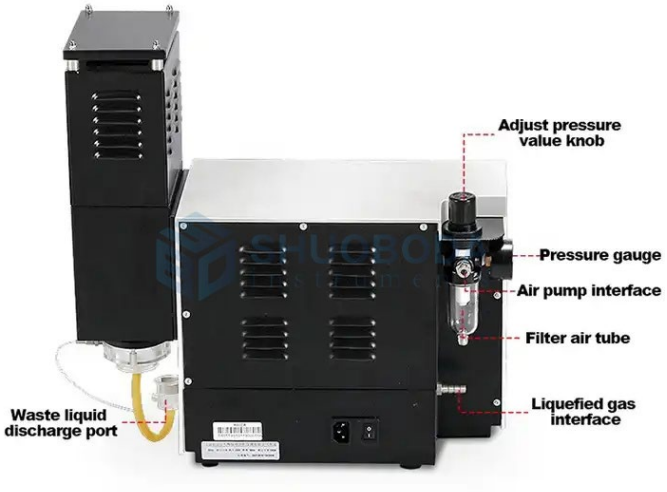
1. FP Series Flame Spectrophotometer

Detailed introduction

FP series multi-element flame photometer is a newly designed instrument. It has the advantages of small size, easy operation and stable and reliable. Host with 7-inch color capacitive touch LCD screen, can store up to 10 points a group of standard curve 200 sets of test data. FP series flame photometer uses liquefied gas as gas.

Main feature:

- with K, Na, Li, Ca, Ba concentration of direct reading function. (Depending on model)
- With K, Na, Li, Ca, Ba detection range screen switching function. (Depending on model)
- With correlation coefficient automatic calculation function.
- Pre-selected with flame size.
- With a safety flame protection device.
- With data direct printing device (optional).
- With USB communication port.
- Optional operating software.



Specifications

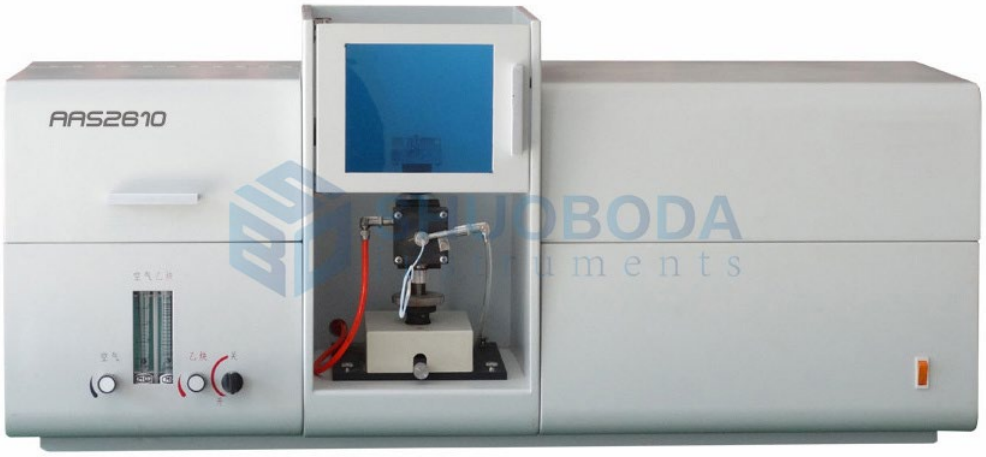
Model		FP6450	FP6440	FP6432	FP6431	FP6430
Display method		7 inch color capacitive touch LCD screen				
Show results		Concentration value				
Reading range		0.000～999.9				
Test elements		K, Na, Li, Ca, Ba	K, Na, Li, Ca	K, Na, Ba	K, Na, Ca	K, Na, Li
Number of channels		5	4	3	3	3
test limit mmol/L	K			≤0.004		
	Na			≤0.008		
	Li		≤0.015	O	O	≤0.015
	Ca		≤0.050	O	≤0.050	O
	Ba	≤0.044	O	≤0.044	O	O
Linearity error mmol/L	K			≤0.005		
	Na			≤0.03		
	Li		≤0.021	O	O	≤0.021
	Ca		≤0.075	O	≤0.075	O
	Ba	≤0.066	O	≤0.066	O	O
Response time		<8s				
Minimum suction volume		<6ml/min				
stability		With the standard solution for continuous injection, 15s within the instrument shows the relative maximum amount of change ≤ 3% 1 test per minute, a total of 6 times, the maximum value of the instrument changes ≤ 15%				
Repeatability		≤3%				
Graph printer		Have				
		Optional				
Printer type		Built-in thermal printer				
USB interface		Have				
Connect to the computer		Yes				

Flame Spectrophotometer Packing List

Item	Description	Qty.
1	Main Instrument	1
2	User manual	1
3	Power cable	1
4	Air compressor	1
5	Pu pipe（air）Φ6*4	2M
6	Latex pipe（liquid waste）Φ6	1.5M
7	Capillary（1.8*0.8*180）	1
8	Rubber pipe (liquefied gas)Φ10	2M
9	Liquefied gas regulato	1
10	Locking chuck(liquefied gas)	1
11	Glass cover	1
12	Cover part (chimney cover)	1

Atomic Absorption Spectrometer

1. AAS-2610 Atomic Absorption Spectrophotometer



AAS-2610 Atomic Absorption Spectrophotometer could detect trace metal elements, such as Cu, Fe, Ca, Pb, Hg, Cr, Cd, Au, etc. Its basic parameters could be accordance with the basic parameters of the atomic absorption spectrophotometer in GB/T21187-2007 professional standard.

Performance Index

1. Optical system

- Wavelength: 190nm-900nm
- Monochromator: C-T, aberration
- Spectrum bandwidth: 0.2nm, 0.4nm, 1.0nm, 2.0nm for option
- Wavelength accuracy: ±0.10nm
- Wavelength repeatability: 0.05nm
- Baseline shift: static ±0.001A/30min, dynamic ±0.003A/30min
- Detector: photomultiplier
- Resolution: in 0,2nm spectral bandwidth to separate Mn double (279.5nm & 279.8nm), and the ratio of the peak energy <20%

2. Atomic system

- (Cu) characteristic concentration: 0.020μg/ml/1%
- (Cu) detection limit: 0.003μg/ml
- Burner: 100mm titanium metal, air premixed
- Precision: RSD≤0.5%
- Sprayer: high efficiency glass atomizer
- Atomizing chamber: corrosion resistant material
- Position adjustment: flame burner optimum height, front and rear position adjustable, complete

the transfer between the flame and the hydride in one minute
- Safety: with many kinds of automatic protection, acetylene gas leakage alarm, closed system

3. Analytic method
- Measurement method: air-acetylene flame method, hydride generator atomic absorption method, oxygen-air acetylene flame method
- Concentration calculation: standard curve method (1-3 times curve), auto fitting, standard addition method
- Repetition survey frequency: 1-20times, calculate average value, display standard deviation and relative standard deviation
- Printing result: parameters print, data result print, graph print, summary report
- Software: Windows 98/2000/XP

4. Instrument Parameter
- Voltage: AC 220V/50HZ
- Power: 150VA
- Weight: 70Kg
- Volume: 1000mm (L)×350mm(W)×390mm(H)
- Operating temperature: 10℃~35℃
- Operating humidity: ≤80%

5. Standard Layout
- Main host
- Low noise oil free air compressor
- Operating software
- Accessories
- Wooden case packaging and transportation

6. Option
- Hydride generator
- Oxygen enriched device

2. AAS-2630 Atomic Absorption Spectrophotometer

Features

- Using PC for automatic controlling & data processing;
- Integrated design of the flame atomizer and the graphite furnace atomizer, both of which can be automatically switched;
- Eight lamps automatic switch, automatically adjust supply and optimization of the beam position, pre-set optimization hollow cathode lamp working conditions for multi elemental detection convenient
- Automatic ignition, automatic flow rate setting, turn off automatic protection, automatically adjusts negative high voltage, lamp current;
- Automatic control wavelength scanning, automatic peak search completed within 30 seconds, Auto-zero, the gas flow is set automatically
- Advanced and reliable the safety protection system, full range of safety protection for the operator
- Hydride generator for option
- The excellent quality of the optical system, optical system suspension design, the vibration and the environmental temperature changes can not affect the instrument performance
- Convenient and reliable utility software assistant, comprehensive support the windows platform
- The new design of the flame atomizer and high sensitivity of the graphite furnace.

Performance Index

1. Optical system

- Wavelength: 190nm-900nm
- Monochromator: C-T, aberration
- Wavelength accuracy: ±0.15nm
- Wavelength repeatability: <0.10nm
- Baseline shift: 0.004A/30min
- Detector: high sensitivity photomultiplier
- Spectrum bandwidth: 0.1nm, 0.2nm, 0.4nm, 1.0nm, 2.0nm for option
- Dispersion element: plane diffraction grating, 1800article/nm, scoring area 40x40mm2

- Resolution ratio: in 0,2nm spectral bandwidth, the half width of the measuring spectral line no more than0.2nm±0.02nm

2. Atomic system

- (Cu) characteristic concentration: 3.0μg/ml, absorbance not less than 0.300Abs
- (Cu) detection limit: <0.005μg/ml
- Precision: RSD≤0.8%
- Sprayer: high efficiency glass atomizer
- Burner: 100mm titanium metal, air premixed
- Atomizing chamber: corrosion resistant material
- Position adjustment: auto setting for the optimum height of the flame burner and front and rear position
- Safety: with many kinds of automatic protection

3. Graphite furnace atomic system

- (Cd) characteristic concentration: 0.5x10-12g,
- (Cd) detection limit: 3.0μg/ml, 15μL sample, absorbance not less than 0.31Abs
- Precision: RSD≤0.3%
- Heating temperature range: -3000℃ in room
- Heating rate: >2000℃
- Temperature control accuracy: ⩽1%
- Heating temperature control method: the power control method of the dry ashing stage, the atomization stage with the maximum power control
- Heating condition setting: up to 11 programs, ramp heating-up, moment heating-up, maximum power heating-up
- Safety: with the alarm and automatic protection when cooling water flow in lack, superheat and over current indicting by the argon under voltage
- Background correction: in 1A deuterium background correction ⩾30 times, in 1A self absorption background correction⩾60 times
- Graphite furnace heating method: constant power heating
- Measurement method: air-acetylene flame method, hydride generator atomic absorption method, graphite furnace method
- Concentration calculation: standard curve method (1-3 times curve), interpolation method, standard addition method
- Repetition survey frequency: 1-20times, calculate average value, display standard deviation and relative standard deviation
- Printing result: parameters print, data result print, graph print, summary report
- Software: Windows 98/2000/XP
- Data output: instantaneous value, integral value, peak value, peak area

4. Automation system

- Eight lamps automatic switch, with the high-performance lamps
- Auto scanning and peaking of the wavelength, auto transfer the slit
- Auto setting the gas flow, to choose the best combustion ratio
- Auto setting for the optimum height of the flame burner and front and rear position

- Automatic alarm in fray-out of the flame, alarm in ignition failure
- Water seal position confirmation protection

5. Instrument parameter

- AAS
- Voltage: AC 220V/50HZ
- Power: 220VA
- Weight: 100Kg
- Volume: 1170mm (L)×480mm(W)×440mm(H)

6. Graphite furnace

- Voltage: AC 380V/50HZ
- Power: 12KVA
- Weight: 450Kg
- Volume: 410mm (L)×480mm(W)×440mm(H)
- Operating temperature: 10℃~35℃
- Operating humidity: ≤80%

7. Standard Layout

- Main host
- Low noise oil free air compressor
- Operating software
- Accessories
- Wooden case packaging and transportation

3. AAS-7000 Series Atomic Absorption Spectrophotometer

APPLICATION

The AAS-7000 series atomic absorption spectrophotometer is widely used in various fields like gold, petrochemical, geology, medical, environmental protection, scientific research, agriculture, disease control, food, materials science, commodity inspection and so on. At present, the instruments can analysis more than 70 kinds of elements. It plays a very important role in trace elements' analysis.

FEATURES

1. Advanced optical system

- The suspension design of optical system, vibrate and change of environment temperature won't affect its stability.
- It takes the lead in adopting 1800/mm diffraction grating, sufficient energy, and high resolution.
- The single short light optical system can have a sufficient power to get a lower detection limit to arsenic, selenium.
- The well-designed tungsten lamp and self-absorption background technology can ensure a more accurate calibration result.

Six-lamp automatic turret

2. The integrated design

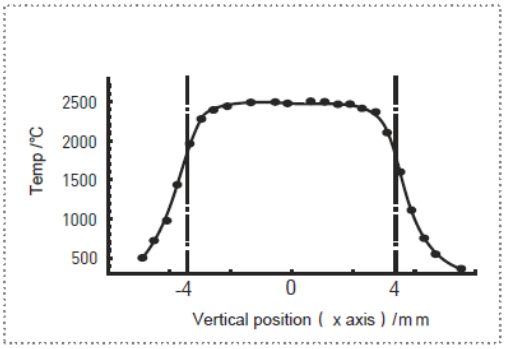
- The careful integrated design, install the flame atomizer, graphite oven and power inside a host, achieve a miniaturization instrument. (Patent number: ZL200620023298.9).
- The optimized power technology extends lamp's service

Furnace body and graphite cone

life.

3. Automatic quickly switch

- Convenient switchable workbench can switch flame, graphite oven automatically or manual operation automatically and quickly.
- Optimized power technology to extend the life of the lamp.



Atomic isotherm map

4. Reliable safety protection system

- The Safe and reliable control alarm device ensure which can ensure hollow cathode lamp current protection.
- Gas / under-voltage to protect air, gas leakage alarm, overheat graphite furnace and flame under abnormal protection.

Humanized inlet design

5. Excellent scalability

- It can support HG-01-type ceramic heater hydride sound device, to achieve the ultra-accurate analysis of Pb, Se, Hg, Bi, Sb, Sn.
- It can also be equipped with graphite furnace auto sampler, automatic configure with standard solution, and achieve fully automatic analysis.
- Then can optional with flame atomic absorption auto sampler, system of nitrous oxide and acetylene gas, and analysis more than 30 kinds of high-temperature elements.

Titanium burner

6. High automation

- It can automatic wavelength positioning, automatic slit switching, lamp current, automatic gain setting which indicators can all reach international advanced level.
- Six lamps turret rotation units are fully automatically controlled by computer, rapid positioning, automatically select elements lamp.
- Truly achieve automatically and a uto-order analysis more than six elements.
- Characterized with automatic ignition, automatic gas flow control, and leak alarm.

AAS-7000 Series Summary

Model	Configuration	Type
AAS-7003	Hose, flame, graphite furnace	Automatic

Atomic absorption spectrophotometer configuration:

- Host: optional model;
- Computer, printer, specialized software and anti-control interface;
- Air: air compressor; high purity argon, acetylene gas (self);
- Elements lamp: (according to user need to select);
- Hydride generator (optional);

- Graphite furnace auto sampler (optional);
- Graphite furnace cooling water tank (optional);
- Spare parts and special tools;

The superior Graphite Furnace System

1. Mature and advanced way of vertical temperature

Graphite furnace atomic transition temperature can reach 3000 ℃, in line with national standards for nickel, molybdenum, vanadium, cobalt and other elements of high-temperature graphite furnace atomic temperature requirements.

2. High Stability

The advanced optical systems ensure the instrument's high optical power, when detect with graphite furnace, the negative pressure lower about 100 ~ 200V than other domestic products under the same conditions (each element can reach this level), high signal to noise ratio ensure a stable data.

3. Maximum sample volume significantly increased

The specially designed graphite furnace increases the maximum injection volume to70 μL, which is conducive to multiple injections and low concentration samples.

4. High background correction capability

Equipped with continuous light (D2), self-absorption background correction system, which can correct up to 1.5A of background interference.

5. High-temperature heating rate

The heating rate is greatly increased due to the use of optical heating rate, fast atoms, improve analytical sensitivity and accuracy.

6. Uniform heating temperature and high-precision

The unique graphite furnace design ensures atomic effects of the isothermal time, for obtain accurate data to provide a guarantee.

7. A pioneering all-titanium spray combustion system

Uses high-tech aerospace, lost wax casting process titanium spray chamber and burner head. Has excellent resistance to corrosion, oxidation, aging, and high temperature, long service life;

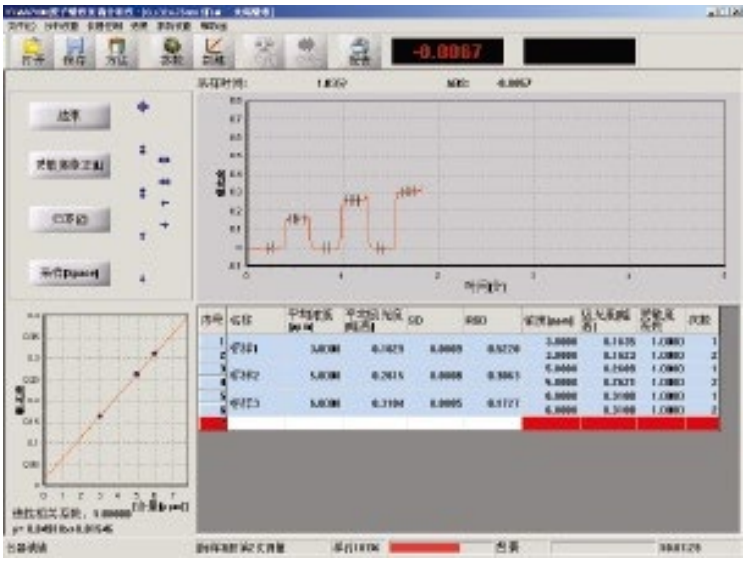
8. Humanity design of sample inlet

The design of sample inlet reduces the sample error, which make sample injection easier, and ensure that even a manual injection can achieve good accuracy.

9. Advanced design of graphite furnace graphite

Graphite cone can be easily replaced after wearing down, to ensure the stability of the electrode conductivity, greatly improving the efficiency of instrumental analysis. (Patent No.: ZL2007 2 0104071)

Highly automated data processing workstation



1. Friendly interface:

Based on Windows XP platform, multi-language support, such as English, Korean, etc., can quickly and easily draw analysis. Powerful analysis capabilities and fault-tolerant samples, flexibility to modify the curve fitting equation

2. Report printing:

Flexible report printing, users can print according to the different choice.

3. Data management

To achieve the management of history and related follow-up treatment, including query, editing and other functions. Can download a variety of file formats and data files.

4. QA / QC control system

Automatically determine whether the result of the analysis is appropriate, if out of range, the system automatically re-measured in accordance with set requirements. About the system's QA / QC features include: standard deviation (SD) test, the relative standard deviation (RSD) detection, correlation coefficient testing, QC testing, baseline drift (sensitivity correction) test, the sample detection limit (automatic on-line dilution).

5. Instrument control functions

Automatic element lamps selecting, automatic wavelength scanning, automatic slit switching, lamp current automatically set, etc.

6. Condition Monitoring

Real-time dynamic monitor equipment working status of each component. Flame: to monitor the combustion head type (normal or high-temperature combustion head), to monitor water seal level, gas, the auxiliary gas switch, pressure, auxiliary gas current, acetylene gas leakage alarm. Graphite furnace: over-current protection, monitoring water temperature, water flow, gas pressure monitoring and protection.

7. Lighting time management

automatically record the time of element light.

Technical parameters

1. Optical system

Wavelength range	190 ~ 900nm
Monochromator	C-T grating monochromator
Wavelength repeatability	≤0.1nm (AAS-7002, AAS-7003) ≤0.2nm (AAS-7000, AAS-7001)
blaze wavelength	250nm
Resolution	better than 0.3nm
Spectral Bandwidth	0.1, 0.2, 0.4, 1.0, 2.0 nm five-speed auto switching (AAS-7002, AAS-7003)
Wavelength accuracy	± 0.2nm
Grating grooves	1800 / mm
Baseline stability	≤ ± 0.004A/30min (dynamic), ≤ ± 0.002A/30min (static)

2. Flame analysis

Cu characteristic concentration	⩽ 0.02 μg / ml
Precision RSD	⩽ 1%
Position adjustment	Best regulation for height and angle, replace Flame / hydride in 1min.
Detection limit	⩽ 0.005 μg / ml
Combustion head	50* 100mm interchangeable all-titanium burner head, all-titanium spray chamber

3. Graphite furnace analysis

Cd features volume	0.5×10—12g
Temperature range	room temperature~3000 ℃
Temperature program	Temperature program up to 20 bands, ladder, ramp, Maintain the three kinds of heating methods.
Heating modes	maximum power heating and light-controlled rapid heating
Detection limit	0.5×10—12g
Precision RSD	⩽ 2%
Ramp rate	⩾ 2000 ℃ / sec.

4. Background correction

Flame and graphite furnace background correction can be all achieved.
Correction methods: deuterium lamp, self-absorption background correction (optional)
Correction capability: 1.5A background correction can be corrected, correction capability> 50-fold.

5. Data Processing

Measuring method: flame absorption, flame emission method, graphite furnace, hydride method.
Analysis: linear equations, nonlinear equations, the standard addition method. Print output: the calibration curve, the signal spectrum, instrument conditions, analysis parameters and results can be automatically stored and printed.

6. Graphite furnace power supply built-in integration host

Size: 880 (L) × 540 (width) × 450 (high) mm, 125kg.
Power supply: 220V, 50Hz, single-phase
Host: 200W, graphite furnace 4KW

Main Features

- Suspended advanced optical system design: the entire optical system installed in the semi-

hanging floating optical base, which has good anti-seismic, anti-drift, strong light energy, and high stability.

- Gas automatic protection system: safety interlock protection and anti-tempering device; acetylene leak, air voltage, alarm and automatic power off and breathe under abnormal condition. Automatic switch 6 lamp turret, completely automatically controlled by a computer, rapid positioning, automatically select lights elements. Wavelength automatic positioning, slit switching and lamp current, gain automatically set, full band scan completed positioning within 45s.
- Spectral Bandwidth: 0.1, 0.2, 0.4, 1.0, 2.0 nm five-speed optional. With a flame emission measurement function, provide a variety of measurement method to potassium, sodium, lithium and other alkali metal. Efficient glass atomizer, atomization efficiency up to 38%, 5mg / L Cu solution absorbed luminosity can reach to 0.95A. All-titanium atomization firing system, anti-corrosion, oxidation, high temperature, long service life, perfect matching of nitrous oxide / acetylene system, increase more than 30 kinds of high-temperature detection element analysis
- Well-integrated design: the flame atomizer, graphite furnace and graphite furnace power supply are all installed in one host, to achieve the miniaturization of the instrument.
- Excellent graphite furnace power supply design: graphite furnace atomic maximum power does not exceed 4KV, bring small disturbance.
- Advanced table design: two seconds to switch flame / graphite furnace, no need to adjust the optical path

Appendix

1. Hydride generator

2. Atomic absorption flame auto sampler

3. Graphite furnace auto sampler

4. AAS-4530F Atomic Absorption Spectrophotometer

Product Description

Lab automatic 8 light high accuracy double beam flame AAS atomic absorption photometer

Features:

- Completely controlled by PC, can flexibly select the flame and graphite furnace atomizer (optional).
- Integrated floated optical platform design can obviously improve the optical system shock resistance and keep stable though use the optical signal for a long term.
- Eight light stands can be changed automatically and preheat the eight lights meantime as well as optimize the working condition of the hollow cathode lamp.
- Position adjusting: the best height of the flame burner and can automatically set the front and rear positions.
- Fully automated wavelength scanning and peak searching.
- Complete safety chains protection equipment: the function of warning and automatic safety protection towards the wrong burner, leakage of the gas, under voltage of air and the abnormal flame out.
- Deuterium lamp and self-absorption background regulation.
- Data processing: super strong database, possesses more than 500 data self-storage and cut-off storage function, can store the analyzed result with the form of EXCEL and the testing method and the result can be randomly called.
- Measuring method: flame absorption method and emission method.
- Result printing: parameter printing, data result printing and diagram printing.

Complete automatic control system:

With the help of the software, the following can be easily achieved

- Selection of the element lamp
- Up-down-front-rear adjustment of the lifter
- Adjustment of the optical energy
- Selection of the slit
- Determination of wavelength scanning and peak searching
- Selection of the atomizer
- Setting of the background deduction method

- Controlling of the gas flow
- Automatic flaming and flaming out
- Setting of the graphite furnace testing method

Advanced graphite furnace temperature control technology:

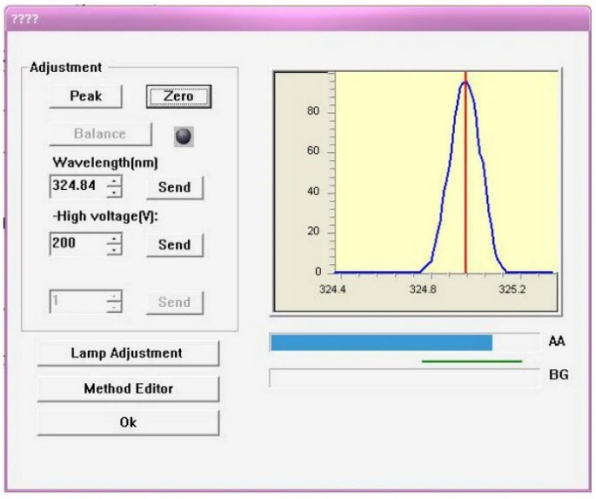
- The bringing in of PID technology can effectively overcome the influence on the temperature rising process caused by the voltage fluctuation and the resistance change to make more accurate controlling process.
- The combination of the 3ms/time fast sampling technique can make more accurate and reliable testing data. The fast-heating capacity can improve the flexibility of the elements further
- Use the ordinary power source of 220V without need of dynamic power of 380V
- The maximum procedure heating capacity setting of 20 levels can make a more convenient and easier test of different samples
- Three grades adjustable gas flow can accustom to more application needs
- Can timely alarm when the gas and water is stopped and insufficient gas and water, can avoid the equipment damage and measuring error

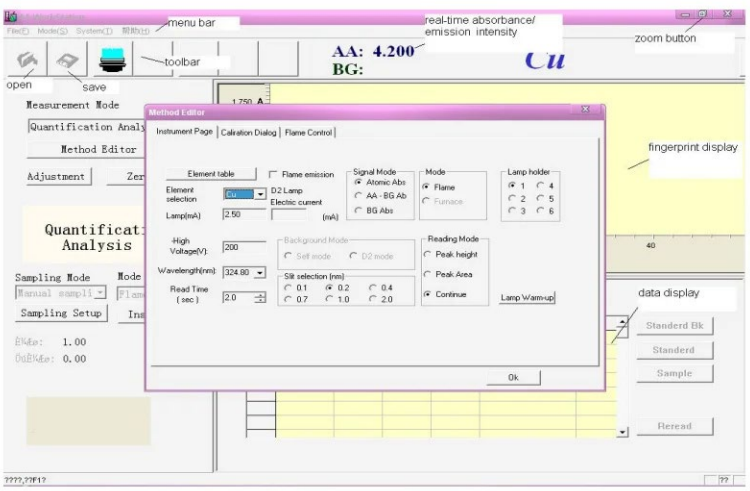
Safe, reliable and convenient flame system:

- EPC can control the flow of Acetylene (C2H2) more accurately and it is a kind of system which also can operate easily.
- Efficient atomization system enables a higher sensitivity
- The whole operation system has a high security as the fire safety system can alarm whenever the electricity is cut off, abnormal flame occurs, a lack of pressure happens or the burner does not match well. And it will automatically turn off the gas, prohibit tempering. Thus, it keeps the operation people and equipment from harm and damage.

Multifunctional software workstation:

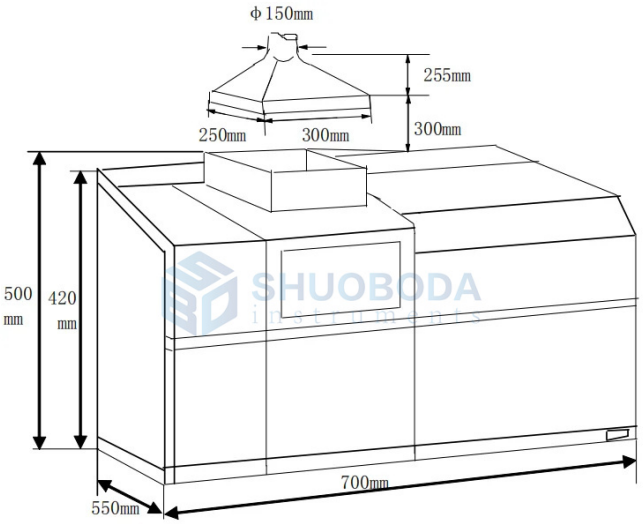
- A workstation that is supported WINDOWS 7The rich menu brings great convenience to the use of customer. Convenient conversion between different menus makes the operation more easily
- Various analytical correction methods provide the users more choices
- Basic fault parameter settings enable even the beginners can do the normal operation. Flexible storage, editing and printing methods give the user largest support



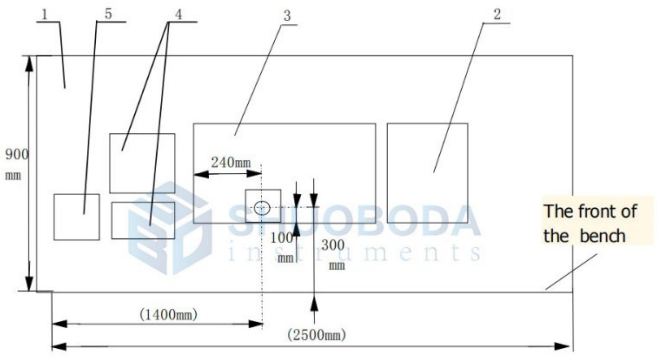


Technical specifications:

Model	AAS-4530F
Monochromator type:	Czerny-Turner
Grating	1800 lines/mm
Grating blaze wavelength	250nm
Wavelength Range	190-900nm
Spectrum Bandwidth	0.1nm/0.2nm/0.4nm/1.0nm/2.0nm automatic switching
Wavelength Accuracy	±0.15nm
Wavelength Receptivity	≤0.04nm
Absorbance range	-0.1-2.000A
Baseline stability	±0.005Abs/30min(Cu)
Characteristic viscosity	0.02μg/ml/1% (Cu)
Detection limit	0.004μg/ml (Cu)
Spectral bandwidth deviation	≤0.2nm±0.02nm (bandwidth 0.2nm, Cu)
Measurement repeatability	≤0.5% (flame method, Cu)
Lamp stand	8
Burner	full metal titanium burner
Sprayer	high-efficiency glass atomizer
Spray chamber	explosion-proof pre-mixed
Power supply	220V±22V, 50Hz±1Hz, 200W
Host size	700mmX550mmX530mm
Net weight	80kg
Flame System	
Acetylene air burner	100mm
Ignition dynamic baseline drift	≤0.006Abs/30 min
(Cu) Characteristic viscosity	0.025μg/ml/1%
Related standard accuracy deviation	≤0.5%(Cu, absorbance＞0.8A)(detection limit Cu ≤0.008μg/ml)
Safety system	when pressure is insufficient, the system automatically cut off the gas and power off, flame out and unconformity of the burner
Graphite Furnace	
Temperature upper limit	3000℃
Largest temperature rise speed	≥2000℃/second
Characteristic quantity	Cd≤0.5×10-12g Cu≤0.5×10-11g
Accuracy	Cu≤3% Cd≤3%
Safety system	Over current protection /Low air pressure alarm / protection Low cooling water flow alarm/protection
Size and weight	550mm×450mm×300mm, 65Kg

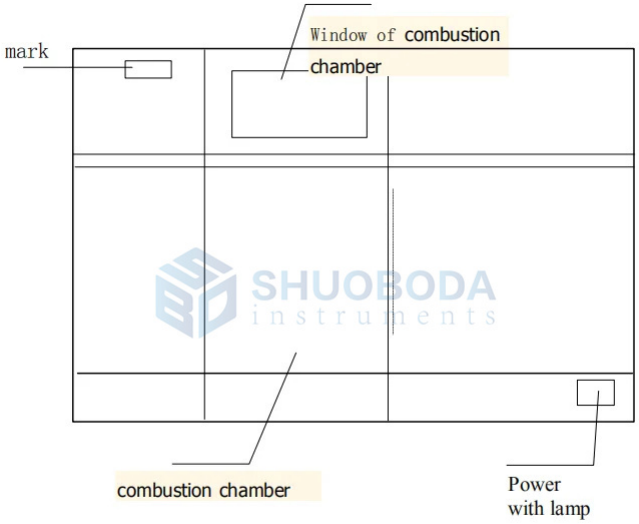


Schematic diagram of ventilation equipment

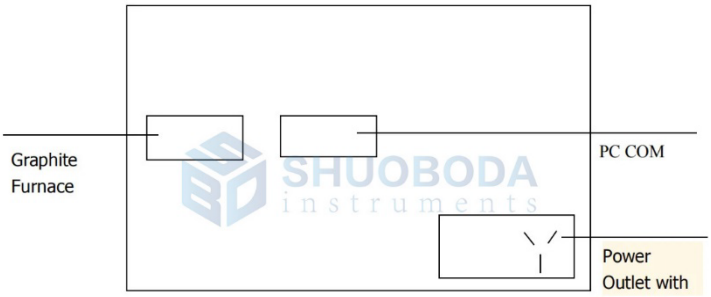


1. Bench 2. power supply of graphite furnace (optional)
3. AAS-320NCRT host 4. PC 5. Printer

Figure 3-1 (A) size of bench



the front view of the host



the back view of the host

software:

1. Applicable to Windows 7 XP 2000 NT
2. Instrument self-test function
3. Password setting function
4. In the method establishment function, the instrument parameters, calibration curve and slope readjustment parameters, and flame atomizer parameters can be set.

Standard Accessory:

5. PC workstation
6. HP inkjet printer
7. Oil free Air compressor
8. Acetylene reducing valve
9. Cu Hollow cathode lamp
10. Air filter

Optional Accessory:

1. Graphite furnace system
2. Graphite furnace autosampler
3. Cooling water circulation machine
4. Hydride generator
5. Hollow cathode lamps of various elements

Product details:

5. AAS-4510 Atomic Absorption Spectrophotometer

Product description:

The AAS-4510 atomic absorption spectrophotometer is a highly automated atomic absorption spectrophotometer that is completely controlled by a PC and can be flexibly equipped with flame and stone black furnace atomizers. Unique optical mechanical design, safe and convenient flame system, advanced graphite furnace temperature control technology, optional buckle background technology, and various convenient functions provided by the workstation can adapt to your pursuit of automated measurement results.

Main feature:

- Compact and exquisite appearance.
- Convenient background subtraction method selection.
- Unique optical design
- Complete automatic control functions can be easily realized with the help of software workstation.
- Advanced graphite furnace temperature control technology
- Safe, reliable and convenient flame system
- Software workstation with various functions
- Convenient conversion of flame/graphite furnace system

Flame system:

- Acetylene air flame burning head: 100mm
- Spray chamber: polypropylene coating
- Characteristic concentration: Cu≤ 0.02μg/ml/1%
- Measurement repeatability: ≤ 0.5%

- Detection limit: Cu≤ 0.006 μ g/ml
- Safety system: Automatically cut off gas when pressure is insufficient, power is interrupted, flameout occurs or the combustion head does not match.

Technical indicators:

- Rotating 4-light light stand
- Wavelength range: 190nm ~ 900nm
- Wavelength indication error: ±0.3nm
- Wavelength repeatability: ≤ 0.15nm
- Absorbance range: -0.1～2.5(A)
- Spectral bandwidth: 0.1nm, 0.2nm, 0.4nm, 1.0nm, 4 levels adjustable
- Baseline stability: ≤ 0.005 A/30min (Cu)
- D2 background correction ability: when the background signal is 1A, the background deduction ability is ≥50 times
- Self-absorbing background subtraction method
- Power supply voltage: AC220V±22V 50Hz±1Hz

Atomic absorption graphite furnace control system

It is used for atomic absorption analysis using flameless heating and is an important supporting equipment for AAS-4530F and AAS-4510F atomic absorption spectrophotometers. It is an instrument specially used to measure trace metal elements. It injects the sample to be tested into a graphite tube, and under the protection of inert gas, the sample is heated at different temperatures to remove the moisture in the sample through the drying stage and the ashing stage to remove matrix interference without losing the measured elements in the original sample. The atomization stage fully atomizes the element to be measured in the sample, allowing the content of the element to be measured in the sample to be measured sensitively and accurately. Afterwards, the residual sample left in the graphite tube is removed through a high-temperature cleaning stage.

The main parameters:

- Number of heating steps: 20 steps

- Nominal temperature: 20℃～3000℃
- Slope heating time: 0s～999s
- Maintain heating time: 1s～999s (the sum of slope heating time and maintaining heating time is not greater than 999s)
- The characteristic amount of Cu in the sample tested online with an atomic absorption instrument is ≤1×10 -11 g.
- Measurement repeatability ≤3% (Cu)
- Required inert gas: argon (purity above 99.99%), inlet pressure is 0.3MPa
- Detection limit: Cd≤1.0x10 g
- Cooling water: tap water or circulating water, water flow rate is not less than 2L/min
- Display mode: The host workstation displays the graphite furnace interface
- With gas pressure under-pressure alarm and furnace overheating alarm functions
- Equipped with RS-232 interface for communication with the atomic absorption host
- With high-power heating function (1500℃～3000℃)
- With manual heating function (1000℃～3000℃)
- Power supply: 220V±22V, 30A, 50Hz, about 5000W at 2700℃
- Size: 280mm×550mm×420mm
- Net weight: 60kg

Optional:

- graphite furnace system
- graphite furnace autosampler
- cooling water circulation machine
- Hydride generator
- Hollow cathode lamps of various elements

Versatile software work

- Software workstation supported by Windows 7/XP/2000/NT.
- The interface display in Chinese is particularly easy to master.
- Rich menu content greatly facilitates customer application.
- Convenient transitions between menus make operation easier.
- Multiple analysis and calibration methods provide users with greater choices.
- Basic default parameter settings allow beginners to operate normally.
- Flexible storage, editing and printing methods provide great support to users.
- Practical online help facilitates users to solve problems in time.

6. AAS-361 Series Atomic Absorption Spectrophotometer

AAS-361MC is a microcomputer type instrument, and the CRT model is connected to a PC data station based on the host computer (MC type).

Main features:

- Rich functions: The computer automatically deducts blank values, automatically deducts sensitivity drift, automatically deducts baseline drift, automatically calculates average values and deviations, automatically calculates working curve equations and reads out concentration values, automatically prints analysis reports, and can also perform flame emission photometry Method, hydride generation atomic absorption method and online enrichment flow injection atomic absorption method analysis. The sensitivity of the latter two reaches the level of graphite furnace, but the price is much lower than that of graphite furnace.
- Simple operation: After setting the conditions, you only need to press the button twice each time to automatically read/print out the absorbance value, concentration value and relative standard deviation. Compared with microcomputer-free instruments, it saves a lot of manual data processing time.
- Stable signal: Using imported high-quality photomultiplier tubes and advanced integrated circuits, single beam optical path, strong light monochromator and high-efficiency atomizer, it has low noise and good precision. The computer logarithmic transformation is accurate, has no temperature drift, and has good baseline stability.
- Expert system: teacher and consultant for beginners (only model 361MC plus data station)
- Corrosion-resistant atomization system: The atomization chamber is made of high-quality engineering plastics, and the burner head is a long-life, fast thermal balance titanium burner head that does not require water cooling but can achieve long-term measurement sensitivity without change.
- High-efficiency atomizer: guarantee of high sensitivity and high reproducibility.
- Fine peak search: The special wavelength fine-tuning mechanism can accurately align the wavelength peak position.
- Continuous slit: The continuous slit mechanism ensures the acquisition of extremely high resolution

and optimal spectral bandwidth.

- Good anti-rust performance: The spray chamber made of pure high-quality engineering plastics completely solves the problems of rust and hydrophilicity.
- Good safety: Equipped with secondary explosion-proof measures, even if the air is interrupted, no accident will occur.
- Complete supporting facilities: It comes with complete supporting facilities and can be used immediately after purchase. A variety of optional matching combinations greatly expand the application scope of this machine.

Technical indicators:

- Wavelength range: 190nm~900nm
- Wavelength indication error: ±0.5nm
- Wavelength repeatability: better than 0.3nm (unidirectional)
- Resolution: Resolve the two spectral lines and trough energy of manganese < 40% (when the spectral bandwidth is 0.2nm)
- Baseline stability: ≤ 0.005 A/30min (Cu)
- Detection limit: ≤ 0.007 μ g/ml (Cu)
- Characteristic concentration: ≤ 0.04 μ g/ml/1% (Cu)

Others:

- Power supply voltage: AC220V±22V 50Hz±1Hz

Model	AAS-361MC	AAS-361CRT
Type	Flame type (air-acetylene), intelligent	
Optical system	Single light speed, C-T type monochromator, grating 1200 lines/mm, blaze wavelength 250nm, continuous spectral bandwidth 0~2nm, relative aperture F/5.4	
Light source system	Two sets of lamp power supplies provide independent power supply, pulse lighting, lamp power supply 0~30mA	
Microcomputer specifications	8031CPU microcontroller, EPROM16KB RAM 8KB	General personal computer (excellent brand machine, multimedia configuration)
Reading form	Four-digit LED digital display, direct reading T.ACRSD; print data and reports, draw working curve recorder (2V, 1V)	Screen display reading: five-digit floating point, direct reading TACRSD; display working curve analysis report; instantaneous recording curve (paperless recorder function
Way of working	Transmittance, atomic absorption method, flame emission method	
Signal form	Continuous reading (instantaneous value), average reading (hold), peak height, peak area	
Concentration calculation method	Linear regression, curve fitting, standard addition method	
Number of standard samples	1~6 pieces	1~8 pieces
Reading preparation time	0~100 seconds, interval 0.1 seconds	0~100 seconds
Integral sampling time	Same as above	Same as above
ruler extension	1~20 times interval	1~20 times
average number of repetitions	1~100 times to get an average value	1~20 times
Result storage	none	have
other functions	Automatic blanking, automatic sensitivity and baseline drift correction, automatic calculation of relative standard deviation, automatic printing of analysis data, working curves, instrument parameter tables, analysis reports, the CBT model can also store the above content in the machine, and has an expert query system , including optimal condition settings, standard sample configuration and interference prompts, providing 8 working curves for comparison and the ability to correct the standard points.	

Gas control	Air acetylene flow pressure indication, secondary explosion-proof, multi-stage imported pressure stabilizing valve to stabilize pressure

7. AAS-320N Atomic Absorption Spectrophotometer

Main features:

- High-energy optical path: Adopt a double-beam total reflection optical system, full-band achromatic, and optically transform the circular spot of the light source into a long spot that enters the slit, thus increasing the luminous flux of the double-beam.
- Reliable baseline stability: The optimized design of the dual-beam system can compensate for light source drift, wavelength drift caused by temperature changes {with the function of eliminating the impact of wavelength drift on baseline stability} and electronic circuit drift. Therefore, it has reliable baseline stability, and the hollow cathode lamp can analyze samples immediately without long warm-up. It is a user instrument for analyzing multiple elements and quickly analyzing samples.
- High precision of measurement: Since the gas circuit system is equipped with precise voltage stabilizing and flow stabilizing devices, the flame is stable, the noise is low, and the uniquely designed fine light speed passes through the flame, ensuring high analytical testing precision and low characteristic concentration.
- Built-in computer data processing and LCD display: It adopts highly integrated micro computerized digital circuit, which is stable and reliable. It has functions such as integral hold, peak height, peak area, automatic zero adjustment, deuterium lamp background, various linear and nonlinear curve fittings, screen display of various parameters and working curves, printing reports, etc. It also has an external personal computer interface.
- Long-life corrosion-resistant atomization system: The combustion head is made of corrosion-resistant, fast-balancing new iron alloy steel material, which can achieve stable measurement sensitivity without water cooling.
- The signal modes include absorbance, concentration, emission, and emission concentration; the standard curve includes linear regression, curve fitting, and multi-point standard calibration; the relevant data of average value, standard deviation, and relative standard deviation can be calculated, and the standard average value can be displayed and printed , standard deviation,

relative standard deviation related data, can display and print standard curve, atomic absorption peak diagram, i-line profile diagram and data, instrument parameter table and analysis report, etc.

- Multifunctional analysis methods: Flame absorption, flame emission, graphite furnace atomic absorption and hydride generation methods can be used.
- Safe and reliable air circuit system: equipped with safety protection devices.
- Complete accessories: It comes with complete accessories and can be used immediately after purchase.
- Optional data collection software.
- AAS-320N CRT Based on AAS-320N, it is equipped with a computer, printer and data processing software. The software has six major functions: element and working mode selection window, condition setting window, sample testing window, file management window, data browsing window and analysis condition library maintenance window.

Technical indicators:

- Optical system: double beam total reflection, C-T monochromator
- Grating: 1800 lines/mm
- Blazing wavelength: 250nm
- Wavelength range: 190nm - 900nm
- Wavelength indication error: ±0.5nm
- Wavelength repeatability: ≤±0.3nm (unidirectional)
- Spectral bandwidth: 0.2nm, 0.4nm, 0.7nm, 1.4nm, 2.4nm, 5.0nm
- Wavelength scanning speed 1.2nm/min; 300nm/min
- Resolution: <40%
- Baseline stability: ±0.005 A/30min
- Characteristic concentration: ≤ 0.04μg/ml/1% (Cu element)
- Detection limit: ≤ 0.007μg/ml (Cu element)
- Background correction capability: greater than 30 times
- Burner: 100mm single-slit titanium alloy
- Sprayer: high-efficiency glass atomizer
- Spray chamber: explosion-proof pre-mixed
- Communication port: RS232 and USB
- Power supply: 220V±22V, 50Hz±1Hz, 200W
- Host size: 1000mm×530mm×425mm
- Net weight: 130kg

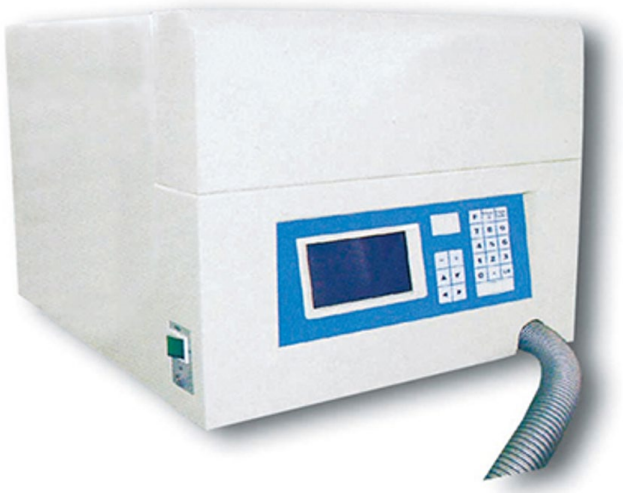
Optional:

- Graphite furnace system
- Hydride generator
- Hollow cathode lamp
- Graphite tube

Model	AAS-320N
Light source system	Hollow cathode lamp power supply: adjustable current; deuterium lamp power supply: fixed current
Optical system	Double-beam total reflection system, C-T monochromator, blaze wavelength 250nm

flame atomic system	100mm unimodal titanium alloy combustion head, gas circuit equipped with pressure indication, high-precision stable pressure flow adjustment, gas cutoff, power cutoff, anti-backfire function and logic interlock protection device
Signal system	It has a built-in microcomputer and LCD display. The signal modes include absorbance, concentration, emission, and emission concentration; the standard curve includes linear regression, curve fitting, and multi-point standard correction; it can calculate relevant data of average value, standard deviation, and relative standard deviation. Can display and print relevant data of standard average value, standard deviation, relative standard deviation, can display and print standard curve, atomic absorption peak diagram, spectral line profile diagram and data, instrument parameter table and analysis report, etc.
Alternate interface	RS232C interface and USB interface
Host power supply	AC220V±22V, 50H±1Hz
Graphite furnace system	For trace and trace level analysis, absolute sensitivity of 10^{-1}~10^{-20} grams
Hydride generator (fully automatic)	Make the characteristic concentration of arsenic, selenium, antimony, bismuth, lead, tin, tellurium, germanium, indium, thallium, cadmium, zinc and other elements below ppb level, with cold atom mercury measurement method
Hollow cathode lamp	Full specifications
Graphite tube	Full specifications

Graphite furnace system



Graphite furnace system is a system specially used for quantitative analysis of trace elements in substances using graphite furnace atomic absorption method. It is an important optional accessory of AAS-320N atomic absorption spectrophotometer.

Main feature:

- Equipped with photoelectric rapid temperature rise and temperature control function, it can be connected to an external data station and display temperature and absorption curves.
- LCD back optical character graphic display. Menu-style operation can memorize the heating program parameters and curves set each time for recall next time.
- A single wiring pipe is connected to the double atomizer conversion device through the furnace body, which greatly facilitates the installation and debugging of the graphite furnace, and can quickly switch between the flame method and the graphite furnace method.
- The system adopts a pneumatic closed structure to ensure constant pressure and reliable contact, and is equipped with overheating, overcurrent, overpower protection and argon pressure monitoring.

Technical indicators:

- Temperature range: 20℃~3000℃
- Light control temperature range: 1500℃~3000℃
- Heating rate: 3000℃/S
- Characteristic quantities of graphite furnace: Cu≤ 1×10 -10g Cd≤ 1×10 -12 g
- Measurement repeatability: Cd≤ 4%
- Detection limit: Cd≤ 1.0×10 -12g
- Power supply voltage: AC220V±22V 50Hz±1Hz
- Rated power: 6000W
- The analytical precision is better than the national standard

Atomic Fluorescence Spectrometer

1. AFS-6200 Atomic Fluorescence Spectrometer

Product Features:

- Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning, automatically determine whether the flow path clean. Reduce the difficulty of users.
- Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules, enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

- The detection limit DL:
  - As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L
  - Hg, Cd <0.001μg / L
  - Ge <0.05μg / L
  - Zn <1.0μg / L
  - Au <3.0μg / L
- Relative standard deviation RSD <0.8%
- Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. Dual-channel, double elements simultaneous measurement
3. Compact design. Upgrade built-in intermittent flow sampling device which the import syringe pumps and peristaltic pump in combination usage.
4. Pinch Valve: abandon the traditional one-way valve, multi-channel valve.
5. Achieve the intermittent injection and continuous injection two injection ways.
6. The peristaltic pump injector automatic switching with injection syringe pump can be achieved
7. Using ten rollers, six channels, each channel can be adjusted independently of dedicated peristaltic pump.
8. The constant current pulse power supply.
9. Can equip trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
10. The high-efficiency gas-liquid separator.
11. The use of new closed second level gas-liquid separator.
12. The use of special air-core coding cathode lamps, automatic identification elements.
13. The unique design of cryogenic shield quartz furnace atomizer.
14. Advanced membrane separation type gas-liquid isolator.
15. Can be upgraded with a 130-bit square plate auto sampler, one key measurement function can be fully automated.
16. Online Optimization of Condition Function: dynamic monitoring, online dynamic adjustment air-core cathode lamps, setting a negative pressure, setting the lamp current, set gas lines.
17. Unique blank cleaning monitoring.
18. The software enables measurement data quickly import to office, network resources sharing.
19. Apply for all software workstation under Windows operating systems.
20. Powerful online expert help system.
21. USB interface and RS232 interface can be chose arbitrarily.
22. Can upgrade atomic fluorescence form analyzer for analysis elemental speciation and valence.

2. AFS-6300 Atomic Fluorescence Spectrometer

Product Features:

1) Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning, automatically determine whether the flow path clean. Reduce the difficulty of users.

2) Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules, enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

The detection limit DL:

As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L

Hg, Cd <0.001μg / L

Ge <0.05μg / L

Zn <1.0μg / L

Au <3.0μg / L

Relative standard deviation RSD <0.8%

Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. Dual-channel, double elements simultaneous measurement
3. Compact design. Upgrade built-in intermittent flow sampling device which the import syringe pumps and peristaltic pump in combination usage.
4. Pinch Valve: abandon the traditional one-way valve, multi-channel valve.

5. Achieve the intermittent injection and continuous injection two injection ways.
6. The peristaltic pump injector automatic switching with injection syringe pump can be achieved
7. Using ten rollers, six channels, each channel can be adjusted independently of dedicated peristaltic pump.
8. The constant current pulse power supply.
9. Can equip trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
10. The high-efficiency gas-liquid separator.
11. The use of new closed second level gas-liquid separator.
12. The use of special air-core coding cathode lamps, automatic identification elements.
13. The unique design of cryogenic shield quartz furnace atomizer.
14. Advanced membrane separation type gas-liquid isolator.
15. Can be upgraded with a 130 bit square plate auto sampler, one key measurement function can be fully automated.
16. Online Optimization of Condition Function: dynamic monitoring, online dynamic adjustment air-core cathode lamps, setting a negative pressure, setting the lamp current, set gas lines.
17. Unique blank cleaning monitoring.
18. The software enables measurement data quickly import to office, network resources sharing.
19. Apply for all software workstation under Windows operating systems.
20. Powerful online expert help system.
21. USB interface and RS232 interface can be chose arbitrarily.
22. Can upgrade atomic fluorescence form analyzer for analysis elemental speciation and valence.

3. AFS-6800 Atomic Fluorescence Spectrometer

Product Features:

1. Design with four Bit lights, automatic identification element lamp, support element lamp preheat , can real-time monitoring working conditions.
2.Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning ,,automatically determine whether the flow path clean. Reduce the difficulty of users.
3. Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules ,enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

The detection limit DL:

As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L
Hg, Cd <0.001μg / L
Ge <0.05μg / L
Zn <1.0μg / L
Au <3.0μg / L

The relative standard deviation RSD <0.8%
Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. The four-bit light and double elements simultaneous measurement.
3. The modular design has independent intellectual property rights.
4. Exclusive with intermittent injection and continuous injection two ways Injection mode automatic switching function.
5. With ten rollers, four channels, each channel can be adjusted independently of dedicated peristaltic pump.

6. Using pulse constant current power supply.
7. Can equip trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
8. The high-efficiency gas-liquid separator.
9. The use of new closed second level gas-liquid separator.10. The use of special air-core coding cathode lamps, automatic identification elements.
11. The unique design of cryogenic shield quartz furnace atomizer.
12. The advanced membrane separation type gas-liquid isolator.
13. The pneumatic system uses an array formula: automatic and accurate control of gas flow.
14. One key operating functions: to achieve fully automated operation, and equip with 130 bit auto sampler and 205 bit auto sampler optional.
15. Intelligent automatic online optimization analysis conditions functions: automatic negative high voltage settings, automatic gas path settings dynamically adjust the air-core line cathode lamps, dynamic monitoring, POST, automatic diagnosis, automatic fault alarm functions.
16. Unique blank cleaning monitoring.
17. The software enables measurement data quickly import to office, network resources sharing.
18. Apply for all software workstation under Windows operating systems, Powerful online expert help system.
19. USB interface and RS232 interface can be chose arbitrarily.
20. Having argon and hydrogen flame and elemental lamp operation state observation window.
21. Can be upgraded to liquid chromatography atomic fluorescence spectrometer, for analysis of elemental speciation and valence.

4. AFS-7800 Atomic Fluorescence Spectrometer

Product Features:

- Design with four Bit lights, automatic identification element lamp, support element lamp preheat , can real-time monitoring working conditions.
- application of industry-leading fifth-generation sequential injection - intermittent flow method for the current atomic fluorescence peristaltic pump injector and injection pump injection in two ways, give full play to their respective advantages, both high reliability (simple structure, low failure rate), rapid measurement speed, precision injection, extend the service life of the injection pump, cleaning time is short and so on. At the same time the exclusive use of the peristaltic pump injector and injection pump injection automatic switching function, when you need to automatically configure the standard curve or the sample concentrations exceeding encounter, automatically switches to the injection pump injection of standard or sample is diluted again after switching to a peristaltic pump injection method continue to measure, which greatly improves the injection pump life, reduce user costs.
- Have an exclusive intermittent injection and continuous injection two ways Injection mode automatic switching function, when your sample is large and require precise measurement, the application software continuous injection method can play a huge advantage, by increase the sampling time to increase the sample volume measurement process to eliminate interference to meet the high requirements of accuracy and stability of the samples measured.
- Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning, automatically determine whether the flow path clean. Reduce the difficulty of users.
- Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules, enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

The detection limit DL:

As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L

Hg, Cd <0.001μg / L

Ge <0.05μg / L
Zn <1.0μg / L
Au <3.0μg / L
The relative standard deviation RSD <0.8%
Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. The four-bit light and double elements simultaneous measurement.
3. The modular design has independent intellectual property rights.
4. Own intellectual property rights of import injection pump and peristaltic pump in combination with a built-in intermittent flow sampling device.
5. Pinch Valve has independent intellectual property rights: abandon the traditional one-way valve and multi-way valve.
6. Exclusive with intermittent injection and continuous injection two ways Injection mode automatic switching function.
7. Exclusive with peristaltic pump injector and injection pump injection automatic switching function.
8. Using ten rollers, four channels, each channel can be adjusted independently of dedicated peristaltic pump.
9. Using pulsed constant current power supply.
10. Can equip with trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
11. The high-efficiency gas-liquid separator.
12. The use of two new closed gas-liquid separator.
13. The use of special air-core coding cathode lamps, automatic identification elements.
14. The unique design of cryogenic shield quartz furnace atomizer.
15. Advanced membrane separation type gas-liquid isolator.
16. The pneumatic system uses an array formula: automatic and accurate control of gas flow.
17. One key operating functions: to achieve fully automated operation, and equip with 130 bit auto sampler and 205 bit auto sampler optional.
18. Intelligent automatic functions online optimization analysis conditions: automatic negative high voltage settings, automatic gas path settings dynamically adjust the air-core line cathode lamps, dynamic monitoring, POST, automatic diagnosis, automatic fault alarm functions.
19. Unique blank cleaning monitoring.
20. The software enables measurement data quickly import to office, network resources sharing.
21. Apply for all software workstation under Windows operating systems, Powerful online expert help system.
22. USB interface and RS232 interface can be chose arbitrarily.
23.Having argon and hydrogen flame and elemental lamp operation state observation window.
24.Can be upgraded to liquid chromatography atomic fluorescence spectrometer, for analysis of elemental speciation and valence.

5. AFS-8750 Atomic Fluorescence Spectrometer

Product Features:

1) industry-leading dual detector and double channel simultaneous detection function, using multiple detection systems corresponding to excitation light sources, independent testing different elements in the sample, optimized, so that the different elements have different optimum measurement conditions, improve the measurement repeatability and accuracy of the measurement , achieve more accurate when a level of concentration differs considerably.

2) application of industry-leading fifth-generation sequential injection - intermittent flow method for the current atomic fluorescence peristaltic pump injector and injection pump injection in two ways, give full play to their respective advantages, both high reliability (simple structure, low failure rate), rapid measurement speed, precision injection, extend the service life of the injection pump, cleaning time is short and so on. At the same time the exclusive use of the peristaltic pump injector and injection pump injection automatic switching function, when you need to automatically configure the standard curve or the sample concentrations exceeding encounter, automatically switches to the injection pump injection of standard or sample is diluted again after switching to a peristaltic pump injection method continue to measure, which greatly improves the injection pump life, reduce user costs.

3) Have an exclusive intermittent injection and continuous injection two ways Injection mode automatic switching function, when your sample is large and require precise measurement, the application software continuous injection method can play a huge advantage, by increase the sampling time to increase the sample volume measurement process to eliminate interference to meet the high requirements of accuracy and stability of the samples measured.

4) Exclusive use of eliminating the inter-channel interference, effectively remove the current channel signal which coupling capacitor storage, eliminating the impact on the next channel signals, to ensure that each data is accurate and reliable.

5) Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning ,,automatically determine whether the flow path clean. Reduce the difficulty of users.

6) Exclusive use of the new syringe cleaning device, cleaning the outer wall of each needle before the measurement, to avoid contamination of carriers to ensure the accuracy of the low concentration of the sample.

7) Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules ,enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

The detection limit DL:

As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L

Hg, Cd <0.001μg / L

Ge <0.05μg / L

Zn <1.0μg / L

Au <3.0μg / L

The relative standard deviation RSD <0.8%

Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. Dual-channel, double elements simultaneous measurement
3. The modular design has independent intellectual property rights.
4. Own intellectual property rights of built-in intermittent flow sampling device which the import syringe pumps and peristaltic pump in combination usage.
5. The solenoid valve has a proprietary application: abandon the traditional one-way valve, multi-channel valve and pinch valve.
6. With independent intellectual property rights of dual detector and double channel simultaneous detection function.
7. Exclusive with intermittent injection and continuous injection two ways Injection mode automatic switching function.
8. Exclusive with peristaltic pump injector and injection pump injection automatic switching function.
9.Have independent intellectual property rights to eliminate inter-channel interference.
10. With independent intellectual property rights of the new syringe cleaning device.
11. Using ten rollers, six channels, each channel can be adjusted independently of dedicated peristaltic pump.
12. The constant current pulse power supply.
13.. Can equip trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
14. The high-efficiency gas-liquid separator.
15. The use of new closed second level gas-liquid separator.
16. The use of special air-core coding cathode lamps, automatic identification elements.
17. The unique design of cryogenic shield quartz furnace atomizer.
18. Advanced membrane separation type gas-liquid isolator.
19. The pneumatic system uses an array formula: automatic and accurate control of gas flow.
20. One key operating function: to achieve fully automated operation, and equip with 145bit auto sampler and 205 bits auto sampler optional.

21. Intelligent automatic functions online optimization analysis conditions: automatic negative high voltage settings, automatic gas path settings dynamically adjust the air-core line cathode lamps, dynamic monitoring, POST, automatic diagnosis, automatic fault alarm functions.
22. Unique blank cleaning monitoring.
23. The software enables measurement data quickly import to office, network resources sharing.
24. Apply for all software workstation under Windows operating systems, Powerful online expert help system.
25. USB interface and RS232 interface can be chose arbitrarily.
26.Having argon and hydrogen flame and elemental lamp operation state observation window.
27.Can be upgraded to liquid chromatography atomic fluorescence spectrometer, for analysis of elemental speciation and valence.

6. AFS-8780 Atomic Fluorescence Spectrometer

Product Features:

1) Exclusive use of the excitation light source drift correction technique, by adding detector for detecting light signal on the same line of the excitation light source the position, by detecting drift excitation light source, the measurement error correction caused by the drift of the light source, completely solve the instrument problems long-term stability of the measurement.

2) Application of industry-leading fifth-generation sequential injection - intermittent flow method for the current atomic fluorescence peristaltic pump injector and injection pump injection in two ways, give full play to their respective advantages, both high reliability (simple structure, low failure rate), rapid measurement speed, precision injection, extend the service life of the injection pump, cleaning time is short and so on. At the same time the exclusive use of the peristaltic pump injector and injection pump injection automatic switching function, when you need to automatically configure the standard curve or the sample concentrations exceeding encounter, automatically switches to the injection pump injection of standard or sample is diluted again after switching to a peristaltic pump injection method continue to measure, which greatly improves the injection pump life, reduce user costs.

3) Have an exclusive intermittent injection and continuous injection are two ways to inject way, when your sample is large and require precise measurement, the application software continuous injection method can play a huge advantage, by increasing sampling time to increase the injection volume to eliminate interference during the measurement, to meet the high requirements of accuracy and stability of the samples measured.

4) The exclusive use eliminates of the inter-channel interference, effectively remove the current channel signal which coupling capacitor storage, eliminating the impact on the next channel signals, to ensure that each data is accurate and reliable.

5) Unique sample blank cleaning monitoring function, full control the sample measurement process, compares reactions between before sampling and after cleaning, automatically determine whether the flow path clean. Reduce the difficulty of users.

6) Exclusive use of the new syringe cleaning device, cleaning the outer wall of each needle before the measurement, to avoid contamination of carriers to ensure the accuracy of the low concentration of the sample.

7) Modular architecture design, CAN bus modular circuit design and modular mechanical design, classify the instrument according to the functions into a plurality of independent modules, enhance reusability and instrument interchangeability between modules, save maintenance costs, reduce system complexity, with system scalability.

Technical Parameters:

The detection limit DL:

As, Se, Pb, Bi, Sb, Te, Sn <0.01μg / L

Hg, Cd <0.001μg / L

Ge <0.05μg / L

Zn <1.0μg / L

Au <3.0μg / L

The relative standard deviation RSD <0.8%

Linear range: more than three orders of magnitude

Features:

1. For twelve kinds of element trace analysis in samples, such as arsenic, mercury, selenium, lead, germanium, tin, antimony, bismuth, cadmium, tellurium, zinc, gold.
2. Triple channels, three elements simultaneous measurement
3. The modular design has independent intellectual property rights.
4. Own intellectual property rights of built-in intermittent flow sampling device which the second generation import syringe pumps and peristaltic pump in combination usage
5. The solenoid valve has a proprietary application: abandon the traditional one-way valve, multi-channel valve and pinch valve.
6. With independent intellectual property rights of dual detector and double channel simultaneous detection function.
7. Exclusive with intermittent injection and continuous injection two ways Injection mode automatic switching function.
8. Exclusive with peristaltic pump injector and injection pump injection automatic switching function.
9.Have independent intellectual property rights to eliminate inter-channel interference.
10. With independent intellectual property rights of the new syringe cleaning device.
11. Using ten rollers, six channels, each channel can be adjusted independently of dedicated peristaltic pump.
12. The constant current pulse power supply.
13.. Can equip trap using hydride generation atomic fluorescence measurement of harmful elements in the exhaust.
14. The high-efficiency gas-liquid separator.
15. The use of new closed second level gas-liquid separator.
16. The use of special air-core coding cathode lamps, automatic identification elements.
17. The unique design of cryogenic shield quartz furnace atomizer.
18. Advanced membrane separation type gas-liquid isolator.
19. The pneumatic system uses an array formula: automatic and accurate control of gas flow.
20. One key operating function: to achieve fully automated operation, and equip with 145bit auto sampler and 205 bits auto sampler optional.

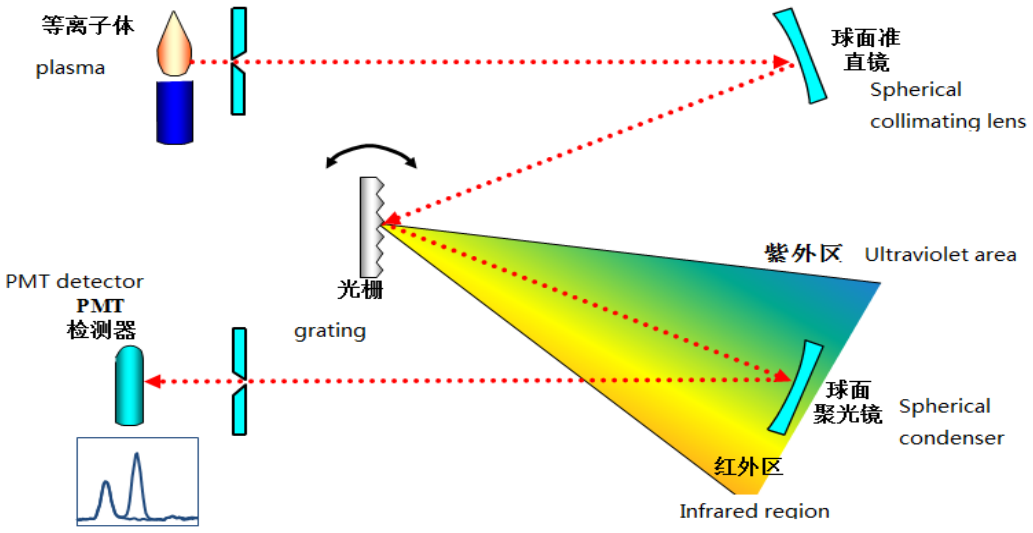
21. Intelligent automatic functions online optimization analysis conditions: automatic negative high voltage settings, automatic gas path settings dynamically adjust the air-core line cathode lamps, dynamic monitoring, POST, automatic diagnosis, automatic fault alarm functions.
22. Unique blank cleaning monitoring.
23. The software enables measurement data quickly import to office, network resources sharing.
24. Apply for all software workstation under Windows operating systems, Powerful online expert help system.
25. USB interface and RS232 interface can be chose arbitrarily.
26.Having argon and hydrogen flame and elemental lamp operation state observation window.
27.Can be upgraded to liquid chromatography atomic fluorescence spectrometer, for analysis of elemental speciation and valence.

ICP-OES/ICP-AES Spectrometers

1. ICP-5000 series Inductively Coupled Plasma Atomic Emission Spectrometer

ICP-5000 series Spectrometer Working Principle

Inductively Coupled Plasma Atomic Emission Spectrometer (ICP-AES) is mainly used for the quantification analysis of metal elements and some non-metallic elements in the liquid sample (including solid sample which can be converted into solution after chemical treatment) . Put the sample solution in the form of an aerosol into the plasma torch flame, the sample is evaporated and the excitation and emission characteristics of the elements contained in the wavelength of light. After splitting system splitting, its spectral intensity accepted by the optoelectronic devices and turned into an electrical signal and have been collected. According to the correspondence between the concentration of elements and the spectral intensity to determine the respective content of the elements in the sample.



ICP-5000 series Spectrometer Features

- Continuously adjustable power, excited solid-state RF power supply, stable performance of the automatic impedance matching, can achieve one key ignition function, users only need a key operation, the instrument automatically purge gas, flow detection, ignition, automatic matching, etc., many other actions, and can deliver real-time information to customers, so that customers peace of mind and save time, and can provide better analytical methods and make analysis easier.
- The use of fine optical system, the advanced electronic control system to ensure accurate positioning of the instrument, and high ratio to ensure the high accuracy and sensitivity of the instrument.
- The key components adopt imported components, to ensure the accuracy and sensitivity of the instrument.
- Precision gas mass flow control system to ensure a more stable gas output, and further improve the analytical accuracy and stability.
- Advanced injection system: Injection system efficient, stable and can be equipped with various domestic and international nebulizer, spray chamber, such as salt spray and a hydrofluoric acid resistant atomizer, to meet different customer needs; by a peristaltic pump to control the waste exclusion, ensure the injection volume and waste exclusion is consistent in speed, to ensure the injection system is stable.
- High Resolution: with an extraordinary advantage in the analysis of complex samples matrix such as rare earth.
- Measuring range: analyze from minim (ppb) to constant.
- Convenient Analysis Software: All Chinese windows operating system interface, powerful, sound analysis software to achieve a fully automated qualitative and quantitative analysis, can generate PDF, Excel, Word and other formats, and make the instrument operation and data processing very convenient.
- Rapid analysis speed: The fastest scanning speed can be up to 20 elements / min, can measure 5-8 elements per minute.
- Multi-element analysis: can do the qualitative and quantitative analysis for 72 kinds of metal elements and some non-metallic elements (P, B, Si, Se, Te).
- Low detection limit: most of the elements in μg / L (ppb) level, some elements can be achieved 0.1ppb.

ICP-5000 series Spectrometers Performance Indicators

Measuring range: a.solution content: 0.01ppm- several thousand ppm;
solid content: 0.001% -70%;
Repeatability: relative standard deviation RSD≤1.5%;
Stability: The relative standard deviation RSD≤2.0%;
The detection limit of the typical elements: Most elements (1-10) ppb;

ICP-5000 Series Core Component Performance Index

Optical System

1) Czerny Turner type spectrophotometer Road
2) Focal length: 1000mm
3) Raster: ion etching holographic grating, groove density 3600L / mm or 2400L / mm;
4) stepper motor driver minimum step: 0.0004nm
5) entrance slit: 20μm exit slit: 18μm
6) Lens: ф30,1: 1 imaging
7) Optical resolution: ≤0.008nm (3600L / mm)
   ≤0.012nm (2400L / mm)
8) Light room temperature control: (30 ± 0.2) ℃

Electronic Measurement and Control System

1) photomultiplier tube specifications: CR293
2) photomultiplier tube negative high voltage: (0-1100) V automatic adjustment, stability <0.05%
3) photomultiplier current measurement range :(~) A
4) signal acquisition: VF conversion

RF Power

1) Automatic impedance matching
2) excited solid-state RF power supply
3) Output power continuously adjustable
4) Frequency: 27.12MHz
5) Power: 800-1600W
6) Output power stability: ≤0.3%
7) power stability: ≦ 0.2%
8) the intensity of electromagnetic radiation leak: 300mm fuselage from the electric field intensity E: <2V / M

Injection System:

1) output working coil: diameter 25mm, 3 turns
2) Torch: 20mm outer diameter quartz torch
3) Nebulizer: nebulizer coaxial outer diameter of 6mm

4) spray chamber: cyclonic spray chamber
5) control of the whole stream using mass flow controller, with US imports of gas mass flow sensor, proportional valve imported from Japan, and a digital control circuit

Computer

1) Hewlett-Packard computer
2) CPU: ≥2.0G
3) Memory: ≥1G
4) Display: 19 inches LCD
5) Hard Drive: ≥500GB
6) Software: ICP-5000 type
7) Integrated LAN
8) Operating System: WINDOWS Genuine
9) by the Hewlett-Packard warranty free onsite service

System software processing system:

1) The latest multimedia configuration, high-speed, large-capacity, multi-tasking processing ability
2) powerful graphics diagnostic features to help customers understand the working status of the instrument, and through the appropriate parameter settings observed under different conditions of the instrument operating conditions, in order to grasp the best observing conditions
3) having a data-re processing function and then
4) with abnormal data filtering capabilities eliminate unwanted
5) automatically calculates the element content, automatically generate test reports, inspection reports can be selected according to user needs, while reports can be saved as Pdf, Word, Excel and other formats, user-friendly analysis

ICP-5000 series spectrometers main configuration

1) Inductively coupled plasma emission spectrometer, one unit
2) The refrigeration cycle of a machine, one unit
3) A power supply, one unit
4) a computer (Hewlett-Packard computer), one unit
5) A laser printer (Hewlett-Packard printers), one unit
6) Random Accessories, one set

Applications

1) rare earth industry: rare earth, non-ferrous metals, high resolution, low detection limit.
2) the silicon industry: silicon materials, magnetic materials processing industry.
3) the metallurgical industry: to analyze the impact of a large mass of metal materials P, Mn, Si, Ni, Mo, Cu, Cr, Al, V, Ti elements.
4) water quality, soil analysis: detects water quality, soil pollution of eight heavy metals and other elements.
5) geology, minerals, non-ferrous metals analysis: Determination of calcium, magnesium, sodium, iron, copper, manganese, zinc, cobalt, nickel, gold, silver and other elements of rock samples.
6) application petrochemical and light industry fields: 30 crude test a variety of elements, mainly Si, Fe, Na, Mg, Ni, V, Ca, Pb, Mo, Mn, Cr, Co, Ba, As, etc. .
7) medical, health, agriculture, environmental protection, trade, food quality testing.

Installation Conditions

8) the instrument normal working conditions: the laboratory clean, dry and free of dust and vibration. Best kept at room temperature for 25 ℃ ± 2 ℃
9) Rooms: about 15 square meters is appropriate, with a standard solution reagent cabinet, computer tables, computer chairs, air conditioning 1.5-2 horsepower.
10) power supply: 220V, 22A, using 4 cm2 wires.
11) grounding: For safety and stability of the instrument, there must be a high-frequency grounding, grounding specific requirements: grounding resistance less than 2 ohms, prohibited the use of the zero line instead of the ground (recommended about 20mm wide, or about 15mm wide copper wire shielding, grounding with 50 × 40 cm2 at the copper buried 1.5m or using 1500mm diameter greater than 15mm long copper grounding, grounding at 1Kg spilled salt and charcoal soaked in water).
12) exhaust: required to install exhaust duct above the host, external chimney with exhaust fan to exhaust gas after combustion ICP outside.
13) Argon: You can use plain argon to 99.99%

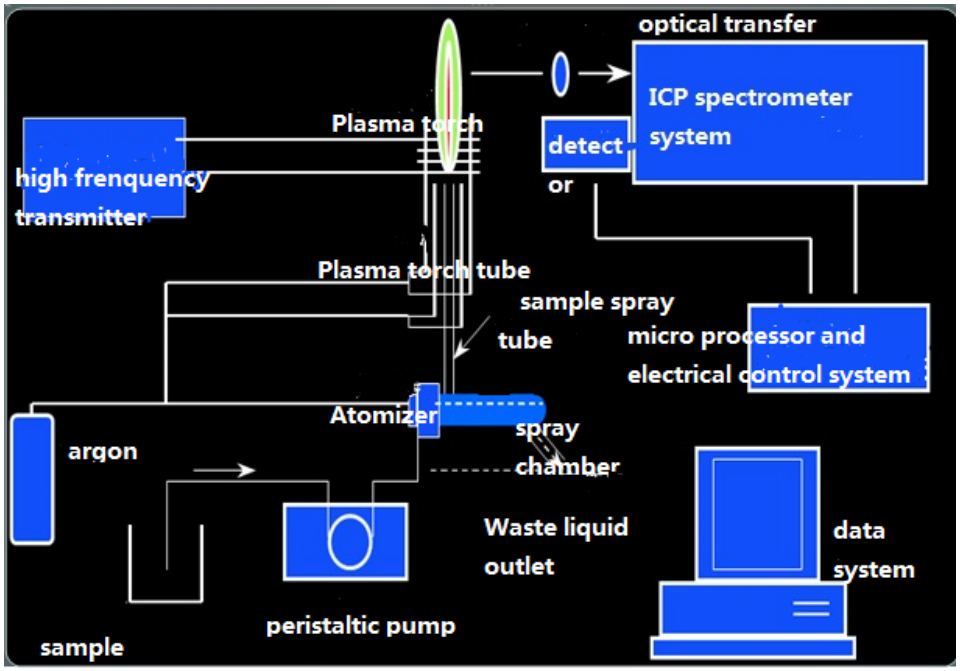
Packing List

Item Name	Qty	Unit	Remark
ICP-5000	1	PC	
Torch	1	PC	
Swirling fog chamber	1	PC	
Hose adapter	2	PCS	Internal diameter 6-2
Hose adapter	4	PCS	Inner diameter 1.6-2.4
Peristaltic pump injection tube	2	PCS	Φ5×Φ2-1m-2×200mm Silicone
Peristaltic pump head hose	3	PCS	Φ1.52×0.86 length 40cm
PVC transparent hose	0.6	meter	8mm×6mm transparent hose
cable	1		3 meters long
Water pipe	10	meter	Material: PU transparent, Φ10 (outer diameter) × Φ6.5mm (inner diameter)
PU hose	10	meter	6×4×1mm
PU hose	10	meter	10×6.5×1.75mm
plastic barrel	1	PC	2L, white, flat square, with cover
Glass fuse tube	2	PCS	Fast-cut type, F0.5A, 250V, Φ5×20mm, no lead
Power Supply	1	PC	
Glass fuse tube	2	PCS	Fast-cut type,F5.0A,250V,Φ5×20mm, no lead
Random data	1	SET	
Brass tube	1	PC	

Copper tape	15	meter	
Argon pressure reducing valve	2	PCS	
Cooling tank	1	PC	AC-2600B
computer	1	PC	
Plug power cord	2	PCS	RVVZ-3P 10A 250V
printer	1	PC	

2. ICP-8100 Inductively Coupled Plasma Emission Spectrometer

Working principle: ICP spectrometer operating principle drawing



Main features and software functions

1. Excellent optical systems, advanced control system: to ensure accurate positioning, good signal-to-background ratio
2. Imported key components: ensure instrument accuracy and sensitivity;
3. Minimum Matrix effect: 99% of the sample without matrix separation;
4. Wide measuring range: analysis from Ultra micro to constant;
5. Multiple elements analysis: 72 kinds of metal elements and some non-metallic elements can be analyzed,;
6. Can do qualitative or quantitative analysis;
7. Convenient analysis software: Based on the Windows XP platform ,the third generation of Chinese or English operating software, making it easier to operate easily, without having to install, software can be used directly, the data processing system to provide a variety of functions, output data can be arbitrarily selected and print.

Unique software advantages

Independent research and develop software with company logo	Increase the standard addition method
Based on windows XP, windows7 windows8, the third-generation multi-window analysis software in English and Chinese	Integral ways: single-point fast, multi-point average, Gaussian curve
multi-window and multitask can do simultaneously	Test methods are: routine testing, normalization, coefficient calculation, standard addition method
Default best analysis mode (no need modification or writting by the analysts), rapid scanning speed, support for laser printers, arbitrarily select the analysis result needed print, and can be printed at the same time.	More user friendly (arranged by analysis step - from left to right - from top to bottom)
Note: ICP as a large precision inorganic analytical instrument, its software operation and hardware of the instrument itself are the same important. The software without company logo is the earliest one , cannot be upgraded ,the operation speed is the slowest and few function. It is the theft of my company's software.	

Instrument overall performance index:

- Wavelength range: 180-800nm (2400 raster) 180-500nm (3600 raster)
- Resolution: in the 180-800nm full band, resolution can reach 0.006nm
- Wavelength indication error and repeatability: Wavelength indication error ≤0.02nm, repeatability ≤0.003nm
- Scanning pitches: 0.0004nm
- Precision: RSD≤1.50%;
- Stability: RSD≤2%
- The detection limit (ie minimum measurement range): PPB level
- Elements Analysis range: all elements except C, S and other lightweight non-metallic elements and part of the radioactive metallic element
- The linear range: seven magnitude or more, and low self-priming effect
- Analysis speed: scans 25 elements or more per minute
- Certificates: National measurement equipment Class A certificate

The main parts detailed parameters

A radio frequency generator (RF)

Circuit Type	Self-excited oscillation inductance feedback circuit	Output Power	800--1200W
working frequency	40.68MHz ± 0.05%	Output power stability	≤0.3%
Frequency Stability	<0.1%	Leakage of electromagnetic fields emitted intensity	30cm at E＜1V / m

Injection Device

Output working coil	An inner diameter of 25mm, 3 turns
Torches	Three concentric outer diameters of 20mm quartz torch
Coaxial sprayer	outer diameter 6mm, special requirements can be customized
Binocular-type spray chamber	An outer diameter 34mm, special requirements can be customized
Observation position	vertical

Argon gas flow meters and gas carrier pressure gauges Specifications

Plasma gas flow meter	Auxiliary gas flow meter	The gas carrier flow meter	The carrier gas regulator valve	Cooling water
(100 — 1000)L/h (1.6 — 16L/min)	(1-100)L/h (0.16-1.66L/min	(10-100)L/h (0.16 — 1.66L/min)	0-0.4Mpa)L/h	Water temperature： 15 — 25℃ gas flow＞5L/min water pressure ＞ 0.1Mpa cooling water：Resistivity＞1MΩ

Splitter

Light path	Czerny—Turner		Scan Step	0.0004nm
focal length	1000mm		Exit, entrance slit	20μm×25μm
Grating Specifications	Ion etching holographic grating	Groove density of 3600 lines / mm, groove area: 80 × 110mm (or groove density)	Reflector Specifications (optional specifications)	（78×105×16）mm
		2400 lines / mm, groove area: 80 × 110mm)	lens	φ30，1:1 imaging
Reciprocal linear dispersion rate	0.26nm/mm		Reflector Specifications	Concave
Resolution	≤0.006nmFull band		Splitter thermostat	26℃±1℃
Scan wavelength range	180-500nm，3600 Line / mm			
	180-800nm，2400 Line / mm			

Metering Device

Photomultiplier tube specifications	R212UH or R928	Sampling circuit	The use of foreign high-precision operational amplifier, the instrument sensitivity and accuracy greatly improved

Photomultiplier tube negative high voltage	0-1000V, automatic adjustment, the stability of <0.05%	Instruments data acquisition	Connected to the computer via serial port, thereby simplifying the circuit to make connection easier
Photomultiplier tube current measuring range	10-12 ~ 10-4 A specifications optional	Metering method	Single and multi-element sequential measurement, single-pass scan
Signal acquisition of V / F exchange	1mV corresponds to 100Hz		

Customer Advantages

The manufacturer with most foreign customers (Russia, Vietnam, Mexico, South Africa, Zimbabwe, the United Arab Emirates), almost domestic testing institutions also choose our instruments (including: the 389 plant of 6th Aerospace Institute , Shenzhen Tyco testing Ltd., Academy of Architectural Sciences of Shenzhen, Guangzhou Building materials Research Institute, Inner Mongolia metallurgical Research Institute, China Institute of Agricultural Sciences, etc.), as well as some famous universities (Tsinghua University, Jiangxi University of Science, Xiamen Chemical Engineering, , Changsha Normal University and so on.

Starting from 2000, based on French JY company technology, specializing in the production ICP spectrometer. Having a group of professionals who engaged in the ICP spectrometer at the earliest in domestic, guaranteed by their rich working experience and enthusiasm, and improve services we are dedicated to provide high-precision, sensitivity and good stability of the plasma emission spectrometer product.

Having most domestic and overseas customers

Engineer Wang taken photo with Russia customer

Israeli customer using our equipment at his own laboratory

Engineer Tan gave a training in Zimbabwe

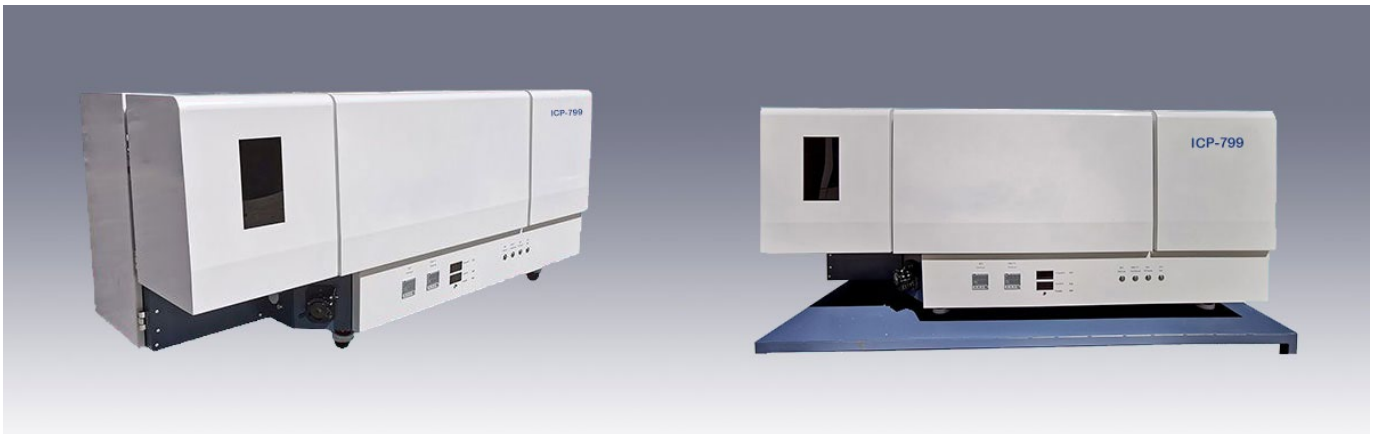
Dubai customer came to visit our company

Packing List

Item	Instrument Name	Details	Qty	Unit
1	Host	ICP-8100 Inductively Coupled Plasma Emission Spectrometer Host	1	set
		Czerny—Turner Ion e tched holographic grating	1	set
		stepping motor	1	set
		Photomultiplier tube PMT	1	set
		electronic control system	1	set
		Inductance feedback self-excited oscillation circuit	1	set
		RF generator	1	set
		atomizer	2	pcs
		Spray chamber	2	pcs

		Torque tube	2	pcs
		Scanning spectrometer	1	set
		Gas controller	1	set
		Cooling air flow meter	1	pcs
		Auxiliary gas flow meter	1	pcs
		Carrier gas flow meter	1	pcs
		Incident slit	1	set
		Exit slit	1	set
		Optical path control device	1	set
		Main power cable	1	pcs
		Main power socket	1	pcs
		Sample operation platform	1	set
		Flame observation window	1	set
		Flame regulator	1	set
		High-frequency power	1	set
		Power protector	1	set
		Optical path protection gas	1	set
2	Constant temperature system	YT-1800 Intelligent temperature control cooling circulating water tank	1	set
		Circulating water pump	1	set
		Circulating water tank air conditioner	1	set
3	Analysis software	ICP analysis software	1	set
		Analytical methods: a complete set of methods used by the unit		
		Analysis mode: software default optimal analysis mode, with the instrument diagnosis, spectrum analysis and several measurement methods and several kinds of integration mode, the unit is optional		
4	Computer	Lenovo Qitian M7150	1	set
		Display: 19 inch LCD	1	set
		Other: sound card, network card, DVD CD-ROM	1	set
5	Printer	HP1007Laser Printer	1	set
6	Exhaust system	Axial flow fan	1	set

3. ICP-799 Inductively Coupled Plasma Emission Spectrometer



Product introduction

The ICP-799 inductively coupled plasma emission spectrometer has the characteristics of fast testing speed, wide measurement range, and accurate and reliable analysis results. Due to the use of computer technology, the intelligence of the instrument, the collection and processing of pictures and texts displayed on the screen, and data have all reached advanced levels, making it an ideal analytical instrument for many industries.

Application scope:

As a large precision analytical instrument, ICP spectrometer is widely used in

1. Metallurgical industry: steel and its alloys: including carbon steel, cast iron, alloy steel, high-purity steel, Si and SiFe alloys, ferroalloys, etc.
2. Non-ferrous metals and their alloys: including non-ferrous metals (high-purity metals) and their alloys, rare metals and their alloys, precious metals, rare earths (concentrates, roasted ores, oxides, carbonates, oxalates, chlorides, Fluoride, metal, alloy, NdFeB, local, and its alloys, compounds, etc.
3. Geological and mineral samples: geological samples, ores and minerals.

Detailed description and working principle

ICP plasma reflection spectrometer consists of monochromator, radio frequency generator, sample introduction system, photoelectric conversion, control system, data processing system, and analysis operation software. The plasma is generated in a triple concentric quartz torch. Argon gas is introduced into the torch in a tangential direction, and a copper load coil is wound around the upper part of the torch (cooling water is passed internally). When the high-frequency current generated by the high-frequency generator (operating frequency 40MHz and power about 1KW) passes through the coil, the surrounding The alternating magnetic field ionizes a small amount of argon gas to produce electrons and ions. Under the action of the magnetic field, it accelerates and collides with other neutral atoms to produce more electrons and ions. An eddy current is formed in the torch, and a plasma torch is formed under the action of the electric spark (That is, plasma), the temperature of this plasma can reach more than 10,000K. The aqueous solution to be measured forms an aerosol through the sprayer and enters the central channel of the quartz torch. Atoms are ionized under the influence of external energy, but atoms in the excited state are very unstable. When they transition from a higher energy level to the ground state, they will release huge energy. This energy is radiated in the form of electromagnetic waves of a certain wavelength. Different elements produce different characteristic spectra. These characteristic spectra are projected onto

the grating in the spectrometer through the lens. The calculation controls the stepper motor to rotate the grating. The transmission mechanism accurately positions the light intensity of the characteristic spectral line of the element to be measured after spectroscopy at the exit slit. The photomultiplier tube will The light intensity of the spectral line is converted into current, and then processed by the circuit and V/F conversion, the data is processed by the computer, and the analysis results are finally printed out by the printer.

Instrument features:

1) Using the latest electronic circuits, the power stability is better, the output power is automatically matched, and the power parameters are programmed;
2) Smaller size and lighter weight (the actual size of the instrument is 1500mm long × 590mm wide × 640mm high);
3) Excellent optical system and advanced control system ensure accurate peak positioning and excellent signal-to-background ratio;
4) Minimal matrix effect, high spectral line resolution, able to separate Hg313.154 and 313.183nm double spectral lines, and can separate iron quartet peaks;
5) Wide measurement range, analysis from ultra-trace to constant, dynamic linear range of 5-6 orders of magnitude; qualitative and quantitative analysis can be achieved;
6) The Rf output power range is 750-1600W, the output power stability is less than 0.1%, and the detection limit is low. The detection limit of most elements can reach the ppb level;
7) The negative high voltage of the photomultiplier tube can be independently adjusted within the range of 0-1000v, and the conditions can be set independently according to the different spectral lines of different elements, which has a better detection limit compared with full-spectrum instruments;
8) Good measurement accuracy, stability relative standard deviation RSD ≤ 1.5%, better than the national A-level standard.
9) The powerful and friendly human-machine interface analysis software can perform data processing, method preparation and result analysis during the measurement process. It is a true multi-tasking software; the software has powerful data processing functions and provides a variety of methods. Such as internal standard calibration, IECS and QC monitoring functions, etc., can obtain the best background subtraction point to eliminate interference; the output data can be printed directly or automatically generate a result report in Excel format, with lifetime free upgrades;
10) Use cymbal-copper shrapnel and specially treated shielding glass to absorb ultraviolet rays while keeping the instrument's radiation to less than 2V/m. Use high shielding and good grounding to ensure operator safety.
11) Detect water pressure and air pressure at any time, and automatically protect when appropriate.

Machine technical indicators

(1) The analysis speed is fast. More than 15 elements can be scanned in one minute.
(2) Scanning range 4320r/mm Scanning range 180-442.5nm Full-band resolution <0.006nm
3600 lines/mm scanning range 180~530nm, full-band resolution <0.007nm
2400 lines/mm scanning range 180~800nm, full-band resolution ≤0.009nm
The method is a sine rod, driven by a computer-controlled pulse motor, with a minimum scanning step of 0.0003nm.
(3) Wavelength indication error and repeatability: Wavelength indication error: ≤ ± 0.02nm Repeatability ≤ 0.003nm
(4) Correlation coefficient ≥0.9998%

(5) Repeatability: Relative standard deviation RSD≤1.5%
(6) Stability: Relative standard deviation RSD≤2.0%
(7) Measuring range: ultra-trace to constant
(8) The detection limit is as low as ppb (ug/L) level (see Appendix 1 for the detection limits of some elements)
(9) There are many elements to be analyzed, and 70 kinds of metallic elements and some non-metallic elements (such as B, P, Si, Se, Te) can be quantitatively or qualitatively analyzed.
(10) Measurement method Sequential measurement
(11) Power 750W—1500W adjustable

4. ICP-899 Inductively Coupled Plasma Emission Spectrometer

Product introduction

The ICP-899 inductively coupled plasma emission spectrometer is a high-tech product that integrates optical, mechanical, electrical, computer, and analytical technologies. It has the characteristics of fast testing speed, wide measurement range, and accurate and reliable analysis results. Due to the use of computer technology, the intelligence of the instrument, the collection and processing of pictures and texts displayed on the screen, and data have all reached advanced levels, making it an ideal analytical instrument for many industries.

Application

1. Water quality samples: drinking water, surface water, wastewater, mineralized water, electroplating solution and wastewater.
2. Environmental samples: soil, atmospheric dust, fly ash.
3. Analysis of inorganic non-metallic materials.
4. Medicine and health: Only 20ul blood sample/0.1000g hair sample is needed to detect the element content of Ca, Mg, Cu, Pb, Cd, Fe, Mn, Se and Zn.
5. Chemical products: chemical reagents (various synthetic reagents such as hydrochloric acid, nitric acid, sulfuric acid, phosphoric acid, hydrofluoric acid, etc.), chemical products (representative products such as saturated sodium chloride solution,) inorganic materials, cosmetics, oils (gasoline, diesel and its raw materials), petroleum catalysts, urea solutions, coatings, etc.
6. Agricultural and sideline products: metal element analysis of grains, oils, seafood, food and beverages
7. Animal, plant and biochemical samples: plants, traditional Chinese medicine and animal tissues, biochemical samples
8. Nuclear industry products: nuclear fuel analysis, nuclear materials
9. Others

Detailed description and working principle

ICP plasma reflection spectrometer consists of monochromator, radio frequency generator, sample introduction system, photoelectric conversion, control system, data processing system, and analysis operation software. The plasma is generated in a triple concentric quartz torch. Argon gas is introduced into the torch in a tangential direction, and a copper load coil is wound around the upper part of the torch (cooling water is passed internally). When the high-frequency current generated by the high-frequency generator (operating frequency 40MHz and power about 1KW)

passes through the coil, the surrounding The alternating magnetic field ionizes a small amount of argon gas to produce electrons and ions. Under the action of the magnetic field, it accelerates and collides with other neutral atoms to produce more electrons and ions. An eddy current is formed in the torch, and a plasma torch is formed under the action of the electric spark (That is, plasma), the temperature of this plasma can reach more than 10,000K. The aqueous solution to be measured forms an aerosol through the sprayer and enters the central channel of the quartz torch. Atoms are ionized under the influence of external energy, but atoms in the excited state are very unstable. When they transition from a higher energy level to the ground state, they will release huge energy. This energy is radiated in the form of electromagnetic waves of a certain wavelength. Different elements produce different characteristic spectra. These characteristic spectra are projected onto the grating in the spectrometer through the lens. The calculation controls the stepper motor to rotate the grating. The transmission mechanism accurately positions the light intensity of the characteristic spectral line of the element to be measured after spectroscopy at the exit slit. The photomultiplier tube will The light intensity of the spectral line is converted into current, and then processed by the circuit and V/F conversion, the data is processed by the computer, and the analysis results are finally printed out by the printer.

Instrument features:

1) Using the latest electronic circuits, the power stability is better, the output power is automatically matched, and the power parameters are programmed;
2) Smaller size and lighter weight (the actual size of the instrument is 1500mm long × 590mm wide × 640mm high);
3) Excellent optical system and advanced control system ensure accurate peak positioning and excellent signal-to-background ratio;
4) Minimal matrix effect, high spectral line resolution, able to separate Hg313.154 and 313.183nm double spectral lines, and can separate iron quartet peaks;
5) Wide measurement range, analysis from ultra-trace to constant, dynamic linear range of 5-6 orders of magnitude; qualitative and quantitative analysis can be achieved;
6) The Rf output power range is 750-1600W, the output power stability is less than 0.1%, and the detection limit is low. The detection limit of most elements can reach the ppb level;
7) The negative high voltage of the photomultiplier tube can be independently adjusted within the range of 0-1000v, and the conditions can be set independently according to the different spectral lines of different elements, which has a better detection limit compared with full-spectrum instruments;
8) Good measurement accuracy, stability relative standard deviation RSD ⩽ 1.5%, better than the national A-level standard.
9) The powerful and friendly human-machine interface analysis software can perform data processing, method preparation and result analysis during the measurement process. It is a true multi-tasking software; the software has powerful data processing functions and provides a variety of methods. Such as internal standard calibration, IECS and QC monitoring functions, etc., can obtain the best background subtraction point to eliminate interference; the output data can be printed directly or automatically generate a result report in Excel format, with lifetime free upgrades;
10) Use cymbal-copper shrapnel and specially treated shielding glass to absorb ultraviolet rays while keeping the instrument's radiation to less than 2V/m. Use high shielding and good grounding to ensure operator safety.
11) Detect water pressure and air pressure at any time, and automatically protect when appropriate.

Technical indicators

(1) The analysis speed is fast. More than 15 elements can be scanned in one minute.
(2) Scanning range 4320r/mm Scanning range 180-442.5nm Full-band resolution <0.006nm
3600 lines/mm scanning range 180~530nm, full-band resolution <0.007nm
2400 lines/mm scanning range 180~800nm, full-band resolution ≤0.009nm

5. ICP-MS 2000 Inductively Coupled Plasma Mass Spectrometry

Introduction:

Inductively Coupled Plasma Mass Spectrometry(ICP-MS),has a microscale(10^{-6}), trace(10^{-9})、ultra trace(10^{-12}) element analyses technique. It can analyze most of the elements in the periodic table. It has very low detection limit, wide trends linearity range, lew interference, high accuracy, high analyzed speed, and it also can analyze isotope.

ICP-MS2000 is the first inductively coupled plasma mass spectrometer in China. It can satisfy the clientele requirements and has high performance-price ratio. It mainly applies to environmental、foodstuff、 semiconductor, medicine and physiological analysis、 nuke industry etc.

Instrument features:

- Open-type inlet system, plug-in installing atomizer, self-positioning, maintain easily by customer
- The network interface for serial inductance, enhanced resistance to interference, improve the data transmission efficienc0and stability
- Very kinds of protect function
- The software is easy operated. No special training
- The ion lens, Quadrupole are easily installing, dismantling and maintain
- Perfectly technique of electromagnetic shielding can reduce electromagnetic interference (EM)0Consuming material of instrument is developed by shuoboda itself, it is cost-effective
- Hich grade sale service10minutes respond,48hours door-to-door service, customer service center follow-up service at all times、ensure service quality

Product performance superiority:

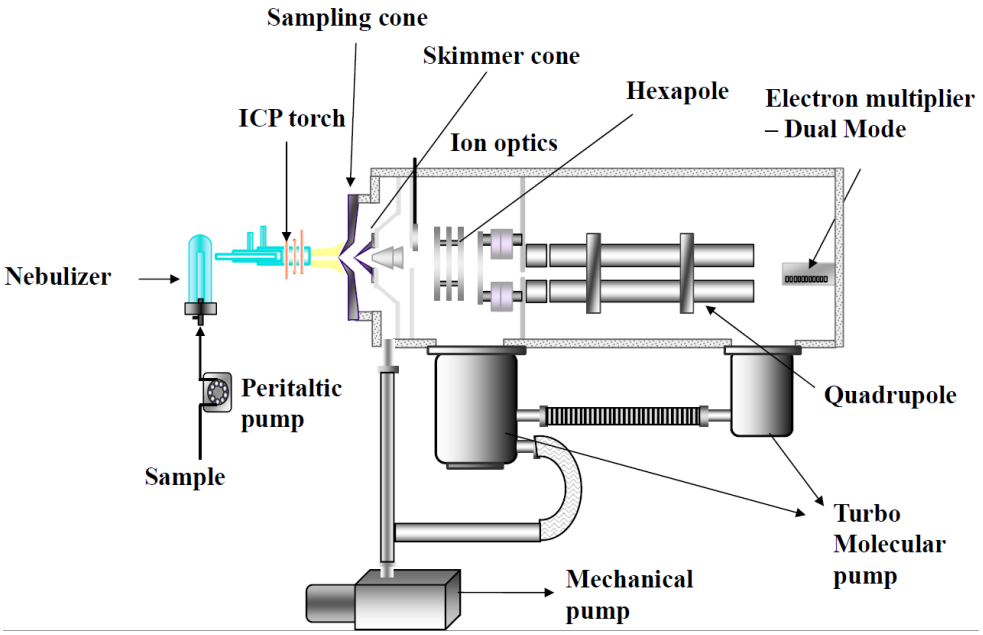
- Quick analyze speed, simple operate, high sensitivity, low background noise, good effect of eliminating interference, easy maintain
- OneClick plasma setting made plasma optimizing more convenient and excellent reproducibility
- Advanced plasma shielding Technology greatly improve the instrument response rate and limit of

low mass number, achieve ppt level

- It has particular Activity connector structure, and it can replace, install, dismantling sampling cone and skimmer cone in empty space, it's convenient for daily maintenance
- The ion efficiency of transmission and eliminate interference capability of polyatomic ion is improved by using the hexapole collision cell
- It doesn't need Digital/Analogue Conversion, controlled by computer and can achieve consistence dynamic range to 9 orders of magnitude
- The new type Vacuum Chambers structure has no wire to connect. Each module uses dissymmetric(al) and plug-in installing

Main apply field:

- Environment field: drinking water、seawater、 environment water resource foodstuff、hygiene and disease control, commodity inspection etc.
- Semiconductor field: high pure metal, high purity reagent, ultra trace impurity of Si wafe, photoresist etc.
- Medicine and physiological analysis field: Medical Research of hair、 whole blood、 serum、 urine sample, biological organization etc. Especially the test of Pb in whole blood
- Nuke industry field: analysis of nuclear fuel radioisotope, pollution of Primary cooling water etc.
- Other field: as chemical industry, lithification, geology etc.



Technical parameters:

- Mass range:2~255 amu
- Linear range: ⩾108
- Sensitivity: Be⩾2x10⁶, In⩾35x10⁶, U⩾30x10⁶ unit (cps/mg/L)
- Detection limit: Be⩽10; In⩽ 2;U⩽2 unit(ng/L)
- Resolution:0.6~0.8 amu
- SNR(Signal to Noise Ratio): ⩾50x10⁶
- Background noise: ⩽2 cps (all mass number range)
- Mass axis stability: ⩽0.05 amu/24 h
- Stability RSD: short period⩽3%; long time⩽4%
- Oxide ion: CeO^+/Ce^+⩽3%

- Divalent ions.$^{69}Ba^{2+}/^{138}Ba$ ≤3%
- Isotope ratio: ($^{107}Ag/^{109}Ag$) ≤0.3%
- Abundance sensitivity: ≤1x10^{-6} low mass number; ≤5x10^{-7} high mass number

Software advantage:

ICP-MS2000 provides the most convenient operating software, very intuitive, comprehensive. The software contains all current analysis methods, including a special isotope ratio and isotope dilution method.

Intelligent selection method, intelligent instrument tuning, QC, various analysis methods combination function, sequence analysis, the function of automatic monitoring, custom report format.

Shuoboda Instruments (Hunan) Co., ltd

Building 4, Hunan Scientific Research Achievement Transformation Center Building, Longping High tech Park, Furong District, Changsha City, Hunan Province,China
Mobile/WeChat/WhatsApp:+86 17375888190
Email: shuoboda@gmail.com
Website: www.shuoboda.com